UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

NORTH AMERICAN	**)**	**Docket Nos.**	**RM05-17-000**
ELECTRIC RELIABILITY CORPORATION	**)**		**RM05-25-000**
	)		**RM06-16-000**

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION INFORMATIONAL FILING OF 2010 DEVELOPMENT PLAN PURSUANT TO SECTION 310 OF THE NERC RULES OF PROCEDURE

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EXHIBIT B: Complete Development Record for the *Reliability Standards Development Plan: 2010–2012*

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NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION
2010 DEVELOPMENT PLAN
PURSUANT TO SECTION 310 OF THE NERC RULES OF PROCRDURE

I. INTRODUCTION

The North American Electric Reliability Corporation ("NERC") hereby submits to the Federal Energy Regulatory Commission ("FERC") for informational purposes its revised Reliability Standards Development Plan in accordance with Section 310 of the NERC Rules of Procedure. The *Reliability Standards Development Plan: 2010–2012* ("2010 Development Plan"), is included as **Exhibit A**. The complete development record for the 2010 Development Plan is included as **Exhibit B.**

II. NOTICES AND COMMUNICATIONS

Notices and communications with respect to this filing may be addressed to the following:

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III. BACKGROUND

In 2006, NERC developed an initial version of the plan for Reliability Standards development entitled the *Reliability Standards Development Plan: 2007–2009*. NERC has since updated the plan annually, and the 2010–2012 version is presented in this filing. The 2010 Development Plan serves as a management tool to guide and coordinate the development of Reliability Standards and provide benchmarks for assessing progress. The 2010 Development Plan also serves as a communications tool for coordinating standards development work with applicable governmental agencies in the United States and Canada, and for engaging stakeholders in standards development. The plan further provides a base for developing annual plans and budgets for the standards program. Consistent with the three previous versions of the plan, the 2010 Development Plan is filed for informational purposes. No specific FERC action is requested at this time.

The 2010 Development Plan builds upon the foundation established by the previous plans and identifies the current plans for development and modification of NERC Reliability Standards. In particular, the 2010 version of the plan identifies projects that continue the work on NERC Reliability Standards embodied in Order No. 693 and subsequent FERC Orders.

The 2010 Development Plan, included as **Exhibit A**, is organized into three volumes:

- Volume I provides a summary overview of the 2010 Development Plan and identifies significant modifications to the 2009 plan.
- Volume II details the specific standards development projects.
- Volume III summarizes the expected Regional Entity standards development activity anticipated during the three year period contemplated by the plan.

The complete development record for the 2010 Development Plan is included as **Exhibit B.**

The discussions that follow are intended to inform FERC and other regulators of the significant changes to the content of the 2009 plan that led to the 2010 Development Plan as presented, to provide insight into changes in project timelines and completion dates that are reflected in the 2010 Development Plan, and to present a summary of stakeholder comments that were used, in part, to develop the revised 2010 Development Plan.

A. Significant 2010 Development Plan Revisions

i. General Revisions

This section provides a summary of significant revisions to the *Reliability Standards Development Plan: 2010–2012* relative to the 2009 plan. The 2010 Development Plan includes 37 projects, two fewer than the 39 projects identified in the 2009 version of the plan.

Projects Removed/Completed

Seven projects in the previous version of the plan were completed in 2009 and were removed from the 2010 Development Plan. These completed projects are:

Projects initiated in 2006:
2006-01 System Personnel Training
2006-03 System Restoration and Blackstart
2006-07 Transfer Capabilities: ATC, TTC, CBM, and TRM
2006-09 Facility Ratings

Projects initiated in 2007:
2007-14 Permanent Changes to CI Timing Table
2007-23 Violation Severity Levels

Projects initiated in 2008:
2008-08 EOP Violation Severity Levels Revisions

Project Removed/SAR Withdrawn

One project, Project 2008-05 — Credible Multiple Element Contingencies, identified in the 2009 plan, was removed from the 2010 Development Plan because the Standard Authorization Request ("SAR") for the project was withdrawn.

Project Realigned from 2011 to 2012

The 2010 Development Plan also realigns one project, Project 2012-01 — Equipment Monitoring and Diagnostic Devices. This project was moved from 2011 to 2012 to ensure that NERC and industry resources are available to support Project 2010-06 Results-based Reliability Standards. As such, no new projects are planned for initiation in 2011.

New Projects

Six projects are new to the 2010 Development Plan. These new projects are:

Projects initiated in 2009:
2009-06 Facility Ratings
2009-07 Reliability of Protection Systems
2009-18 Withdraw Three Midwest ISO Waivers[1]

Projects anticipated commencing in 2010:
2010-06 Results-based Reliability Standards
2010-07 Generator Requirements at the Transmission Interface

Projects anticipated commencing in 2012:
2012-02 Physical Protection

In preparing the 2010 Development Plan, NERC staff reached out to stakeholders and asked for input regarding the 2009 version of the plan. Several stakeholders voiced a concern that had been expressed in the preceding two years, that there were too many projects under development concurrently. Commenters noted that providing support for the large number of projects under development is straining the industry's ability to properly resource the development activities. Commenters recommended that the plan focus industry resources on the projects having the greatest impact on reliability in the near-term, while deferring those of less immediate reliability benefit.

NERC received similar comments during the development of NERC's Three-year Assessment of its performance as the Electric Reliability Organization. In response to the

[1] At the time the *Reliability Standards Development Plan: 2010-2012* was being finalized, Project 2009-18 Withdraw Three Midwest ISO Waivers was an active project. The revisions successfully completed initial ballot without negative comment and thus no recirculation ballot was necessary, thereby shortening the expected timeline. As a result, the project was completed in 2009 instead of 2010 as contemplated by the plan.

opportunity to comment on the assessment, several stakeholders recommended that the industry focus existing Reliability Standards and Reliability Standards Development on areas that will lead to the greatest improvement in bulk power system reliability. Suggestions included: (1) focusing development of new Reliability Standards on those that will lead to the greatest improvement in reliability; *i.e.*, addressing the greatest risks of wide-area cascading outages; (2) reducing the number of existing Reliability Standards to include only those that have a critical impact on reliability of the bulk power system, and converting the remaining Reliability Standards to guidelines; and (3) developing a more systematic process for prioritizing new Reliability Standards development projects based on risks to the bulk power system. Accordingly, the 2010 Development Plan establishes a new project ("Project 2010-06 Results-Based Reliability Standards") aimed at better focusing the development of NERC Reliability Standards on reliability performance and reliability outcomes.

NERC staff also considered the anticipated volume of industry requests for interpretations in determining projects to be included in the 2010 Development Plan. The number of projects proposed for any particular year is directly impacted by the number of formal requests for interpretations submitted by the industry. Requests for interpretations of NERC Reliability Standards are projected to increase until the review and revision of the Version 0 and some Version 1 standards is completed. The volume of interpretation requests has been steadily increasing: two in 2006; nine in 2007, and eight in 2008. For 2009, 14 requests for interpretation have been submitted, with an estimated eleven more expected before year-end, for a total of twenty-five. Based on current trends, approximately 30 interpretations are predicted in 2010. To accommodate this volume of work, the 2010 Development Plan is based on the projected effort necessary from NERC staff and industry resources to support the development of the draft interpretations, in addition to the standards development projects outlined in the plan.

ii. Other Modifications

In conjunction with this year's effort to prepare the 2010 Development Plan, NERC staff incorporated pending items and issues in what is termed the "NERC Standards Issues Database" ("Issues Database"). The Issues Database was developed informally by NERC standards staff to track issues and concerns identified with a particular standard. These issues were then used in part to populate the "Issues to be Considered by the Standard Drafting Team" tables included for each project in Volume II of the 2010 Development Plan. The projects in Volume II were revised to include all issues identified to date.

NERC has also developed specific initiatives related to compliance monitoring and enforcement, reliability assessment and performance analysis, and event analysis to identify possible "high impact" Reliability Standard development projects that may have significant impact on the reliability of the bulk power system. System events tracked for the last three years have been reviewed to identify trends, actions, or behaviors that may be causal or contributory to the severity of system disturbances. This information assists NERC to focus efforts and provide the technical foundation for standards development and modification efforts on issues that are most critical to bulk power system reliability. For example, NERC has developed a broad-based reliability initiative that addresses issues in the area of system protection and control. That initiative identified a compendium of system protection and control issues that have contributed to many system events. This effort, with significant support from the NERC System Protection and Control Subcommittee, served as the basis for Project 2010-05 System Protection, and a number of other ongoing standards development projects in the area of system protection and control. This ongoing collaborative effort between the event analysis program and standards development planning will continue to be used as a tool to identify specific changes to Reliability Standards to ensure an adequate level of reliability of the North American bulk power system.

iii. Project Timeline Changes

This section identifies the changes to timelines for projects in the 2010 Development Plan relative to those in the 2009 plan, and the factors contributing to the changes. One goal of the 2010 Development Plan is to improve the set of detailed project schedules.

In 2009, NERC made a concerted effort to develop more detailed project timelines. Based on lessons learned from the execution of prior projects, the revised project schedules include a more detailed and complete list of tasks that must be undertaken as part of a standards development project. As a result, timelines for the majority of projects now provide more realistic estimates of the time necessary to bring the projects to completion. The recognition of additional tasks necessary to successfully complete a project has resulted in longer estimated project duration.

The differences in project timelines for specific projects in the 2010 Development Plan as compared to the 2009 plan are attributable to several factors. First, to develop consensus during the development of Reliability Standards, drafting teams, working with industry stakeholders, must fully explore and consider the many issues identified in the "Issues to be Considered by the Standard Drafting Team" portion of the project description. Accordingly, the plan incorporates a reasonable estimate for completion of each project, but recognizes that actual time to complete a project may vary significantly based on the complexity of the issues under consideration and the scope of active stakeholder engagement in those issues. Flexibility is therefore required to develop a specific project timeline to account for the projected time necessary to complete stakeholder consideration of the issues.

NERC has also determined that in prior years proposed standards may have progressed to the ballot stage without adequately documenting how or whether the drafting team considered and addressed specific regulatory directives. As a result, unanticipated time and effort has been expended late in the development process to ensure the standard drafting team has sufficiently

addressed all regulatory directives. To minimize similar impacts to project timelines going forward, NERC has initiated a process for addressing regulatory coordination coincident with the standards development phases of a project. This activity is now explicitly identified and accounted for in each standard development schedule.

Other factors affecting the accuracy of prior estimates for project durations include: underestimating the number of comment periods necessary for each project and broader than anticipated participation by industry stakeholders in the comment periods. These have manifested themselves in additional industry comment periods and more time spent developing replies to an unpredicted volume of comments. Additionally, time has been added to the project schedules to account for the detailed and specific NERC internal staff review of documents proposed by drafting teams for posting for industry comment described above. Some or all of these factors result in the necessary expenditure of additional development time and effort by the drafting team participants.

With these factors in mind, the following paragraphs summarize the significant timeline changes, and the factors contributing to the changes, project-by-project, for the projects in the 2010 Development Plan as compared to the timelines identified in the 2009 plan.

2006-02 Assess Transmission Future Needs. The first and second drafts of the revised TPL-001-1 — Transmission System Planning Performance Requirements standard were posted for industry comment in the fourth quarter of 2007 and the third quarter of 2008, respectively. Two drafts were posted for comment in 2009, from May 26 through July 9, 2009, and from September 16 through October 16, 2009. The response to those postings is currently under consideration by the drafting team. The effort to complete the initial four drafts of the standard took longer than expected due to the significant volume of industry comments received during the postings and the additional time required for internal NERC staff review of the draft standard. The anticipated completion of the project is now slated for the second quarter of 2010.

2006-04 Backup Facilities. The first and second drafts of the standard were posted for industry comment in 2008, with an additional draft posted for comment from March 17 through April 15, 2009. Subsequently, the standard was posted for pre-ballot consideration from August 17 through September 16, 2009, and initially balloted from September 16 through September 28, 2009. The additional unanticipated comment periods, the time needed to address issues identified during those comment periods, and the need to add further clarity—an activity that became apparent during the balloting—have resulted in a project schedule extension of approximately six months. The projected completion date has been moved from the second quarter of 2009 to the first quarter of 2010.

2006-06 Reliability Coordination. The first and second drafts of these standards were posted for industry comment in the third quarter of 2008, and the third quarter of 2009, respectively. This project was initiated two months later than originally anticipated as NERC added staff coordinators, and the drafting of the revised standards required more work and coordination with other projects than originally anticipated. In addition, the drafting team has since determined that a third comment period will be necessary for this set of standards. Also, in October 2009, the NERC Standards Committee requested that the drafting team coordinate with two other drafting teams regarding the use of the three-part communication protocol and the definition of "Directive." As a result, it was necessary to apply an approximate twelve-month extension of the projected completion date, to the fourth quarter of 2010.

2006-08 Transmission Loading Relief. The first phase of this project split the reliability aspects from the commercial aspects of the then existing standard. That effort took four months longer to complete than anticipated, and as a result, initiation of subsequent phases was delayed. Additionally, the field test associated with phase two modifications was extended and two additional comment periods were necessary for the development of the phase three changes, now being addressed concurrently with phase two. The resulting adjustment in project schedule

added nine months for the projected completion of phase two and eight months for the completion of phase three. Phase two was completed in the third quarter of 2009, and phase three is now scheduled for completion in the second quarter of 2010.

2007-01 Underfrequency Load Shedding. The standard drafting team posted the revised standard for the first industry comment period in the third quarter of 2008. The development of the foundational underfrequency performance characteristics required more meetings than originally anticipated in order to thoroughly explore and consider those characteristics and other issues. The second version of the standard was posted in the second quarter of 2009. The drafting team received many comments including one set that identified the need of a variance for Québec for this standard. The inclusion of the variance for Québec necessitated the project scope to be expanded, and as a result, the projected completion date was extended approximately six months, to the first quarter of 2010.

2007-02 Operating Personnel Communications Protocols. The effort to consider the seminal work of the Reliability Coordinator Working Group ("RCWG") with respect to the Alert Level Guidelines formed the basis for much of the standard drafting team's scope. The drafting team's thorough review and consideration of that work, as well as the necessary internal NERC staff review of the draft standard took significantly longer than originally anticipated and scheduled. It was further necessary to coordinate with the RCWG on the field test of the Alert Level Guidelines, to ensure consensus on the extent and accuracy of transferring the guideline to the new standard drafted by the standard drafting team. This additional effort resulted in significantly more time needed to develop the draft COM-003-1 — Operating Personnel Communications Protocols standard before it could be initially posted.

Shortly after the team posted the first draft of COM-003-1 for industry comment in October 2009, the draft standard was withdrawn by the NERC Standards Committee in order to

perform further collaboration between the standard drafting team for this project and two other standard drafting teams involved with the use of the three-part communication protocol and the definition of "Directive." These combined activities have resulted in an approximate twelve month extension to the project. The anticipated completion date for the project is now the fourth quarter of 2010.

2007-03 Real-time Transmission Operations. This project was initiated three months later than anticipated and the drafting team has added an additional comment period to the original schedule. The drafting team posted the revised standards for the initial industry comment period in the fourth quarter of 2008. Successive drafts were posted for comment from April 7 through May 7, 2009 and from August 25 through September 24, 2009, respectively. The effort to review and explore the existing requirements related to the NERC certification process, the philosophical shift from operating to SOLs to operating to IROLs within T_v, and the added time for internal NERC staff review of the draft standard involved more time and effort than originally anticipated. In addition, the NERC Standards Committee requested the drafting team to coordinate with two other drafting teams regarding the use of the three-part communication protocol and the definition of "Directive." These combined activities have resulted in an approximate twelve month extension to the project. The anticipated completion date of the project is now the third quarter of 2010.

2007-04 Certifying System Operators. The effort to review and explore the issues associated with the directives identified in FERC Order 693 for the PER-003-0 — Operating Personnel Credentials standard and the added time for internal NERC staff review of the draft standard took longer than originally anticipated. The first draft of the proposed standard was posted for comment from October 21 through November 20, 2009, and the drafting team is presently considering those comments. As a result, the projected completion date has been extended by approximately twelve months, to the third quarter of 2010.

2007-05 Balancing Authority Controls. This project was initiated seven months later than originally anticipated. It was also necessary to adjust the project timeline to coordinate with the North American Energy Standards Board effort pertaining to the commercial elements relating to the BAL standards within the scope of the project. In addition, the standard drafting team conducted an industry survey on Time Error Correction in order to collect further input and data. The time to develop and conduct the survey was not contemplated in the original timeline for the project. Finally, a reforecast of the project was undertaken based on information and experience collected during the drafting team meetings. The project is technically complex and requires a high level of coordination based on its interaction with several other standards (*i.e.* BAL-001, BAL-003, and the INT family of standards). Much of the subject matter (*e.g.*, continent wide reserve policy) is extremely contentious, resulting in extended dialogue and consideration by the team. The project is now anticipated to be completed in two phases. Phase one will address the majority of the work within the scope of the project and is expected to be completed in the second quarter of 2012. Phase two will deal with Time Error Correction and is expected to be completed in the fourth quarter of 2012.

2007-06 System Protection. The effort to examine and debate the issues associated with the directives identified in FERC Order 693 for the PRC-001-1 — System Protection Coordination standard and the added time for internal NERC staff review of the draft standard took much longer than originally anticipated. The first draft of the standard was posted for comment from September 11 through October 26, 2009. Additional issues were raised in the comments received during the initial posting of the draft standard that will require more time to address than the drafting team anticipated. As a result, the projected completion date has been extended approximately six months to the third quarter of 2010.

2007-07 Vegetation Management. The initial posting of the draft standard FAC-003-2 for industry comment generated a significant volume of comments. The team took additional time to complete the second draft of the standard based on the need to address the high volume of industry comments received during the initial posting. The additional time required for internal NERC staff review of the draft standard also affected the project schedule. The subsequent posting of the draft standard for industry comment, which concluded in October 2009, generated nearly as many stakeholder comments as the initial posting. A third posting of the draft standard for industry comment will therefore be necessary, extending the anticipated completion of the project to the fourth quarter of 2010.

2007-09 Generator Verification. The effort to review and consider the issues associated with the directives identified in FERC Order No. 693 for the MOD-024-1 — Verification of Generator Gross and Net Real Power Capability standard, development of three other associated standards, and the added time for internal NERC staff review of the draft standards took longer than originally anticipated. Proposed drafts of MOD-026 and PRC-024 were posted for stakeholder comment from February 17 through April 2, 2009. Comments on the PRC-024-1 standard were generally favorable; however, the lack of a performance orientation was noted by some stakeholders and prompted the drafting team to revise its second version to meet that expectation. Feedback on the MOD-026 standard was focused on streamlining the technical requirements. The drafting team is combining and subsuming requirements in an effort to address the stakeholders' concerns. These combined activities have resulted in an approximate eight month extension with project completion now projected in the first quarter of 2011.

2007-11 Disturbance Monitoring. The standard drafting team posted the first version of the standard in the first quarter 2009. In the process of revising the standard and responding to comments, the drafting team identified the need to perform a regional data analysis to assist in identifying locations for monitoring and recording data that accommodate the regional variability

of the electric grid. Thus, identifying the location thresholds for recording Sequence of Events, Dynamic Disturbance Recording, and Fault Recording data requires analysis of data for several NERC regions. Time for the collection and analysis of this data was not factored into the original project schedule. The collection and analysis of data has extended the overall timeline for the project by approximately fourteen months, with completion of the project now anticipated in the third quarter of 2011.

2007-12 Frequency Response. The original Standard Authorization Request for the project called for development of a data collection standard before drafting a revised frequency response standard. In order to expedite the process, NERC has decided to obtain the necessary data through a formal Data Request, negating the need to draft a data collection standard. The drafting team will use the data, once collected and analyzed, to draft a Frequency Response standard. NERC is developing the plan for a Frequency Response initiative of which the standard development project is a key part.

2007-17 Protection System Maintenance and Testing. The revised completion date for this work is now in the third quarter 2010. This standard merges previous standards PRC-005-0, PRC-008-0, PRC-011-0, and PRC-017-0. It also addresses FERC comments from Order 693, and addresses observations from the NERC System Protection and Control Task Force, as presented in *NERC SPCTF Assessment of Standards: PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing, PRC-008-0 — Underfrequency Load Shedding Equipment Maintenance Programs, PRC-011-0 — UVLS System Maintenance and Testing, PRC-017-0 — Special Protection System Maintenance and Testing.* The initial draft of the standard was posted for industry comment from July 24 through September 8, 2009. The effort to review and consider the issues associated with the directives identified in FERC Order 693 for the PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing standard and the added time for internal NERC staff review of the draft standard took

much longer than originally anticipated. Several issues emerged from the initial posting of the draft standard for industry comment that also required extensive examination and debate. These combined activities have resulted in an approximate twelve month extension to the project schedule. The anticipated completion date of the project is now in the third quarter of 2010.

2007-18 Reliability-Based Control. This project was initiated three months later than originally anticipated. The drafting team posted a "Proposed Metrics" document for the first industry comment period in the third quarter of 2008. The comment period was intended to inform and gain industry comments on proposed metrics for the purpose statements of the Standard Authorization Request. The drafting team also performed some additional statistical analysis (relating to frequency excursions) not anticipated during the development of the original timeline. As a result, the project schedule was extended by approximately thirteen months with a present anticipated completion date in the fourth quarter of 2011.

2008-01 Voltage and Reactive Control. The Standard Authorization Request development phase of this project was deferred until July, 2009 while the NERC Transmission Issues Subcommittee finalized the Reactive Support and Control Whitepaper in May, 2009. The white paper identifies the technical requirements needed to determine the reactive resources required under each system state. Based on the complexities discussed in the whitepaper, a third posting for industry comment was added to the timeline for the project to permit sufficient industry vetting. In addition, other adjustments to account for longer vetting and debating by the industry for the first and second drafts of the standards were incorporated into the project schedule. These combined activities have resulted in an approximate nine month extension to the project. The anticipated completion date of the project is now scheduled for the third quarter of 2012.

2008-02 Undervoltage Load Shedding. No changes have been made to the timeline for this project relative to the schedule projected in the preceding development plan.

2008-06 Cyber Security Order No. 706. This project was initiated in 2008 to address the directives in FERC Order No. 706,[2] and was reflected in the 2009 plan. In Order No. 706, FERC approved the CIP Version 1 Reliability Standards and associated implementation plan, but also directed NERC to develop modifications to the CIP Reliability Standards to address specific concerns identified by FERC. The scope and volume of the directives in Order No. 706 resulted in the adoption of a multi-phased approach to address those directives. NERC filed Version 2 of the CIP Reliability Standards with FERC in May 2009, representing phase one of the overall work for revising the CIP Reliability Standards. Subsequent phases of Project 2008-06 will address the remaining modifications to the CIP Reliability Standards enumerated in FERC's Order No. 706. FERC approved Version 2 of the CIP Reliability Standards on September 29, 2009,[3] and directed NERC to submit a compliance filing within 90 days to: (1) revise CIP-006-2 to add a requirement on visitor control programs, including the use of visitor logs to document entry and exit; (2) revise CIP-008-2 R1.6 to strike the sentence stating that "Testing the Cyber Security Incident response plan does not require removing a component or system from service during the test;" and (3) revise the Version 2 Implementation Plan to address the comments made by FERC in Attachment A to the September 29, 2009 FERC Order.

NERC anticipates submitting the compliance filing, which will include Version 3 of the CIP Reliability Standards, the Version 3 Implementation Plan, and the revised Implementation Plan for Newly Identified Critical Cyber Assets and Newly Registered Entities, in accordance with FERC's directives in the September 29, 2009 Order by the end of December 2009.

The compliance filing for Version 3 of the CIP Reliability Standards will complete phase one of the work planned to revise these standards based on FERC's directives in Order No. 706. The majority of the remaining substantive issues identified in Order No. 706 will be addressed in

[2] *Mandatory Reliability Standards for Critical Infrastructure Protection*, 122 FERC ¶61,040 (January 18, 2008).
[3] *Order Approving Revised Reliability Standards for Critical Infrastructure Protection and Requiring Compliance Filing*, 128 FERC ¶61,291 (September 30, 2009).

phase two of Project 2008-06, which is anticipated to require multiple cycles of postings and industry responses to reach a suitable understanding and industry agreement on the new requirements. The timeline for completion of all project phases is still undergoing review and modification before it can be finalized and submitted as required by December 2009.

2008-12 Coordinate Interchange Standards. This project was initiated in 2008 and was included in the 2009 plan to ensure that each requirement is assigned to an owner, operator, or user of the bulk power system. Additional improvements to the standard are also included in the scope of the project, and the team has chosen to address the project in two phases. Phase one addresses the assignment of requirements to appropriate registered entities, and is intended to improve the overall quality of the standard. This first phase is expected to be completed in the first quarter of 2011. Phase two will specifically address dynamic transfers and, if necessary, interchange tool fault tolerance. The second phase is expected to be completed in the second quarter of 2013. Prior to being publicly noticed, the timelines for the projects planned for future years (*e.g.*, projects commencing in 2011 and later) will be developed in coordination with the assigned standard drafting teams.

iv. Projects Updates - 2009

This section summarizes the current status of the 2009 projects identified in the 2010 Development Plan.

2009-01 Disturbance and Sabotage Reporting. The Standard Authorization Request for this project was posted for industry comment from April 22 to May 21, 2009 and was approved by the Standards Committee on September 3, 2009. The standard drafting team for the project was appointed by the Standards Committee on November 12, 2009.

2009-02 Real-time Tools. The Standard Authorization Request for this project was posted for industry comment from July 10 to July 11, 2009. The standard drafting team for the project was appointed by the Standards Committee on July 15, 2009. The standard drafting team

anticipates posting the Standards Authorization Request for a second round of industry comments during the first quarter of 2010.

2009-03 Emergency Operations. The Standard Authorization Request is being drafted to initiate this project.

2009-04 Phasor Measurements Units. The Standard Authorization Request is being drafted to initiate this project.

2009-05 Resource Adequacy Assessments. NERC is considering potential alternatives to developing a reliability standard for Resource Adequacy Assessments before forwarding a Standard Authorization Request to the Standards Committee for its consideration.

2009-06 Facility Ratings. The initial version of the Standard Authorization Request for this project was posted for industry comment from January 20 to March 5, 2009. A revised version of the request for this project was posted for industry comment August 10 to September 9, 2009. Proposed revisions to the draft FAC-008-2 — Facility Ratings standard were posted simultaneously with the Standard Authorization Requests.

2009-07 Reliability of Protection Systems. The Standard Authorization Request for this project was posted for industry comment January 29 to February 18, 2009. The SAR drafting team for the project was appointed by the Standards Committee on March 5, 2009.

2009-18 Withdraw Three Midwest ISO Waivers. The project was initiated in April, 2009 with the standards successfully completing ballot in September, 2009. The proposed revised standards were then approved by the NERC Board and filed with FERC for approval on November 20, 2009.

B. NERC Stakeholders Input

To support the preparation of the 2010 Development Plan, NERC sought stakeholder comment during two public comment periods, which took place from May 20 through July 6, 2009 and August 28 through September 28, 2009. In addition, NERC solicited input from the

NERC technical committees as well as from additional subject matter experts on NERC staff. NERC received 30 sets of comments during the open stakeholder comment periods from American Electric Power, Bonneville Power Administration, CenterPoint Energy, Construction Specialty Services, Inc. & Critical Systems, LLC, Consumers Energy Company, Dominion Resource Inc., Duke Energy, Electric Power Supply Association, FirstEnergy, Florida Municipal Power Agency, Georgia System Operations Corp., Independent Electricity System Operator, IRC Standards Review Committee, Manitoba Hydro, Midwest ISO, Midwest Reliability Organization, National Rural Electric Cooperative Association, NERC Regional Reliability Standards Working Group, NERC System Protection and Control Subcommittee, North American Energy Standards Board, Northeast Power Coordinating Council, SERC EC Planning Standards Subcommittee, Southern California Edison, Southern Company, and US Bureau of Reclamation. The comments and NERC's response to these comments are provided in Appendix A to Volume I of the 2010 Development Plan, which is included as part of **Exhibit A**. The comments are also included in the complete development record for the 2010 Development Plan, included as **Exhibit B**. The major themes of the comments received are summarized below.

Many comments suggested that NERC sponsor an industry triage of the entire set of Reliability Standards to identify the core reliability requirements. In response, NERC added Project 2010-06 — Results-based Reliability Standards to the 2010 Development Plan. This project will focus on:

- triaging existing approved Reliability Standards to identify those requirements that directly impact reliability and those that are of secondary importance;
- developing performance-based requirements to fill any missing reliability objectives;
- promoting and refining performance-based requirements in the existing Reliability Standards to improve clarity and identified measures;

- revising existing requirements to be more performance-based, if practical and beneficial to reliability.

Many additional comments were received in support of the addition of Project 2010-06 — Results-based Reliability Standards to the 2010 Development Plan.

Other comments reflected concern with the large volume of work contemplated by the 2010 Development Plan and the stress it will place on limited staff and industry resources. NERC understands the commitment of resources required (both industry and NERC specific resources) for the development of quality standards, and is cognizant of the fact that industry resources are not limitless. NERC staff coordinates all standards development activities through the NERC Standards Committee, whose members are industry representatives, and whose consideration includes the potential impact on industry resources when planning standards-related projects and activities.

A few commenters advised that NERC must place more priority on completion of regional "fill-in the blank"[4] standards relative to the development of continent-wide standards. NERC standards staff is in regular contact with the staff responsible for developing Regional Reliability Standards at each of the Regional Entities. In many instances, the Regional Entity has commenced work on a 'fill-in-the blank' standard in order to be able to better coordinate the development of the regional standard with the development of the continent-wide standard. Each Regional Entity has a FERC-approved regional standard development procedure. Embedded in the regional standard development process is a requirement that the region seeking approval of a regional reliability standard justify the need for the standard. It is incumbent on those who

[4] In Order No. 693 at PP 287 to 304, FERC discusses fill-in the blank standards. FERC explains that certain Reliability Standards, referred to as fill-in the blank standards, require the Regional Entities to develop certain criteria for use by users, owners, or operators within each region. In P 297, FERC stated that it will not approve these fill-in the blank standards until supplemental information for any Reliability Standard that currently requires a Regional Entity to fill in missing criteria or procedures has been filed at FERC. FERC noted that until such information is submitted for FERC-approval, compliance with fill-in the blank standards should continue on a voluntary basis, and FERC considers compliance with such Reliability Standards to be a matter of good utility practice.

participate in the regional standards development process to assess the benefit of expending resources on parallel development of a regional standard while the continent-wide standard development process is underway. Each of the regional standards development procedures mandates a fair and open process for the development of standards. Any interested party in the region may utilize that process to participate in determining which standards development projects are pursued and which are not.

IV. CONCLUSION

NERC respectfully requests that FERC accept this informational filing in compliance with Section 310 of the ERO Rules of Procedure.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that I have served a copy of the foregoing document upon all parties listed on the official service list compiled by the Secretary in this proceeding.

Dated at Washington, D.C. this 2nd day of December, 2009.

/s/ Holly A. Hawkins
Holly A. Hawkins
Attorney for the North American Electric Reliability Corporation

EXHIBIT A

Reliability Standards Development Plan: 2010–2012 ("2010 Development Plan")

Volume I:	Summary overview of the 2009 Development Plan and identifies significant modifications to the filed 2008 Development Plan.
Volume II:	Details the specific standards development projects.
Volume III:	Summarizes the expected Regional Entity standards development activity anticipated during the three-year period contemplated by the plan.

NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Reliability Standards Development Plan: 2010–2012

Volume I — Overview

to ensure the reliability of the bulk power system

October 7, 2009

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Acknowledgement

The NERC Reliability Standards Program would like to thank all the individuals who invest their time and expertise in the development of NERC Reliability Standards and in the annual revision of this *Reliability Standards Development Plan*. The plan reflects comments and input from stakeholders, staff, the NERC technical community, and government agencies with oversight for electric reliability. Through collaboration and industry consensus, we expect to develop NERC Reliability Standards that are technically accurate, clear, enforceable, and provide an Adequate Level of Reliability for the North American bulk power system.

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Volume III: Regional Reliability Standards Projects (provided separately)

Introduction

Purpose

The North American Electric Reliability Corporation (NERC) is committed to developing reliability standards that deliver an Adequate Level of Reliability for the North American bulk power system. The NERC *Reliability Standards Development Plan* serves as the foundation for reliability standards development efforts. The plan serves as the management tool that guides, prioritizes, and coordinates revision or retirement of existing reliability standards and the development of new reliability standards for the immediate 3-year time horizon.

The initial 3-year plan was developed in 2006 and has been since updated annually. In doing so, NERC seeks input from the other program areas within NERC, as well as from NERC's technical committees and industry groups, on the need for and prioritization of new or revised reliability standards.

The objectives of the plan include but are not limited to:

- Addressing the recommendations for new or revised reliability standards identified in the *U.S.-Canada Power System Outage Task Force Final Report on the August 14, 2003 Blackout in the United States and Canada: Causes and Recommendations*.
- Addressing comments from industry, the Federal Energy Regulatory Commission (FERC), and others suggesting improvements to each reliability standard, including those comments received from industry stakeholders during public comment periods.
- Addressing quality issues to ensure each reliability standard has a clear statement of purpose, and has results-based requirements that are clear and measurable.
- Ensuring measures and compliance elements are aligned to support the requirements within the reliability standards and follow definitions outlined in the reliability standards template.
- Eliminating requirements that do not have an impact on bulk power system reliability; retiring redundant requirements; retiring or converting (into guidelines) lower-level "facilitating" requirements that are already measured through compliance with higher-level requirements; and moving basic "capability" requirements that are routinely used into the NERC certification process.
- Improving reliability standard requirements by incorporating approved interpretations.
- Incorporating feedback from other NERC program areas such as compliance monitoring and enforcement, reliability assessments, and event analysis.
- Satisfying the requirement in section 300 of the Rules of Procedure of the North American Electric Reliability Corporation for a five-year review of all reliability standards.

Developing excellent reliability standards is a long-term effort. This plan best supports the effort in that it is flexible and can be continuously adapted to circumstances and changing priorities.

The plan is reviewed and maintained by the NERC Standards Committee and Standards staff, and is updated on an annual basis or more frequently if necessary.

Summary

This revised *Reliability Standards Development Plan: 2010-2012* identifies a total of 37 continent-wide standards development projects. These projects are:

Projects initiated in 2006:
2006-02 Assess Transmission Future Needs
2006-04 Backup Facilities
2006-06 Reliability Coordination
2006-08 Transmission Loading Relief

Projects initiated in 2007:
2007-01 Underfrequency Load Shedding
2007-02 Operating Personnel Communications Protocols
2007-03 Real-time Operations
2007-04 Certifying System Operators
2007-05 Balancing Authority Controls
2007-06 System Protection Coordination
2007-07 Vegetation Management
2007-09 Generator Verification
2007-11 Disturbance Monitoring
2007-12 Frequency Response
2007-17 Protection System Maintenance and Testing
2007-18 Reliability-based Control

Projects initiated in 2008:
2008-01 Voltage and Reactive Control
2008-02 Undervoltage Load Shedding
2008-06 Cyber Security — Order 706
2008-12 Coordinate Interchange Standards

Projects initiated in 2009:
2009-01 Disturbance and Sabotage Reporting
2009-02 Real-time Tools
2009-03 Emergency Operations
2009-04 Phasor Measurements Units
2009-05 Resource Adequacy Assessments
2009-06 Facility Ratings
2009-07 Reliability of Protection Systems
2009-18 Withdraw Three Midwest ISO Waivers

Projects anticipated commencing in 2010:
2010-01 Support Personnel Training
2010-02 Connecting New Facilities to the Grid
2010-03 Modeling Data
2010-04 Demand Data
2010-05 Protection Systems
2010-06 Results-based Reliability Standards
2010-07 Generator Requirements at the Transmission Interface

Projects anticipated commencing in 2011:
None

Projects anticipated commencing in 2012:
2012-01 Equipment Monitoring and Diagnostic Devices
2012-02 Physical Protection

Projects within this Plan:

The number of projects proposed in this plan decreased to 37 from the 39 listed in the 2009-2011 version of the plan:

- The following seven projects identified in the 2009-2011 plan have been completed and removed from this revised plan:

Projects initiated in 2006:
2006-01 System Personnel Training
2006-03 System Restoration and Blackstart
2006-07 Transfer Capabilities: ATC, TTC, CBM, and TRM
2006-09 Facility Ratings

Projects initiated in 2007:
2007-14 Permanent Changes to CI Timing Table
2007-23 Violation Severity Levels

Projects initiated in 2008:
2008-08 EOP Violation Severity Levels Revisions

- Project 2008-05 Credible Multiple Element Contingencies which was identified in the 2009-2011 plan was removed from this revised plan as the requester of the Standard Authorization Request (SAR) withdrew their request from further development and consideration by the industry.

- The following six projects are new to the Reliability Standards Development Plan:

Projects initiated in 2009:
2009-06 Facility Ratings
2009-07 Reliability of Protection Systems
2009-18 Withdraw Three Midwest ISO Waivers

Projects anticipated commencing in 2010:
2010-06 Results-based Reliability Standards
2010-07 Generator Requirements at the Transmission Interface

Projects anticipated commencing in 2012:
2012-02 Physical Protection

To summarize, the *Reliability Standards Development Plan: 2009-2011* identified a total of 39 continent-wide standards development projects. Seven of those 39 projects have been completed and one was withdrawn leaving 31 currently active projects from the 2009-2011 plan. Six new projects have been added to the 2010-2012 plan, three of which were unanticipated but initiated in 2009 and three new projects, bringing to a total of 37 continent-wide standards development projects in this Reliability Standards Development Plan: 2010-2012.

Focus on Impact to Reliability

As part of the process employed in 2009 for revising the *Reliability Standards Development Plan,* NERC staff reached out to all stakeholders and asked for input on the plan. Similar to the last two years, several stakeholders indicated a concern that too many projects were under development concurrently which is stretching the industry resources available to work on standards development to their limits. They recommended that the plan focus industry resources on the projects having the greatest impact on reliability in the near-term, while deferring those of less immediate reliability benefit.

In addition, during the development of NERC's Three-year Assessment of its performance as the electric reliability organization, several stakeholders recommended that the industry focus existing reliability standards and reliability standards development on areas that will lead to the greatest improvement in bulk power system reliability. Suggestions included: (1) focus the development of new reliability standards on those that will lead to the greatest improvement in reliability; i.e., address the greatest risks of wide-area cascading outages; (2) reduce the number of existing reliability standards to just those that have a critical impact on reliability of the bulk power system and convert the remaining reliability standards to guidelines; and (3) develop a more systematic process for prioritizing new reliability standards development projects based on risks to the bulk power system.

Accordingly, this version of the plan establishes a new project (Project 2010-06 Results-based Reliability Standards) aimed at focusing NERC Reliability Standards to be more focused on reliability performance. This version also realigns one project, Project 2012-01 Equipment Monitoring and Diagnostic Devices, from 2011 to 2012 in order to ensure NERC and industry

resources are available to devote the needed level of expertise to Project 2010-06 Results-based Reliability Standards. There are no other projects planned for initiation in 2011 as a result.

Fill-in-the-blank Standards

The phrase "fill-in-the-blank standards" refers to standards that require a bulk power system user, owner, or operator to implement regional criteria that are not specifically part of a NERC Reliability Standard. While an acceptable practice, the regional criteria needs regulatory approval for proper evaluation in support of the NERC Reliability Standards or needs to be replaced with mandatory and enforceable standards that incorporate the needed reliability aspects.

NERC recognized this issue at the time it applied to become the ERO. Working with the Regional Entities, NERC provided dedicated staff to coordinate the development of regional standards and address the "fill-in-the-blank" issue. As a result, the action plans and schedules to resolve each "fill-in-the-blank" standard were provided in Volume III of the original 2007-2009 plan and has since been wholly incorporated into the projects identified in Volume II of each of the succeeding work plans.

Priority of Projects

All currently active projects are considered to be high priority projects meriting continuation.

For proposed standards development projects identified in the *Reliability Standards Development Plan*, the NERC Standards Committee, comprised of industry representatives, assists NERC staff in prioritizing the initiation of these projects.

Those projects anticipated to be started in 2010 represent the next highest priority set of projects. Each will be initiated in 2010 as determined by the NERC Standards Committee in coordination with NERC staff as other projects are concluded and coordinator and drafting team resources become available:

- Project 2010-01 Support Personnel Training is a priority project as it was proposed in support of a 2003 blackout recommendation.
- The following projects involve the original "Version 0" standards originally approved in 2005. They all are required to be reviewed in 2010 pursuant to the Rules of Procedure of the North American Electric Reliability Corporation which state in part "each reliability standard shall be reviewed at least once every five years from the effective date of the standard or the latest revision to the standard, whichever is later."
    - Project 2010-02 Connecting New Facilities to the Grid involves revisions to FAC-001 and FAC-002.
    - Project 2010-03 Modeling Data involves revisions to MOD-010, MOD-011, MOD-012, MOD-014, PRC-013, and PRC-015.
    - Project 2010-04 Demand Data involves revisions to MOD-018, MOD-020, and MOD-021
    - Project 2010-05 Protection Systems involves revisions to PRC-012 and PRC-014.

- Project 2010-06 Results-based Reliability Standards is a priority project as discussed in the "Focus on Impact to Reliability" section above. The project provides for improving the set of NERC Reliability Standards to be more focused on reliability performance.
- Project 2010-07 Generator Requirements at the Transmission Interface is a priority project as it will add greater specificity and clarity to the expectations of those responsible for owning and operating the interconnection facilities that connect generators to the transmission grid.

As noted earlier, the single project anticipated to commence in 2011 pursuant to the 2009-2011 plan has been moved to 2012 in this revised plan to ensure industry and NERC staff resources are available to devote to Project 2010-06 Results-based Reliability Standards, identified as a higher priority in the plan.

Other modifications

As part of the process employed in 2009 for revising the *Reliability Standards Development Plan*, NERC staff reached out to the stakeholder community seeking input on how to improve and update the plan. In so doing, NERC received a number of comments that led to various modifications and improvements to the plan. Appendix A to Volume I summarizes the comments received and NERC's response to the comments.

In conjunction with this year's project to revise the plan, NERC staff reviewed the items in what is termed the "NERC Standards Issues Database (Issues Database)." The Issues Database is used by the NERC standards program staff to track the issues and concerns identified with a particular standard. These 'issues" are then used to populate the "Issues to be Considered by the Standard Drafting Team" tables included for each project in Volume II. As such, projects in Volume II include the "issues" identified to date.

The update to this year's plan also includes another improvement in the form of a set of more detailed project schedules. The revised project schedules include a more detailed list of tasks needed to be undertaken as part of the standards development project and has been modified based on "lessons learned" from prior projects. In doing so the timeline for the majority of projects has been extended, but at the same time provides a better estimate for the completion of each of the projects. Further, a link to each of the project schedules (for the projects currently under development) has been posted on the "Related Files" page on the NERC website.

NERC has also developed specific initiatives related to compliance monitoring and enforcement, reliability assessment and performance analysis, and event analysis to identify possible "high impact" reliability standard development projects that may have significant impact on the reliability of the bulk power system. For example, lessons learned and trends identified from system events tracked for the last three years that have been causal or contributory to the severity of system disturbances are helping NERC focus efforts and provide the technical foundation for standards development and modification efforts on issues that are most critical to bulk power system reliability. NERC has developed a broad-based reliability initiative that addresses issues in the area of system protection and control which is the basis for Project 2010-05 System Protection and a number of other ongoing standards development projects in the area of system protection and control. That initiative identified a compendium of system protection and control

issues that have contributed to many system events. This ongoing collaborative effort between the Event Analysis program and Standards development will continue to be used to identify specific changes to reliability standards to ensure an Adequate Level of Reliability of the North American bulk power system.

Organization of the Plan

The *Reliability Standards Development Plan: 2010-2012* is organized into three volumes:

- Volume I provides an overview of the plan and the modifications made to the plan as compared to the prior year.
- Volume II provides project descriptions for current and planned standards development project.
- Volume III summarizes the regional reliability standards development activity anticipated over the next three years.

Background

Authority

Through the enactment of the Energy Policy Act of 2005, Congress created Section 215 of the Federal Power Act (FPA). Section 215 assigns to the Commission the responsibility and authority for overseeing the reliability of the bulk power systems in the United States, including the setting and enforcing of mandatory reliability standards. In February 2006, the Commission issued Order No. 672 establishing its requirements for certifying an industry, self-regulating ERO, as envisioned in the legislation. On the basis of that order, NERC filed its application to become the ERO in the United States on April 4, 2006. NERC concurrently filed for similar recognition with the federal and provincial governments in Canada.

On July 20, 2006, the Commission issued its *Order Certifying the North American Electric Reliability Corporation as the Electric Reliability Organization and Ordering Compliance Filing*, finding that NERC met the requirements of Order No. 672. NERC's filings with FERC[1] and the Commission's orders[2] can be found on the NERC Web site.[3]

NERC has been similarly acknowledged to be the international electric reliability organization in many of the provinces in Canada and by the National Energy Board. NERC continues to formalize these relationships through Memoranda of Understanding (MOU) recognizing NERC as the ERO in Canada and hopes to achieve this status in all provinces by 2010.

Standards Development Process

NERC uses a process for refining, developing, and approving reliability standards that has received national, formal accreditation and approval by federal regulators in the United States. A key element of the development plan is to review and upgrade all the existing standards based on the directives in the FERC's final rules on standards, previous industry comments, and actual experience gathered from using the standards. Additionally, NERC's rules and a condition of accreditation by the American National Standards Institute (ANSI)[4] require that each standard be reviewed at least every five years. NERC received ANSI accreditation on March 24, 2003. Through the remaining projects in 2010, NERC anticipates completing its review and upgrade of standards identified in this development plan in support of these accreditation requirements.

The *Reliability Standards Development Procedure*[5] provides a systematic approach to improve the standards and to document the basis for those improvements, and it will serve as the mechanism for achieving the improvements detailed in this plan. The standards development process includes active involvement of industry experts and stakeholders tasked with developing excellent standards.

[1] NERC filings to FERC, http://www.nerc.com/page.php?cid=1|8|170
[2] FERC orders, http://www.nerc.com/page.php?cid=1|8|170
[3] NERC Web site, http://www.nerc.com/
[4] ANSI accreditation, http://www.nerc.com/filez/ansi.html
[5] Reliability Standards Development Procedure, http://www.nerc.com/fileUploads/File/Standards/RSDP_V6_1_12Mar07.pdf

In its April 2006 application to be certified as the ERO, NERC proposed to develop reliability standards in accordance with Section 300 (Reliability Standards Development) of its Rules of Procedure[6] and the *Reliability Standards Development Procedure*[7], which was incorporated into the Rules of Procedure as Appendix A. In its June 2006 ERO Certification Order, the Commission found that NERC's proposed rules provide for reasonable notice and opportunity for public comment, due process, openness, and a balance of interests in developing reliability standards. The Commission noted that NERC's procedure calls for notifying and involving the public in developing a reliability standard. The development process is open to any person or entity with a legitimate interest in the reliability of the bulk power system. NERC considers the comments of all stakeholders, and a vote of stakeholders is required to approve a reliability standard before it is submitted for NERC Board action and regulatory approval.

Furthermore, NERC also coordinates its reliability standards development activities with the business practices developed by the North American Energy Standards Board[8] (NAESB).

Strategy for Project Resources

Reliability Standards Development Plan: 2010-2012 is designed recognizing there are limited available staff and industry resources to complete the projects immediately and concurrently. While the volume of work and schedules are aggressive, they are manageable because the work is being extended over several years, and because much of the work involves revising and improving existing standards for which the issues are already well-defined. However, the development of regional standards, the influx of formal interpretation requests, and the progress of the existing projects has impacted the deliverables noted in the plan and has been reflected in the proposed projects for 2010, 2011, and 2012. In 2009, NERC standards program staff includes seven project coordinators in support of the development plan activities, supported by various support and management resources, as well as consulting resources in support of the fast-track Order 706 Cyber Security project team.

[6] NERC Rules of Procedure, http://www.nerc.com/files/NERC_Rules_of_Procedure_EFFECTIVE_20080321.pdf
[7] Reliability Standards Development Procedure, http://www.nerc.com/fileUploads/File/Standards/RSDP_V6_1_12Mar07.pdf
[8] NAESB http://www.nerc.com/page.php?cid=2|247|248

Global Improvements

The standard drafting team for each of the projects identified in this plan is expected to review the assigned standards and modify the standards to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure as described in this "Global Improvements" section.

Statutory Criteria

In accordance with Section 215 of the Federal Power Act, FERC may approve, by rule or order, a proposed reliability standard or modification to a reliability standard if it determines that "the standard is just, reasonable, not unduly discriminatory or preferential, and in the public interest."

The first three of these criteria can be addressed in large part by the diligent adherence to NERC's *Reliability Standards Development Procedure*, which has been certified by the ANSI as being open, inclusive, balanced, and fair. Users, owners, and operators of the bulk power system that must comply with the standards, as well as the end-users who benefit from a reliable supply of electricity and the public in general, gain some assurance that standards are just, reasonable, and not unduly discriminatory or preferential because the standards are developed through an ANSI-accredited procedure.

The remaining portion of the statutory test is whether the standard is "in the public interest." Implicit in the public-interest test is that a standard is technically sound and ensures a level of reliability that should be reasonably expected by end-users of electricity. Additionally, each standard must be clearly written, so that bulk power system users, owners, and operators are put on notice of the expected behavior. Ultimately, the standards should be defensible in the event of a governmental authority review or court action that may result from enforcing the standard and applying a financial penalty.

The standards must collectively provide a comprehensive and complete set of technically sound requirements that establish an acceptable threshold of performance necessary to ensure the reliability of the bulk power system. "An adequate level of reliability" would argue for both a complete set of standards addressing all aspects of bulk power system design, planning, and operation that materially affect reliability, and for the technical efficacy of each standard. The Commission directed NERC to define the term, "adequate level of reliability" as part of its January 18, 2007 Order on Compliance Filing. Accordingly, NERC's Operating and Planning Committees prepared the definition and the NERC Board approved it at its February 2008 meeting for filing with regulatory authorities. The NERC Standards Committee was then tasked to integrate the definition into the development of future reliability standards.

Quality Objectives

To achieve the goals outlined above, NERC has developed 10 quality objectives for the development of reliability standards. Drafting teams working on assigned projects are charged to ensure their work adheres to the following quality objectives:

1. **Applicability** — Each reliability standard shall clearly identify the functional classes of entities responsible for complying with the reliability standard, with any specific additions or exceptions noted. Such functional classes[9] include: ERO, Regional Entities, reliability coordinators, balancing authorities, transmission operators, transmission owners, generator operators, generator owners, interchange authorities, transmission service providers, market operators, planning coordinators, transmission planners, resource planners, load-serving entities, purchasing-selling entities, and distribution providers. Each reliability standard that does not apply to the entire North American bulk power system shall also identify the geographic applicability of the standard, such as an interconnection, or within a regional entity area. The applicability section of the standard should also include any limitations on the applicability of the standard based on electric facility characteristics, such as a requirement that applies only to the subset of distribution providers that own or operate underfrequency load shedding systems.
2. **Purpose** — Each reliability standard shall have a clear statement of purpose that shall describe how the standard contributes to the reliability of the bulk power system.
3. **Performance Requirements** — Each reliability standard shall state one or more performance requirements, which if achieved by the applicable entities, will provide for a reliable bulk power system, consistent with good utility practices and the public interest. Each requirement is not a "lowest common denominator" compromise, but instead achieves an objective that is the best approach for bulk power system reliability, taking account of the costs and benefits of implementing the proposal.
4. **Measurability** — Each performance requirement shall be stated so as to be objectively measurable by a third party with knowledge or expertise in the area addressed by that requirement. Each performance requirement shall have one or more associated measures used to objectively evaluate compliance with the requirement. If performance results can be practically measured quantitatively, metrics shall be provided within the requirement to indicate satisfactory performance.
5. **Technical Basis in Engineering and Operations** — Each reliability standard shall be based upon sound engineering and operating judgment, analysis, or experience, as determined by expert practitioners in that particular field.
6. **Completeness** — Each reliability standard shall be complete and self-contained. The standards shall not depend on external information to determine the required level of performance.
7. **Consequences for Noncompliance** — Each reliability standard shall make clearly known to the responsible entities the consequences of violating a standard, in combination with guidelines for penalties and sanctions, as well as other ERO and Regional Entity compliance documents.
8. **Clear Language** — Each reliability standard shall be stated using clear and unambiguous language. Responsible entities, using reasonable judgment and in keeping with good

[9] These functional classes of entities are derived from NERC's Reliability Functional Model. When a standard identifies a class of entities to which it applies, that class must be defined in the Glossary of Terms Used in Reliability Standards.

utility practices, are able to arrive at a consistent interpretation of the required performance.

9. **Practicality** — Each reliability standard shall establish requirements that can be practically implemented by the assigned responsible entities within the specified effective date and thereafter.
10. **Consistent Terminology** — Each reliability standard, to the extent possible, shall use a set of standard terms and definitions that are approved through the NERC Reliability Standards Development Process.

In addition to these factors, standard drafting teams also contemplate the following factors the Commission uses to approve a proposed reliability standard as outlined in Order No. 672. A standard proposed to be approved:

1. **Must be designed to achieve a specified reliability goal**
   "321. The proposed Reliability Standard must address a reliability concern that falls within the requirements of section 215 of the FPA. That is, it must provide for the reliable operation of bulk power system facilities. It may not extend beyond reliable operation of such facilities or apply to other facilities. Such facilities include all those necessary for operating an interconnected electric energy transmission network, or any portion of that network, including control systems. The proposed Reliability Standard may apply to any design of planned additions or modifications of such facilities that is necessary to provide for reliable operation. It may also apply to cyber security protection."

   "324. The proposed Reliability Standard must be designed to achieve a specified reliability goal and must contain a technically sound means to achieve this goal. Although any person may propose a topic for a Reliability Standard to the ERO, in the ERO's process, the specific proposed Reliability Standard should be developed initially by persons within the electric power industry and community with a high level of technical expertise and be based on sound technical and engineering criteria. It should be based on actual data and lessons learned from past operating incidents, where appropriate. The process for ERO approval of a proposed Reliability Standard should be fair and open to all interested persons."

2. **Must contain a technically sound method to achieve the goal**
   "324. The proposed Reliability Standard must be designed to achieve a specified reliability goal and must contain a technically sound means to achieve this goal.

   Although any person may propose a topic for a Reliability Standard to the ERO, in the ERO's process, the specific proposed Reliability Standard should be developed initially by persons within the electric power industry and community with a high level of technical expertise and be based on sound technical and engineering criteria. It should be based on actual data and lessons learned from past operating incidents, where appropriate. The process for ERO approval of a proposed Reliability Standard should be fair and open to all interested persons."

3. **Must be applicable to users, owners, and operators of the bulk power system, and not others**
   "322. The proposed Reliability Standard may impose a requirement on any user, owner, or operator of such facilities, but not on others."

4. **Must be clear and unambiguous as to what is required and who is required to comply**
   "325. The proposed Reliability Standard should be clear and unambiguous regarding what is required and who is required to comply. Users, owners, and operators of the Bulk-Power System must know what they are required to do to maintain reliability."

5. **Must include clear and understandable consequences and a range of penalties (monetary and/or non-monetary) for a violation**
   "326. The possible consequences, including range of possible penalties, for violating a proposed Reliability Standard should be clear and understandable by those who must comply."

6. **Must identify clear and objective criterion or measure for compliance, so that it can be enforced in a consistent and non-preferential manner**
   "327. There should be a clear criterion or measure of whether an entity is in compliance with a proposed Reliability Standard. It should contain or be accompanied by an objective measure of compliance so that it can be enforced and so that enforcement can be applied in a consistent and non-preferential manner."

7. **Should achieve a reliability goal effectively and efficiently - but does not necessarily have to reflect "best practices" without regard to implementation cost**
   "328. The proposed Reliability Standard does not necessarily have to reflect the optimal method, or "best practice," for achieving its reliability goal without regard to implementation cost or historical regional infrastructure design. It should however achieve its reliability goal effectively and efficiently."

8. **Cannot be "lowest common denominator," i.e., cannot reflect a compromise that does not adequately protect bulk power system reliability**
   "329. The proposed Reliability Standard must not simply reflect a compromise in the ERO's Reliability Standard development process based on the least effective North American practice — the so-called "lowest common denominator"—if such practice does not adequately protect Bulk-Power System reliability. Although the Commission will give due weight to the technical expertise of the ERO, we will not hesitate to remand a proposed Reliability Standard if we are convinced it is not adequate to protect reliability."

9. **Costs to be considered for smaller entities but not at consequence of less than excellence in operating system reliability**
   "330. A proposed Reliability Standard may take into account the size of the entity that must comply with the Reliability Standard and the cost to those entities of implementing the proposed Reliability Standard. However, the ERO should not propose a "lowest common denominator" Reliability Standard that would achieve less than excellence in

operating system reliability solely to protect against reasonable expenses for supporting this vital national infrastructure. For example, a small owner or operator of the Bulk-Power System must bear the cost of complying with each Reliability Standard that applies to it."

10. **Must be designed to apply throughout North American to the maximum extent achievable with a single reliability standard while not favoring one area or approach**
"331. A proposed Reliability Standard should be designed to apply throughout the interconnected North American Bulk-Power System, to the maximum extent this is achievable with a single Reliability Standard. The proposed Reliability Standard should not be based on a single geographic or regional model but should take into account geographic variations in grid characteristics, terrain, weather, and other such factors; it should also take into account regional variations in the organizational and corporate structures of transmission owners and operators, variations in generation fuel type and ownership patterns, and regional variations in market design if these affect the proposed Reliability Standard."

11. **No undue negative effect on competition or restriction of the grid**
"332. As directed by section 215 of the FPA, the Commission itself will give special attention to the effect of a proposed Reliability Standard on competition. The ERO should attempt to develop a proposed Reliability Standard that has no undue negative effect on competition. Among other possible considerations, a proposed Reliability Standard should not unreasonably restrict available transmission capability on the Bulk-Power System beyond any restriction necessary for reliability and should not limit use of the Bulk-Power System in an unduly preferential manner. It should not create an undue advantage for one competitor over another."

12. **Implementation time**
"333. In considering whether a proposed Reliability Standard is just and reasonable, the Commission will consider also the timetable for implementation of the new requirements, including how the proposal balances any urgency in the need to implement it against the reasonableness of the time allowed for those who must comply to develop the necessary procedures, software, facilities, staffing or other relevant capability."

13. **Whether the reliability standard process was open and fair**
"334. Further, in considering whether a proposed Reliability Standard meets the legal standard of review, we will entertain comments about whether the ERO implemented its Commission-approved Reliability Standard development process for the development of the particular proposed Reliability Standard in a proper manner, especially whether the process was open and fair. However, we caution that we will not be sympathetic to arguments by interested parties that choose, for whatever reason, not to participate in the ERO's Reliability Standard development process if it is conducted in good faith in accordance with the procedures approved by the Commission."

14. **Balance with other vital public interests**

"335. Finally, we understand that at times development of a proposed Reliability Standard may require that a particular reliability goal must be balanced against other vital public interests, such as environmental, social and other goals. We expect the ERO to explain any such balancing in its application for approval of a proposed Reliability Standard."

15. **Any other relevant factors**

"323. In considering whether a proposed Reliability Standard is just and reasonable, we will consider the following general factors, as well as other factors that are appropriate for the particular Reliability Standard proposed."

"337. In applying the legal standard to review of a proposed Reliability Standard, the Commission will consider the general factors above. The ERO should explain in its application for approval of a proposed Reliability Standard how well the proposal meets these factors and explain how the Reliability Standard balances conflicting factors, if any. The Commission may consider any other factors it deems appropriate for determining if the proposed Reliability Standard is just and reasonable, not unduly discriminatory or preferential, and in the public interest. The ERO applicant may, if it chooses, propose other such general factors in its ERO application and may propose additional specific factors for consideration with a particular proposed reliability standard."

Issues Related to the Applicability of a Standard

In Order No. 672, the Commission states that a proposed reliability standard should be clear and unambiguous regarding what is required and who is required to comply. Users, owners, and operators of the bulk power system must know what they are required to do to maintain reliability. Section 215(b) of the FPA requires all "users, owners and operators of the bulk power system" to comply with Commission-approved reliability standards.

The term "users, owners, and operators of the bulk power system" defines the statutory applicability of the reliability standards. NERC's Reliability Functional Model (Functional Model) further refines the set of users, owners, and operators by identifying categories of functions that entities perform so the applicability of each standard can be more clearly defined. Applicability is clear if a standard precisely states the applicability using the functions an entity performs. For example, "Each Generator Operator shall verify the reactive power output capability of each of its generating units" states clear applicability compared with a standard that states "a bulk power system user shall verify the reactive power output capability of each generating unit." The use of the Functional Model in the standards narrows the applicability of the standard to a particular class or classes of bulk power system users, owners, and operators. A standard is more clearly enforceable when it narrows the applicability to a specific class of entities than if the standard simply references a wide range of entities, e.g., all bulk power system users, owners, and operators.

In determining the applicability of each standard and the requirements within a standard, the drafting team should follow the definitions provided in the NERC Glossary of Terms Used in Reliability Standards and should also be guided by the Functional Model.

In addition to applying definitions from the Functional Model, the revised standards must address more specific applicability criteria that identify only those entities and facilities that are material to bulk power system reliability with regard to the particular standard.

The drafting team should review the registration criteria provided in the NERC Statement of Compliance Registry Criteria, which is the criteria for applicability. The registration criteria identify the criteria NERC uses to identify those entities responsible for compliance to the reliability standards. Any deviations from the criteria used in the Statement of Compliance Registry Criteria must be identified in the applicability section of the. It is also important to note that standard drafting teams cannot set the applicability of reliability standards to extend to entities beyond the scope established by the criteria for inclusion on NERC's Compliance Registry. This is expressly prohibited by Commission Order No. 693-A.

The goal is to place obligations on the entities whose performance will impact the reliability of the bulk power system, but to avoid painting the applicability with such a broad brush that entities are obligated even when meeting a requirement will make no material contribution to bulk power system reliability.

Every entity class described in the Functional Model performs functions that are essential to the reliability of the bulk power system. This point is best highlighted with the example that might be the most difficult to understand, the inclusion of distribution providers. Section 215 of the FPA specifically excludes facilities used in the local distribution of electric energy. Nonetheless, some of the NERC standards apply to a class of entities called Distribution Providers. Distribution Providers are covered because, although they own and operate facilities in the local distribution of electric energy, they also perform functions affecting and essential to the reliability of the bulk power system. With regard to these facilities and functions that are material to the reliability of the bulk power system, a distribution provider is a bulk power system user. For example, requirements for distribution providers in the reliability standards apply to the underfrequency load shedding relays that are maintained and operated within the distribution system to protect the reliability of the bulk power system. There are also requirements for distribution providers to provide demand forecast information for the planning of reliable operations of the bulk power system.

A similar line of thinking can apply to every other entity in the Functional Model, including Load-serving Entities and Purchasing-selling Entities, which are users of the bulk power system to the extent they transact business for the use of transmission service or to transfer power across the bulk power system. NERC has specific requirements for these entities based on how these uses may impact the reliability of the bulk power systems. Other functional entities are more obviously bulk power system owners and operators, such as Reliability Coordinators, Transmission Owners and Operators, Generator Owners and Operators, Planning Coordinators, Transmission Planners, and Resource Planners. It is the extent to which these entities provide for a reliable bulk power system or perform functions that materially affect the reliability of the bulk power system that these entities fall under the jurisdiction of Section 215 of the FPA and the reliability standards. The use of the Functional Model simply groups these entities into logical functional areas to enable the standards to more clearly define the applicability.

Issues Related to Regional Entities and Reliability Organizations

Because of the transition from voluntary reliability standards to mandatory reliability standards, confusion has occurred over the distinction between Regional Entities and Regional Reliability Organizations. The regional councils have traditionally been the owners and members of NERC. They have been referred to as Regional Reliability Organizations in the Functional Model and in the reliability standards. In an era of voluntary standards and guides, it was acceptable that a number of the standards included requirements for Regional Reliability Organizations to develop regional criteria, procedures, and plans, and included requirements for entities within the region to follow those requirements. Section 215 of the FPA introduced a new term, called "Regional Entity." Regional Entities have specific delegated authorities, under agreements with NERC, to propose and enforce reliability standards within the region, and to perform other functions in support of the electric reliability organization. The former Regional Reliability Organizations have entered into delegation agreements with NERC to become Regional Entities for this purpose.

With regard to distinguishing between the terms Regional Reliability Organizations and Regional Entities, the following guidance should be used. The corporations that provide regional reliability services on behalf of their members are Regional Reliability Organizations. NERC may delegate to these entities a set of regional entity functions. The Regional Reliability Organizations perform delegated regional entity functions much like NERC is the organization that performs the ERO function. Regional Reliability Organizations may do things other than their statutory or delegated regional entity functions.

With the regions having responsibility for enforcement, it is no longer appropriate for the regions to be named as responsible entities within the standards. The plan calls for removing requirements from the standards that refer to Regional Reliability Organizations, either by deleting the requirements or redirecting the responsibilities to the most applicable functions in the Functional Model, such as Planning Coordinators, Reliability Coordinators, or Resource Planners. In instances where a regional standard or criteria are needed, the ERO may direct the Regional Entities to propose a regional standard in accordance with ERO Rule 312.2, which states NERC, may "direct regional entities to develop regional reliability standards." There is no need to have a NERC standard that directs the regions to develop a regional standard. NERC standards should only include requirements for Regional Entities in those rare instances where the regions have a specific operational, planning, or security responsibility. In this case, Regional Entities (or NERC) may be noted as the applicable entity. However, these Regional Entities (or NERC) are held accountable for compliance to these requirements through NERC's rules of procedure that, by delegation agreement, extend to the Regional Entities. The Regional Entities are not users, owners, or operators of the bulk power system and cannot be held responsible for compliance through the compliance monitoring and enforcement program. However, NERC and the Regional Entities can be held by the Commission to be in violation of its rules of procedure for failing to comply with the standards requirements to which it is assigned.

Issues Related to Ambiguity

Drafting teams should strive to remove all potential ambiguities in the language of each standard, particularly in the performance requirements. Redundancies should also be eliminated.

Specifically, each performance requirement must be written to include four elements:

- **Who** — defines which functional entity or entities are responsible for the requirements, including any narrowing or qualifying limits on the applicability to or of an entity, based on material impact to reliability.
- **Shall do what —** describes an action the responsible entity must perform.
- **To what outcome** — describes the expected, measurable outcome from the action.
- **Under what conditions** — describes specific conditions under which the action must be performed. If blank, the action is assumed to be required at all times and under all conditions.

Each requirement should identify a product or activity that makes a definite contribution to reliability.

Drafting teams should focus on defining measurable outcomes for each requirement, and not on prescribing *how* a requirement is to be met. While being more prescriptive may provide a sense of being more measurable, it does not add reliability benefits and may be inefficient and restrict innovation.

Issues Related to Technical Adequacy

In May 2006, the Commission issued an assessment on the then proposed reliability standards. The Commussion noted under a "technical adequacy" section that requirements specified in some standards may not be sufficient to ensure an adequate level of reliability. While Order No. 672 notes that "best practice" may be an inappropriately high standard, it also warns that a "lowest common denominator" approach will not be acceptable if it is not sufficient to ensure system reliability.

Each standard should clearly meet the statutory test of providing an adequate level of reliability to the bulk power system. Each requirement should be evaluated and the bar raised as needed, consistent with good practice and as supported by consensus.

Issues Related to Compliance Elements

Each reliability standard includes a section to address measures and a section to address compliance. Most of the major changes made to the template for reliability standards over the past year have been focused on re-aligning the content of standards to include the various elements needed to support mandatory compliance. The Uniform Compliance Enforcement Guidelines, ERO Sanctions Guidelines, and Compliance Registry Criteria have been modified and have been approved by the Commission. As each standard is revised, or as new standards

are developed, drafting teams need to familiarize themselves with these documents to ensure that each standard proposed for ballot is in a format that includes all the elements needed to support reliability and to ensure that the standard can be enforced for compliance.

The compliance-related elements of standards that may need to be modified to meet the latest approved versions of the various compliance documents noted above include the following:

- Each requirement must have an associated Violation Risk Factor.
- Each requirement must have an associated Time Horizon.
- The term, "Compliance Monitor" has been replaced with the term, "Compliance Enforcement Authority." Either the Regional Entity or the ERO may serve as the compliance enforcement authority. For most standards, the Regional Entity will serve as the compliance enforcement authority. In the situation where a Regional Entity has authority over a reliability coordinator, for example, the ERO will serve as the compliance enforcement authority to eliminate any conflict of interest.
- The eight processes used to monitor and enforce compliance have been assigned new names.
    - Compliance Audits
    - Self-Certifications
    - Spot Checking
    - Compliance Violation Investigations
    - Self-Reporting
    - Periodic Data Submittals
    - Exception Reporting
    - Complaints
- The audit cycles for various entities have been standardized so that the Reliability Coordinator, Transmission Operator, and Balancing Authority will undergo a routine audit to assess compliance with each applicable requirement once every three years while all other responsible entities will undergo a routine audit once every six years.
- Levels of Non-compliance have been replaced with "Violation Severity Levels."

All requirements are subject to compliance audits, self-certification, spot checking, compliance violation investigations, self-reporting and complaints. Only a subset of requirements is subject to monitoring through periodic data submittals and exception reporting.

Measures: While a measure can be used for more than one requirement, there must be at least one measure for each requirement. A measure states what a responsible entity must have or do to demonstrate compliance to a third party, i.e., the compliance enforcement authority. Measures are "yardsticks" used to evaluate whether required performance or outcomes have been achieved. Measures do not add new requirements or expand the details of the requirements. Each measure shall be tangible, practical, and objective. A measure should be written so that achieving full compliance with the measure provides the compliance monitor with the necessary and sufficient

information to demonstrate that the associated requirement was met by the responsible entity. Each measure should clearly refer to the requirement(s) to which it applies.

Violation Severity Levels: The Violation Severity Levels (formerly known as Levels of Non-Compliance) indicate how severely an entity violated a requirement. Historically, there has been confusion about Levels of Non-Compliance. Some of the previously existing Levels of Non-Compliance incorporate reliability-related risk impacts or consequences. Going forward, the risk or consequences component should be addressed only by the Violation Risk Factor, while the Violation Severity Levels should only be used to categorize how badly the requirement was violated. A set of Commission-approved VSLs exists for each of the original 83 reliability standards as a result of the work of the Project 2007-23 drafting team.

Criteria for determining which VSL to use:
It is preferable to have four VSLs representing a spectrum of performance, but where that does not work, the VSLs should be defensible in supporting the criteria in the table below.

Lower VSL	Moderate VSL	High VSL	Severe VSL
The performance or product measured almost meets the full intent of the requirement.	The performance or product measured meets the majority of the intent of the requirement.	The performance or product measured does not meet the majority of the intent of the requirement, but does meet some of the intent.	The performance or product measured does not substantively meet the intent of the requirement.

Violation Risk Factors: Each drafting team is also instructed to develop a Violation Risk Factor for each requirement in a standard in accordance with the following definitions:

- **High Risk Requirement** — A requirement that, if violated, could directly cause or contribute to bulk power system instability, separation, or a cascading sequence of failures, or could place the bulk power system at an unacceptable risk of instability, separation, or cascading failures; or a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly cause or contribute to bulk power system instability, separation, or a cascading sequence of failures, or could place the bulk power system at an unacceptable risk of instability, separation, or cascading failures, or could hinder restoration to a normal condition.
- **Medium Risk Requirement** — A requirement that, if violated, could directly affect the electrical state or the capability of the bulk power system, or the ability to effectively monitor and control the bulk power system. However, violation of a medium risk requirement is unlikely to lead to bulk electric system instability, separation, or cascading failures; or a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly and adversely affect the electrical state or capability of the bulk power system, or the ability to effectively monitor, control, or restore the bulk power system. However, violation of a medium risk requirement is unlikely, under emergency, abnormal, or restoration conditions anticipated by the preparations, to lead to bulk power system

instability, separation, or cascading failures, nor to hinder restoration to a normal condition.

- **Lower Risk Requirement** — A requirement that is administrative in nature and, a requirement that, if violated, would not be expected to affect the electrical state or capability of the bulk power system, or the ability to effectively monitor and control the bulk power system. A requirement that is administrative in nature; or a requirement in a planning time frame that, if violated, would not, under the emergency, abnormal, or restorative conditions anticipated by the preparations, be expected to affect the electrical state or capability of the bulk power system, or the ability to effectively monitor, control, or restore the bulk power system.

Time Horizons: The drafting team must also indicate the time horizon available for mitigating a violation to the requirement:

- **Long-term planning** — a planning horizon of one year or longer.
- **Operations planning** — operating and resource plans from day ahead up to and including seasonal.
- **Same-day operations** — routine actions required within the timeframe of a day, but not real time.
- **Real-time operations** — actions required within one hour or less to preserve the reliability of the bulk electric system.
- **Operations assessment** — follow-up evaluations and reporting of real time operations.

Note that some requirements occur in multiple time horizons, and it is acceptable to have more than one time horizon for a single requirement.

The drafting team should seek input and review of all measures and compliance information from the compliance elements drafting team members assigned to support each standard drafting team or from the NERC compliance staff.

Coordination with NAESB

Many of the existing NERC standards are related to business practices, although their primary purpose is to support reliability. Reliability standards, business practices, and commercial interests are inextricably linked. An example of an existing standard that is both a reliability standard and a business practice is the Transmission Loading Relief (TLR) Procedure currently used as an interconnection-wide congestion management method in the Eastern Interconnection.

It would be safe to conclude that every reliability standard has some degree of commercial impact and therefore impacts competition. The statutory test to be applied by the Commission is whether the reliability standard has an "undue adverse effect" on competition.

NERC has taken several steps to ensure its reliability standards do not have any undue, adverse impact on business practices or competition. First, NERC coordinates the development of all

standards with the North American Energy Standards Board (NAESB). In addition to this formal process, drafting teams work with NAESB groups to ensure effective coordination of wholesale electric business practice standards and reliability standards. NERC and NAESB follow their procedure for the joint development of standards in areas that have both reliability and business practice elements. This procedure is being implemented for all standards in which the reliability and business practice elements are closely related, thereby making joint development a more efficient approach.

This work plan includes several projects that require close coordination and joint development with NAESB:

- Project 2006-08 — Transmission Loading Relief
- Project 2007-05 — Balancing Authority Controls
- Project 2007-18 — Reliability Based Control
- Project 2008-01 — Voltage and Reactive Control
- Project 2008-12 — Coordinate Interchange Standards
- Project 2009-03 — Emergency Operations
- Project 2010-02 — Connecting New Facilities to the Grid
- Project 2010-04 — Demand Data

To ensure each reliability standard does not have an undue adverse effect on competition, NERC requires that each standard meet the following criteria:

- Competition — A reliability standard shall not give any market participant an unfair competitive advantage.
- Market Structures — A reliability standard shall neither mandate nor prohibit any specific market structure.
- Market Solutions — A reliability standard shall not preclude market solutions to achieve compliance with that standard.
- Commercially Sensitive Information — A reliability standard shall not require the public disclosure of commercially sensitive information. All market participants shall have equal opportunity to access commercially non-sensitive information that is required for compliance with reliability standards.

During the standards development process, each Standards Authorization Request (SAR) drafting team asks the following question to determine if there is a need to develop a business practice associated with the proposed standard:

- Are you aware of any associated business practices that we should consider with this SAR?

Each standard drafting team also asks the following question to determine if there is a potential conflict between a reliability standard and business practice:

- Are you aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement? If yes, please identify the conflict.

Additional Considerations

Drafting teams should consider the following in reviewing and revising their assigned standards:

- **Title**: In general, the title should be concise and to the point. Care should be taken not to try to fully describe a standard through its title. The title should fit a single line in both the header and in the body of the standard.
- **Purpose**: Current purpose statements are inconsistent. The purpose should clearly state a benefit to the industry (value proposition) in fulfilling the requirements. The purpose should not simply state "the purpose is to develop a standard to…" The purpose should be tied to one or more of the reliability principles.
- **References**: Section (F) provides a place to list associated references that support implementation of the standard. Drafting teams may develop or reference supporting documents with approval of the Standards Committee.
- **Version histories**: Version histories should be expanded to include complete listings of what has been changed from version to version so that end-users can easily keep track of changes to standards. This will also serve as a type of audit trail for changes.

Resource Documents Used

NERC used several references when preparing this plan. These references provide detailed descriptions of the issues and comments that need to be considered by the drafting teams, which are included in the second volume of the work plan, as they work on the standards projects defined in the plan. The references include:

- FERC NOPR on Reliability Standards, October 20, 2006.
- FERC Staff Preliminary Assessment of Proposed Reliability Standards, May 11, 2006.
- FERC Order No. 693 Mandatory Reliability standards for the Bulk Power System, March 16, 2007.
- FERC Order No. 693-A Mandatory Reliability Standards for the Bulk Power System, July 19, 2007.
- FERC Order No. 890 Preventing Undue Discrimination and Preference in Transmission Service, February 16, 2007.
- Comments of the North American Electric Reliability Council and North American Electric Reliability Corporation on Staff Preliminary Assessment of Reliability Standards, June 26, 2006.
- Comments of the North American Electric Reliability Corporation on Staff Preliminary Assessment of NERC Standards CIP-002 through CIP-009, February 12, 2007.

- Comments of the North American Electric Reliability Corporation on the Notice of Proposed Rulemaking for Facilities Design, Connections and Maintenance Reliability standards, September 19, 2007.
- Comments received during the development of Version 0 reliability standards.
- Consideration of comments of the Missing Compliance Elements drafting team.
- Consideration of comments of the Violation Risk Factors drafting team.
- Consideration of comments in the Phase III–IV standards.
- Comments received during industry comment period on work plan.
- Q&A for Standards and Compliance.

Appendix A — Summary of Industry Comments

Reliability Standards Development Plan 2010-2012
As of September 29, 2009

Comment 1
Name: Carol Gerou
Organization: Midwest Reliability Organization

Suggestion or Comment: NERC should sponsor an industry triage of the standards to identify the core requirements and flag those that are minutia. This will allow all of industry (NERC, Regional Entities and Registered Entities) to focus resources on what will support reliability rather than push paper to demonstrate compliance with requirements that don't support reliability.

Example: A simple example is the DCS. The true core requirements are to recover from all reportable events in 15 minutes and replentish reserves in 90 minutes thereafter. The rest of the Rs are an explanation of what that means, how it's handled in a Reserve Sharing Group and also the procedural reporting items. However, we are now moving down a path to assign measures and sanctions to 20 different things in this standard.

Recommendation for improvement: A first step for any standards improvement effort would be the creation of a database companion to the standards. This would not only be a platform to capture the triage comments, the database could be used by registered entities to identify all the requirements that apply to them. Presently it is impossible to say with assurance you have found all applicable requirements. For example, there are several cases where an entity is mentioned in a requirement, but that entity is not identified in the "applicability" section of the standards.

Once you have the triage complete, format changes are just a matter of programming.

If you look at the present V0 and V1 standards, many things labled as requirements are actually criteria, procedures, administrative directions and explanitory text.

As an example of what can be done to improve the final format after the triage, refer to Europe's Policy 1 at: http://www.ucte.org/resources/publications/ophandbook/

The bullets in their policies are broken into a few categories:

- C for Criteria (goals and background of the standard)
- R for Requirements (generally attributes that are yes/no go/no-go)
- S for Standards (things measured on a scale)
- P for Procedures (administrative information)
- G for guides (while we have moved away from guides, the issue still remains what to do with the good practices that are being lost from institutional memory)

If there is information beyond this, it is likely reference information and should be moved to an appendix in the standard (using A for paragraph numbers).

The benefit in making such a format change is that the industry can focus on those things that are important for reliability. It also allows NERC and the Regions to focus on the important things.

Compliance elements would be applied to the requirements and standards. There still could be notification to regulatory bodies on procedural deficiencies.

This is not a suggestion for any change to content in the standards, just a reformatting.

NERC Response:

In response to your recommendation (as well as similar recommendations from others) we have added Project 2010-06 Results-based Reliability Standards to the *Reliability Standards Development Plan: 2010-2012* for a project focused on:

- triaging the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all,
- developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis,
- promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and
- revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability.

Note that the "applicability" section of each standard doesn't identify all functional entities mentioned in a standard – the "applicability" section of the standard identifies just those functional entities with responsibility for compliance with one or more requirements in the standard.

There is an effort underway to put the standards into a relational database, until this is ready for stakeholder use, we have published a list of all requirements in all standards that have been approved by FERC that can be sorted by functional entity. This excel spreadsheet is posted at the following site:

http://www.nerc.com/docs/standards/rs/VRF_Standards_Applicability_Matrix_2009June25.xls

Project Number(s): 2007-09

Project Title(s): Generation Verification

Suggestion or Comment: In Volume 2, Reliability Standards Development Plan Overall Project Schedules, the Generation Verification project looks like it's mislabeled as Project 2007-08.

Recommendation for improvement: Update Overall Project Schdeules or connect hyperlink to current project summary calendar (called "Standards Under Development Anticipated Posting Calendar") provided on the NERC sStandards Under Deveopment webpage.

NERC Response:

The label for Project 2007-09 Generator Verification in the Overall Project Schedules in Volume II of the Reliability Standards Development Plan: 2010-2012 has been corrected.

Reliability Issue: List of projects

Suggestion or Comment: The plan lists several projects but it indicates that limited resources exist, it would seem partical to pick a set of projects which have a high priority and complete that set and then move on to less priority projects. Plus, in the plan Volume 1 mentions that some project have a higher proirity then other. The plan even expresses the objectives for determining the priority (Volume 1, page 5, and section titled "Objectives as Part of the Goal") but the actual projects are not priortized.

Example: A set of projects would be the fill-in-the-blank standards. If the industry could take an approach on this set alone, it would not be spinning it wheels so to speak. The technical expertise used to develop both regional and continental wide standards could be free to work on other standards.

Recommendation for improvement: Pick a set of projects which have a high priority and complete

that set then work on less priority projects.

NERC Response:

You touch upon two distinct concepts in your comments above. The first being the need to work on high priority projects before moving on to lower priority projects. With respect to this issue, what might be a high priority project in the eyes of one entity might not be in the eyes of another entity. NERC staff coordinates all standards development activities through the NERC Standards Committee. In compliance with the *NERC Reliability Standards Development Procedure*, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. NERC staff works with the NERC Standards Committee to identify the projects of highest overall industry importance before working on lower priority projects. In some cases a high priority project is delayed while waiting for research or analysis needed to develop a set of technically-based requirements. This was the case with the Voltage and VAR Control project, the Real-time Tools project, and others. As we move forward, we are trying to have the technical foundation for each standard clearly identified before the SAR is initiated.

The second concept you touch upon in your comments above is the statement that actual projects are not prioritized. It might not obviously appear that projects in the *Reliability Standards Development Plan*: 2009-2011 are prioritized but in actuality the structure of the *Reliability Standards Development Plan: 2009-2011* as well as this revised plan is such that the projects are positioned in the plan so that the "higher priority" projects are designated to be initiated in the immediate year and the "lower priority" projects are designated to be initiated in the later years of the plan.

Suggestion or Comment: The plan should be updated to show actual status of the projects. Only show last major milestone.

Example: Starting from the Reliability Standards Development Plan Overall Project Schedule housed in the plan (Volume 2) add a diamond symbol to show latest milestone in the project. Milestones would be last posting for ballots or comments.

NERC Response:

Links to the current project schedule for each of the active projects are provided at the end of each project description in Volume II of the Reliability Standards Development Plan. The on-line project schedules are updated monthly and should provide the level of detail you suggest in your comment above.

Comment 2
Name: Denise Koehn
Organization: Bonneville Power Administration

Suggestion or Comment: BPA has no dispute regarding the revision needs; however, this is an aggressive schedule and will require considerable effort to accomplish as many items per year as scheduled. The schedule seems a little aggressive. Otherwise, plan looks good.

NERC Response:

We appreciate your comment relative to the "aggressiveness" of the schedules indicated in the *Reliability Standards Development Plan*. The standards development process continues to evolve as does the establishment of realistic project schedules to complement the process. With the publication of this *Reliability Standards Development Plan: 2010-2012* NERC staff, working in conjunction with the individual drafting teams, has attempted to publish more realistic schedules for each project.

Comment 3
Name: Dora Moreno
Organization: Southern California Edison Company

Standard Title(s): NERC Reliability Standards Development Plan 2009-2011

Suggestion or Comment: Southern California Edison Company ("SCE") hereby submits its comments on the North American Electric Reliability Corporation's ("NERC") annual revision to the NERC Reliability Standards Development Plan (Plan).

SCE greatly appreciates the work that went into developing the Plan, and commends NERC for the extensive overview and depth it provides with respect to the development of reliability standards. This being said, SCE is generally supportive of the document and goals NERC has set for the development of reliability standards. The timelines identified in the Plan, like the Plan itself, are too dynamic (non-static/ever changing) to be used as targets, and may need to be modified as projects are launched and the drafting teams proceed forward with them.

NERC Response:

NERC staff appreciates you comments and concurs with your specific comment that the timelines identified in the plan, like the plan itself, is dynamic. NERC staff will continue to coordinate all standards development activities through the NERC Standards Committee and be responsive to industry needs and will publish more realistic schedules for each project in the future.

Comment 4

Name: Doug Hohlbaugh

Organization: FirstEnergy

Project Number(s): 2009-03

Project Title(s): Emergency Operations (Covers standards EOP-001 "Emergency Operations Planning", EOP-002 "Capacity & Energy Emergencies", EOP-003 "Load Shedding Plans" and IRO-001 "Reliability Coordinator - Responsibilities and Authorities"

Suggestion or Comment Consider advancing project 2009-03 and including it in a list of High Priority projects that need addressed within NERC 3-year Work Plan. See FE comment 4B below stating a need to establish a list of High Priority projects and suggestions on how such a list may be compiled.

Project 2009-03 is an example project that addresses core real-time operations requirements that should be considered for advancement in NERC's work plan. This project has yet to start and there are reliability and compliance ambiguities that require mitigation. For example, in EOP-003, R5 states the following "A Transmission Operator or Balancing Authority shall implement load shedding in steps established to minimize the risk of further uncontrolled separation, loss of generation, or system

shutdown" This is a HIGH Violation Risk Factor requirement that should not lack clarity in compliance certainty related to who has the authority to shed load.

The purpose statement of the EOP-003 standard indicates that the BA and TOP must have the capability and authority to shed load. It is unclear what is meant by capability. Capability could range from ability to direct action to open breakers or an expectation to open breakers and drop load. However, the standard is not written clearly related to the expectations of the TOP and BA in regard to load shed. Within the EOP-003 standard, 50% of the requirements include a statement "A Transmission Operator or Balancing Authority shall …" and should be revised on a more expeditious schedule to improve reliability and compliance certainty.

Recommendation for improvement: Consider advancing project 2009-03 and including it in a list of High Priority projects that need addressed within NERC 3-year Work Plan. See FE comment 4B below stating a need to establish a list of High Priority projects and suggestions on how such a list may be compiled.

NERC Response:

NERC staff agrees with FirstEnergy's suggestion of the importance of Project 2009-03 Emergency Operations. As of this writing, Project 2009-03 has not been initiated; however, it is one of the next projects waiting to be initiated once one of the currently active projects has completed and the appropriate resources are made available.

Suggestion or Comment:

A) The industry -BES users, owners and operators as well as regulatory enforcement staff - is overwhelmed with compliance enforcement actions based on little or no BES reliability gap related to violations that are largely documentation related. This inefficiency is wasting valuable resources with no measured improvement in NERC's vision of Adequate Level of Reliability which the standards collectively aim to achieve. Requirements that are largely administrative should not be subjected to the compliance Sanctions Matrix and should be partitioned within the standards.

B) We are concerned with the large volume of work within the NERC work plan and the stress placed on its limited staff and industry resources. NERC needs to re-assess its projects and develop a short list of key High Priority projects that will drive the greatest reliability improvements within the industry. These select projects should receive detailed attention and priority by NERC staff, NERC SC and industry as they move through the standards development process.

The key projects should be held to greater scrutiny from a project management view. It should be expected that team members on these teams are held to a higher level of accountability, committed to providing significant time and energy to advance the industry in the key areas that will raise the adequate level of reliability. One example where this has been used is the CIP project.

c) Interpretation Request - NERC should allow sufficient bandwidth in their schedule to address interpretation requests which seem to be on the rise. It should be understood that the use of existing drafting teams to respond to interpretation requests causes delays in standard development work progress.

D) The NERC Work plan should cast a clear picture of the ERO/industry vision that clearly articulates a future target for the reliability standards and the core BES reliability goals they aim to achieve.

Recommendation for improvement:

A) The standards should be scrubbed to remove or re-classify administrative and documentation related requirements that do not serve a reliability related goal. To the extent retained, two levels of requirements should exist within the standard 1) Reliability Requirements and 2) Administrative Requirements. For example many requirements direct entities to provide some sort of documentation

within X calendar days, upon a request to do so. These types of requirements, if violated, should not bog the industry down in paperwork moving through the normal compliance enforcement process and should only be subject to a penalty for repeat offenders. When a penalty is warranted for Administrative Requirements, it should have a separate expedited process and the fine should escalate for repeat offenders with some consideration of the length of time between repeat violations.

B) We suggest a leadership team with representative members of each of the NERC Standing Committees (SC, PC, OC, CCC and CIPC) direct a working group aimed at developing a methodical review of the existing standards to develop the High Priority list of reliability standards that require sharp focus from industry. The prioritization should be based on a number of different aspects such as: 1) frequency of interpretation requests for a given standard - this could point to lack of clear requirement language; 2) the frequency of violations for a given standard - could point to a need to re-evaluate the metrics used to gauge compliance and determine if the proper industry expectations regarding a particular reliability target is being achieved. The standards should not expect perfection as their goal.; 3) requirement redundancy - this should remain a focus of the Work Plan to remove potential for multiple violations, the standards should remain clear and concise; 4) Clear expectations - many of the standards still lack measures. It's not clear why the industry is putting forth time and energy on developing both measures and Reliability Standards Audit Worksheets (RSAWs). It seems that clear written measures along with the requirements should suffice in providing a responsible entity the information needed to ensure compliance. The RSAWs should not be an on-going expecatation of the standards and the Work Plan should clearly cast this vision. Creating both RSAWs and measures creates unnecessary effort to maintain two sets of information serving the same function.

A presentation was made by the NERC Standards Process Subcommittee (a subcommittee of the SC) at the April 15-16, 2009 NERC Standards Committee meeting that describe a potential method for establishing a list of criteria for evaluating the standards, prioritizing the work needed with a focused effort of trimming down the requirements to core reliability requirements aimed at a particular reliability goal. It's suggested that the work of the NERC Process Subcommittee form the basis of establishing the High Priority list of standards which should ultimately rise to the top of NERC's Work Plan.

C) FE well understands the benefits of utilizing an already formed standards drafting team (SDT) to expedite a response to a standard interpretation request as the team already assembles the SMEs to address a particular subject matter. The SDT also benefits from the experience by being made acutely aware of confusion that exists within an existing standard it is addressing for improvement.

A potential downside to using SDT personnel is the distraction created by the interpretation request and a delay in the standards development work. NERC should closely monitor the workload placed on SDT's being asked to respond to interpretation requests and poll the SDT members to see if they believe there would be any benefit in an alternative approach for interpretation responses.

One potential alternative would be to form a separate sub-committee or work group under the CIPC, OC and PC that would address all interpretation requests related to various class of standards that each of these standing committees would be expected to address. This would allow the SDTs to remain focused on their work in developing new/revised reliability requirements.

D) The Work Plan should set the vision of what the ERO/industry will achieve as a 5-year target. This vision should foretell a 5-year plan of a strong, self supporting industrial model that will triage the standards to separate critical core reliability requirements from the lesser administrative tasks, a dedicated focus of reducing the reliability requirements to those that support NERC's Adequate Level of Reliability and clearly identify the High Priority projects being addressed on a expedited schedule. The 5-year target should seek to continuously improve and adjust as needed to raise the BES reliability where warranted by clear metrics and should not anticipate perfect reliability.

NERC Response:

A and B) In response to your recommendation (as well as similar recommendations from others) we

have added Project 2010-06 Results-based Reliability Standards to the *Reliability Standards Development Plan: 2010-2012* for a project focused on:

- triaging the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all,
- developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis,
- promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and
- revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability.

C) We appreciate your concern related to the process used for developing interpretations. This topic is one of many topics currently being vetted by the members of the NERC Standards Committee and your concerns are more appropriately addressed in that venue.

D) The Reliability Standards Development Plan is a short-term forward looking three-year plan for reliability standard development and not necessarily a master plan that sets the long-term goals of the standards program. NERC staff coordinates all standards development activities through the NERC Standards Committee whose membership consists of industry representatives. In compliance with the NERC Reliability Standards Development Procedure, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. The Standards Committee protects the integrity and credibility of the standards development process. NERC staff facilitation of the standards development process in coordination with the Standards Committee takes into consideration the potential impact on industry resources when planning standards related projects and activities.

Comment 5
Name: Frank Gaffney
Organization: Florida Municipal Power Agency

Standard Number(s): EOP-001-1, EOP-003-1, IRO-008-1, IRO-009-1, IRO-010-1, PRC-006-0, PRC-007-0, TOP-001-1, TOP-002-2a, TOP-003-1, TOP-006-2, VAR-001-1a

Standard Title(s): Emergency Operations Planning, Load Shedding Plans, Reliability Coordinator Operational Analyses and Real-Time Assessments, Reliability Coordinator Actions to Operate Within IROLs, Reliability Coordinator Data Specifications and Collection, Development and Documentation of Regional UFLS Programs, Assuring Consistency with Regional UFLS Programs, Reliability Responsibilities and Authorities, Monitoring System Conditions, Voltage and Reactive Control

Suggestion or Comment: The current standards are inconsistent with each other in certain areas and confuse the roles of a Balancing Authority (BA), Transmission Operator (TOP), Reliability Coordinator (RC), Regional Entity (RE), Generation Operator (GOP) and Transmission Planner (TP). The confusion manifests in a few ways. First, it causes the BA to be responsible for requirements that ought to be only applicable to the TOP (such as managing transmission line outages), and visa versa (such as managing fuel supply), probably thinking that most BAs are also TOPs. However, there are BAs that are not TOPs and visa versa. Secondly, it causes redundancy in roles and confusion in leadership in causing certain activities to happen. For instance, both the TOP and RC are responsible for managing IROLs without clear leadership between the two. Also, if a Load Serving Entity (LSE) or GOP receives directives from both the RC and the TOP that conflict with each other, what should the LSE or GOP do?

Example: The NERC Glossary of terms defines a BA as: "The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time." In other words, responsible for supply and demand balance in the operating horizon. With this definition in mind, why is the BA responsible for EOP-001-1 R2.2 "Develop, maintain, and implement a set of plans to mitigate operating emergencies on the transmission system"? Similarly, the TOP is defined as: "(t)he entity responsible for the reliability of its 'local' transmission system, and that operates or directs the operations of the transmission facilities." With this definition in mind, why is the TOP made responsible for EOP-001-1 R2.1: "(d)evelop, maintain, and implement a set of plans to mitigate operating emergencies for insufficient generating capacity"? There are more examples of this, and other inconsistencies between the BA, TOP, RC, RE, GOP and TP, as summarized below:

In EOP-001-1 R4, Appendix A includes items that are not applicable to the TOP and are only applicable to the BA, e.g., why is a TOP responsible for fuel supply? Why is a TOP responsible for R6.2 concerning emergency energy? Why is a TOP responsible for fuel supply in R6.4, and why is the TOP responsible for arranging energy delivery?

In EOP-003-1 R2, why is the BA responsible for Under Frequency Load Shedding (UFLS) when PRC-006-0 and PRC-007-0 make it the responsibility of the Regional Entities, the TOPs, the Distribution Providers and the LSEs? Why is the BA responsible for Under Voltage Load Shedding (UVLS) when the responsibility should probably be just the TOP's? Isn't this requirement redundant with PRC-006-0 and PRC-007-0?

IRO-008-1 and IRO-009-1 requires RCs to operationally plan for and operate within IROLs. TOP-004-2 and VAR-001-1a R10 requires the TOPs to do the same, yet there is no discussion in the standards of coordination between the RC and TOPs in the standards. Note that VAR-001-1a R10 and R12 are dedundant with TOP standards such as TOP-004-2.

TOP-001-1 R8, the requirement ought to clearly delineate that the BA is responsible for restoring real power balance, and the TOP reactive power balance.

TOP-002-2a, the standard is for Transmission Operations Planning yet there are numerous requirements for the BA that should probably be set apart as separate requirements under a new BAL standard for operational planning for supply and demand balance, contingency reserves, and regulation service, which are not related to Transmission Operations Planning.

TOP-002-2a R8, why is it the BA's responsibility to meet voltage or reactive reserves, isn't that the role of the TOP, as spelled out in the VAR standards? If the issue is to ensure enough generation is on-line in specific areas that might need reactive support, isn't that still the TOP's responsibility to coordinate with the BA and issue direction if necessary?

TOP-003-1 R1.2, why is the TOP responsible for providing generator outage information? Isn't that the BA's or GOP's responsibility and isn't this redundant with IRO-010-1?

TOP-006-2 R1, R1.2, why are BAs responsible for information regarding transmission resources available for use? Isn't that the role of the TOP?

TOP-006-2 R2, why is the BA responsible for monitoring transmission line status, voltage, load tap changer settings, and reactive power in general? Monitoring and managing reactive resources, voltage and tap settings is clearly made the responsibility of the TOP in VAR-001-1a.

TOP-006-2 R3 why does the BA need to understand protective relaying? Isn't that the role of the TOP and GOP?

VAR-001-1a R2 requires the TOP to acquire sufficient reactive resources. The statement probably ought to clearly delineate that this requirement is applicable to the operating horizon only and that the TP is responsible for adequate reactive resources in the planning horizon.

Recommendation for improvement: Revise the standards to clearly delineate the responsibilities of the various entities and clear up the redundancy and inconsistencies between the standards. The examples provided include some suggestions for changes to help make roles and responsibilities more clear.

NERC Response:

There are some inconsistencies in identifying the responsible entity – during the development of the Version 0 standards, the drafting team sometimes converted the term, "control area" to "Balancing Authority and Transmission Operator" when the conversion should have clearly assigned the requirement to either the Transmission Operator or the Balancing Authority, but not to both. We are trying to correct these applicability errors as we modify the standards.

Several of the recommended modifications have already been addressed, including deletion of TOP-001-1, Requirement R8; removal of BA requirements from TOP-002; deletion of TOP-003 Requirement R1.2;removal of BA from TOP-006; IRO-008 and IRO-009 require the RC to develop action plans for preventing and mitigating instances of exceeding IROLs and require sharing this information with the entities that need to take these actions – so there is coordination between the IRO standards and the TOP standards.

The following items have been added to the Issues Database to be addressed by the standard drafting team responsible for revising the standard:

Source: Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan:2010-2012

EOP-001-1	Project 2009-03	The NERC Glossary of terms defines a BA as: "The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time." In other words, responsible for supply and demand balance in the operating

		horizon. With this definition in mind, why is the BA responsible for EOP-001-1 R2.2 "Develop, maintain, and implement a set of plans to mitigate operating emergencies on the transmission system"?
EOP-001-1	Project 2009-03	The NERC Glossary of terms defines a TOP as: "(t)he entity responsible for the reliability of its 'local' transmission system, and that operates or directs the operations of the transmission facilities." With this definition in mind, why is the TOP made responsible for EOP-001-1 R2.1: "(d)evelop, maintain, and implement a set of plans to mitigate operating emergencies for insufficient generating capacity"?
EOP-001-1	Project 2009-03	Requirement R4 (and by reference Attachment 1-EOP-001-0) is applicable to both the Transmission Operator and Balancing Authority but includes items that are not applicable to the TOP and are only applicable to the BA, e.g., why is a TOP responsible for fuel supply? Why is a TOP responsible for R6.2 concerning emergency energy? Why is a TOP responsible for fuel supply in R6.4, and why is the TOP responsible for arranging energy delivery?
EOP-003-1	Project 2009-03	With regard to requirement R2, why is the BA responsible for Under Frequency Load Shedding (UFLS) when PRC-006-0 and PRC-007-0 make it the responsibility of the Regional Entities, the TOPs, the Distribution Providers and the LSEs? Why is the BA responsible for Under Voltage Load Shedding (UVLS) when the responsibility should probably be just the TOP's? Isn't this requirement redundant with PRC-006-0 and PRC-007-0?
EOP-003-1	Project 2007-01	Requirement R2 of EOP-003-1 states: “Each Transmission Operator and Balancing Authority shall establish plans for automatic load shedding for underfrequency or undervoltage conditions.” The standards drafting team for Project 2007-01 Underfrequency Load Shedding should consider modifying this requirement as part of their project.
VAR-001-1a	Project 2008-01	Requirement R2 requires the TOP to acquire sufficient reactive resources. The statement probably ought to clearly delineate that this requirement is applicable to the operating horizon only and that the TP is responsible for adequate reactive resources in the planning horizon.
VAR-001-1a TOP-004-2.	Project 2008-01	VAR-001-1a R10 and R12 are redundant with TOP standards such as

Comment 6
Name: Guy Zito
Organization: Northeast Power Coordinating Council

Suggestion or Comment: The initial draft of the intended "final" version of the document should be posted for comment. "Fill in the blank" projects versus blackout recommendation projects should be appropriately prioritzed.

Recommendation for improvement: The Reliability Standards Development Plan: 2010-2012 version should be the version that is posted for comments. Having the 2009-2011 version posted is contributing to industry confusion over what information to submit for comments.

NERC Response:

Thank you for your comment. We will consider incorporating your suggestion into next year's project for revising the *Reliability Standards Development Plan.*

Comment 7
Name: Hugh Francis
Organization: Southern Company

Suggestion or Comment: Page 9 of Appendix A has a list of projects that will be initiated each year. At the bottom of page 10 there is a strategy for project resources that addresses the resources needed to complete the standards projects in the project list. There are about the same number of projects in each year. What is not addressed is how these new projects are going to be started/completed without additional resources. This plan does not address the resources needed to keep the earlier projects revised and current. At this time there are 95 nation-wide standards and only 35 or less than 37% have not been revised.

Recommendation for improvement: The new Standards Development Plan needs to address current manpower requirements as well as future needs for manpower. Adjust the project list in the future years to levelize manpower needed to initiate new standards as well as keep the current standards up to date and revised as needed.

NERC Response:

NERC understands the amount of resources required (both industry and NERC specific resources) for the development of quality standards and is cognizant of the fact that industry resources are not limitless. NERC staff coordinates all standards development activities through the NERC Standards Committee whose membership consists of industry representatives. In compliance with the NERC Reliability Standards Development Procedure, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. NERC staff facilitation of the standards development process in coordination with the Standards Committee takes into consideration the potential impact on industry resources when planning standards related projects and activities.

One of the requirements of the Rules of Procedure of the North American Electric Reliability Corporation is to review each standard at least once every five years, and we are facing the "five-year" anniversary of the initial effective date for the "Version 0" standards. The majority of projects slated to commence in 2010 in this revised plan will enable NERC to meet this requirement as it relates to the initial set of reliability standards.

Comment 8

Name: Jalal Babik

Organization: Dominion Resources Inc.

Project Number(s): 2007-01-RE, 2007-05-RE, 2007-11-RE, 2008-04-RE.

Project Title(s): Underfrequency Load Shedding, Balancing Authority Contols, Disturbance Monitoring, Protection System

Suggestion or Comment: NERC must place more priority on fill-in the blank standards in its Reliability Standards Development Plan. Since several of these standards, have not gotten priority attention, Regional Councils are moving ahead with Regional Standards development on these standards, while a national standard would be more appropriate and prevent the development of unnecesary regional differences in standards that ultimately make standards compliance more difficult for registered entities operating in more then one Region. Further, a national standard on these important compliance topics would set the threshold and hence, regional differences or variences could be minimized. Without this prioritization, registered entities could face very different compliance requirements on simliar equipment in their fleet, based soley on what Region the equipment resides; making compliance management more difficult, yet for little to no benefit to the bulk power system and compliance costs. Additionally, given several of these projects were started in 2007, that reason alone should move these projects into the highest priority on NERC Development Plan.

Recommendation for improvement: These fill-in-the-blank standards should review top priority from NERC staff until they are balloted. Regional Standards that address then same compliance subjects should be put on hold until the national standard on the same compliance objective is addressed by ballot body. It is after that national balloting that Regions will know what regional differences are truly needed based on unique characteristics of their regional bulk electric system.

NERC Response:

The projects in question relative to the above comments are:

- Project 2007-01-RE — Underfrequency Load Shedding,
- Project 2007-05-RE — Balancing Authority Controls,
- Project 2007-11-RE — Disturbance Monitoring, and
- Project 2008-04-RE — Protection Systems

as described in Volume III of the *Reliability Standards Development Plan: 2009-2011* and the corresponding continent-wide projects currently underway or planned.

Three of the four corresponding continent-wide projects are well underway (those being Project 2007-01 Underfrequency Load Shedding, Project 2007-05 Balancing Authority Controls, and Project 2007-11 Disturbance Monitoring) and are subject to the schedule established by the associated standard drafting team. The fourth continent-wide project was identified in Volume II of the Reliability Standards Development Plan: 2009-2011 as Project 2010-05 Protection Systems. The work being performed in parallel by any particular region is subject to the oversight of the regional standards organization for that region and is not controlled by NERC staff. NERC standards staff is in regular contact with the individuals at each of the Regional Entities responsible for developing regional reliability standards. Coordination of the four projects referenced above is ongoing. In many instances, the Regional Entity has decided to commence work on the four 'fill-in-the blank' standards in order to able to better coordinate the development of the regional standard with the development of the continent-wide standard. This actually is to the benefit of those entities in the region affected by the standard.

Each Regional Entity has a FERC-approved regional standard development procedure. Embedded in the regional standard development process, a region seeking approval of a regional reliability standard must justify the need for the standard. It is incumbent on those that participate in the regional standards development process to determine the need to expend resources on developing a standard

as they deem appropriate. Each of the regional standards development procedures mandates a fair and open process for the development of standards. As such any interested party in the region should have a voice in which standards development projects are pursued and which standards are not. NERC cannot require a Regional Entity to justify a regional standard before it is developed.

Also, please see the "Fill-in-the-blank Standards" section of this Volume I for additional information related to fill-in-the-blank standards.

With respect to your comment regarding regional differences, we respectfully disagree with the assertion that only after national balloting will the need for a regional difference be known. It is optimal for all regional differences to be identified whether as part of the continent-wide standards development process or as part of a regional standards development effort prior to the continent-wide standard being balloted.

Comment 9

Name: Jason Marshall

Organization: Midwest ISO

Suggestion or Comment: NERC should sponsor an industry triage of the standards to identify the core requirements and flag those that are minutia. This will allow all of industry (NERC, Regional Entities and Registered Entities) to focus resources on what will support reliability rather than push paper to demonstrate compliance with requirements that don't support reliability.

Example: A simple example is the DCS. The true core requirements are to recover from all reportable events in 15 minutes and replenish reserves in 90 minutes thereafter. The rest of the Requirements are an explanation of what that means, how it's handled in a Reserve Sharing Group and also the procedural reporting items. However, we are now moving down a path to assign measures and sanctions to 20 different things in this standard.

Recommendation for improvement: A first step for any standards improvement effort would be the creation of a database companion to the standards. This would not only be a platform to capture the triage comments, the database could be used by registered entities to identify all the requirements that apply to them. Presently, it is impossible to say with assurance you have found all applicable requirements. For example, there are several cases where an entity is mentioned in a requirement, but that entity is not identified in the "applicability" section of the standards. In addition, the database would help to identify where there are redundant requirements in multiple standards and help to eliminate these redundancies and streamline the standards.

Once you have the triage complete, format changes are just a matter of programming.

If you look at the present V0 and V1 standards, many things labeled as requirements are actually criteria, procedures, administrative directions and explanatory text.

As an example of what can be done to improve the final format after the triage, refer to Europe's Policy 1 at: http://www.ucte.org/resources/publications/ophandbook/

The bullets in their policies are broken into a few categories:

- C for Criteria (goals and background of the standard)
- R for Requirements (generally attributes that are yes/no go/no-go)
- S for Standards (things measured on a scale)

- P for Procedures (administrative information)
- G for guides (while we have moved away from guides, the issue still remains what to do with the good practices that are being lost from institutional memory)

If there is information beyond this, it is likely reference information and should be moved to an appendix in the standard (using A for paragraph numbers).

The benefit in making such a format change is that the industry can focus on those things that are important for reliability. It also allows NERC and the Regions to focus on the important things.

Compliance elements would be applied to the requirements and standards. There still could be notification to regulatory bodies on procedural deficiencies.

This is not a suggestion for any change to content in the standards, just a reformatting.

NERC Response:

In response to your recommendation (as well as similar recommendations from others) we have added Project 2010-06 Results-based Reliability Standards to the *Reliability Standards Development Plan: 2010-2012* for a project focused on:

- triaging the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all,
- developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis,
- promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and
- revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability.

Project Number(s): Project 2009-04, Project 2011-01

Project Title(s): Phasor Measurement Units, Equipment Monitoring and Diagnostic Services

Suggestion or Comment: Project 2009-04 Phasor Measurement Units - While Midwest ISO supports continued and expanded use of PMUs, we believe that any standard developed should be a technical standard that facilitates a common implementation.

Project 2011-01 Equipment Monitoring and Diagnostic Services - While this project has some merit, it needs to be prioritized among all of the existing on-going standards work. There does not appear to be an overwhelming industry need to implement this standard to prevent the next system disturbance. One could even argue this standard is not about improving BES reliability because the BES must already be operated to withstand the next contingency.

Recommendation for improvement: Ensure the SAR for Project 2009-04 proposes to develop a technical standard only. Delay Project 2011-01 indefinitely until all version 0 standards have been approved by FERC with no additional revisions required. Then evaluate to determine if it is needed for reliability.

NERC Response:

With respect to your comment regarding Project 2009-04 Phasor Measurement Units the following item has been added to the Issues Database to be addressed by the standard drafting team responsible for revising the standard:

Source: Jason Marshall (Midwest ISO) as input to the Reliability Standards Development Plan:2010-2012

Project No.: 2009-04 Phasor Measurement Units

Language: While Midwest ISO supports continued and expanded use of Phasor Measurement Units, we believe that any standard developed should be a technical standard that facilitates a common implementation. Ensure the SAR for Project 2009-04 proposes to develop a technical standard only.

With respect to your comment regarding Project 2011-01 Equipment Monitoring and Diagnostic Services, the priority of this particular project remains relatively low in the revised Reliability Standards Development Plan.

Comment 10

Name: Jianmei Chai

Organization: Consumers Energy Company

Suggestion or Comment: When there are revisions to the NERC Glossary of Terms (Glossary), NERC should notify stakeholders of the change. New or revised terms are not added to the Glossary until they are approved by the NERC Board of Trustees. However, due to the volume of standards that go through the Standard Development Process, providing notice to stakeholders when the Glossary is revised provides the opportunity to validate that stakeholders are, in fact, adhering to the appropriate definitions. This is especially important with regard to revised terms. Currently, NERC provides notice to stakeholders for ballot results and when Standard Authorization Requests (SARs) and proposed Standards have been posted for comment. However, to our knowledge, no notice is provided when the Glossary is revised.

With regard to the Glossary itself, we offer the following suggestions:

1) Glossary terms should reference the Standards to which they apply. Not only would this be helpful in identifying how stakeholders should revise their compliance process, it would assist the Standards Drafting Teams, because they are required to determine if any existing Standards would be affected by a revision.

2) Clean and redline versions of the Glossary should be posted to allow stakeholders to more accurately track revisions.

3) Regional terms should state the region(s) to which they apply. This is especially important with respect to terms that subsequently may be incorporated into another region's Standards or into national Standards, particularly since stakeholders outside the region associated with the specific term(s) generally would not have had an opportunity to comment, except when the Regional Standard is posted for ballot at NERC.

4) Each Glossary term should appear in at least one Standard. We have identified terms that are not associate with any Standard.

5) When a term is revised, an effective date should be noted, as well as a termination date for the old definition.

6) Historical versions of the Glossary should be readily available on the NERC web site.

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In addition, we suggest that Requirements NOT include reporting data for compliance monitoring (this

should be in Measures), but only include data reporting where the data is used by the recipient for other reliability purposes. In other words, providing data to the RE periodically to demonstrate compliance should be a measure, but providing data to the RE periodically for RE model development should be a requirement.

NERC Response:

With regard to your first suggestion that NERC should notify the industry when a change is made to the NERC Glossary of Terms Used in Reliability Standards, NERC staff appreciates your concern and has begun revising our internal process by modifying our announcements to notify stakeholders when the NERC Board of Trustees approves a new/revised/retired definition.

With regard to your additional suggestions:

1. While this would be "nice" it is not "necessary." Each time a defined term is used in a reliability standard, the term is capitalized to indicate that the term uses the definition found in the glossary. If a drafting team proposes revising a standard, then the team must search all standards approved by the Board of Trustees and determine, with stakeholder feedback, if the modification to the term would adversely impact any of the already approved requirements. (You can see an example of this with the current posting for Project 2007-17 - Protection System Maintenance and Testing - the team is proposing to change the definition of Protection System and has provided a table with every instance where the term is used in an approved standard.)
2. While this would be "nice" it is not "necessary." The value of tracking past versions isn't clear.
3. We agree. The current version of the Glossary of Terms in Reliability Standards does not embed any regional definitions in the set of continent-wide definitions. In the future, additional sections may be added to the Glossary of Terms in Reliability Standards to provide a place to identify definitions that were developed and approved through a regional standards development process and approved by the NERC Board of Trustees.
4. We agree. We are unaware of any terms that aren't in any standards. Please forward the terms that you have discovered are no longer needed.
5. This is a good suggestion and can be adopted moving forward - however making this retroactive to provide the initial date for all terms would be labor intensive and isn't "necessary."
6. Because the glossary is updated after most Board of Trustee meetings, this would require retaining many versions of the glossary, and the benefit isn't clear.

Comment 11
Name: James H. Sorrels, Jr.
Organization: American Electric Power

Reliability Issue: With the addition of increasing volumes of new generation types and the current use of fossil fuel generation characteristics for such units, the accuracy of state estimator models are being adversely impacted.

Suggestion or Comment: Establish a Standards Drafting Team to address this reliability concern.

Example: Wind generators do not follow the typical reactive curves attributed to fossil fuel generator units. In fact, some types of wind units do not produce reactive support, while the state estimator model is reflecting that it does produce reactive support. Fossil fuel units produce dynamic reactor capability, while wind generators can be a combination of dynamic and static capability.

Recommendation for improvement: The developed standard, when effective, will improve the accuracy of state estimator models.

NERC Response:

Project 2009-02 Real-time Tools was initiated this year the Purpose of which states:

> "The new standard or standards will establish requirements for the functionality, performance, and management of Real-time tools for Reliability Coordinators, Transmission Operators, and Balancing Authorities for use by their System Operators in support of reliable System operations."

Please monitor and/or participate in this project to the extent possible with respect to the issue raised above. To encourage the drafting team to consider your concern we have added your issue to our Issues Database associated with the project.

Comment 12

Name: Laura Lee
Organization: Duke Energy

Suggestion or Comment:

#1 There are requirements in standards, and standards themselves, that do not clearly ensure the reliability of the bulk power system. Unnecessary requirements are detrimental to the reliability of the BES because they divert entities' resources from focusing on the core actions that are truly essential to maintaining reliability. In addition, there are so many standards development projects currently active that entities are devoting resources to, the industry has little time to reflect and identify what gaps may exist in the reliability standards or formulate recommendations for eliminating those gaps. The Reliability Standards Development Plan: 2009-2011 does not clearly identify the top few priorities and how the projects in the plan support those priorities.

#2 Development of regional standards in parallel with development of a continent wide standard on the same subject results in inefficency.

#3 There appear to have been more interpretation requests than were anticipated in the past year, and it is reasonable to expect this trend to continue.There is currently not a process to control the amount of resources that are devoted to developing reliability standards interpretations.

Recommendation for improvement:

#1 Duke advocates pausing non-essential standard development activity in order for NERC to engage the industry in an effort to identify the standards and requirements that are truly essential for maintaining an adequate level of reliability of the BES. This could take the form of a "clean slate" approach, similar to the effort underway prior to development of the version 0 standards to define about 13 core standards, or a stop/start/continue review of the current slate of standards and requirements. The Standards Committee would be a logical lead for this effort, providing directional definition in addition to their process leadership. The result should be a clearly articulated vision of where the reliability standards development efforts need to be applied, a plan to achieve that vision and an explanation of how each project in the plan supports that vision.

#2 Regional standard development needs to be more closely coordinated with continent wide standard development.

#3 Either more allawance needs to be given in the subsequent Reliability Standards Development Plan

for the actual and anticipated increase in reliability standards interpretation requests by defering the commencement of projects that have not been started or the process needs to be streamlined while still including industry input. A prioritization/classification effort as proposed in recommendation #1 above that resulted in fewer and more focused requirements would have the added benefit of reducing the volume of interpretation requests.

NERC Response:

#1 In response to your recommendation (as well as similar recommendations from others) we have added Project 2010-06 Results-based Reliability Standards to the Reliability Standards Development Plan: 2010-2012 for a project focused on:

- triaging the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all,
- developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis,
- promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and
- revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability.

#2 There are currently four continent-wide projects which may or may not require each regional entity to develop companion regional standards:

- Project 2007-01 Underfrequency Load Shedding
- Project 2007-05 Balancing Authority Controls
- Project 2007-11 Disturbance Monitoring
- Project 2010-05 Protection Systems (as identified in Volume II of *Reliability Standards Development Plan: 2009-2011*)

Three of the four corresponding continent-wide projects are well underway (those being Project 2007-01 Underfrequency Load Shedding, Project 2007-05 Balancing Authority Controls, and Project 2007-11 Disturbance Monitoring) and at this point in time may not even require regional standards. The fourth continent-wide project (Project 2010-05 Protection Systems) has yet to be initiated and it is unknown to what degree regional standards will need to be developed.

NERC standards staff is in regular contact with the individuals at each of the Regional Entities responsible for developing regional reliability standards. Coordination of the four projects referenced above is ongoing. In many instances, the Regional Entity has decided to commence work on the four 'fill-in-the blank' standards in order to able to better coordinate the development of the regional standard with the development of the continent-wide standard. This actually is to the benefit of those entities in the region affected by the standard.

Each Regional Entity has a FERC-approved regional standard development procedure. Embedded in the regional standard development process, a region seeking approval of a regional reliability standard must justify the need for the standard. It is incumbent on those that participate in the regional standards development process to determine the need to expend resources on developing a standard as they deem appropriate. Each of the regional standards development procedure mandates a fair and open process for the development of standards. As such any interested party in the region should have a voice in which standards development projects are pursued and which standards are not. NERC cannot require a Regional Entity to justify a regional standard before it is developed.

#3 We appreciate your concern related to the process of developing interpretations. This topic is one of many topics currently being vetted by the members of the NERC Standards Committee and your

concerns are more appropriately addressed in that venue.

Comment 13

Name: Michelle Rheault

Organization: Manitoba Hydro

Suggestion or Comment:

Over the past few years, there has been a modest improvement in the quality of some reliability standards. Manitoba Hydro would like to encourage NERC to continue its efforts at improving existing standards.

Manitoba Hydro is not satisfied with the Standards Under Development (SUD) 2009-2011 Plan. Many of our comments below mirror those previously provided to NERC from industry participants (Appendix A of the 2009-2011 plan). The fact that comments from previous years have not been addressed seems to indicate that the commenting process is a formality that consumes scarce entity resources with little reward for the effort. Nevertheless, we feel it is important to continue voicing our concerns.

We believe that the three issues outlined below are key to improving the SUD plan.

1. Standard Quality

   Manitoba Hydro feels that standard quality is vital to the reliability of the BES. More standards do not lead to better reliability; rather, this is achieved by fewer high-quality standards that focus on essentials for reliability.

   As per the Standard Development Plan (Volume I, page 8), "Order No. 672 provides guidance on the factors the Commission will consider when determining whether proposed reliability standards meet the statutory criteria." It states that standards must be "clear and unambiguous." We recommend that this guidance be used to develop a method to measure the quality attributes of a standard. This would allow industry and NERC to determine when they are satisfied with a standard and can move on to allocating resources to create new standards. The number of Requests for Interpretation put forth by industry is an indication that there are many standards which are neither clear nor unambiguous.

2. Project Prioritization

   Manitoba Hydro believes that in order to best improve the reliability of the BES, NERC needs to change the way it prioritizes projects.

   New projects are questionable given the greater need to improve the clarity of existing standards that are already auditable. Some proposed projects may be a good idea, but are not an immediate necessity for BES reliability and dilute the resources available to more critical projects. Some examples from the 2009-2011 plan include:

   - Project 2009-04 Phasor Measurement Units
   - Project 2010-01 Support Personnel Training
   - Project 2011-01 Equipment Monitoring and Diagnostic Devices
   - Project 2009-02: Real-time Tools

   Prioritization can be improved by developing a priority ranking tool. The Blackout report is getting stale as a source of priority in a changing environment. In developing the ranking tool, Manitoba Hydro has several suggestions to improve the prioritization of projects:

   - Survey the industry to obtain an indication of the greatest need for the reliability standards.

Focus on value added projects where deficiencies clearly exist today.

- Focus on cleaning up existing standards, rather than merging multiple standards, which requires significantly more effort to achieve a "clear and unambiguous" result.
- Limit the number of standards involved in the standards under development process: This type of limit would prevent the plan from using too many resources. Unless there is a high priority for it, new projects should not be added to the plan or started until old projects are finished. As an example, there are still nine projects initiated in 2006 which have not been completed, while limited NERC and industry resources are assigned to the start of 2009 projects.
- Do not create new standards which duplicate what is already found in other standards and only serve to prescribe the method to meet the original requirement. If requirements are clear and unambiguous, any method used by entities to comply with the standards will be appropriate and mitigate risk to the BES.
- Low-priority projects should not be scheduled for future years, but rather put on a to-do list which can be reviewed when resources are available.
- Develop a risk profile for the entirety of NERC Standards. NERC needs a more holistic approach to risk management. While VRFs identify risk for each requirement and are used for enforcement purposes, they do not lend themselves to a "big picture" assessment of risk and comparison of standards on a risk basis. Selecting projects for the current work plan based on the associated risk to the BES is very difficult using the VRFs. The Standards Committee should develop a risk profile that effectively compares standards on a risk basis and facilitates the targeting of activities on those key standards that mitigate the greatest risk to the reliability of the BES.

3. Management of the Plan

Like any project, the Standard Under Development plan must be properly managed. This includes three components as outlined below:

- Resourcing

  There are currently too many projects drawing on limited industry resources for both participation on drafting teams as well as commenting and voting on standards under development. An excessive number of projects may result in industry fatigue in the standards development process. If fewer requests for comments were sent out, the quality of the feedback received would be higher, which would lead to better quality standards.

  The SUD Plan must reflect the need for resources to focus on interpretation requests which come up during the year. The number of interpretations will not decrease until existing standards are updated to improve clarity and measures of compliance. Hence, this should be the focus of activities in the short term.

- Cost

  NERC should publish the cost of the SUD program implementation, so that industry can weigh the benefits of new projects versus the cost of implementing them.

- Metrics

  There is a need for metrics to evaluate the standards development process in order to understand how long it takes to complete a project and how many can be completed per year in order to better plan future work. Past performance is an indication of future performance; therefore, plans should not encompass more work than has been shown to be completed in the past. For example, only one project identified in the 2008-2010 plan has been completed, but four projects have been added. The concern is that as more projects are added than completed,

the plan will become unachievable and projects that actually improve reliability will not be completed.

These metrics should be published in the Standards Development Plan in an easy to understand format (tables, graphs, etc) to demonstrate what is achieved from year to year and predict what is achievable for future years. Possible metrics include:

- Number of projects completed each year
- Number of projects added each year
- Number of projects failed/withdrawn each year
- Number of projects rescheduled to future years
- Average time to complete a project
- Number of new requests for interpretations each year
- Summary of what phase the projects are at (i.e. percent started, percent voted on, percent waiting for BOT approval, etc)

NERC Response:

1. Standard Quality

In response to your recommendation (as well as similar recommendations from others) we have added Project 2010-06 Results-based Reliability Standards to the Reliability Standards Development Plan: 2010-2012 for a project focused on:

- triaging the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all,
- developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis,
- promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and
- revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability.

2. Project Prioritization

The concept of project prioritization is paramount to a successful reliability standards development plan. A high priority project in the eyes of one entity might not be in the eyes of another entity. NERC staff coordinates all standards development activities through the NERC Standards Committee. In compliance with the *NERC Reliability Standards Development Procedure*, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. NERC staff works with the NERC Standards Committee to identify the projects of highest overall industry importance before working on lower priority projects. In fact, the Standards Committee Process Subcommittee is currently discussing methodologies for prioritizing standards development projects. We encourage your company's participation on that subcommittee.

3. Management of the Plan

- Resourcing

  NERC appreciates the industry resources necessary for the development of quality standards and is cognizant of the fact that industry resources are not limitless. NERC staff coordinates all standards development activities through the NERC Standards Committee whose membership consists of industry representatives. In compliance with the NERC Reliability Standards

Development Procedure, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. NERC staff facilitation of the standards development process in coordination with the Standards Committee takes into consideration the potential impact on industry resources when planning standards related projects and activities. Specific comments in how this Reliability Standards Development Plan could be modified to more effectively use industry resources are welcome.

- Costs

  The costs of the NERC Standards program are detailed in the NERC Business Plan and Budget.

- Metrics

  A set of metrics related to the length if time to complete a standards development process was provided in Appendix A to Attachment 1 of the Three-Year Electric Reliability Organization Performance Assessment Report.

Comment 14

Name: Standards Review Subcommittee

Organization: North American Energy Standards Board

Suggestion or Comment:

2006-07 Transfer Capabilities - (ATC, TTC, CBM, TRM)

Comment - NAESB completed its original work under FERC Order 890 for ATC, TTC, CBM, and TRM, which was coordinated with NERC. In the NERC NOPR related to this project there was the identification of potential for additional work. NAESB requests that NERC continue to coordinate and notify NAESB if there are any addition changes to the NERC standards affected under this project which could have an impact on the NAESB Business Practice Standards.

A potential area of additional coordination between the NERC drafting team and NAESB's WEQ ESS/ITS may arise in the handling of designation and undesignation of network resources under NAESB WEQ 2009 Annual Plan item 3.a.i "Group 3: Network Service On OASIS." The ESS/ITS is developing business practice standards for Network Service on OASIS, that include OASIS formats and requirements for capturing information on designation and undesignation of network resources. The information captured in the NAESB standards may provide useful data for inter-BA communication of resource allocations.

2006-08 Transmission Loading Relief

Comment - This project has ongoing coordination with NAESB since it directly impact the NAESB Business Practice Standard WEQ-008 (Transmission Loading Relief - Eastern Interconnection). NAESB expects this coordination will continue as the project moves forward.

2007- 05 Balancing Authority Control

This project is currently being coordindated with the NAESB Time and Inadvertent Management Task Force. Changes to the NERC standards may have an impact on the NAESB Business Practice Standards WEQ-006 (Time Error Correction) and WEQ-007 (Inadvertent Interchange Payback). We request that the Reliability Standards Development Plan continue to reflect that the project be coordinated with NAESB and reference the NAESB WEQ 2009 Annual Plan Items:

1.d Time Error and Indavertent (BAL-004 and BAL-006) Coordination with NERC

1.e DCS and AGC (BAL-002 and BAL-005) Coordination with NERC

2007-18 Reliability Based Controls

Comment - The Joint Interchange Scheduling Working Group in first quarter 2009 reviewed EOP-002 and determined that there should be some level of coordination between NERC and NAESB. As a result of this review the NAESB WEQ 2009 Annual Plan item (3.a.viii) "Review and correct WEQ-004 Coordinate Interchange Business Practice Standard as needed based on activities in NERC Project 2008-12, Coordinate Interchange Standards Revisions and supporting EOP-002-2 R4 and R6" was added. We request that this project reference that coordination between NERC and NAESB needs to occur and the cross reference to the NAESB WEQ 2009 Annual Plan item be added in the 2010-2012 Reliability Standards Development Plan.

2008-12 Coordinate Interchange

Comment - The Joint Interchange Scheduling Working Group in first quarter 2009 reviewed EOP-002 and determined that there should be some level of coordination between NERC and NAESB. As a result of this review the NAESB WEQ 2009 Annual Plan item (3.a.viii) "Review and correct WEQ-004 Coordinate Interchange Business Practice Standard as needed based on activities in NERC Project 2008-12, Coordinate Interchange Standards Revisions and supporting EOP-002-2 R4 and R6" was added. We request that this project reference that coordination between NERC and NAESB needs to occur and the cross reference to the NAESB WEQ 2009 Annual Plan item be included in the 2010-2012 Reliability Standards Development Plan.

2009-03 Emergency Operations

Comment - This project indicates that it will affect EOP-002-2. As a result of the Joint Interchange Scheduling Working Group's review of EOP-002-2 R4 and R6 and the issues noted in the project could affect R6 this project should be coordinated with NAESB and reference the NAESB WEQ 2009 Annual Plan item (3.a.viii) "Review and correct WEQ-004 Coordinate Interchange Business Practice Standard as needed based on activities in NERC Project 2008-12, Coordinate Interchange Standards Revisions and supporting EOP-002-2 R4 and R6."

2009-05 Resource Adequacy

Comment - NAESB created Provisional Item 1 "Develop and or modify business practices related to support of NERC effort on the NERC Resources and Transmission Adequacy (Project 2009-05 Resource Adequacy Assessment)" in its NAESB WEQ 2009 Annual Plan. We are requesting that this project be noted as one which may require coordination with NAESB.

Reliability Issue: Gas/Electric Coordination

Suggestion or Comment: Coordinate with NAESB to determine if some or all of the requirements contained in the NAESB Business Practice Standards WEQ-011 (Gas/Electric Coordination) should be transitioned to NERC.

Example: Refer to WEQ-011-1.3 through WEQ-011-1.6

Recommendation for improvement: The WEQ-011 was developed so that entities received critical notices from gas Transportation Service Providers, such that the Power Plant Operators were notified of material changes in circumstances that may impact hourly flow rates. The ISO/RTOS and/or BAs, and/or Power Plant Operators are to develop procedures when extreme conditions occur. These NAESB standards appear to be of a reliability nature rather than commercial. NERC and NAESB should review the standards to determine if all or part of WEQ-011 should be transitioned to NERC.

NERC Response:

NERC believes that continued coordination with NAESB is an important component of bulk power

operations, and remains committed to work with NAESB as needed.

With regard to project 2006-07 Transfer Capabilities, NERC will work with NAESB to ensure that any changes to these standards, directed by the Commission in its final rule or otherwise, will be coordinated between the two organizations. NERC will add a statement to this effect in our Plan.

With regard to projects 2006-08 Transmission Loading Relief, 2007-05 Balancing Authority Controls, and 2008-12 Coordinate Interchange, NERC will add statements to our Annual Work Plan about NERC/NAESB Coordination.

Regarding Projects 2007-18 Reliability Based Controls, 2009-03 Emergency Operations, and 2009-05 Resource Adequacy, NERC agrees that continued coordination with NAESB is important and work with NAESB as needed to ensure our work products are complementary. Should any changes to standards occur related to these projects that have business practice implications, NERC will work to coordinate with NAESB. If the NAESB SRS is aware of proposed changes that they feel would impact business practices, please advise the NERC Manager of Business Practice Coordination.

As far as Gas/Electric Coordination, NERC appreciates this suggestion, and welcomes further discussion related to this item. NERC suggests that one or more members of the NAESB SRS develop a NERC Standards Authorization Request that proposes this transfer, at which point NERC can establish a team of industry representatives to work with the requester(s) and discuss this item in depth.

Comment 15

Name: Stephanie Monzon - Regional Reliability Standards Working Group
Organization: NERC, RFC, MRO, WECC, NPCC, SPP, TRE, SERC, FRCC

Suggestion or Comment:

- The process for updating the NERC Workplan should begin with industry input prior to posting the workplan. The current process posts the existing, approved version of the work plan to solicit industry input. Instead, NERC staff should conduct an industry webinar to collect initial thoughts followed by a posting of the revised version of the workplan.

- A status of the existing approved projects in the workplan should be provided as reference material to the industry either during the webinar or before the posting to faciliate the commenting process. The status of the existing projects will provide the industry with an understanding of how many projects are still open, nearing completion, or completed.

- In 2006 the RRSWG assisted in the development of the original Work Plan by performing a sweeping assessment of the "fill in the blank" standards. It provided as input to the Plan recommendations on how the "fill in the blank" characteristics could be eliminated by modifying then existing standards and set forth the possibility of the need for stand-alone regional standards or regional standards in support of continent wide standards. Since that time the UFLS and DM SDTs have been formed and posted at least one draft of the respective standards. Both drafting teams are proposing continent wide requirements/ standards in these subject areas. Given the evolution of standards development the original RRSWG recommendations should be deleted from the Work Plan. Regarding the remaining fill in the blank standards (SPS and BAL) the NERC standards projects are either in the infancy stages of development or have not commenced. The RRSWG recommendations to create regional standards in these areas should be considered "on hold" until the drafting efforts have matured and a technical determination can be made for the need of regional standards that includes consideration by the Regions and NERC.

Recommendation for improvement: - Conduct a webinar or other similar activity to get initial suggestions for the next version of the workplan instead of posting the existing version of the workplan. This should be followed by the first posting of a revised workplan.

- Provide the industry with a status of the existing projects in the work plan

- Remove the RRSWG recommendations for the UFLS and DME standards and place "on hold" the recommendations for SPS and BAL fill in the blank standards.

NERC Response:

- Conduct a webinar…

Thank you for your comment. We will consider incorporating your suggestion into next year's project for revising the *Reliability Standards Development Plan.*

- Provide the industry with a status …

Links to the current project schedule for each of the active projects are provided at the end of each project description in Volume II of the Reliability Standards Development Plan. The on-line project schedules are updated monthly and should provide the level of detail you suggest in your comment above.

- Remove the RRSWG recommendations for the UFLS and DME standards and place "on hold" the recommendations for SPS and BAL fill in the blank standards.

The recommendations of the RRSWG are noted in the Issues Database and do not need to be removed

at this time. The recommendations will be treated as any other recommendation in the database in that the standard drafting team working on the applicable standard will consider the recommendation but is not obligated to implement the recommendation. Maintaining it in the Issues database ensures that the recommendation is tracked and not lost in the standards development process.

Comment: 16

Name: Wayne Pourciau

Organization: Georgia System Operations Corp.

Reliability Issue: Interfering with compliance and enforcement of requirements essential for reliability

Suggestion or Comment: There are a number of requirements that are not essential to the reliability of the bulk power system (e.g., needed to prevent cascading outages). These requirements interfer with compliance by reliability entities with requirements essential to reliability and interfer with compliance enforcement by regional entities of those essential requirements. There is a need to place primary focus on the essential requirements. Reporting and other lesser requirements should be a secondary focus and only as long as they do not take away the focus on the essential requirements.

Example: BAL-006-1, R5: "Adjacent Balancing Authorities that cannot mutually agree upon their respective Net Actual Interchange or Net Scheduled Interchange quantities by the 15th calendar day of the following month shall, for the purposes of dispute resolution, submit a REPORT to their respective Regional Reliability Organization Survey Contact. The REPORT shall describe the nature and the cause of the dispute as well as a process for correcting the discrepancy."

This reporting is not a reliability requirement. A reliability requirement is one that focuses on operating the elements of the BES within system thermal, voltage, and stability limits so that instability, uncontrolled separation, or cascading failures of such system will not occur as a result of a sudden disturbance or unanticipated failure of system elements. A reliability requirement deals with the operation and maintenance of BES facilities and the design of planned additions or modifications to such facilities to the extent necessary to provide for reliable operation of the BES. The example above is an administrative requirement. It does not deal with current or future operation of the BES.

The reporting requirements of EOP-004, other than those relating to physical and cyber threats and attacks, are some more examples. These deal with information on past events (water under the bridge) and do not deal with operating the BES. This reporting is needed by NERC to investigate incidents, collect statistics on incidents, and other purposes relating to overseeing reliability (but such reporting is not needed for operating the BES).

Another example is TOP-005-1.1, R2 "As a condition of receiving data from the Interregional Security Network (ISN), each ISN data recipient shall sign the NERC Confidentiality Agreement for “Electric System Reliability Data.” " This is not a reliability requirement.

Recommendation for improvement: Review all existing FERC approved Reliability Standards to eliminate Reliability Standards that are not essential to the reliability of the bulk power system (e.g., needed to prevent cascading outages). Reduce less significant Reliability Standards to a lesser category, such as operating guides, policies or criteria and remove documentation related requirements from the requirements of Reliability Standards. Move documentation related requirements to compliance measures or some other component of the Reliability Standards. This is a high priority along with eliminating duplicative requirements, making existing requirements more clear, and securing the nation's electric system from attacks.

Although the reliability of the electric system in the United States and Canada is one of the most (if not THE most) reliable system in the world, it is always good to keep improving. However, NERC projects aimed at adding requirements to try to improve the reliability of the system are a lower priority at this time than the high priorities listed above. Fixing the existing standards is the best way to improve reliability and improve the monitoring and enforcement of the essential requirements. Adding more requirements to try to improve reliability should be pursued only as time and available resources allow.

NERC Response:

In response to your recommendation (as well as similar recommendations from others) we have added Project 2010-06 Results-based Reliability Standards to the *Reliability Standards Development Plan: 2010-2012* for a project focused on:

- triaging the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all,
- developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis,
- promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and
- revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability.

Comment 17

Name: Phillip R. Kleckley

Organization: SERC EC Planning Standards Subcommittee (PSS)

Standard: FAC-001-0 - Facility Connection Requirements

Element(s) (i.e., Requirement R1.2., Measure M2., etc.): R1.3. End-user facilities

Suggestion or Comment: add a definition of "end user" to the NERC Glossary

Project: 2010-02 Facility Connection Requirements

Additional Information: The recommendation was received as part of the comments on Question 3 of the comments form for the "Draft Revision 6 of the SERC Facility Connection Requirements (FCR) Guideline".

NERC Response:

Due to your comment above the following item has been added to the Issues Database to be addressed by the standard drafting team responsible for revising the standard:

Source: Phillip R. Kleckley (SERC EC Planning Standards Subcommittee (PSS)) as input to the Reliability Standards Development Plan:2010-2012

Project No.: 2010-02 Facility Connection Requirements

Language: Consider adding a definition of "end user" to the NERC Glossary. (Note: This recommendation was received as part of the comments on Question 3 of the comments form for

the “Draft Revision 6 of the SERC Facility Connection Requirements (FCR) Guideline”.)

Comment 18

Name: John Ciufo

Organization: NERC System Protection and Control Subcommittee (SPCS)

Standards:

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations
- PRC-012-0 — Special Protection System Review Procedure
- PRC-016-0.1 — Special Protection System Misoperations

Suggestion or Comment: The NERC System Protection and Control Subcommittee (SPCS) recommends creation of a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016

Consistent with the attached Standard Authorization Request (see Attachment 1) and Technical Review of Standards Prepared by the System Protection and Controls Subcommittee of the NERC Planning Committee dated May 2009 (see Attachment 2).

NERC Response:

In response to your comment we have modified Project 2010-05 Protection Systems in to the *Reliability Standards Development Plan: 2010-2012* to consider the recommendations of the NERC System Protection and Control Subcommittee as identified in the Technical Review of Standards Prepared by the System Protection and Controls Subcommittee of the NERC Planning Committee dated May 2009.

Comment 19

Name: Wayne E. Guthrie

Organization: Construction Specialty Services, Inc. & Critical Systems, LLC

Standard: ANSI NFPA 850: Recommended Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations

Reliability Issue: Physical fire and blast protection of electrical transformers and other essential equipment, buildings and people located in power generation, transmission or distribution system locations.

Suggestion or Comment: Adopt a NFPA-850, which is a recommended fire protection practice for the power generation industry.

Example: If there is a catasthrophic failure of a transformer it can shut down a site for an indefinite period of time for repairs or replacement of equipment and facility. In the US there exists an aging fleet of transformers that are becoming more unreliable everyday because of age and lack of maintenance. In addition, many power companies build new facilities without thought to protection of their assets. As an example, it requires between 24 and 48 months to receive a new replacement transformer, if it fails beyond repair. In addition, placing fire & blast rated barriers between transformers and also have in place a functioning transformer oil collection and containment system in accordance with FM Global recommendations can mean the difference between a single transformer failure incident and a catasthrophic incident. There are also issues with where the generation transformers sit relative to the turbine building, that if a fire and or fire and blast event initiated could potentially preclude population of the building and control room in order to shut down the unit (s).

Recommendation for improvement: Consider adopting existing standards of performance so that a committee would not have to be formed to write something that already exists.

Suggestion or Comment: NERC may want to consider inviting professionals involved in the fire and blast protection engineering and assessments fields to assist in development of standards of performance or protection in accordance with readily obtainable existing recommendations, standards and codes.

Example: Go to NFPA and ask for assistance or I could put NERC in contact with individuals that could place NERC in contact.

Recommendation for improvement: As I understand the only reference to physical protection is that NERC states that utility entities are obligated to physically protect critical equipment and is not specific in reference to the measures that should be considered to improve or provide protection. Unfortunately in the utility industry many companies have eliminated or otherwise do not possess within their ranks individuals educated in the realm of physical fire and blast protection methodologies that exist, or even have the knowledge base to self assess and identify the potential need for protection.

Additional information: If further information or discussion is required, please contact the writer:

Wayne E. Guthrie

Construction Specialty Services, Inc. & Critical Systems, LLC

502-231-2402

wguthrie@cssi.win.net

NERC Response:

In response to your comment we have added Project 2012-02 Physical Protection to the *Reliability Standards Development Plan: 2010-2012* for a project to consider the development of a NERC Reliability Standard related to physical protection of essential equipment, buildings and people located in power generation, transmission or distribution system locations.

Comment 20

Name: Barry Lawson

Organization: National Rural Electric Cooperative Association (NRECA)

Suggestion or Comment: The industry cannot continue, without an end in sight, to support the development of the number of standards included in the current Reliability Standards Development

Plan. During the past year there has been an average of 30 to 40 Standard Drafting Teams (SDTs) functioning all at the same time. With this many SDTs in place, the expertise in the industry that voluntarily staffs these teams is spread too thin. NRECA believes that at any one time there should be an average of 10-15 SDTs in place. These SDTs should be focused on standards that are the most critical the enhancing the reliability of the Bulk Power System (BPS). Reducing the number of SDTs in place at one time will help to ensure that the best quality standards are developed by:

-- helping to ensure the best quality SDTs by increasing the number of available industry stakeholders; and

-- helping to ensure that the right industry experts are reviewing the posted standards they are most knowledgeable about.

The bottomline is that not every standard can be a top priority. There is not an endless supply of industry resources to staff SDTs and to review proposed/revised standards, and therefore, the present pace of an average of 30-40 SDTs in place at one time is not sustainable without the possibility of negative impacts on standards development activities. To address this a significant and urgent effort needs to be expended to determine the most critical standards development activities that are needed to enhance the reliabilty of the BPS. From this effort, the 10-15 most critical standards should be determined and these should be the standards that SDTs are formed to address in a particular year.

In addition, there should be particular attention placed on completing the fill-in-the-blank standards since many of the approved standards refer to the fill-in-the-blank standards that have not been approved.

Finally, several months ago the NERC Standards Committee approved a "Roles and Responsibilities" document which addressed the appropriate roles for SDT members, NERC and FERC staff regarding standards development activities. NRECA supported the development of this important document and is not yet confident that NERC and FERC staff are consistently operating under the roles identified in the document. We see a need to ensure that all parties involved clearly understand their appropriate roles and responsibilities and that they work in such a manner.

We look forward to working with you to make sure these issues are fully addressed.

NERC Response: With respect to your comments regarding the industry's ability to support the development of the number of standards included in the current Reliability Standards Development Plan, NERC understands the amount of resources required (both industry and NERC specific resources) for the development of quality standards and is cognizant of the fact that industry resources are not limitless. NERC staff coordinates all standards development activities through the NERC Standards Committee whose membership consists of industry representatives. In compliance with the NERC Reliability Standards Development Procedure, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. NERC staff facilitation of the standards development process in coordination with the Standards Committee takes into consideration the potential impact on industry resources when planning standards related projects and activities.

With respect to your comment regarding fill-in-the-blank standards NERC staff is working with staff representing each of the Regional Entities to develop a plan to address the issues with the fill-in-the-blank standards in the interim prior to the completion of the continent-wide revision of the standards. The interim plan for addressing the fill-in-the-blank standards will not replace the projects already identified in Volume II of this plan but rather will propose a solution to address the shortcomings of the existing fill-in-the-blank standards until the continent-wide revision of the standards can take place. It is anticipated that the interim plan will involve the use the standards development process in order that industry stakeholders will be able to participate in the process as it evolves.

With respect to your comments regarding the "Roles and Responsibilities" document, NERC staff does adhere to the document as it applies to the development of standards using the Reliability Standards

Development Process.

Comment 21

Name: Ben Li

Organization: IRC Standards Review Committee (Group)

Suggestion or Comment: We applaud the staff and the Standards Committee for taking a new approach to developing the 2010-2011 standards development work plan. We see changes that are a positive first step toward arriving at a consolidated set of reliability standards of good quality all of which contribute to reliability. In particular, we are encouraged by some of the objectives listed:

• Addressing quality issues to ensure each reliability standard has a clear statement of purpose, and has outcome-focused requirements that are clear and measurable.

• Ensuring measures and compliance elements are aligned to support the requirements within the reliability standards and follow definitions outlined in the reliability standards template.

• Reorganizing the reliability standards based on topic.

• Eliminating requirements that do not have an impact on bulk power system reliability; retiring redundant requirements; retiring or converting (into guidelines) lower-level "facilitating" requirements that are already measured through compliance with higher level requirements; and moving basic "capability" requirements that are routinely used for the certification processes.

We wish to express our strong support for the proposal to move toward developing the performance-based reliability standards. This work, together with improved standard quality, will give rise to a set of sustainable reliability standards which in our view will meet with FERC's acceptance and reduce the revision/maintenance requirements, reduce the number of requests for interpretation and even eliminate a good number of assessed violations owing to lack of clarity.

We are also pleased to see some general reduction in the number of projects planned for future years. However, recognizing that some existing standards are still being revised and some of them may be remanded by FERC when they are submitted for approval (as evidenced in past performance), we suggest the number of planned projects to be further reduced to provide a much needed "buffer" to respond to the FERC directives - not just for the remanded standards but also for any proposed new standards as initiated by the FERC and the industry. We suggest a reduction of the amount of standards in the plan based upon the historical increased workload from FERC remands of proposed standards so that the 3 year Work Plan schedule can be more closely adhered to.

NERC Response:

Thank you for your support of Project 2010-06 Performance-based Reliability Standards (recently renamed to Project 2010-06 Results-based Reliability Standards).

With respect to your comment regarding reducing the number of projects in the plan, at this point in time it is not practical to do so for the reasons stated in the "Priority of Projects" section of this report which begins on page 9 of Volume I. Certain projects are required to be initiated in 2010 pursuant to the Rules of Procedure of the North American Electric Reliability Corporation which state in part "each reliability standard shall be reviewed at least once every five years from the effective date of the

standard or the latest revision to the standard, whichever is later." Making a conscious decision to ignore these projects would cause NERC to violate the Rules of Procedure which NERC staff is not willing to do. NERC staff will continue to work with the Standards Committee to coordinate the initiation of future standards development projects.

Comment 22

Name: John Brockhan

Organization: CenterPoint Energy

Project Number(s): 2012-01 / 2012-02

Project Title(s): Equipment Monitoring and Diagnostic Devices / Physical Protection

Suggestion or Comment: CenterPoint Energy appreciates the efforts of the NERC Standards Program in recognizing the need to focus efforts and prioritize projects having the greatest impact on reliability. To that end, we believe that the two projects currently scheduled to begin in 2012 should be further delayed indefinitely or at least until the next Standards Development Plan cycle so that projects currently underway and those projects scheduled to begin later this year and in 2010 may be farther along (or completed) before additional projects are initiated.

Recommendation for improvement: CenterPoint Energy recommends delaying Projects 2012-01 and 2012-02 indefinitely or into 2013 or later and re-evaluating the need to begin these projects during the drafting of the 2011-2013 Reliability Standards Development Plan. The assessment of any new proposed standards should emphasize whether there is a true reliability need, or is simply a business growth opportunity. Furthermore, we recommend that no new projects be added to future Standards Development Plans until already identified projects are completed.

NERC Response:

The concept of project prioritization is paramount to a successful reliability standards development plan. NERC staff coordinates all standards development activities through the NERC Standards Committee. NERC staff works with the NERC Standards Committee to identify the projects of highest overall industry importance before working on lower priority projects. The Standards Committee Process Subcommittee is also currently discussing methodologies for prioritizing standards development projects. Consideration of delaying the initiation of Projects 2012-01 and 2012-02 will be given as other higher priority projects are completed and new projects are identified.

Reliability Issue: A. Proposed 2010-2012 Standards Development Plan / Developing Results-Based Standards as presented by the Ad Hoc Group on Results-Based Standards

B. Load Serving Entity/Distribution Provider Issue

Suggestion or Comment:

A. CenterPoint Energy shares the views of many previous commentors that the number of existing reliabiltiy standards and requirements should be reduced to only those that truly impact the reliability of the Bulk Electric System (BES). CenterPoint Energy also agrees that new projects should be prioritized and only those that truly improve the reliability of the BES should be included in the Standards Development Plan and initiated.

CenterPoint Energy supports efforts to alter (or, move away from) the current environment of prescriptive and unnecessary process-based reliability standards and requirements. As presented in the

webinar on September 17, the Ad Hoc Group proposal is promising in that results-based standards would be more likely to improve the reliability of the Bulk Electric System. In the current environment, the standards include many requirements that are overly prescriptive and are not necessary for the reliable operation of the BES.

B. CenterPoint Energy is concerned that there appears to be a lack of interest in resolving the Load Serving Entity (LSE)/Distribution Provider (DP) issue. The Functional Model SDT remarked that the LSE/DP issue is not a Functional Model issue but one of registration and commented that NERC was to begin a project to resolve this issue. NERC indicated it would begin a project to address this issue through the Reliablity Standards Development Plan. CenterPoint Energy failed to see such a project in this draft and believes it is an important issue with impacts to many entities.

Example: A. Underfrequency load shedding (UFLS) is an example of overly prescriptive requirements. PRC-007 requires consistency with Regional Reliability Organization's UFLS program requirements. There is also standard PRC-008 requiring preventive maintenance of UFLS components. If PRC-007 contained results-based requirements it would be sufficient to address the reliability need. As an entity worked to meet the performance criteria, concerns such as design, maintenance, testing, etc. would be addressed with a single standard.

Recommendation for improvement: A. Focus NERC and industry resources by accelerating Project 2010-06 Performance-Based Reliability Standards in the que. The work of the Ad Hoc Group on Results-based Standards could serve as a foundation for the Project team's efforts.

B. Add an accelerated project in the 2010-2012 Standards Development Plan to resolve the LSE/DP issue.

NERC Response:

A) Thank you for your support of Project 2010-06 Performance-based Reliability Standards (recently renamed to Project 2010-06 Results-based Reliability Standards).

B) As stated in last year's plan regarding this issue:

The following description has been incorporated into the scope for affected projects in this revised *Reliability Standards Development Plan* that includes a standard applicable to Load Serving Entities:

> **Source:** FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000
>
> **Issue:** In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see:
>
> - FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf)
> - NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf),
> - FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-

040408.pdf), and

- NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

This issue is best addressed on a case-by-case basis when an affected standard is opened for revision.

Comment 23

Name: Denise Koehn

Organization: Bonneville Power Administration

Project Number(s): 2008-12

Project Title(s): Coordinate Interchange Standards

Suggestion or Comment: BPA supports the consolidation effort currently underway in the drafting team's workload. BPA believes the consolidation described thus far will yield a more efficient demonstration of compliance with each requirement. The existing Standards require considerable duplication of explanation and documentation to prove compliance.

Recommendation for improvement: Continue with current effort.

NERC Response:

Thank you for your support of Project 2008-12 Coordinate Interchange Standards.

Suggestion or Comment: BPA agrees with the recommendations from other stakeholders that the industry should focus existing reliability standards and reliability standards development on areas that will lead to the greatest improvement in bulk power system reliability. BPA fully supports the suggestions that the industry should:

(1) focus the development of new reliability standards on those that will lead to the greatest improvement in reliability; i.e., address the greatest risks of widearea cascading outages;

(2) reduce the number of existing reliability standards to just those that have a critical impact on reliability of the bulk power system and convert the remaining reliability standards to guidelines; and

(3) develop a more systematic process for prioritizing new reliability standards development projects based on risks to the bulk power system.

However, BPA feels that it is an aggressive schedule and will require considerable effort to accomplish as many items per year as scheduled. The industry needs improved, clear, concise Standards asap, but it is the same staff that is needed to work on the improvements for nearly each of the revisions. Really tough balancing acts to get everything accomplished within the timeframes.

NERC Response:

Thank you for your support of Project 2010-06 Performance-based Reliability Standards (recently renamed to Project 2010-06 Results-based Reliability Standards).

We also appreciate your comment relative to the challenge we face for coordinating the implementation of Project 2010-06 Results-based Reliability Standards with the other standards development activities. It will be a challenge but one I'm sure NERC working with industry will be able to overcome.

Comment 24

Name: Ed Skiba, Co-chair, Narinder Saini, Co-chair

Organization: North American Energy Standard Board Wholesale Electric Quadrant Standards Review Subcommittee

Suggestion or Comment: Project 2006-08 Transmission Loading Relief - The Related NAESB Projects should be updated to reference the NAESB WEQ 2009 Annual Plan and the Annual Plan Item 1.b "Continuous support of TLR Procedure in alignment with NERC efforts on TLR Phase II and Phase III development." Additionally the reference to Annual Plan Item 1.d should be changed to 1.b under the section labeled SRS recommendation.

Project 2007-05 Balancing Authority Controls - The related NAESB Projects should be updated to reference the NAESB WEQ 2009 Annual Plan and the Annual Plan Items listed should include 1.d and 1.e. Under the SRS recommendation it should be noted that there is ongoing coordination between the BAC Standards Drafting Team and the NAESB WEQ Time and Inadvertent Management Task Force.

Project 2007-18 Reliability-based Control - Related NAESB projects should be updated to reference the NAESB WEQ 2009 Annual Plan and the Annual Plan Item listed should be 3.a.viii. Under the SRS Recommendation the language should be changed to indicate that the NERC/NAESB JESS has reviewed EOP-002-2 and identified that there is potential coordination opportunities.

Project 2008-01 Voltage and Reactive Control - The Related NAESB Projects should be updated to reference the NAESB WEQ 2009 Annual Plan. There is no need to change the Annual Plan Item Number. Under SRS Recommendation, the last sentence should be deleted since the project is now included on the NERC Standards Under Development webpage.

Project 2008-12 Coordinate Interchange Standards - The Related NAESB Projects should be updated to reference the NAESB WEQ 2009 Annual Plan. Additionally, the Annual Plan Items currently listed should be deleted and Annual Plan Item 3.a.viii should be added. Under the SRS recommendation it should state that the NERC/NAESB JESS was assigned an annual plan to "Review and correct WEQ-004 Coordinate Interchange Business Practice Standard as needed based on activities in NERC Project 2008-12, Coordinate Interchange Standards Revisions and supporting EOP-002-2 R4 and R6."

2009-03 Emergency Operations - The Related NAESB Projects should be updated to reference the NAESB 2009 WEQ Annual Plan. Additionally, the Annual Plan Item listed should be 3.a.viii.

Project 2010-02 Connecting NeW Facilities to the Grid - The Related NAESB Projects should be updated to reference the NAESB 2009 WEQ Annual Plan.

Project 2010-Demand Data - Suggest the following language be added:

Coordination with NAESB:

The NAESB WEQ Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual Plan_:

Annual Plan Item

Justification for NAESB Consideration

NAESB has developed Demand Response Measurement and Verification standards and have additional annual plan items related to Demand Response.

SRS Recommendation

Since this project has not started the WEQ will add this project to its watch list.

NERC Response:

Thank you for your comments. Volume II of the *Reliability Standards Development Plan: 2010-2012* has been modified to reflect the suggested changes.

Comment 25

Name: Jack Cashin

Organization: EPSA

Project Number(s): 2010-06

Project Title(s): Performance Based Reliability Standards

Suggestion or Comment: Based on the presentation by Gerry Cauley during the webinar on Sept. 17th, it appears that a great deal of work related to this project is currently underway. What is not clear is the sectoral composition of the ad hoc group carrying out this work to be presented to the Standards Committee in November 2009.

Recommendation for improvement: While EPSA is generally supportive of the direction in which this ad hoc group appears to be headed, we are concerned about the lack of broad stakeholder representation. It would be our expectation, that once this work product is presented to the Standards Committee and before it is used in any standard development work, there will be an opportunity for substantive stakeholder review and comment.

NERC Response:

In August 2009 an ad-hoc group was organized made up of representatives from the Standards Committee, Regional Entity staff, and NERC standards staff for developing a plan for transitioning the exiting set of NERC reliability standards into a set of revised reliability standards. As of the middle of September the ad hoc group consisted of:

- Gerry Cauley, SERC
- Ben Li*, Consultant
- Terry Bilke*, MISO
- Pete Heidrich, FRCC
- Carter Edge, SERC
- Gerry Adamski, NERC
- Dave Taylor, NERC
- Steve Rueckert*, WECC
- Pat Huntley, SERC
- Allen Mosher*, APPA

Since then others have either officially joined or are observing the activities of the group. It is not the intent to exclude participation on this group; however, it is desired that the group remain a manageable

size so that work can be performed quickly and efficiently. The intent is to turn over all aspects of implementing the project (including substantive stakeholder review and comment) to the Standards Committee once the NERC BOT considers the plan during their November 4, 2009 meeting.

Reliability Issue: Work of the GO/TO Team

Recommendation for improvement: At the May 2009 Board of Trustees meeting, a Task Force was established to review the applicability of a number of Transmission Owner/Operator standards to Generator Owners and Operators with respect to Generator Interconnections to the Transmission System. While the work of this group is still proceeding, it can be anticipated that their recommendations will necessitate standard development and the Standards Development Plan should take this into account. Given that this Task Force resulted from action of the Board of Trustees, this work should receive high priority.

NERC Response:

The work of the Ad Hoc Group for Transmission Requirements at the Generator Interface expects to complete its work in Fall 2009. In its report, the team expects to include a proposed SAR and associated standards changes to address the recommendations of the team. As such, Project 2010-07 Transmission Requirements at the Generator Interface has been added to reflect this expectation.

Suggestion or Comment: Review of standards related to Generator Relaying

Recommendation for improvement: The general subject of generator relaying has been the subject of numerous technical reviews over the last several months. The list of such reviews would include, FERC NOPR on PRC-023 issued May 21st, NERC Technical Reference on Power Plant and Transmission System Protection Coordination issued Sept. 2009 referencing PRC-001, Reliability of Protection Systems (Project 2009-07) and possibly others. EPSA would recommend that there be greater coordination of all of the work underway reviewing generator protection generally so that generator owners and operators may more rationally contribute to the development of any new or revised standards

NERC Response:

There continues to be a great interest in properly evaluating and if necessary developing reliability standards that address relaying and control aspects for generators. This work is largely been under the custody of the System Protection and Control Subcommittee. We agree that a consolidated approach is most efficient and effective in this regard and are awaiting further input regarding the expected availability of additional technical guidance upon which future standards development work will be based.

Comment 26

Name: Dan Rochester

Organization: Independent Electricity System Operator

Suggestion or Comment: Our comments are of a general nature and address the important issues of prioritization and scheduling. We commend the NERC Reliability Standards Program for their efforts to respond to industry comment and to develop a more realistic overall project schedule. By my count, there are 8 project scheduled for completion in 2010 with numerous others either continuing or being initiated. It is left to be seen whether or not this "aggressive" schedule will be met, given the unpredictable impact of requests for interpretation and SARs.

We support the effort to develop Perfformance-based reliability standards and believe this will produce standards that ultimately achieve their desired end.

NERC Response:

Thank you for your comments regarding the "aggressive" nature of the overall standards development effort. We have made a concerted effort over the past year to analyze the time it takes for a standards development project along with the timing of tasks for coordinating the projects more efficiently. Using the information we collected we adjusted all the project schedules in an attempt to provide the industry a more accurate representation of expectations. Even though not perfect, the revised schedules are a better representation of future expectations. We hope to continue to work closely with the industry to drive the projects to a timely and successful completion.

Thank you for your support of Project 2010-06 Performance-based Reliability Standards (recently renamed to Project 2010-06 Results-based Reliability Standards).

Comment 27

Name: Laura Lee

Organization: Duke Energy

Project Number(s): 2010-06

Project Title(s): Performance-based Reliability Standards

Suggestion or Comment: Duke would like to commend NERC for initiation of this project in response to industry input. It is vital that the industry concentrate its resources and attention on requirements that preserve BES reliability. We also appreciate the fact that no projects are currently scheduled to start in 2011 to facilitate concentration on this project and the others that will still be in progress.

Suggestion or Comment: No new standards should be initiated until completion of Project 2010-06. It is likely that the work on this project will result in a clearer consensus of what type of requirements and standards are truly essential for ensuring reliability of the BES, so it seems premaure to initiate development of new standards until this work is nearing completion. This would defer commencement of Projects 2009-04 and 2010-01.

Addition of a section expicitlyspecifying the alignment of the projects to NERC's priority initiatives (i.e., System Protection Initiative, System Modeling Improvement Initiative, etc.) would enhance the report - perhaps expand the last paragraph of "Other modifications" in the Summary section with additional specific details.

Another enhancement to the report would be an additional header in the Summary section explaining how reliability issues surrounding emerging technologies such as smart grid, energy efficiency, renewable resources, etc. are being addressed.

NERC Response:

Your suggestion that no new standards be initiated until completion of Project 2010-06 is not practical for the reasons stated in the "Priority of Projects" section of this report which begins on page 9 of Volume I. Certain projects are required to be initiated in 2010 pursuant to the Rules of Procedure of the North American Electric Reliability Corporation which state in part "each reliability standard shall be reviewed at least once every five years from the effective date of the standard or the latest revision to the standard, whichever is later." Making a conscious decision to ignore these projects would cause

NERC to violate the Rules of Procedure which NERC staff is not willing to do. NERC staff will continue to work with the Standards Committee to coordinate the initiation of future standards development projects.

With respect to your suggestions to add a section explicitly specifying the alignment of the projects to NERC's priority initiatives and to add an additional header in the Summary section explaining how reliability issues surrounding emerging technologies such as smart grid, energy efficiency, renewable resources, etc. are being addressed, we will consider these suggestion during next year's annual revision to the *Reliability Standards Development Plan*.

Comment 28

Name: Guy Zito

Organization: Northeast Power Coordinating Council

Suggestion or Comment: The document is primarily informational. The timelines for project development cannot be firm, given the statement on p. 10 in Volume I that the six projects anticipated to be started in 2010 will be worked on when "appropriate NERC staff and industry resources are freed up from other projects".

On p 16--It is stated "Reliability Standards Development Plan: 2009-2012." Shouldn't this be 2010-2012?

For project prioritization,on p. 10 (Volume I) it is stated that there are projects to have existing projects revised while there are high priority reliability projects still waiting to be developed. Projects important for system reliability that haven't been developed yet should be given priority over existing projects.

Recommendation for improvement: Add the criteria for determining the priority of projects. If this information is in another document, it should be repeated in the Reliability Standards Development Plan for ease of reference.

NERC Response:

Your comment that the document "document is primarily informational" is accurate and is consistent with the second sentence of the first paragraph in the "Purpose" section of this Volume I which states "The plan serves as the management tool that guides, prioritizes, and coordinates revision or retirement of existing reliability standards and the development of new reliability standards for the immediate 3-year time horizon." This is a dynamic document and is meant to change as circumstances change.

With respect to your comment regarding page 16 of this volume, the typographical error has been corrected.

With respect to your suggesting for adding the criteria for determining the priority of projects, once the Standards Committee Process Subcommittee and/or Communications and Planning Subcommittee finalize the criteria we can include it in a future revision to the plan.

Comment 29

Name: Martin Bauer

Organization: US Bureau of Reclamation

Reliability Issue: Report from the Ad Hoc Group for Generator Requirements at the Transmission

Interface
Suggestion or Comment: The report addresses a serious problem in the construction of the existing reliability standards. The recommendations in the report should be incorporated into the various projects currently underway. A new project should be initiated for those standards who have already been vetted and balloted. The recommendations should be added to the project description for all other standards.
Suggestion or Comment: This comment is reference to the lack of bilateral communication or coordination evident in the standards between the TO/TOP and GO/GOP entities. In most of the standards the communication or coordination requirement is from the GO/GOP to the TO/TOP. This unilateral requirement does not promote reliability and can result in the exclusion of the GO/GOP in critical system operation decisions or planning functions. In the cases cited below, there is no consideration that Transmission facilities could affect the Generator facilities.
Example: FAC008 R2, FAC 009 R2, PRC 001 R 2.1, R2.2, R3.1, R3.2, R5.1, R5.2, TOP 001 R7.2, R7.3, and TOP 003 R1.1
Recommendation for improvement: Review the listed standards and develop an appropriate requirements for communication and coordination for the TO/TOP with the GO/GOP entities.
NERC Response: The work of the Ad Hoc Group for Generator Requirements at the Transmission Interface expects to complete its work in the Fall 2009. In its report, the team expects to include a proposed SAR and associated standards changes to address the recommendations of the team. As such, a new project 2010-07 has been added to reflect this expectation. To the point regarding bilateral communication relative to the listed requirements, NERC will forward these comments to the ad hoc team for their consideration prior to completion of their activities.

Comment 30 **Name:** Wayne Pourciau **Organization:** Georgia System Operations Corp.
Suggestion or Comment: Project 2010-06 Performance-based Reliability Standards is the most important project for the 2010 to 2012 development period.
Recommendation for improvement: Implement the plan for improving the set of NERC reliability standards to be more focused on reliability performance with a direct relation to bulk power system reliability.
Project Number(s): Project 2010-06
Project Title(s): Performance-based Reliability Standards
Suggestion or Comment: Project 2010-06 Performance-based Reliability Standards is the most important project for the 2010 to 2012 development period.
Recommendation for improvement: Implement the plan for improving the set of NERC reliability

standards to be more focused on reliability performance.
Reliability Issue: Existing standards are unclear and confusing. Many requirements are repeated throughtout the set of standards. There are many requirements that are administrative in nature or are simply explanatory text and which do not appear to contribute directly to meeting reliability objectives. The resources of NERC, the Regional Entities, and the Registered Entities are wasted on duplicate and unnessary requirements.
Suggestion or Comment: Implement the Project 2010-06 Performance-based Reliability Standards for improving the set of NERC reliability standards to be more focused on reliability performance with a direct relation to bulk power system reliability. Failing to address this issue at this time in the standards development work plan serves to perpetuate the current course of adding requirements and detail to a set of requirements that has no discernable distinction between bulk power system performance-based outcomes and the other types of requirements. This current approach will continue to dilute resources needed for standards development, compliance monitoring and enforcement, and the compliance resources at registered entities across a spectrum of requirements that have mixed value for ensuring reliability. A plan is needed to shift the standards, and the efforts needed to develop and implement them, toward performance-based requirements that have a clear beneficial impact on reliability of the bulk power system. The same public interest that is served by having reliability standards is best served if the standards have a direct and material impact on the reliability of the bulk power system.
Recommendation for improvement: Implement the Project 2010-06 Performance-based Reliability Standards for improving the set of NERC reliability standards to be more focused on reliability performance with a direct relation to bulk power system reliability.
Additional information: A lack of clarity and direction with regard to some of the reliability standards has resulted in confusion. Where we once used language somewhat loosly in a voluntary environment and everyone had a general idea of what was meant, now sactions and penalties are dependent on the exact meaning of the words. Under the mandatory enforceable environment, words which were generally used are now being scrutinized and called into question. This is a result of the environment of exactly following prescribed actions. A change to a focus on the end result would change the environment from a legalistic, "letter of the law" environment to a more techincal, reliability-based, "intent of the law" environment. Additionally, this project should include an effort to develop at least one objective measurement for each requirement.
NERC Response: Thank you for your support of Project 2010-06 Performance-based Reliability Standards (recently renamed to Project 2010-06 Results-based Reliability Standards). Noting your apparent intense interest in the project we look forward to your active participation in the project.

Attachment 1

Standard Authorization Request Form

Title of Proposed Standard: Protection Misoperations Revisions to PRC-003, PRC-004, PRC-012, and PRC-016
Request Date: June 10, 2009

SAR Requester Information	**SAR Type** (*Check a box for each one that applies.*)	
Name: System Protection and Control Subcommittee	☐	New Standard
Primary Contact: John Ciufo, Chairman	X	Revision to existing Standard
Telephone: (416) 345-5258 Fax: (416) 345-5406	X	Withdrawal of existing Standard (PRC-016)
E-mail: john.ciufo@HydroOne.com	☐	Urgent Action

Purpose (Describe what the standard action will achieve in support of bulk power system reliability.)

A key element of bulk power system reliability is the performance of the Protection Systems. To properly gage Protection System performance, is necessary to have a consistent set of metrics on Protection System Misoperations. Current PRC standards and definitions related to Protection System Misoperations are confusing and do not support a good metric for measurement of Protection System performance.

Industry Need (Provide a justification for the development or revision of the standard, including an assessment of the reliability and market interface impacts of implementing or not implementing the standard action.)

Current PRC standards and definitions related to Protection System Misoperations are confusing and do not support a good metric for measurement of Protection System performance.

Brief Description (Provide a paragraph that describes the scope of this standard action.)

SPCS recommends creation of a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012

- Retire PRC-016.

Detailed Description (Provide a description of the proposed project with sufficient details for the standard drafting team to execute the SAR.)

Standard PRC-003 is intended to ensure that all System Protection Misoperations are analyzed and mitigated according to guidelines established by the regions. The FERC, in Order 693, dated March 16, 2007, declared this standard as a "fill in the blank" type of standard that does not merit approval unless it is modified to make it more specific and consistent for all Regions. The SPCS concurs with the FERC order and provides recommendations on how the standard can be rewritten.

Because the procedures for analyzing and mitigating Misoperations were to be established by the regions, there is significant dissimilarity between the Misoperation data reported by each region, resulting in a virtually unusable misoperation metric for North America. SPCS recommends a change to the definition of Misoperation (Reportable Protection Misoperation) to provide uniformity to the misoperation data reported to the regions and NERC.

Protection System elements used for Special Protection Systems (SPS) or Remedial Action Schemes (RAS) are no different from those used for non Special Protection Systems. The revision to Standard PRC-003 should therefore apply to all Protection Systems, including SPS and RAS.

The SPCS also recommends that Standard PRC-016-0 – Special Protection System Misoperations, be requirements, merging its SPS/RAS Misoperation reporting, Corrective Action Plans, and tracking requirements into PRC-004 – Analysis and Mitigation of Transmission and Generation Protection System Misoperations.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and is coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should be modified to refer to that review process.

SPCS recommends creation of a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016.

See attached Technical Review document for additional details.

Reliability Functions

The Standard will Apply to the Following Functions *(Check box for each one that applies.)*		
☐	Reliability Coordinator	Responsible for the real-time operating reliability of its Reliability Coordinator Area in coordination with its neighboring Reliability Coordinator's wide area view.
☐	Balancing Authority	Integrates resource plans ahead of time, and maintains load-interchange-resource balance within a Balancing Authority Area and supports Interconnection frequency in real time.
☐	Interchange Authority	Ensures communication of interchange transactions for reliability evaluation purposes and coordinates implementation of valid and balanced interchange schedules between Balancing Authority Areas.
☐	Planning Coordinator	Assesses the longer-term reliability of its Planning Coordinator Area.
☐	Resource Planner	Develops a >one year plan for the resource adequacy of its specific loads within a Planning Coordinator area.
☐	Transmission Planner	Develops a >one year plan for the reliability of the interconnected Bulk Electric System within its portion of the Planning Coordinator area.
☐	Transmission Service Provider	Administers the transmission tariff and provides transmission services under applicable transmission service agreements (e.g., the pro forma tariff).
X	Transmission Owner	Owns and maintains transmission facilities.
☐	Transmission Operator	Ensures the real-time operating reliability of the transmission assets within a Transmission Operator Area.
X	Distribution Provider	Delivers electrical energy to the End-use customer.
X	Generator Owner	Owns and maintains generation facilities.
☐	Generator Operator	Operates generation unit(s) to provide real and reactive power.
☐	Purchasing-Selling Entity	Purchases or sells energy, capacity, and necessary reliability-related services as required.
☐	Market Operator	Interface point for reliability functions with commercial functions.
☐	Load-Serving Entity	Secures energy and transmission service (and reliability-related services) to serve the End-use Customer.

Reliability and Market Interface Principles

Applicable Reliability Principles *(Check box for all that apply.)*	
X	1. Interconnected bulk power systems shall be planned and operated in a coordinated manner to perform reliably under normal and abnormal conditions as defined in the NERC Standards.
☐	2. The frequency and voltage of interconnected bulk power systems shall be controlled within defined limits through the balancing of real and reactive power supply and demand.
☐	3. Information necessary for the planning and operation of interconnected bulk power systems shall be made available to those entities responsible for planning and operating the systems reliably.
☐	4. Plans for emergency operation and system restoration of interconnected bulk power systems shall be developed, coordinated, maintained and implemented.
☐	5. Facilities for communication, monitoring and control shall be provided, used and maintained for the reliability of interconnected bulk power systems.
☐	6. Personnel responsible for planning and operating interconnected bulk power systems shall be trained, qualified, and have the responsibility and authority to implement actions.
X	7. The security of the interconnected bulk power systems shall be assessed, monitored and maintained on a wide area basis.
☐	8. Bulk power systems shall be protected from malicious physical or cyber attacks.
Does the proposed Standard comply with all of the following Market Interface Principles? *(Select 'yes' or 'no' from the drop-down box.)*	
1. A reliability standard shall not give any market participant an unfair competitive advantage. Yes	
2. A reliability standard shall neither mandate nor prohibit any specific market structure. Yes	
3. A reliability standard shall not preclude market solutions to achieving compliance with that standard. Yes	
4. A reliability standard shall not require the public disclosure of commercially sensitive information. All market participants shall have equal opportunity to access commercially non-sensitive information that is required for compliance with reliability standards. Yes	

Related Standards

Standard No.	**Explanation**
PRC-003	Revise
PRC-004	Revise
PRC-012	Revise

PRC-016	Retire

Related SARs

SAR ID	Explanation

Regional Variances

Region	Explanation
ERCOT	
FRCC	
MRO	
NPCC	
SERC	
RFC	
SPP	
WECC	

NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

NERC SPCS Assessment of Standards:

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations
- PRC-016-1 — Special Protection System Misoperations

A Technical Review of Standards Prepared by the System Protection and Controls Subcommittee of the NERC Planning Committee

May 2009

to ensure the reliability of the bulk power system

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Table of Contents

This report was approved by the Planning Committee on June 10, 2009, for forwarding to the Standards Committee.

Introduction

When the original scope for the System Protection and Control Task Force (SPCTF, now the System Protection and Control Subcommittee – SPCS) was developed, one of the assigned items was to review all of the existing PRC-series of Reliability Standards, to advise the Planning Committee, and to develop Standards Authorization Requests, as appropriate, to address any perceived deficiencies.

This report presents the SPCS' assessment of three of the PRC standards pertaining to relay misoperations:

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations
- PRC-016-1 — Special Protection System Misoperations

This report serves as a precursor for a Standards Authorization Request (SAR) for modifications to PRC-003 that will be submitted by the SPCS.

Executive Summary

Standard PRC-003 is intended to ensure that all System Protection Misoperations are analyzed and mitigated according to guidelines established by the regions. The FERC, in Order 693, dated March 16, 2007, declared this standard as a "fill in the blank" type of standard that does not merit approval unless it is modified to make it more specific and consistent for all Regions. The SPCS concurs with the FERC order and provides recommendations on how the standard can be rewritten.

Because the procedures for analyzing and mitigating Misoperations were to be established by the regions, there is significant dissimilarity between the Misoperation data reported by each region, resulting in a virtually unusable misoperation metric for North America. SPCS recommends a change to the definition of Misoperation (Reportable Protection Misoperation) to provide uniformity to the misoperation data reported to the regions and NERC.

Protection System elements used for Special Protection Systems (SPS) or Remedial Action Schemes (RAS) are no different from those used for non Special Protection Systems. The revision to Standard PRC-003 should therefore apply to all Protection Systems, including SPS and RAS.

The SPCS also recommends that Standard PRC-016-0 — Special Protection System Misoperations, be requirements, merging its SPS/RAS Misoperation reporting, Corrective Action Plans, and tracking requirements into PRC-004 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and is coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should be modified to refer to that review process.

A Standards Authorization Request (SAR) will be submitted by the SPCS calling for a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016.

Assessment of PRC-003-1

PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems requires the regions to establish procedures for analysis of Misoperations. This has resulted in significant and substantive differences in regional procedures and this was noted in FERC's recommendation for "greater uniformity."

SPCS proposes updating the PRC-003-1 standard to be applicable to all regions based on following tenets:

1. **Applicability** — The existing standard says that the Protection Systems shall be reviewed but does not specify which systems apply to this standard.

   It is necessary for the new standard to define the protections systems to which the standard applies:

   - Transmission Protection Systems which trip:
     a. Transmission system elements 200-kV and above
     b. Operationally significant system elements 100-kV to 200-kV
     c. Transformers with 100-kV or higher on the low side
     d. GSU transformers with high side voltages of 100-kV or higher
   - Generation Protection Systems which trip:
     a. Transmission system elements 200-kV and above
     b. Operationally significant system elements 100-kV to 200-kV
     c. Transformers with 100-kV or higher on the low side
     d. GSU transformers with high side voltages of 100-kV or higher
     e. Generators connected through GSU transformers with high side voltages of 100-kV or higher
   - Protection Systems that trip aggregate generation of 75 MW or more (such as wind farms, geothermal, or solar) connected to the transmission system at 100-kV or higher.

2. **Definitions** — The NERC Glossary of Terms currently defines Misoperation as:

   Misoperation (current definition)

   - Any failure of a Protection System element to operate within the specified time when a fault or abnormal condition occurs within a zone of protection.
   - Any operation for a fault not within a zone of protection (other than operation as backup protection for a fault in an adjacent zone that is not cleared within a specified time for the protection for that zone).
   - Any unintentional Protection System operation when no fault or other abnormal condition has occurred unrelated to on-site maintenance and testing activity

   The existing definition does not address what are reportable and non-reportable misoperations. Reportable misoperations should be redefined in terms of both dependability and security, as a function of the impact of the Protection Systems on the electric system performance. SPCS recommends the following definition:

   Reportable Protection Misoperation (proposed definition)

Dependability (failure to operate):

- Failure of the composite Protection System to initiate the isolation of a faulted power system Element as designed or within its designed operating time.
- Failure of the composite Protection System to operate as intended for a non-fault condition, such as out-of-step, overload, etc., within its designed operating time.
- Failure of an SPS/RAS, UVLS system, or UFLS system to operate for an intended condition or within its designed operating time.

Security (false or undesirable operations):

- Improper operation of a Protection System in absence of a fault on the power system Element it is designed to protect.
- Improper operation of a Protection System during a fault on any other power system Element it is not designed to protect.
- Improper operation of an SPS/RAS, UVLS system, or UFLS system in absence of its designed trigger conditions.
- Over-response of an SPS/RAS, UVLS system, or UFLS system

Notes to the proposed definition:

A. The composite Protection System in the context of this standard is the total complement of protection for a system Element (line, bus, transformer, generator, etc). Primary and secondary protection of a given Element is considered as the composite Protection System, not two separate Protection Systems.

B. Delayed clearing, where a high-speed system is employed and is essential for transmission system performance, is considered a reportable misoperation of the high-speed system.

C. Lack of targeting of the high-speed system, such as when it is beat out by a high-speed zone, is not considered a reportable misoperation.

D. Multiple misoperations of a Protection System before it can be reasonably investigated and remedied should be considered as a single misoperation.

E. Failure to automatically reclose after a fault is not a reportable misoperation.

F. Human errors made in protection settings either as calculated or as installed, or wiring errors, which result in a misoperation are reportable.

G. Protection System operations related to on-site maintenance, testing, construction and or commissioning activities for that Protection System, when no fault or other abnormal condition has occurred, are not considered reportable Protection System misoperations.

H. Operations which are initiated by control systems (not by the Protection Systems), such as those associated with generator controls or turbine/boiler controls, SVCs, FACTS, HVDC, circuit breaker mechanism, or insulation media, or other facility control systems, are not reportable Protection System misoperations.

I. Protection System operations which occur with the protected element already out of service, that do not trip any in-service elements, are not reportable Protection System misoperations.

3. **Reporting of Misoperations** — Because the current PRC-003 calls for regional procedures and reporting requirements, there is a wide variation in those requirements from region to region, making comparison of misoperations metrics at the NERC level virtually impossible. Since any

assessment of the success or failure of the NERC protection-related standards to maintain or improve reliability depends on those metrics, it is important to provide for uniformity. The variations in definitions can be corrected by the adoption of the Reportable Protection Misoperation definition above. Uniform reporting can be addressed by following proposed reporting requirements:

- Transmission Owner or Generation Owners that own Protection Systems shall submit a quarterly report of the total number of events , the number of Protection System misoperations, and the number of events still under analysis, in a prescribed format (to be part of the revised PRC-003 standard) no later than two calendar months after each quarter.
- The regions shall, in turn, submit a quarterly report to NERC – consolidated data for the Region in a prescribed format (also part of the revised PRC-003 standard).
- The regions shall provide any additional information on misoperations to NERC as requested.

4. **Peer Review of Misoperations —** Peer review of misoperations and tracking of mitigation plans is an important part of improving Protection System performance. Logically, that function should be done by the Regional Entities. However, since standards requirements cannot be placed on the Regional Entities, the following suggestions are made but the mechanics are left open.

   - The regions, through their appropriate committees or subcommittee, shall review the misoperation reports. This review should determine whether further analysis, data, or other documentation is required, and it will confirm that appropriate mitigation is defined and scheduled.
   - The regions should maintain records of the quarterly reports and confirm the implementation of any proposed mitigation plan.
   - The regions should track the mitigation of reported misoperations to avoid further occurrences.

Assessment of PRC-004 and PRC-016-0

NERC standards PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations, and PRC-016 – Special Protection System Misoperations both require that Protection System misoperations are analyzed and reported, and that corrective actions are taken where necessary. However, PRC-016 exclusively applies to special protection systems (SPS) also know as remedial action schemes (RAS). Since analysis and reporting of protection system misoperations is the same regardless of whether or not a SPS/RAS is involved; there is no need for a separate standard. Standard PRC-004-1 should be revised to include SPS/RAS, and PRC-016 should be retired.

SPS Corrective Action Plan Review

PRC-012-0 — Special Protection System Review Procedure is intended to provide a review procedure to ensure that all SPS/RAS are properly designed, meet performance requirements, and are coordinated with other Protection Systems.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and are coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should refer to that review process.

Proposed PRC-004-1 Revisions

SPCS recommends the following revisions to PRC-004-1 requirements to encompass those of PRC-016:

R1. The Transmission Owner and any Distribution Provider that owns a transmission Protection System or SPS shall each analyze its transmission Protection System or SPS Misoperations and shall develop and implement a Corrective Action Plan to avoid future Misoperations of a similar nature in accordance with Standard PRC-003 (revised).

R2. The Generator Owner shall analyze its generator Protection System or SPS Misoperations, and shall develop and implement a Corrective Action Plan to avoid future Misoperations of a similar nature in accordance with Standard PRC-003 (revised).

R3. The Transmission Owner, Generator Owner, and Distribution Provider that owns a transmission Protection System or an SPS shall provide documentation of the misoperation analyses and the Corrective Action Plans to its Regional Reliability Organization and NERC upon request (within 90 calendar days).

R4. All Corrective Action Plans for SPS shall be subject to SPS Review Procedures in accordance with Standard PRC-012.

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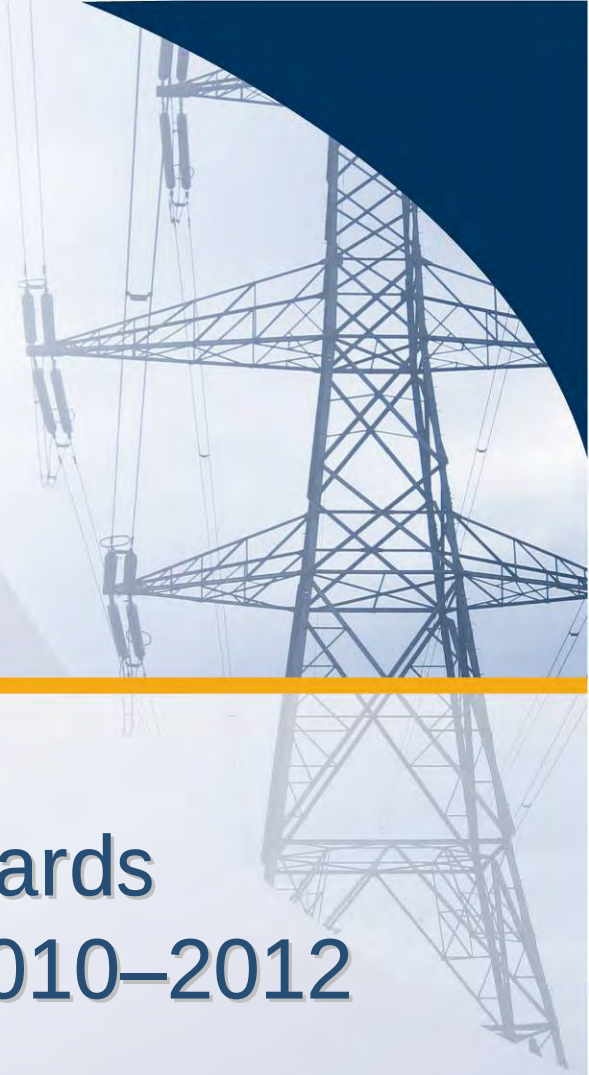

Reliability Standards Development Plan: 2010–2012

Volume II — List of Projects

to ensure the reliability of the bulk power system

October 7, 2009

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Table of Contents:

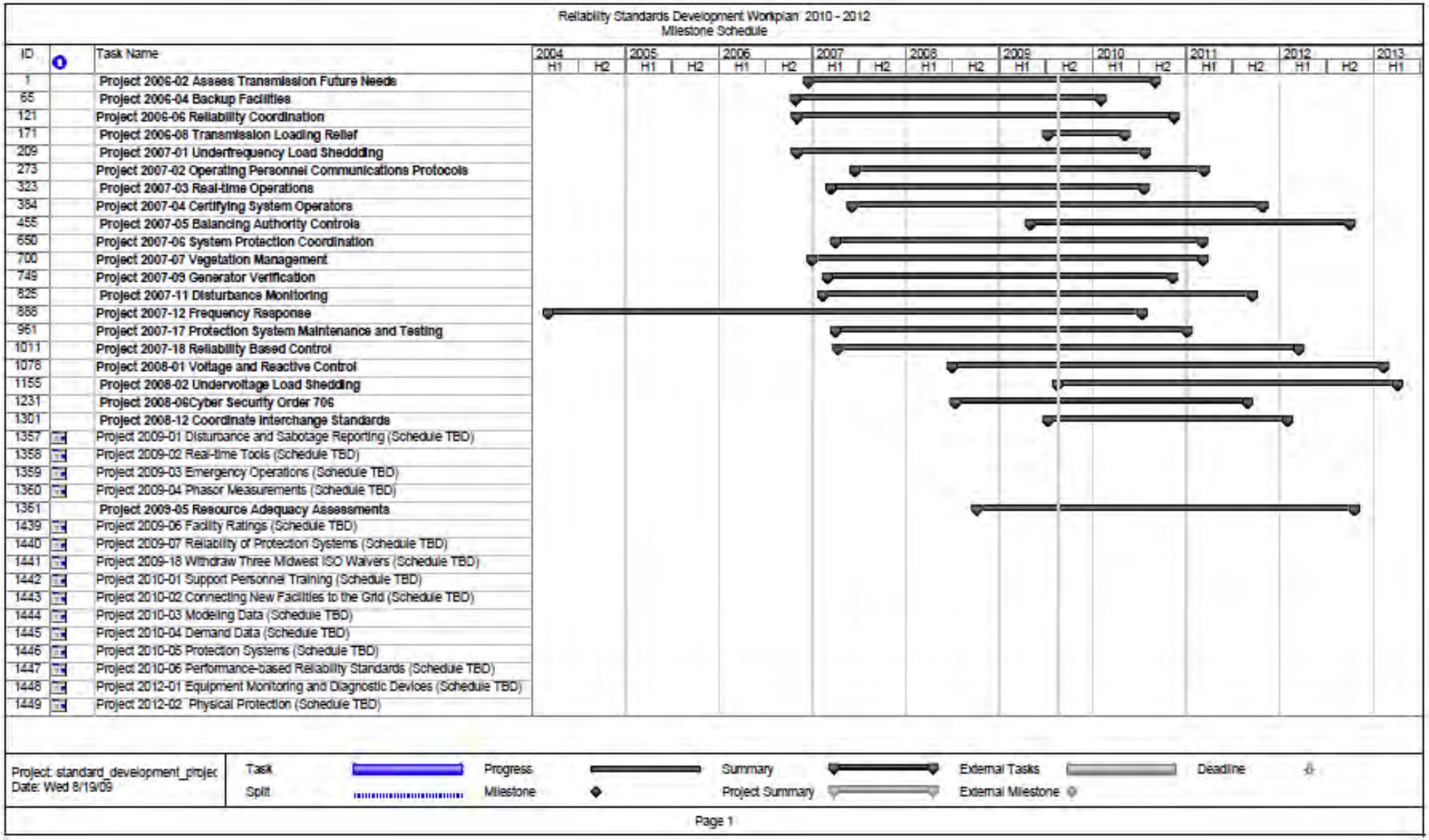
Introduction

This Volume II of the *Reliability Standards Development Plan* contains the project descriptions for each of the currently opened and planned reliability standards development projects. There are 37 projects in this plan. For each project, a description is provided that outlines the general overview and scope of improvements to be considered in conjunction with the project.

The three charts and tables on the pages which immediately follow have been provided as additional information for helping better understand each project:

- The first chart provides an overall Gantt chart for all currently open projects. More detailed project schedules are posted on the "Related Files" of each project. The intent of this overall Gantt chart is to provide a quick reference of the overall project schedule for each project.
- The next table provides a quick reference identifying which project is associated with a particular standard and is sorted by standard number.
- The final table provides a quick reference identifying which standards are associated with each project and is sorted by project number for those projects that have specifically identified standards to be included in their scope.

Reliability Standards Development Plan Overall Project Schedules



Reference Identifying the Standard in each Project Sorted by Standard Number

Standard	Standard Name	Project Number
Resource and Demand Balancing (BAL) Standards		
BAL-001-0a	Real Power Balancing Control Performance	Project 2007-18
BAL-002-0	Disturbance Control Performance	Project 2007-05, Project 2009-02, and Project 2007-18
BAL-003-0a	Frequency Response and Bias	Project 2007-12
BAL-004-0	Time Error Correction	Project 2007-05
BAL-004-1	Time Error Correction	Project 2007-05
BAL-005-0b	Automatic Generation Control	Project 2007-05 and Project 2009-02
BAL-006-1	Inadvertent Interchange	Project 2007-05
Critical Infrastructure Protection (CIP) Standards		
CIP-001-1	Sabotage Reporting	Project 2009-01
CIP-002-2	Critical Cyber Asset Identification	Project 2008-06
CIP-003-2	Security Management Controls	Project 2008-06
CIP-004-2	Personnel and Training	Project 2008-06
CIP-005-2	Electronic Security Perimeter(s)	Project 2008-06
CIP-006-2	Physical Security	Project 2008-06
CIP-006-1a	Cyber Security — Physical Security	Project 2008-06
CIP-007-2	Systems Security Management	Project 2008-06
CIP-008-2	Incident Reporting and Response Planning	Project 2008-06
CIP-009-2	Recovery Plans for Critical Cyber Assets	Project 2008-06
Communications (COM) Standards		
COM-001-1	Telecommunications	Project 2006-06 and Project 2009-02
COM-002-2	Communications and Coordination	Project 2006-06 and Project 2007-02
Emergency Preparedness and Operations (EOP) Standards		
EOP-001-0	Emergency Operations Planning	Project 2006-04, Project 2008-08 (VSLs only), and Project 2009-03
EOP-002-2	Capacity and Energy Emergencies	Project 2007-18, Project 2008-08 (VSLs only) and Project 2009-03
EOP-003-1	Load Shedding Plans	Project 2008-08 (VSLs only), Project 2009-02, and Project 2009-03
EOP-004-1	Disturbance Reporting	Project 2008-08 (VSLs only) and Project 2009-01
EOP-008-0	Plans for Loss of Control Center Functionality	Project 2006-04
Facilities Design, Connections, and Maintenance (FAC) Standards		

Standard	Standard Name	Project Number
FAC-001-0	Facility Connection Requirements	Project 2010-02
FAC-002-0	Coordination of Plans for New Facilities	Project 2010-02
FAC-003-1	Transmission Vegetation Management Program	Project 2007-07
FAC-008-1	Facility Ratings Methodology	Project 2009-06
FAC-009-1	Establish and Communicate Facility Ratings	Project 2009-06
FAC-010-2	System Operating Limits Methodology for the Planning Horizon	Project 2008-04
FAC-011-1	System Operating Limits Methodology for the Operations Horizon	Project 2008-05
FAC-011-2	System Operating Limits Methodology for the Operations Horizon	Project 2008-05 and Project 2008-04
FAC-012-1	Transfer Capability Methodology	Project 2006-07
FAC-013-1	Establish and Communicate Transfer Capabilities	Project 2006-07
FAC-014-2	Establish and Communicate System Operating Limits	Project 2008-04
Interchange Scheduling and Coordination (INT) Standards		
INT-001-3	Interchange Information	Project 2008-12
INT-003-2	Interchange Transaction Implementation	Project 2008-12
INT-004-1	Dynamic Interchange Transaction Modifications	Project 2008-12
INT-005-1	Interchange Authority Distributes Arranged Interchange	Project 2008-12 and Project 2010-03
INT-005-2	Interchange Authority Distributes Arranged Interchange	Project 2008-12
INT-006-2	Response to Interchange Authority	Project 2008-12
INT-007-1	Interchange Confirmation	Project 2008-12
INT-008-1	Interchange Authority Distributes Status	Project 2008-12
INT-008-2	Interchange Authority Distributes Status	Project 2008-12
INT-009-1	Implementation of Interchange	Project 2008-12
INT-010-1	Interchange Coordination Exemptions	Project 2008-12
Interconnection Reliability Operations and Coordination (IRO) Standards		
IRO-001-1	Reliability Coordination — Responsibilities and Authorities	Project 2006-06 and Project 2009-03
IRO-002-1	Reliability Coordination — Facilities	Project 2006-06 and Project 2009-02
IRO-003-2	Reliability Coordination — Wide-Area View	Project 2009-02
IRO-004-1	Reliability Coordination — Operations Planning	Project 2009-02
IRO-005-2	Reliability Coordination — Current-Day Operations	Project 2006-06, Project 2007-18, and Project 2009-02
IRO-006-4	Reliability Coordination — Transmission Loading Relief	Project 2006-08
IRO-014-1	Procedures, Processes, or Plans to Support Coordination Between Reliability Coordinators	Project 2006-06
IRO-015-1	Notifications and Information Exchange Between Reliability Coordinators	Project 2006-06
IRO-016-1	Coordination of Real-time Activities Between Reliability Coordinators	Project 2006-06
Modeling, Data, and Analysis (MOD) Standards		
MOD-010-0	Steady-State Data for Transmission System Modeling and Simulation	Project 2010-03

Standard	Standard Name	Project Number
MOD-011-0	Regional Steady-State Data Requirements and Reporting Procedures	Project 2010-03
MOD-012-0	Dynamics Data for Transmission System Modeling and Simulation	Project 2010-03
MOD-013-1	RRO Dynamics Data Requirements and Reporting Procedures	Project 2010-03
MOD-014-0	Development of Interconnection-Specific Steady State System Models	Project 2010-03
MOD-015-0	Development of Interconnection-Specific Dynamics System Models	Project 2010-03
MOD-016-1	Actual and Forecast Demands, Net Energy for Load, Controllable DSM	Project 2010-04
MOD-017-0	Aggregated Actual and Forecast Demands and Net Energy for Load	Project 2010-04
MOD-018-0	Reports of Actual and Forecast Demand Data	Project 2010-04
MOD 019-0	Forecasts of Interruptible Demands and DCLM Data	Project 2010-04
MOD-020-0	Providing Interruptible Demands and DCLM Data	Project 2010-04
MOD-021-0	Accounting Methodology for Effects of Controllable DSM in Forecasts	Project 2010-04
MOD-024-1	Verification of Generator Gross and Net Real Power Capability	Project 2007-09
MOD-025-1	Verification of Generator Gross and Net Reactive Power Capability	Project 2007-09
MOD-026-1	Verification of Models and Data for Generator Excitation System Functions	Project 2007-09
MOD-027-1	Verification of Generator Unit Frequency Response	Project 2007-09
Personnel Performance, Training, and Qualifications (PER) Standards		
PER-001-0	Operating Personnel Responsibility and Authority	Project 2007-03
PER-003-0	Operating Personnel Credentials	Project 2007-04
Protection and Control (PRC) Standards		
PRC-001-1	System Protection Coordination	Project 2007-06 and Project 2009-02
PRC-002-1	Define Regional Disturbance Monitoring and Reporting Requirements	Project 2007-11
PRC-003-1	Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems	Project 2010-05
PRC-004-1	Analysis and Mitigation of Transmission and Generation Protection System Misoperations	Project 2010-05
PRC-005-1	Transmission and Generation Protection System Maintenance and Testing	Project 2007-17
PRC-006-0	Development and Documentation of Regional UFLS Programs	Project 2007-01
PRC-007-0	Assuring Consistency with Regional UFLS Program Requirements	Project 2007-01
PRC-008-0	Underfrequency Load Shedding Equipment Maintenance Programs	Project 2007-17
PRC-009-0	UFLS Performance Following an Underfrequency Event	Project 2007-01
PRC-010-0	Assessment of the Design and Effectiveness of UVLS Program	Project 2008-02
PRC-011-0	UVLS System Maintenance and Testing	Project 2007-17
PRC-012-0	Special Protection System Review Procedure	Project 2010-05
PRC-013-0	Special Protection System Database	Project 2010-03
PRC-014-0	Special Protection System Assessment	Project 2010-05
PRC-015-0	Special Protection System Data and Documentation	Project 2010-03
PRC-016-0	Special Protection System Misoperations	Project 2010-05

Standard	Standard Name	Project Number
PRC-017-0	Special Protection System Maintenance and Testing	Project 2007-17
PRC-018-1	Disturbance Monitoring Equipment Installation and Data Reporting	Project 2007-11
PRC-019-1	Coordination of Generator Voltage Regulator Controls with Unit Capabilities and Protection	Project 2007-09
PRC-020-1	Under-Voltage Load Shedding Program Database	Project 2010-03
PRC-021-1	Under-Voltage Load Shedding Program Data	Project 2010-03
PRC-022-1	Under-Voltage Load Shedding Program Performance	Project 2008-02
PRC-024-1	Generator Performance During Frequency and Voltage Excursions	Project 2007-09
Transmission Operations (TOP) Standards		
TOP-001-1	Reliability Responsibilities and Authorities	Project 2007-03
TOP-002-2	Normal Operations Planning	Project 2007-03
TOP-003-0	Planned Outage Coordination	Project 2007-03
TOP-004-2	Transmission Operations	Project 2007-03
TOP-005-1	Operational Reliability Information	Project 2007-03
TOP-006-1	Monitoring System Conditions	Project 2007-03
TOP-007-0	Reporting SOL and IROL Violations	Project 2007-03
TOP-008-1	Response to Transmission Limit Violations	Project 2007-03
Transmission Planning (TPL) Standards		
TPL-001-0	System Performance Under Normal Conditions	Project 2006-02
TPL-002-0	System Performance Following Loss of a Single BES Element	Project 2006-02
TPL-003-0	System Performance Following Loss of Two or More BES Elements	Project 2006-02
TPL-004-0	System Performance Following Extreme BES Events	Project 2006-02
TPL-005-0	Regional and Interregional Self-Assessment Reliability Reports	Project 2006-02
TPL-006-0	Assessment Data from Regional Reliability Organizations	Project 2006-02
Voltage and Reactive (VAR) Standards		
VAR-001-1a	Voltage and Reactive Control	Project 2008-01 and Project 2009-02
VAR-002-1a	Generator Operation for Maintaining Network Voltage Schedules	Project 2008-01

Reference Identifying the Standard in each Project Sorted by Project Number

Project 2006-02 Assess Transmission Future Needs

- TPL-001-0 — System Performance Under Normal Conditions
- TPL-002-0 — System Performance Following Loss of a Single BES Element
- TPL-003-0 — System Performance Following Loss of Two or More BES Elements
- TPL-004-0 — System Performance Following Extreme BES Events
- TPL-005-0 — Regional and Interregional Self-Assessment Reliability Reports
- TPL-006-0 — Assessment Data from Regional Reliability Organizations

Project 2006-06 Reliability Coordination

- COM-001-1 — Telecommunications
- COM-002-2 — Communications and Coordination
- IRO-001-1 — Reliability Coordination — Responsibilities and Authorities
- IRO-002-1 — Reliability Coordination — Facilities
- IRO-005-2 — Reliability Coordination — Current-Day Operations
- IRO-014-1 — Procedures, Processes, or Plans to Support Coordination Between Reliability Coordinators
- IRO-015-1 — Notifications and Information Exchange Between Reliability Coordinators
- IRO-016-1 — Coordination of Real-time Activities Between Reliability Coordinators

Project 2006-08 Transmission Loading Relief

- IRO-006-3 — Reliability Coordination — Transmission Loading Relief
- IRO-006-4 — Reliability Coordination — Transmission Loading Relief

Project 2007-01 Underfrequency Load Shedding

- PRC-006-0 — Development and Documentation of Regional UFLS Programs
- PRC-007-0 — Assuring Consistency with Regional UFLS Program Requirements
- PRC-009-0 — UFLS Performance Following an Underfrequency Event

Project 2007-02 Operating Personnel Communications Protocols

- COM-003-1 — Operating Personnel Communications Protocols

Project 2007-03 Real-time Operations

- PER-001-0 — Operating Personnel Responsibility and Authority
- TOP-001-1 — Reliability Responsibilities and Authorities
- TOP-002-2 — Normal Operations Planning
- TOP-003-0 — Planned Outage Coordination
- TOP-004-1 — Transmission Operations
- TOP-004-2 — Transmission Operations
- TOP-005-1 — Operational Reliability Information
- TOP-006-1 — Monitoring System Conditions
- TOP-007-0 — Reporting SOL and IROL Violations
- TOP-008-1 — Response to Transmission Limit Violations

Project 2007-04 Certifying System Operators

- PER-003-0 — Operating Personnel Credentials

Project 2007-05 Balancing Authority Controls

- BAL-002-0 — Disturbance Control Performance
- BAL-004-0 — Time Error Correction
- BAL-004-1 — Time Error Correction
- BAL-005-0 — Automatic Generation Control
- BAL-005-0b — Automatic Generation Control
- BAL-006-1 — Inadvertent Interchange

Project 2007-06 System Protection Coordination

- PRC-001-1 — System Protection Coordination

Project 2007-07 Vegetation Management

- FAC-003-2 — Transmission Vegetation Management Program

Project 2007-09 Generator Verification

- MOD-024-1 — Verification of Generator Gross and Net Real Power Capability
- MOD-025-1 — Verification of Generator Gross and Net Reactive Power Capability
- MOD-026-1 — Verification of Models and Data for Generator Excitation System Functions
- MOD-027-1 — Verification of Generator Unit Frequency Response
- PRC-019-1 — Coordination of Generator Voltage Regulator Controls with Unit Capabilities and Protection
- PRC-024-1 — Generator Performance During Frequency and Voltage Excursions

Project 2007-11 Disturbance Monitoring

- PRC–002-1 — Define Regional Disturbance Monitoring and Reporting Requirements
- PRC–018-1 — Disturbance Monitoring Equipment Installation and Data Reporting

Project 2007-17 Protection System Maintenance and Testing

- PRC–005-1 — Transmission and Generation Protection System Maintenance and Testing
- PRC–008-0 — Underfrequency Load Shedding Equipment Maintenance Programs
- PRC–011-0 — UVLS System Maintenance and Testing
- PRC–017-0 — Special Protection System Maintenance and Testing

Project 2007-18 Reliability-based Control

- BAL–001-0 — Real Power Balancing Control Performance
- BAL–001-0a — Real Power Balancing Control Performance
- BAL–003-0a — Frequency Response and Bias
- EOP–002-2 — Capacity and Energy Emergencies
- IRO–005-2 — Reliability Coordination — Current-Day Operations

Project 2008-01 Voltage and Reactive Control

- VAR–001-1 — Voltage and Reactive Control
- VAR–001-1a — Voltage and Reactive Control
- VAR–002-1 — Generator Operation for Maintaining Network Voltage Schedules
- VAR–002-1a — Generator Operation for Maintaining Network Voltage Schedules

Project 2008-02 Undervoltage Load Shedding

- PRC–010-0 — Assessment of the Design and Effectiveness of UVLS Program
- PRC–022-1 — Under-Voltage Load Shedding Program Performance

Project 2008-06 Cyber Security — Order 706

- CIP–002–2 — Critical Cyber Asset Identification
- CIP–003–2 — Security Management Controls
- CIP–004–2 — Personnel and Training
- CIP–005–2 — Electronic Security Perimeter(s)
- CIP–006-2a — Cyber Security — Physical Security
- CIP–007–2 — Systems Security Management
- CIP–008–2 — Incident Reporting and Response Planning
- CIP–009–2 — Recovery Plans for Critical Cyber Assets

Project 2008-08 EOP VSL Revisions

- EOP-001-0 — Emergency Operations Planning
- EOP-002-2 — Capacity and Energy Emergencies
- EOP-003-1 — Load Shedding Plans

Project 2008-12 Coordinate Interchange Standards

- INT-001-3 — Interchange Information
- INT-003-2 — Interchange Transaction Implementation
- INT-004-1 — Dynamic Interchange Transaction Modifications
- INT-005-2 — Interchange Authority Distributes Arranged Interchange
- INT-006-2 — Response to Interchange Authority
- INT-007-1 — Interchange Confirmation
- INT-008-2 — Interchange Authority Distributes Status
- INT-009-1 — Implementation of Interchange
- INT-010-1 — Interchange Coordination Exemptions

Project 2009-01 Disturbance and Sabotage Reporting

- CIP-001-1 — Sabotage Reporting
- EOP-004-1 — Disturbance Reporting

Project 2009-02 Real-time Tools

- New Standard

Project 2009-05 Resource Adequacy Assessments

- New Standard

Project 2009-06 Facility Ratings

- FAC-008-1 — Facility Ratings Methodology

FAC-009-1 — Establish and Communicate Facility Ratings

Project 2010-02 Connecting New Facilities to the Grid

- FAC-001-0 — Facility Connection Requirements
- FAC-002-0 — Coordination of Plans for New Facilities

Project 2010-03 Modeling Data

- MOD-010-0 — Steady-State Data for Transmission System Modeling and Simulation
- MOD-011-0 — Regional Steady-State Data Requirements and Reporting Procedures
- MOD-012-0 — Dynamics Data for Transmission System Modeling and Simulation
- MOD-013-1 — RRO Dynamics Data Requirements and Reporting Procedures
- MOD-014-0 — Development of Interconnection-Specific Steady State System Models
- MOD-015-0 — Development of Interconnection-Specific Dynamics System Models
- PRC-013-0 — Special Protection System Database
- PRC-015-0 — Special Protection System Data and Documentation

Project 2010-04 Demand Data

- MOD-016-1 — Actual and Forecast Demands, Net Energy for Load, Controllable DSM
- MOD-017-0 — Aggregated Actual and Forecast Demands and Net Energy for Load
- MOD-018-0 — Reports of Actual and Forecast Demand Data
- MOD-019-0 — Forecasts of Interruptible Demands and DCLM Data
- MOD-020-0 — Providing Interruptible Demands and DCLM Data
- MOD-021-0 — Accounting Methodology for Effects of Controllable DSM in Forecasts

Project 2010-05 Protection Systems

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations
- PRC-012-0 — Special Protection System Review Procedure
- PRC-014-0 — Special Protection System Assessment
- PRC-016-0 — Special Protection System Misoperations

Project Descriptions

The following pages contain the project descriptions for each of the currently opened or planned Reliability Standards development projects. Each project description includes a cover page that provides an overview of the project, including the project number, title, list of affected reliability standards, hyperlinks to associated portions of the NERC standards web pages, and a brief description of the project. The cover page is followed by the drafting team roster for the project (if one exists – future/planned projects will not have a roster) and a list of "Issues to be Considered by Drafting Team" for each reliability standard associated with the specific project.

The standard drafting team for each of these projects will be expected to review the assigned standards and modify the standards to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure as described in the "Global Improvements" section of Volume I of this *Reliability Standards Development Plan*.

Each list of "Issues to be Considered by Drafting Team" identifies the FERC directives from various orders, items from the Issues Database, and also includes comments provided by:

- The team working on identifying the "fill-in-the-blank" characteristics of the NERC reliability standards,
- Industry stakeholders,
- NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS),
- Version 0, Phase III & IV, Violation Risk Factors (VRFs), and Missing Measures and Compliance Elements drafting teams and others as noted.

The majority of comments provided by these entities can be found in the following references:

- FERC Order 693 Mandatory Reliability Standards for the Bulk-Power System
- FERC Order 693 — A, Order on Rehearing
- FERC Order 706 Mandatory Reliability Standards for Critical Infrastructure Protection
- FERC Order 706–A Mandatory Reliability Standards for Critical Infrastructure Protection
- FERC Order 890 Preventing Undue Discrimination and Preference in Transmission Service
- FERC NOPR Mandatory Reliability Standards for Critical Infrastructure Protection
- FERC NOPR — Mandatory Reliability Standards for the Bulk-Power System, dated October 20, 2006 — *Explanatory comments from NERC staff's discussion with FERC personnel on the NOPR are indicated in italic text contained within parenthesis*
- Summary of Comments for Addressing Fill-in-the-Blank Aspects of Reliability Standards, October 24, 2006
- Comments received during the development of Version 0 reliability standards
- Consideration of comments of the Missing Compliance Elements drafting team.
- Consideration of comments of the Violation Risk Factors drafting team

- Consideration of comments in the Phase III-IV standards
- SAR on Planning Authority (The requester agreed to not proceed with this SAR.) SAR on Applicability

Note that no value judgments have been made about the technical merits of any of the items included in each list of "Issues to be Considered by Drafting Team." Each standard drafting team for the specific project is expected to further investigate and properly address each of the issues listed.

Project 2006-02 Assess Transmission and Future Needs

Standards Involved:
TPL-001-0 — System Performance under Normal Conditions
TPL-002-0 — System Performance Following Loss of a Single BES Element
TPL-003-0 — System Performance Following Loss of Two or More BES Elements
TPL-004-0 — System Performance Following Extreme BES Events
TPL-005-0 — Regional and Interregional Self-Assessment Reliability Reports
TPL-006-0 — Assessment Data from Regional Reliability Organizations

Research Needed:
None

Brief Description:
The proposed work effort will establish requirements where requirements do not exist, and verify and clarify the existing standards for assessing and reporting the performance of planned bulk electric systems and the requirements for documenting plans to remedy any inadequacies identified in the process of conducting such assessments.

Consideration will be given to the many proposed improvements identified in the 'Issues' list for each of the above standards.

The drafting team will also work to incorporate the interpretation on TPL-002 Requirement R1.3.12 and Requirement R1.32 and the interpretation on TPL-003 Requirement R1.3.12 and Requirement R1.32.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2006-02 Assess Transmission and Future Needs Web Page

Project Schedule:
Project 2006-02 Schedule

Standard Drafting Team Roster:

Chairman	John E. Odom, Jr.	Florida Reliability Coordinating Council
Vice Chairman	Douglas Hohlbaugh	FirstEnergy Corp.
	D. Darrin Church	Tennessee Valley Authority
	William Harm	PJM Interconnection, L.L.C.
	Julius Horvath	Lower Colorado River Authority
	Robert A. Jones	Southern Company Services, Inc.
	R. W. Mazur	Manitoba Hydro
	Thomas C. Mielnik	MidAmerican Energy Co.
	Bernie Pasternack, P.E.	American Electric Power
	Bob Pierce	Duke Energy
	Chifong L. Thomas	Pacific Gas and Electric Company
	James Useldinger	Kansas City Power & Light Co.
	Dana Walters	National Grid
NERC Staff	Edward J. Dobrowolski	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
TPL Family	
FERC Order 693	• 1692 — Consider integrating TPL-001 through TPL-004 into one standard. • 1694, 1704, & 1706 — Consider the full range of variables when determining critical system conditions but only those deemed to be significant need to be assessed and documentation provided that explain the rational for selection. • 1716 — System performance should be assessed based on contingencies that mimic what happens in real-time. • 1719 — Consider appropriate revisions to the reliability standards to deal with cyber security events.
	Submit an informational filing, in addition to regional criteria, all utility and RTO/ISO differences in transmission planning criteria that are more stringent than those specified by the TPL standards.
TPL-001-0 — System Performance Under Normal (No Contingency) Conditions (Category A)	
FERC Order 693	• 1694, 1704, & 1706 — Determine critical system conditions and study years by conducting sensitivity analysis with due consideration of the factors outlined by the Commission. • 1751 — Require a peer review of planning assessments with neighboring entities • 1759 — Modify requirement R1.3 to substitute the reference to regional reliability organization with regional entity. • 1797 — Address concerns with footnote (a) of Table 1 with regard to applicability of emergency ratings and consistency of normal ratings and voltages with values obtained from other reliability standards and concerns raised by International Transmission with regard to the footnotes in Table 1 • 1786 — Require assessments of outages of critical long lead time equipment, consistent with an entity's spare equipment strategy • 1719 — Consider appropriate revisions to the reliability standards to deal with cyber security events. • Entities that have planned and designed their systems on the basis of a different approach to single contingencies should work with NERC in developing plans to transition to this new approach. • 1716 — System performance should be assessed based on contingencies that mimic what happens in real-time. • 1694, 1704, & 1706 — Consider the full range of variables when determining critical system conditions but only those deemed to be significant need to be assessed and documentation provided that explain the rational for selection. • 1693 — Submit an informational filing, in addition to regional criteria, all utility and RTO/ISO differences in transmission planning criteria that are more stringent than those specified by the TPL standards. • Consider integrating TPL-001 through TPL-004 into one standard.
Fill in the Blank Team	No action needed

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Phase III/IV Team	• Add a requirement to identify where UVLS should be installed • Add a requirement to verify that there are sufficient reactive resources
Team Comments	• Provide clarity where the Planning Authority is mentioned
Version 0 Team	• Table 1 — C.5 goes beyond double circuit outage criteria • Table 1, items 6, 7, 8 & 9 need footnote stating that they do not apply to generator breaker failure • What is a major load center? • Need to include multiple time frames • Does planned facilities include just those under construction? • Having all projected firm transfers modeled may not be practical to achieve in a single shapshot of a powerflow model. The requirement should allow engineering judgment to determine the appropriate level of system utilization to assess reliability considering all projected firm uses. • Define critical system conditions • Need to address deliverability to load • Clarify use of applicable ratings in Table 1, note 'a' • Clarify timing for submittal of corrective plan • Several semantic issues • Table 1, note 'b' — clarify when to curtail firm deliveries
VRFs Team	R1 — time horizon should be long-term planning
TPL-002-0 — System Performance Following Loss of a Single Bulk Electric System Element (Category B)	
FERC Order 693	• 1694, 1704, & 1706 — Determine critical system conditions in the same manner as proposed in TPL-001. • 1787 — Requires all generators to ride through the same set of category B and C contingencies as required by wind generators in Order No. 661, or to simulate without this capability as tripping. • 1786 — Requires assessment of planned outages of long lead time critical equipment consistent with the entity's spare equipment strategy. • 1789 — Document the load models used in system studies and the rationale for their use. • 1773 — Clarify the phrase "permit operating steps necessary to maintain system control" in the footnote (a) and the use of emergency ratings. • 1773 — Clarifies footnote (b) in regard to load loss following a single contingency specifying the amount and duration of consequential load loss and system adjustments permitted after the first contingency to return the system to a normal operating state. NERC should consider this through its standard development process. • 1773 — Footnote (b) should not allow for firm load shedding or curtailment of firm transfers as part of the system adjustments. • 1788 — Consider NRC's comments regarding clarifying the N-1 state as being always

Source	Language
	applicable to the current conditions as part of the standards development process. • 1794 — Standard should be clarified to not allow an entity to plan for the loss of non-consequential load in the event of a single contingency.
Phase III/IV Team	• Add a requirement to verify that there are sufficient reactive resources • Add a requirement to identify where UVLS should be installed
Team Comments	• Provide clarity where the Planning Authority is mentioned
Version 0 Team	• Don't include planning outage • Don't include generation runback or redispatch • Address deliverability of generation to load • Clarify timing for corrective plan • Define critical system conditions • Single terminals are not included • Must study all contingencies and multiple demand levels & time frames • Clarify applicable ratings in Table 1, note 'a'
Other	Incorporate approved formal interpretation
VRFs Team	Time horizon should be long-term planning and R2.2 — redundant with R1.3.8
TPL-003-0 — System Performance Following loss of Two or More Bulk Electric System Elements (Category C)	
FERC Order 693	• 1769 — Address LPPA's concerns on changes to footnotes of Table 1 through the standard development process. • 1788 — Address NRC concerns as described in TPL-002 through the standards development process. • 1824 — Consider the comments on major load pockets as part of the standards development process. • 1821 — Tailor the purpose statement to reflect the specific goal of the standard. • 1820 — Applicable entities must define and document the proxies necessary to simulate cascading outages. • 1765 — Determine critical system conditions in the same manner as proposed in TPL-001. • 1806 — Clarify the term "controlled load interruption".
Fill in the Blank Team	No action required
Phase III/IV Team	• Add a requirement to identify where UVLS should be installed • Add a requirement to verify that there are sufficient reactive resources • Add a requirement to identify where UVLS should be installed
Team Comments	Provide clarity where the Planning Authority is mentioned
Version 0 Team	• Development of mitigation plans requires subsequent studies, and may actually be done by a different entity than the entity performing the assessment (the TO instead of the RTO who may have done the assessment) • Clearly identify outages

Source	Language
	• Use NERC Compliance Reporting Process • Don't base penalties on low probability, low consequence events • TO should provide plan of action • Same as TPL-001 & 002
VRFs Team	• R2.2 — lack of consistency with TPL-001 & TPL-007 • R2.1.3 — lack of consistency with TPL-001 & TPL-006 • R2.1.2 — lack of consistency with TPL-001 & TPL-005 • R2.1.1 — lack of consistency with TPL-001 & TPL-004 • R2.1 — lack of consistency with TPL-001 • R2 — lack of consistency with TPL-001 & TPL-002 • Time horizon should be long-term planning
TPL-004-0 — System Performance Following Extreme Events Resulting in the Loss of Two or More Bulk Electric System Elements (Category D)	
FERC Order 693	• 1835 — Tailor the purpose statement to reflect the specific goal of the standard. • 1765 — Determine critical system conditions in the same manner as proposed in TPL-001. • 1836 — Identify options for reducing the probability or impacts of extreme events that cause cascading. • 1836 — Expand the list of category D events to include recent actual events.
Fill in the Blank Team	No action required
Phase III/IV Team	• Add a requirement to identify where UVLS should be installed • Add a requirement to verify that there are sufficient reactive resources
Team Comments	Provide clarity where the Planning Authority is mentioned
Version 0 Team	• R1.3.9 — remove from extreme events • TO should determine which events to study • Perform analysis on credible contingency • Same as TPL-001
TPL-005-0 — Regional and Interregional Self-Assessment Reliability Reports	
FERC Order 693	1841 — Encourages NERC to utilize input from the Commission's technical conferences on regional planning as directed in Order No. 890 to improve this standard.
Fill in the Blank Team	New SAR needed
Version 0 Team	• An RRO can't make a mandatory request for another RRO to perform a study • Define fuel adequacy
TPL-006-0 — Assessment Data from Regional Reliability Organizations	
Fill in the Blank Team	No action required

Project 2006-04 Backup Facilities

Standards Involved:
EOP-008-0 — Plans for Loss of Control Center Functionality

Research Needed:
A study of backup capabilities needed to support reliable operations is required.

Brief Description:
The requirements in EOP-008 need additional specificity. The development revision to EOP-008 may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards. In addition, the efforts of the OC Backup Control Center Task Force will be used as one of the inputs to the revision of EOP-008. Also, there may be backup facility requirements in some other standards, and those requirements should be considered for movement into this standard.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2006-04 Backup Facilities Web page

Project Schedule:
Project 2006-04 Schedule

Standard Drafting Team Roster:

Chairman	Samuel Brattini	KEMA Consulting
Vice Chairman	Michael Schiavone	Niagara Mohawk Power Corp.
	Tom Bowe	PJM Interconnection, L.L.C.
	Blaine R. Dinwiddie	Omaha Public Power District
	Charles W. Jenkins	Oncor Electric Delivery
	Glenn Kaht	ReliabilityFirst Corporation
	Barry R. Lawson	National Rural Electric Cooperative Association
	Sara McCoy	SRP
	Melinda K. Montgomery	Entergy Services, Inc.
	Keith Porterfield	Georgia Systems Operations Corporation
	John Procyk	Hydro One, Inc.
	James Vermillion	Associated Electric Cooperative, Inc.
NERC Staff	Edward J. Dobrowolski	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
EOP-008-0 — Plans for Loss of Control Center Functionality	
FERC Order 693	• 672 — Provide for backup capabilities that, at a minimum, must include a requirement that all reliability coordinators have full backup control centers; • Include a requirement that provides for backup capabilities that, at a minimum, must: • 672 — Provide for backup capabilities that, at a minimum, must provide that the extent of the backup capability be consistent with the impact of the loss of the entity's primary control center on the reliability of the bulk power system. • 651 — Provide for backup capabilities that, at a minimum, must provide for a minimum functionality to replicate the critical reliability functions of the primary control center. • Provide for backup capabilities that, at a minimum, must be independent of the primary control center • 672 — Provide for backup capabilities that, at a minimum, must require transmission operators and balancing authorities that have operational control over significant portions of generation and load to have minimum backup capabilities discussed above but may do • 651 — Provide for backup capabilities that, at a minimum, must be capable of operating for a prolonged period of time, generally defined by the time it takes to restore the primary control center.
Fill in the Blank Team	No comments
NERC Audit Observation Team	Compliance levels don't align with the measures or requirements
Version 0 Team	• Max. time to restore capabilities • How is backup control achieved? • How does staff know control center is lost? (Note — A system health monitor concept or equivalent functionality is what is desired here.)
VRFs Team	• R1.1 — Not having a written plan is unlikely, under emergency, abnormal, or restoration conditions anticipated by the preparations, to lead to bulk electric system instability, separation, or cascading failures, nor to hinder restoration to a normal condition. • R1 — Not having a written plan does not directly cause or contribute to bulk electric system instability, separation, or a cascading sequence of failures, or could place the bulk electric system at an unacceptable risk of instability, separation, or cascading

Project 2006-06 Reliability Coordination

Standards Involved:
COM-001-1 — Telecommunications
COM-002-2 — Communications and Coordination
IRO-001-1 — Reliability Coordination — Responsibilities and Authorities
IRO-002-1 — Reliability Coordination — Facilities
IRO-005-2 — Reliability Coordination — Current-Day Operations
IRO-014-1 — Procedures to Support Coordination between Reliability Coordinators
IRO-015-1 — Notifications and Information Exchange Between Reliability Coordinators
IRO-016-1 — Coordination of Real-time Activities between Reliability Coordinators

Research Needed:
None

Brief Description
Most of the requirements in this set of standards were translated from Operating Policies as part of the Version 0 process. There have been suggestions for improving these requirements, and the drafting team will consider comments submitted by stakeholders, drafting teams and FERC in determining what changes should be proposed to stakeholders.

The drafting team will review all of the requirements in this set of standards and make a determination, with stakeholders, on whether to:

- Modify the requirement to improve its clarity and measureability while removing abiguity Move the requirement (into another SAR or Standard or to the certification process or standards)
- Eliminate the requirement (either because it is redundant or because it doesn't support bulk power system reliability).

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2006-06 Reliability Coordination Web page

Project Schedule:
Project 2006-06 Schedule

Standard Drafting Team Roster:

Chairman	Mike Hardy	Southern Company Services, Inc.
	Earl A. Barber	National Grid
	Timothy A. Beach	American Transmission Company, LLC
	Paul Bleuss	California/Mexico Reliability Coordinator (CMRC)
	James S. Case	Entergy Services, Inc.
	Albert DiCaprio	PJM Interconnection, L.L.C.
	Anthony Jankowski	We Energies
	Allan D. Miller	Independent Electricity System Operator
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Robert C. Rhodes, Jr.	Southwest Power Pool
NERC Staff	Stephen Crutchfield	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
COM-001-1 — Telecommunications	
FERC Order 693	"Include generator operators and distribution providers in the list of applicable entities and create appropriate requirements for them. Paragraph 487. The Commission reaffirms its position that generator operators and distribution providers should be included as applicable entities in COM-001-1 to ensure there is no reliability gap during normal and emergency operations. For example, during a blackstart when normal communications may be disrupted, it is essential that the transmission operator, balancing authority and reliability coordinator maintain communications with their distribution providers and generator operators. However, the current version of Reliability Standard COM-001-1 does not require this because it does not include generator operators and distribution providers as applicable entities. We clarify that the NOPR did not propose to require redundancy on generator operators' or distribution providers' telecommunication facilities or that generator operators or distribution providers be trained on anything not related to their functions during normal and emergency conditions. We expect the telecommunication requirements for all applicable entities will vary according to their roles and that these requirements will be developed under the Reliability Standards development process."
	"Specify requirements for using telecommunication facilities during normal and emergency conditions that reflect the roles of the applicable entities and their impact of reliable operation, and include adequate flexibility. Paragraph 490. In response to SDG&E, the Commission's intent is not to subject generator operators and distribution providers to the same requirements placed on transmission operators. As part of the modification of this Reliability Standard or development of a new Reliability Standard to include the appropriate telecommunications facility requirements for generator operators and distribution providers, the ERO should take into account what would be required of generator operators and distribution providers in terms of telecommunications for the Reliable Operation of the Bulk-Power System, instead of applying the same requirements as are placed on other reliability entities such as reliability coordinators, balancing authorities and transmission operators."
	Address TAPS, Entergy, Six Cities, and FirstEnergy concerns through the standard development process. TAPS Paragraph 483. TAPS states that Requirement R1.4 has an ambiguous requirement that, if applied to distribution providers and generator operators, would impose redundancy requirements well beyond what is reasonably necessary for Bulk-Power System reliability. Further it asserts that the NOPR provides no basis for expanding the Reliability Standard to small entities, such as a 2-MW distribution provider or generator, much less than one that has no connection to the bulk transmission system. Finally, TAPS contends that, in making this proposal, the Commission is "over-stepping its bounds" by not leaving it to the ERO's expert judgment whether COM-001-1 has sufficient coverage to protect Bulk-Power System reliability and states that, in any event, applicability should be limited through NERC's registry criteria and definition of bulk electric system.
	"Address TAPS, Entergy, Six Cities, and FirstEnergy concerns through the standard development process. Entergy Paragraph 499. Entergy states that it is unclear what cyber assets are covered by COM-001-0. Entergy believes that the Reliability Standard should focus on telecommunications that support the operation of critical assets. Entergy also believes that COM-001-0 should be expanded to include advances in communications technology. It states that NERC should consider addressing the following in a way that will

Source	Language
	facilitate an understanding of the Reliability Standards' requirements: (1) voice communications; (2) command and control data communications; (3) security coordination data communications; (4) digital messaging communications; (5) human linguistic convention and (6) other types of communications, including video conferencing and communications with remote security cameras. Entergy believes that this could be accomplished through an enhancement to the definition of communications in the NERC glossary and recasting COM-001-0 to improve the specificity of requirements for each form of communication. Finally, Entergy believes that Requirement R4 of COM-001-0, which requires reliability coordinators, transmission operators and balancing authorities to use English in all types of communications, should apply only to verbal and written communications."
	Address TAPS, Entergy, Six Cities, and FirstEnergy concerns through the standard development process. Six Cities Paragraph 501. Six Cities is concerned that the scope of improper conduct under the "NERCNet security policy" in Attachment 1 is virtually limitless. Six Cities recognizes that it would be difficult to provide a comprehensive and detailed list of all conduct that might be considered a misuse of NERCNet data, but that difficulty does not justify exposing NERCNet users to the risk of monetary penalties based on amorphous and unbounded descriptions of potentially violative conduct. Six Cities states that one solution would be to limit the imposition of monetary penalties for misuse of NERCNet data to instances where such misuse is intentional or grossly egligent. According to Six Cities, it would be appropriate to exact a monetary penalty where a NERCNet user deliberately uses NERCNet data for unauthorized or unreasonable purposes. Six Cities asks that it be modified to provide for a warning for the improper disclosure of NERCNet data where the disclosure was not intentional or grossly negligent.
	Address TAPS, Entergy, Six Cities, and FirstEnergy concerns through the standard development process. First Energy Paragraph 500. FirstEnergy asserts that the Requirement R2 is unclear because it does not specify whether the phrase "telecommunication facilities" covers both voice and data facilities in the context of alarms. It states that, although the word "telecommunications facilities" is generally understood to mean both voice and data facilities, the current practice is to display alarms only for data facilities. Requirement R2 could be misinterpreted to require alarms on voice facilities as well, which would be impractical.
NERC Standards DT Coordinators Meeting 20080520	COM-001-1 Telecommunications is being reviewed and revised under Project 2006-06 Reliability Coordination; however, it has been agreed that all requirements of COM-001-1 except R4 will be addressed by the SDT for Project 2006-06 and that requirement R4 will be addressed by the SDT for Project 2007-02 Operating Personnel Communications Protocols. If either part of this agreement is not maintained, COM-001-1 will need revisited.
Version 0 Team	• Apply R1 to all but smallest entities • Many players missing • Redundant with Policy 5A, R1
VRFs Team	R6 — administrative requirement
COM-002-2 — Communications and Coordination	
NERC Standards DT Coordinators Meeting 20080520	COM-002-2 Communication and Coordination is being reviewed and revised under both Project 2006-06 Reliability Coordination and Project 2007-02 Operating Personnel Communications Protocols; however, it has been agreed that: •Requirement R1will be addressed by the SDT for Project 2006-06 and •Requirement R2 will be addressed by the SDT for Project 2007-02 Operating Personnel Communications Protocols. If either part of this agreement is not maintained, COM-002-2 will need revisited.

Source	Language
IRO-001-1 — Reliability Coordination — Responsibilities and Authorities	
FERC Order 693	Consider commenter's' suggestions as part of the standards development process. 895. California Cogeneration comments that the Reliability Standard fails to address the operational limitations of QFs because they have contractual obligations to provide thermal energy to their industrial hosts. It contends that a QF can be directed to change operations only in the case of a system emergency, pursuant to 18 CFR § 292.307.
	Consider adding measures and levels of non-compliance. Paragraph 897. While APPA, FirstEnergy and California Cogeneration suggest possible changes to IRO-001-1, they do not suggest that the proposed Reliability Standard should not be approved. The ERO should consider the commenter's' suggestions when modifying the Reliability Standard pursuant to its Reliability Standards development process. Further, the Commission directs the ERO to consider adding Measures and Levels of Non-Compliance in the Reliability Standard as requested by APPA.
	Consider commenter's' suggestions as part of the standards development process. Paragraph 892. APPA supports the approval of the Reliability Standard but expresses concern that the Version 1 standard does not include Measures that correspond to Requirements R2 and R9. APPA emphasizes the need for Measures corresponding to Requirement R9, which requires the reliability coordinator to act in the interests of reliability for the overall reliability coordinator area and the Interconnection before the interests of any other entity. APPA supports Requirement R8 with the extended applicability, provided that applicability is determined by reference to the NERC compliance registry. APPA agrees that the regional reliability organization should be eliminated as an applicable entity and suggests it be replaced with Regional Entities.
	Eliminate the references to the regional reliability organization as an applicable entity. Paragraph 896. In the NOPR, the Commission proposed to approve the Reliability Standard as mandatory and enforceable. In addition, as a separate action under section 215(d)(5), the NOPR proposed to direct the ERO to develop modifications to Requirement R1291 to substitute "Regional Entity" for "regional reliability organization" and reflect NERC's Rules of Procedure for registering, certifying and verifying entities, including reliability coordinators. Commenter's do not raise any concerns regarding the proposed action. Accordingly, for the reasons stated in the NOPR, the Commission approves IRO-001-1 as mandatory and enforceable. In addition, for the reasons discussed in the NOPR, the Commission directs the ERO to develop modifications to the Reliability Standard through the Reliability Standards development process that reflect the process set forth in the NERC Rules of Procedures and eliminate the regional reliability organization as an applicable entity.
	Consider commenter's' suggestions as part of the standards development process. 893. FirstEnergy suggests that NERC clarify whether Requirement R8, which requires entities to comply with a reliability coordinator directive "unless such actions would violate safety, equipment or regulatory or statutory requirements," refers to personnel safety, equipment safety or both. In addition, it suggests the establishment of a chain of command so that, for example, if a generator receives conflicting instructions from a balancing authority and a transmission operator, it can determine which instruction governs.
	Consider commenter's' suggestions as part of the standards development process. 894. Requirement R3 provides that a reliability coordinator "shall have clear decision making authority to act and direct actions to be taken" by applicable entities to "preserve the integrity and reliability of the Bulk Electric System and these actions shall be taken without delay but no longer than 30 minutes." Santa Clara contends that some actions would require driving to a remote site and therefore, mandating completion of the required action within 30 minutes would be unreasonable. Thus, it recommends that NERC modify Requirement R3 to provide

Source	Language
	that “actions shall commence without delay, but in any event shall commence within 30 minutes.”
FERC’s December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC’s December 20, 2007 Order, the Commission reversed NERC’s Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a “reliability gap” if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC’s December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC’s March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC’s April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC’s July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Fill in the Blank Team	• Remove ", sub-region, or interregional coordinating group" from R1 • Consider removing "Standards of conduct are necessary to ensure the Reliability Coordinator does not act in a manner that favors one market participant over another." from the Purpose section of the standard.
NERC Audit Observation Team	All applicable registered functions shall comply with RC directives unless such actions would violate safety, equipment or regulatory or statutory requirements. Inform the RC immediately of the inability to perform such directives. For audit purposes, what is acceptable evidence?
Version 0 Team	• Inability to perform needs to be communicated • What is meant by ‘interest of other entity’? • What is meant by ‘interest of other entity’?
VRFs Team	• R6 - Since the RC must be NERC certified, it stands to reason that anyone performing RC tasks should be certified. However, since the RC still retains the accountability for actions, and requirement 4 handles the agreements, this requirement is a medium risk. • R6 - Since the RC must be NERC certified, it stands to reason that anyone performing RC tasks should be certified. However, since the RC still retains the accountability for actions, and requirement 4 handles the agreements, this requirement is a medium risk.
IRO-002-1 — Reliability Coordination — Facilities	
FERC Order 693	"Require a minimum set of tools that must be made available to the reliability coordinator. Paragraph 905. Further, consistent with the NOPR, the Commission directs the ERO to modify IRO-002-1 to require a minimum set of tools that must be made available to the reliability coordinator. We believe that this requirement will ensure that a reliability coordinator has the tools it needs to perform its functions. Further, as noted by Dominion, such a requirement promotes a more proactive approach to maintaining reliability."

Source	Language
Version 0 Team	• Words such as 'easily understood' and 'particular emphasis' need to be tightened • R7 — define 'adequate' tools and 'wide-area' • R5 — define synchronized information system
IRO-005-1 — Reliability Coordination — Current-Day Operations	
FERC Order 693	Include measures and levels of non-compliance.
	"Conduct a survey on IROL practices and actual operating experiences by requiring reliability coordinators to report any violations of IROLS, their causes, the date and time, the durations and magnitudes in which actual operations exceeds IROLs to NERC. Paragraph 951. Accordingly, the Commission approves Reliability Standard IRO-005-1 as mandatory and enforceable. Further, because IRO-005-1 has no Measures or Levels of Non-Compliance, pursuant to section 215(d)(5) of the FPA and § 39.5(f) of our regulations, the Commission directs the ERO to develop a modification to IRO-005-1 through the Reliability Standards development process that includes Measures and Levels of Non-Compliance. The Commission further directs that the Measures and Levels of Non-Compliance specific to IROL violations must be commensurate with the magnitude, duration, frequency and causes of the violations and whether these occur during normal or contingency conditions. Finally, the Commission directs the ERO to conduct a survey on IROL practices and actual operating experiences by requiring reliability coordinators to report any violations of IROL, their causes, the date and time, the durations and magnitudes in which actual operations exceeds IROLs to the ERO on a monthly basis for one year beginning two months after the effective date of the Final Rule. We may propose further modifications to IRO-005-1 based on the survey results."
	"Measures and levels of non-compliance specific to IROL violations must be commensurate with the magnitude, duration, frequency, and causes of the violations and whether these occur during normal or contingency conditions. Paragraph 951. Accordingly, the Commission approves Reliability Standard IRO-005-1 as mandatory and enforceable. Further, because IRO-005-1 has no Measures or Levels of Non-Compliance, pursuant to section 215(d)(5) of the FPA and § 39.5(f) of our regulations, the Commission directs the ERO to develop a modification to IRO-005-1 through the Reliability Standards development process that includes Measures and Levels of Non-Compliance. The Commission further directs that the Measures and Levels of Non-Compliance specific to IROL violations must be commensurate with the magnitude, duration, frequency and causes of the violations and whether these occur during normal or contingency conditions. Finally, the Commission directs the ERO to conduct a survey on IROL practices and actual operating experiences by requiring reliability coordinators to report any violations of IROL, their causes, the date and time, the durations and magnitudes in which actual operations exceeds IROLs to the ERO on a monthly basis for one year beginning two months after the effective date of the Final Rule. We may propose further modifications to IRO-005-1 based on the survey results."
	"Provide further clarification that reliability coordinators and transmission operators direct control actions, not LSEs as part of the standard development process. Paragraph 950. We do not share TAPS' concern regarding LSEs initiating load shedding as their own control action to respect IROLs or SOLs. The appropriate control actions to respect IROLs and SOLs are the responsibilities of a reliability coordinator and transmission operator. If load shedding is required, it is the responsibility of a reliability coordinator or a transmission operator to direct the appropriate entities including LSEs to carry it out. However, we urge the ERO to provide further clarification in this regard and include TAPS' concern in developing the modification of this Reliability Standard."
Fill in the Blank Team	R14 has regional reference

Source	Language
Version 0 Team	R10, 11 & 12 — RA not empowered to do this
IRO-016-1 — Coordination of Real-Time Activities Between Reliability Coordinators	
VRFs Team	R1.2.1 & R2 — ambiguous

Project 2006-08 Transmission Loading Relief

Standards Involved:
IRO-006-4 — Reliability Coordination — Transmission Loading Relief

Research Needed:
None

Brief Description:
This is a project that is carried over from 2006. This project involves a coordinated effort with NAESB to clarify and refine the requirements in the standard and identify which requirements are needed to support reliability and which requirements are needed to support a business practice. Related to this project, NERC's IDC Working Group (IDCWG) is in the process of identifying changes to the Interchange Distribution Calculator such that it will accept market data, thus eliminating the need for the existing regional differences and to make other necessary modifications as identified by stakeholders. NAESB and the IDCWG are working collaboratively with the NERC Reliability Coordinator Working Group in order to ensure both commercial needs and reliability needs are met.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual plan):
Annual Plan Item 1.b
Justification for NAESB consideration:
FERC Order 890

SRS Recommendation:
This project is already covered by current NAESB WEQ projects. NERC should take into consideration WEQ Annual Plan Item 1.b in the development of the NERC Standard. Coordination between NERC and NAESB is in progress.

Standard Development Status:
Project 2006-08 Transmission Loading Relief Web page

Project Schedule:
Project 2006-08 Schedule

Standard Drafting Team Roster:

Chairman	P.S. (Ben) Li	Ben Li Associates, Inc.
	Daryn Barker	E.ON-US Energy Services Inc.
	Bill Blevins	Electric Reliability Council of Texas, Inc.
Vice Chair	James Busbin	Southern Company Services, Inc.
	James Eckelkamp	Progress Energy
	Robert Paul Humberson	Western Area Power Administration - Rocky Mountain Region
	Frank J. Koza	PJM Interconnection, L.L.C.
	David F. Lemmons	Xcel Energy, Inc.
	Thomas J Mallinger, P.E.	Midwest ISO, Inc.
	Dave Marton	FirstEnergy Solutions
	Narinder K. Saini	Entergy Services, Inc.
	Don Shipley	Southwest Power Pool
NERC Staff	Andrew J. Rodriquez	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
NAESB Standards Review Subcommittee	NAESB Standards Review Subcommittee as input to the Reliability Standards Development Plan: 2010-2012: NAESB requests that NERC continue its coordination with NAESB on this project.
IRO-006-3 — Reliability Coordination — Transmission Loading Relief	
FERC Order 693	Regional Difference to IRO-006: PJM/MISO/SPP Enhanced Congestion Management: Allow the NERC Operating Committee to address the technical merits of netting flow impacts in the interchange distribution calculator.
	Regional Difference to IRO-006: PJM/MISO/SPP Enhanced Congestion Management: Instructs the RTOs to continue working with the non-market regions to develop revised seams agreements that allow for equitable and feasible treatment of market flows in the NERC TLR/redispatch process.
	Regional Difference to IRO-006: PJM/MISO/SPP Enhanced Congestion Management: Commission will allow the twelve-month PJM/MISO/SPP field test to conclude before taking further action on the variance.
	Include a clear warning that TLR procedures are not appropriate and not effective to mitigate an actual IROL violation.
	Modify the WECC and ERCOT load relief procedures to ensure consistency with the standard form of the reliability standard including requirements, measures, and levels of non-compliance.
	Identifies the available alternatives to mitigate an IROL violation other than the use of the TLR procedure. Consider the suggestions of MidAmerican and Xcel when developing the modification.
FERC Order 890	659 This is consistent with our determination that conditional firm service when it is conditional is curtailable only to maintain reliable operation of the transmission system.
	660 We are cognizant that daily and hourly operations to change the tags for conditional firm customers likely involve the need for control room coordination and development of an appropriate tracking process. As the Commission described in the NOPR, new tracking and tagging business practices for this service must be developed by each transmission provider. Thus, we are allowing a sufficient period for the development of these business practices, i.e., 180 days from the date of publication of this Final Rule in the Federal Register. As directed above, transmission providers must coordinate with other transmission providers in their regions to develop these tracking and tagging business practices.
	1074. We adopt a secondary network curtailment priority to apply for the hours or specific system conditions when conditional firm service is conditional. During non-conditional periods, conditional firm service is subject to pro rata curtailment consistent with curtailment of other long-term firm service. Thus, secondary network service and conditional firm service when it is conditional will share the same curtailment priority. Also, there is no conflict with reliability standards because conditional firm service will be subject to pro rata curtailment with all other firm uses of the system once conditional curtailment hours, if that is the option selected, are exhausted.
	1075. The secondary network curtailment priority is appropriate because the customer is

Source	Language
	paying the long-term firm point-to-point rate and thus should receive the highest non-firm curtailment priority during the conditional curtailment hours or during specified system conditions. Adoption of this curtailment priority overcomes what could otherwise be significant implementation hurdles. It allows for implementation of the service without changes to existing NERC TLR practices. NERC and members of the industry need not undertake the time-consuming and expensive process of establishing a new curtailment priority that is between firm and non-firm service as some commenter's requested. Use of this curtailment priority also avoids attendant decisions relating to the method of curtailment that should apply, i.e., pro rata or transactional curtailment, for a quasi-firm curtailment priority. It is also consistent with existing interruption provisions of the pro forma OATT which provide that secondary service cannot be interrupted for economic reasons.
	1076. We reject EEI's argument that the curtailment priority for conditional firm service is inconsistent with Commission precedent regarding priority non-firm service only for network customers. EEI's argument is inapposite. Long-term firm point-to-point customers taking fully firm service without the conditional firm option do not need access to priority non-firm service as EEI suggests. They have assurance that their service will not be interrupted for economic reasons and will only be curtailed on a comparable basis with network service. This would not be the case for conditional firm customers. We also find that EEI has failed to explain the connection between the conditional firm transmission service and the availability of reliability redispatch options ,i.e., generators on its system that can ramp up or down in response to a curtailment. We reject Powerex's request that transmission providers be required to show that existing long-term rights are protected. Each addition of a new long-term firm transaction impacts the rights of existing firm customers to some extent.
	1077. We disagree with commenter's' suggestion that the NERC IDC must be changed to accommodate conditional firm service. We reiterate that we are not creating a new curtailment priority in this Final Rule. We also disagree that new tags that combine a firm and non-firm priority must be developed in order to implement the conditional firm option. The curtailment priority in a tag can be changed ahead of the operating hour based on a near-term forecast of system conditions.660 We are cognizant that daily and hourly operations to change the tags for conditional firm customers likely involve the need for control room coordination and development of an appropriate tracking process. As the Commission described in the NOPR, new tracking and tagging business practices for this service must be developed by each transmission provider. Thus, we are allowing a sufficient period for the development of these business practices, i.e., 180 days from the date of publication of this Final Rule in the Federal Register. As directed above, transmission providers must coordinate with other transmission providers in their regions to develop these tracking and tagging business practices.
	1077. We disagree with commenter's' suggestion that the NERC IDC must be changed to accommodate conditional firm service. We reiterate that we are not creating a new curtailment priority in this Final Rule. We also disagree that new tags that combine a firm and non-firm priority must be developed in order to implement the conditional firm option. The curtailment priority in a tag can be changed ahead of the operating hour based on a near-term forecast of system conditions.
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT should review the definition of the following term and coordinate with NAESB so that the definition is consistent between NERC and NAESB: Reallocation
Version 0 Team	• Usage of TLR log questioned • Some inconsistencies with current usage

Source	Language
VRFs Team	• R2.1, .2 & .3 — not a requirement, just a suggested instruction • R6 — redundant
TLR Family	
Other	Gerry, Hey, I was looking something up in the standards and I couldn't find a definition for "TLR." I ended up downloading the whole set of standards and doing a search. I finally found it. Should TLR be included in the glossary? Kevin J. Conway NERC Reliability Readiness Evaluator North American Electric Reliability Corporation 116-390 Village Blvd. Princeton, NJ 08540-5721 Cellular Phone: 509-750-5441 kevin.conway@nerc.net

Project 2007-01 Underfrequency Load Shedding

Standards Involved:
PRC-006-0 — Development and Documentation of Regional ULS Program Requirements
PRC-007-0 — Assuring Consistency with Regional UFLS Programs
PRC-009-0 — UFLS Performance Following an Underfrequency Event

Research Needed:
None

Brief Description:
PRC-006 is one of the few reliability standards identified by the Regional Reliability Standards Working Group as a standard that has some requirements that need to be defined by each regional entity in a regional standard.

The standard drafting team (SDT) will work with stakeholders to review PRC-006 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the UFLS program documentation. The SDT shall determine which requirements should be continent-wide requirements and which requirements should be included in regional standards.

PRC-007 and PRC-009 have some 'fill-in-the-blank' characteristics, as identified in the Regional Reliability Standards Working Group work plan, which need to be removed. These standards shall be included with PRC-006 for consideration as one or more revised standards as necessary for consistency and clarity of overall program requirements and any other associated programs and/or requirements that affect or impact the UFLS program.

The standard drafting team may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standard Development Status:
Project 2007-01 Underfrequency Load Shedding Web page

Project Schedule:
Project 2007-01 Schedule

Standard Drafting Team Roster:

Chairman	Philip J. Tatro, P.E.	National Grid USA
	Paul Attaway	Georgia Transmission Corporation
	Brian D. Bartos	Bandera Electric Cooperative
	Scott Berry	Indiana Municipal Power Agency
	Brian Evans-Mongeon	Utility Services LLC
	Frank Gaffney	Florida Municipal Power Agency
	Jonathan Glidewell	Southern Company Transmission Company
	Gerald Keenan	Northwest Power Pool Corporation
	Robert W. Millard	ReliabilityFirst Corporation
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Mak Nagle	Southwest Power Pool
	Robert J. O'Keefe	American Electric Power
	Si Truc Phan	Hydro-Québec TransEnergie
	Tony Rodrigues, P.E.	PacifiCorp
NERC Staff	Robert W Cummings	North American Electric Reliability Corporation
NERC Staff	Stephanie Monzon	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
PRC-006-0 — Development and Documentation of Regional ULS Program Requirements	
FERC Order 693	Transfer responsibility from the regional reliability organization to the regional entity.
Fill in the Blank Team	• Modify R1 to require each Region to develop a regional standard, and • Development of regional standards needs to be coordinated with Regional entities. Regional entities should begin process for developing regional standards once the drafting team for the North American standard has determined what elements of UFLS should be included in the continent-wide standard and what elements should be included in the regional standards. • Determine what elements (if any) of UFLS should be included in the North American standard and what elements should be included in the regional standards. • Related PRC-007, PRC-008, and 009. • PRC-006 will be a continent-wide standard supported by Regional Reliability Standards.
Version 0 Team	• Not a standalone standard • Who do you submit compliance material to? • Need to define evidence
PRC-007-0 — Assuring Consistency with Regional UFLS Programs	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Fill in the Blank Team	• The regional procedures need to be converted to a standard to implement this. • Change "program" to "standard" in R1. • Coordinated with PRC-006.
Version 0 Team	• Need to refine levels of non-compliance • Need to include RA

PRC-009-0 — UFLS Performance Following an Underfrequency Event	
Fill in the Blank Team	• See notes for PRC-007. • Change "program" to "standard'.
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Version 0 Team	• Exemptions for those with shunt reactors who don't shed load • 90 days vs. 30 days • Define evidence

Project 2007-02 Operating Personnel Communications Protocols

Standards Involved:
COM-002-2 — Communications and Coordination

Research Needed:
None

Brief Description:
This is a new project that was identified in support of a blackout recommendation #26. This standard will require the use of specific communication protocols, especially for communications during alerts and emergencies. The standard will be applicable to transmission operators, balancing authorities, reliability coordinators, generator operators and distribution providers.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standard Development Status:
Project 2007-02 Operating Personnel Communications Protocols Web page

Project Schedule:
Project 2007-02 Schedule

Standard Drafting Team Roster:

Chairman	Lloyd S. Snyder	Georgia Systems Operations Corporation
	Alan N. Allgower	Electric Reliability Council of Texas, Inc.
	Harvie D. Beavers	Colmac Clarion/Piney Creek LP
	Mark L. Bradley	ITC Transmission
	Mike Brost	JEA
	William D Ellard	California ISO
	Ronald Goins	Midwest ISO, Inc.
	Leanne Harrison	PJM Interconnection, L.L.C.
	Tom Irvine	Hydro One Networks, Inc.
	James McGovern	ISO New England, Inc.
	Wayne Mitchell	Entergy Corporation
	John Stephens	City Utilities of Springfield
	Fred Waites	Southern Company
NERC Staff	Larry J. Kezele	North American Electric Reliability Corporation
NERC Staff	Harry Tom	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
COM-001-1 — Telecommunications	
NERC Standards DT Coordinators Meeting 20080520	COM-001-1 Telecommunications is being reviewed and revised under Project 2006-06 Reliability Coordination; however, it has been agreed that all requirements of COM-001-1 except R4 will be addressed by the SDT for Project 2006-06 and that requirement R4 will be addressed by the SDT for Project 2007-02 Operating Personnel Communications Protocols. If either part of this agreement is not maintained, COM-001-1 will need revisited.
COM-002-2 — Communications and Coordination	
FERC Order 693	• Address APPA's concern through the standard development process. • Address Santa Clara, FirstEnergy, and Six Cities concerns in the reliability standards development process. • Consider Xcel's suggestion that the entity taking operating actions should not be held responsible for the delays caused by the reliability coordinator's assessment and approval. • Establish tightened communication protocols, especially for communications during alerts and emergencies. Establish uniformity to the extent practical on a continent-wide basis. • Include a requirement for the reliability coordinator to assess and approve only those actions that have impacts beyond the area views of the transmission operators and balancing authorities. Include how to determine whether an action needs to be assessed by the reliability coordinator. • Include APPA's suggestions to complete the measures and levels of non-compliance. • Include distribution providers in the list of applicable entities.
NERC Standards DT Coordinators Meeting 20080520	• "COM-002-2 Communication and Coordination is being reviewed and revised under both Project 2006-06 Reliability Coordination and Project 2007-02 Operating Personnel Communications Protocols; however, it has been agreed that: •Requirement R1will be addressed by Project 2006-06" • Requirements R1, R3, R4, and R5 (for coordination in planning time frame) of PRC-001-1 System Protection Coordination are better addressed in COM-002 Communications and Coordination. (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.)
Version 0 Team	• R1 — include reliability authority • R2 — include sabotage and security • R4 — clarify repeat back requirement with regard to emergency • Voice with generators not required
Version 1 Team	• R1 — include reliability authority • R2 — include sabotage and security • R4 — clarify repeat back requirement with regard to emergency • Voice with generators not required

Project 2007-03 Real-time Operations

Standards Involved:
TOP-001-1 — Reliability Responsibilities and Authorities
TOP-002-2 — Normal Operations Planning
TOP-003-0 — Planned Outage Coordination
TOP-004-1 — Transmission Operations
TOP-005-1 — Operational Reliability Information
TOP-006-1 — Monitoring System Conditions
TOP-007-0 — Reporting SOL and IROL Violations
TOP-008-1 — Response to Transmission Limit Violations
PER-001-0 — Operating Personnel Responsibility and Authority

Research Needed:
Operating Committee study of situational awareness tools

Brief Description:
Most of the requirements in this set of standards were translated from Operating Policies as part of the Version 0 process. There have been suggestions for improving these requirements, and the drafting team will consider comments submitted by stakeholders, drafting teams and FERC in determining what changes should be proposed to stakeholders.

The drafting team will review all of the requirements in this set of standards and make a determination, with stakeholders, on whether to:

- Move the requirement (into another SAR or Standard or to the certification process or standards)
- Eliminate the requirement (either because it is redundant or because it does not support bulk power system reliability).
- Improve clarity of, improve measurability of, and remove ambiguity from the remaining requirements
- Bring the set of standards into conformance with the latest version of the Reliability Standards Development Procedure and the ERO Sanctions Guidelines.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standard Development Status:
Project 2007-03 Real-time Operations Web page

Project Schedule:
Project 2007-03 Schedule

Standard Drafting Team Roster:

Chairman	James S. Case	Entergy Services, Inc.
	Paul Bleuss	California/Mexico Reliability Coordinator
	Albert DiCaprio	PJM Interconnection, L.L.C.
	Ryan Johnson	NRG Energy Power Marketing, Inc.
	Phillip Lavallee	National Grid USA
	Jason L. Marshall, P.E.	Midwest ISO, Inc.
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Paul Olson	Sacramento Municipal Utility District
	Gregory Van Pelt	California ISO
	Jim Useldinger	KCP&L
NERC Staff	Edward J. Dobrowolski	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
PER-001-0 — Operating Personnel Responsibility and Authority	
Version 0 Team	Data retention should be 1 year
TOP-001-1 — Reliability Responsibilities and Authorities	
FERC Order 693	• Consider adding other measures and levels of non-compliance. • 1589 — Includes measures and levels of non-compliance for requirement R8 • 1588 — Consider Santa Clara's comments on requirements R7.2 and R7.3 on transmission operator notification requirements as part of the standards development process. • 1585 — Clarify the definition of "emergency" and define the criteria for entering into the various states. Also define the authority for declaring these states.
NERC Audit Observation Team	Does this imply that a GOP can call another GOP and request an output change without going through the RC, BA or TOP?
Version 0 Team	• Define emergency • Need to expand included entities • What is 'clear decision making authority'? • Need to define single, central communications point during emergencies • Some emergencies will require follow up notification as opposed to immediate
TOP-002-1 — Normal Operations Planning	
Fill in the Blank Team	Remove "in accordance with NERC, Regional Reliability Organization, sub regional, and local reliability requirements" from R6 and "in accordance with filed tariffs and/or regional Total Transfer Capability and Available Transfer Capability calculation processes" from R12 .
Version 0 Team	• Limit of 2 tests per year • Coordination of planning required • Define N-1 • Define 'without intentional delay' • Reliability should 'trump' confidentiality
VRFs Team	• R2 — administrative in nature, not a real requirement • R9 — related to INT-003 • R14 & 14.1 — ambiguous
TOP-002-2 — Normal Operations Planning	

Source	Language
FERC Order 693	• 1607 — Consider the comments of ISO-NE and the NRC with respect to requirement R12 and measure M7 as part of the standard development process. • 1608 — Requires simulation contingencies to match what will actually happen in the field. • 1608 — Requires next-day analysis of minimum voltages at nuclear power plants auxiliary power buses. • 1608 — Next-day analysis for all IROLs must identify and communicate control actions to system operators that can be implemented within 30 minutes following a contingency. • 1608 — Delete references to confidentiality in requirements R3 and R4. • 1608 — Address critical energy infrastructure confidentiality as part of the routine standard development process. • 1603 — Inform the nuclear plant operator in real-time if the auxiliary power bus voltages cannot be maintained.
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
NERC Standards DT Coordinators Meeting 20080520	Requirements R2, R5, and R6 (for coordination in real-time) of PRC-001-1 System Protection Coordination are better addressed in the TOP family of standards: Consider putting R5 of PRC-001-1 in: TOP-002 R1, R3, R4, or R5 or TOP-003 — R1, R3, R4 (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.)
TOP-003-0 — Planned Outage Coordination	

Source	Language
FERC Order 693	• 1622 — Consider TVA's suggestion for including breaker outages within the meaning of facilities that are subject to advance notice for planned outages. • 1624 — Require any facility, that in the opinion of the reliability coordinator, balancing authority, or transmission operator, will have a direct impact on the reliability of the bulk power system be subject to the requirement R1 for planned outage coordination • 1626 — Incorporate an appropriate lead time for planned outages using suggestions from the various commenter's. • 1626 — Communicate scheduled outages to all affected entities well in advance to ensure reliability and accuracy of ATC calculations.
Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan: 2010-2012	With respect to requirement R1.2, why is the TOP responsible for providing generator outage information? Isn't that the BA's or GOP's responsibility and isn't this redundant with IRO-010-1?
NERC Standards DT Coordinators Meeting 20080520	Requirements R2, R5, and R6 (for coordination in real-time) of PRC-001-1 System Protection Coordination are better addressed in the TOP family of standards: •Consider putting R5 of PRC-001-1 in: TOP-002 R1, R3, R4, or R5 or TOP-003 — R1, R3, R4 •Consider putting R6 of PRC-001-1 in: TOP-003 R5 or TOP-006 (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.)
Version 0 Team	• Submit outage data ASAP but no later than noon day ahead • RA can't request outage cancellation • Outage information needed sooner than 1 day prior
VRFs Team	R4 — poorly written
TOP-004-1 — Transmission Operations	
FERC Order 693	• 1630 - Modify requirement R4 to state that the system should be restored to respect proven limits as soon as possible taking no more than 30 minutes. • 1628 - NERC should report the results of the survey to the Commission within 18 months of the effective date of this rule. • 1641 - Reliability coordinators should report any IROL violations to NERC on a monthly basis for one year beginning August 2, 2007. • 1628 - Perform a survey of the prevailing operating practices and actual operating experiences surrounding IROL limits. • 1640 - Defines high risk conditions under which the system must be operated to respect multiple outages in requirement R3. • 1634 - Consider Santa Clara's comments regarding changes to requirement R2 in the standards development process.
Fill in the Blank Team	No action required
NERC Audit Observation Team	Transmission operator enters an unknown state. What does this mean?

Source	Language
Version 0 Team	• Define (or remove) practical • Define SOL & IROL • Specify disconnection as acceptable in R5 • Clarify roles • Vagueness in application of IROL limits • Operations should conform to planning standards
TOP-005-1 — Operational Reliability Information	
FERC Order 693	• 1644 & 1646 — Consider FirstEnergy's modifications to Attachment 1 and ISO-NE's recommended revision to requirement R4 in the standards development process. • 1649 — Delete references to confidentiality agreements but ensure critical energy infrastructure confidentiality is addressed in the standards development process. • 1651 — Include information about the operational status of special protection systems and power system stabilizers in Attachment 1.
NERC Standards DT Coordinators Meeting 20080520	Requirements R2, R5, and R6 (for coordination in real-time) of PRC-001-1 System Protection Coordination are better addressed in the TOP family of standards: •Consider putting R2 of PRC-001-1 in TOP-005 (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.)
Version 0 Team	• Generator data should include voltage control & stabilizers • Data update is too slow • Need to include GO & LSE • GO needs to supply data to BA & TO
TOP-006-1 — Monitoring System Conditions	
FERC Order 693	• 1653 — Add requirement related to the provision of minimum capabilities that are necessary to enable operators to deal with real-time situations and to ensure reliable operation of the bulk power system. • 1653 — Clarify the meaning of "appropriate technical information" concerning protective relays. • 1658 — Consider APPA's comments regarding missing measures in the standards development process.
Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan: 2010-2012	• With respect to requirements R1 and R1.2, why are BAs responsible for information regarding transmission resources available for use? Isn't that the role of the TOP? • With respect to requirement R2, why is the BA responsible for monitoring transmission line status, voltage, load tap changer settings, and reactive power in general? Monitoring and managing reactive resources, voltage and tap settings is clearly made the responsibility of the TOP in VAR-001-1a. • With respect to requirement R3 why does the BA need to understand protective relaying? Isn't that the role of the TOP and GOP?
NERC Standards DT Coordinators Meeting	Requirements R2, R5, and R6 (for coordination in real-time) of PRC-001-1 System Protection Coordination are better addressed in the TOP family of standards: •Consider

Source	Language
20080520	putting R6 of PRC-001-1 in: TOP-003 R5 or TOP-006 (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.)
Version 0 Team	• Monitor frequency at multiple points • GO needs to provide normal & emergency data • Load forecasting data required • Need to match roles with FM
VRFs Team	• R3 — define appropriate • R1, 1.1, 1.2 — 'available in emergency situation' may be needed • R4 — What information is required and what is a load pattern?
TOP-007-0 — Reporting System Operating Limit (SOL) and Interconnection Reliability Operating Limit (IROL) Violations	
FERC Order 693	• 1671 — Consider the NRC's comments on voltage requirements as part of the standards development process. • 1668 — Eliminate overlapping matters in TOP-007 and TOP-008.
Version 0 Team	• Not enforceable with current criteria • Need to tighten the non-compliance terms • Need to define evidence of evaluation • More of a compliance issue than an true standard • RA should be included
TOP-008-1 — Response to Transmission Limit Violations	
FERC Order 693	1678 — Consider APPA's comments regarding missing measures in the standards development process.

Project 2007-04 Certifying System Operators

Standards Involved:
PER-003-0 — Operating Personnel Credentials

Research Needed:
None

Brief Description:
This Version 0 Standard requires the Reliability Coordinator, Balancing Authority and Transmission Operator to staff its real-time operating positions with personnel that have a NERC certification credential.

The standard will be revised to address the directives from FERC Order 693 and industry comments from Version 0.

The standard will also be revised to conform to the latest version of the Reliability Standards Development Procedure and the ERO Sanctions Guidelines. The standard drafting team will apply the Reliability Standard Review Guidelines when modifying the standard.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2007-04 Certifying System Operators Web page

Project Schedule:
Project 2007-04 Schedule

Standard Drafting Team Roster:

Chairman	David J. Carlson	Commonwealth Edison Co.
	Brad E. Calhoun	CenterPoint Energy
	William D Ellard	California ISO
	David L. Folk	FirstEnergy Corp.
	Jeff Gooding	Florida Power & Light Co.
	Mike Gough	Western Area Power Administration
	Raymond C. Gross	PJM Interconnection, L.L.C.
	Mark A. Heimbach	Pennsylvania Power & Light Company
	Lauri Jones	Pacific Gas and Electric Company
	Rob MacDonald	Hydro One, Inc.
	Tom McKenrick	Midwest ISO, Inc.
	Patricia E. Metro	National Rural Electric Cooperative Association
	Ed Seddon	Orlando Utilities Commission
	Fred Waites	Southern Company
NERC Staff	Darrel Richardson	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
PER-003-0 — Operating Personnel Credentials	
FERC Order 693	• Consider grandfathering certification requirements for transmission operator personnel as part of the standards development process. • Identify the minimum competencies operating personnel must demonstrate to be certified. • Specify the minimum competencies that must be demonstrated to become and remain a certified operator.
NERC Audit Observation Team	Who needs to be certified?
Version 0 Team	• Problem with wording change from 'both' to 'either' • Need to define critical tasks • Staffing plan is out of scope • Non-compliance levels missing • Need to specify exact position titles and match to credentials • Need to define 'current'
PER-004-1 — Reliability Coordination — Staffing	
FERC Order 693	Include requirements pertaining to personnel credentials for reliability coordinators similar to PER-003.

Project 2007-05 Balancing Authority Controls

Standards Involved:
BAL-002-0 — Disturbance Control Performance
BAL-004-0 — Time Error Correction
BAL-005-0 — Automatic Generation Control
BAL-006-1 — Inadvertent Interchange

Research Needed:
None

Brief Description:
The standard drafting team will:

- Work collaboratively with NAESB to ensure that the elements of these standards that are need to support reliability are include in the revised standard
- Consider comments receive during the initial development of this set of standards and other comments received from ERO regulatory authorities and stakeholders
- Bring the standards into conformance with the latest version of the Reliability Standards Development Procedure and the ERO Rules of Procedures
- Incorporate language to eliminate two interpretations (BAL-005, Requirement 17)
- Incorporate language to make permanent the Urgent Action removal of some of the reliability coordinator's requirements in BAL-004
- Review all of the requirements in the standards listed above.

For each existing requirement, the standard drafting team will also work with NAESB and stakeholders to:

- Eliminate redundancy (or overlap) in the requirements and associated business practices
- Identify requirement that should be moved into other SARs, standards, or business practices
- Eliminate requirements that do not support bulk power reliability
- Improve clarity of, improve measurability of, and remove ambiguity from the remaining requirements

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual plan):
Annual Plan Item 1.d
Annual Plan Item 1.e
Justification for NAESB consideration:
FERC Order 693
Project Description

SRS Recommendation:
During initial discussions (REF: Rae McQuade's letter to Gerry Adamski dated February 11, 2008), there was no identified need for business practices related to this project. NERC should point out any areas where they see a need for a business practice. This is being coordinated with the WEQ on current project Annual Plan Items 1.d and 1.e, and there is ongoing coordination between the BAC Standards Drafting Team and the NAESB WEQ Time and Inadvertent Management Task Force.

Standards Development Status:

Project 2007-05 Balancing Authority Controls Web page

Project Schedule:

Project 2007-05 Schedule

Standard Drafting Team Roster:

Chairman	Larry Akens	Tennessee Valley Authority
	Thomas Artau	Progress Energy Florida
	Harvie D. Beavers	Colmac Clarion/Piney Creek LP
	Gerald D Beckerle	Ameren Corp.
	David L. Folk	FirstEnergy Corp.
	William Franklin	Xcel Energy, Inc.
	Steve Gillespie	California ISO
	Howard F. Illian	Energy Mark, Inc.
	Ken McIntyre	Electric Reliability Council of Texas, Inc.
	Sydney Niemeyer	NRG Texas LP
	Guy Quintin	Hydro-Québec TransEnergie
	Kris Ruud	Midwest ISO, Inc.
	Mark Thomas	Entergy Transmission
	Raymond L. Vice	Southern Company Services, Inc.
NERC Staff	Andrew J. Rodriquez	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
NAESB Standards Review Subcommittee	NAESB Standards Review Subcommittee as input to the Reliability Standards Development Plan: 2010-2012: NAESB requests that NERC continue its coordination with NAESB on this project as it relates to item 1.d and 1.e in the NAESB WEQ 2009 Annual Plan.
Other	Incorporate approved formal interpretation
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
BAL-002-0 — Disturbance Control Performance	
FERC Order 693	• Include a frequency response requirement. • Measures should be available in real-time to balancing authorities. • Substitute regional entity for regional reliability organization • Include a continent-wide contingency reserve policy, which should include uniform elements (definitions and requirements) • Modify to make requirements R4.2 and R6.2 refer to NERC rather than the NERC Operating Committee. • Define a significant (frequency) deviation and a reportable event, taking into account all events that have an impact on frequency, and how balancing authorities should respond. • Include a requirement that explicitly provides that DSM may be used as a resource for contingency reserves. • DSM should be treated on a comparable basis and must meet similar technical requirements as other resources providing this service • Policy can allow for regional differences, but should include procedures to determine the appropriate mix of operating reserves, spinning and non-spinning, as well as requirements pertaining to the specific amounts of operating reserves based on the load characteristics and magnitude, topology, and mix of resources in the region. • Address Commission concerns about having enough contingency reserves to respond to an event on the system in requirement 3.1 and how such reserves are measured. • Requires any single reportable disturbance that has a recovery time of 15 minutes or longer be reported as a violation.
Fill in the Blank Team	• Modify R2 to remove reference to "sub-Regional Reliability Organization or Reserve Sharing Group", and • Determine what elements of contingency reserve should be included in the North American standard and what elements should be included in the regional standard. • Development of regional standards needs to be coordinated with Regional entities. Regional entities should begin process for developing regional standards once the drafting team for the North American standard has determined what elements of contingency reserve should be included in the continent-wide standard and what elements should be included in the regional standards. • Regional reliability standards will be developed in support of North American standard BAL-002. • Each RRO will need to create a regional standard specifying its Contingency Reserve policy.
NERC Audit Observation Team	• Should the reserve sharing group be audited or the members? This should be tied to

Source	Language
	registration for consistency. • What is a sub-region
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Frequency Bias Setting Time Error Time Error Correction
Version 0 Team	• Need regional standards in support of N. American • Modify R2 • Determine N. America vs. regional elements
BAL-004-0 — Time Error Correction	
FERC Order 693	• Include levels of non-compliance and additional measures for requirement R3. • In the five-year review cycle of the standard, perform research that would provide a technical basis for the present or any alternative approach that is more effective and helps reduce inadvertent interchange.
NERC/NAESB Coordination	NERC/NAESB Coordination The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Frequency Bias Setting Time Error Time Error Correction
BAL-005-0 — Automatic Generation Control	
FERC Order 693	• Develop a process to calculate the minimum regulating reserve for a balancing authority, taking into account expected load and generation variation and transactions being ramped in and out. • Change title to be neutral as to the source of regulating reserves and allows the inclusion of technically qualified DSM. • Address comments of Xcel and FirstEnergy when the standard is revisited in the work plan. • If regulation is being provided over non-firm transmission service, the entity receiving the regulation must have a back-up plan to include the loss of the non-firm transmissions service as referenced in requirement R5. • Include a measure that provides for a verification process over the required automatic generation control, or regulating reserves a balancing authority maintains
Fill in the Blank Team	No comments
NERC Audit Observation Team	What the difference between this and BAL-005-1?
Version 0 Team	• Re-order & re-word requirements • Define data requirements • Non-compliance missing • Purpose statement
VRFs Team	• R14 — Check for redundancy of second statement. This seems to be a real-time requirement - not planning. Is this for archival data requirements? • R12.3 — redundant • R12 — sub-requirements should be separate requirements

Source	Language
BAL-005-0 — Automatic Generation Control	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Frequency Bias Setting Time Error Time Error Correction
BAL-006-1 — Inadvertent Interchange	
FERC Order 693	• Regional Differences to BAL-006-1: Inadvertent Interchange Accounting and Financial Inadvertent Settlement: Explore FirstEnergy's request to define the function of a waiver in the reliability standard development process. • Regional Differences to BAL-006-1: Inadvertent Interchange Accounting and Financial Inadvertent Settlement: Reference the current reliability standards and are in the standard form, which includes requirements, measures, and levels of non-compliance. • Add measures concerning the accumulation of large inadvertent interchange balances and levels of non-compliance. • Examine the WECC time error correction procedure as a possible guide.
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Frequency Bias Setting Time Error Time Error Correction
Version 0 Team	• Wording in R4 • Split requirements • Requirements mixed in Compliance • Non-compliance missing • Purpose/Requirement contradiction

Project 2007-06 System Protection Coordination

Standards Involved:
PRC-001-1 — System Protection Coordination

Research Needed:
Identification of criteria for determining where to install protection systems

Brief Description:
The existing PRC-001 Standard has been identified in the Reliability Standards Development Plan as requiring revision, within the FERC Order 693 as requiring revisions, and by a SPCTF report (attached) which identified a number of issues with the existing standard (the SPCTF report, which precedes FERC Order 693, also includes observations from the preceding FERC NOPR on RM-06-16-000). This revision of PRC-001 should address concerns from these sources and should include upgrades to bring the revised standard into conformance with the latest version of the ERO Rules of Procedure.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2007-06 System Protection Web page

Project Schedule:
Project 2007-06 Schedule

Standard Drafting Team Roster:

Chairman	Arthur J. Buanno	FirstEnergy Corp.
	David Cirka	National Grid
	Aaron Cooperberg	Hydro One Networks, Inc.
	Samuel Francis	Oncor Electric Delivery
	Jeffrey Iler	American Electric Power
	Bill Middaugh	Tri-State G & T Association Inc.
	Richard P. Quest	Xcel Energy, Inc.
	William Waudby	Consumers Energy
	Kevin Wempe	Kansas City Power & Light Co.
	Philip Winston	Georgia Power Company
NERC Staff	Al Calafiore	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
PRC-001-1 — System Protection Coordination	
FERC Order 693	• Upon detection of failures in relays or protection system elements on the bulk power system that threaten reliability, relevant transmission operators must be informed promptly, but within a specified period of time. -- (2) a requirement that transmission and generator operators be informed immediately upon the detection of failures in relays or protection system elements on the Bulk-Power System that would threaten reliable operation, so that these entities could carry out appropriate corrective control actions consistent with those used in mitigating IROL violations. • Once informed, transmission operators must carry out corrective control actions that return the system to a stable state that respects system requirements as soon as possible and no longer than 30 minutes. "[t]he transmission operator shall take corrective action as soon as possible" refers to transmission operators taking operator control actions. It does not refer to troubleshooting, repairing or replacing failed relays or equipment, etc., since these time-consuming corrective actions would prolong the risk of cascading failures to the Bulk-Power System. • Clarify the term "corrective action". 1440. We believe that "[t]he transmission operator shall take corrective action as soon as possible" refers to transmission operators taking operator control actions. It does not refer to troubleshooting, repairing or replacing failed relays or equipment, etc., since these time-consuming corrective actions would prolong the risk of cascading failures to the Bulk-Power System. 1441…. We direct the ERO to clarify the term "corrective action" consistent with this discussion when it modifies PRC-001-1 in the Reliability Standards development process. • Consider FirstEnergy's and the California PUC's comments about the maximum time for corrective actions in the standards development process. 1428. California PUC contends that imposing a time restriction for returning a system to a stable state may cause more harm than good since additional information and options may be available as time elapses. It repeats its suggestion from its earlier comments on the Staff Preliminary Assessment and proposes the following alternative language: "Transmission or generation operators shall carry out corrective control actions, i.e., returning the system to a stable state that respects system requirements as soon as possible, and no longer than 30 minutes, except where a longer response time is feasible, or where a longer response is demonstrated to produce a better ultimate solution without unacceptable interim risk." 1431. FirstEnergy contends that Requirement R2.1 essentially requires generator operators to report all protective relay or equipment failures, since generator operators may not be able to tell which failures will reduce system reliability. FirstEnergy suggests that R2.1 should be revised to require generator operators to report all equipment failures or outages. FirstEnergy further suggests that PRC-001-1 be revised to provide that if a company performs reasonable testing procedures, undiscoverable equipment failures will not be violations of R2.1. • Measures and levels of non-compliance incorrectly reference non-existent requirements.
Version 0 Team	• Consistent terminology as to neighbor vs. affected • Effects on reliability may not be known • Not all criteria moved over from policies

Project 2007-07 Vegetation Management

Standards Involved:
FAC-003-1 — Vegetation Management Program

Research Needed:
None

Brief Description:
This is a Version 1 standard that was approved in 2006. It has some 'fill-in-the-blank' components to eliminate. In addition, the following comments submitted by FERC and stakeholders need to be addressed in the refinement of the standard:

FERC Order 693 items
Address the issue regarding applicability:

- Work with the reliability entities and the ERO to collect and make available to the FERC, a list of critical lower voltage transmission lines. (Refer to Applicability 4.3 section of the standard.)
- Consider other criteria in determining applicability of the standard to sub 200kV lines.
- Address the issue of clearances for lines on both federal and non-federal lands:
- Review and analyze outage data (collected by the ERO) then consider defining clearances needed to avoid sustained vegetation-related outages that would apply to transmission lines crossing both federal and non-federal land.
- Consider revising the definition of right of way to encompass required clearance areas.
- Review the suitability of IEEE 516-2003 standard for minimum vegetation clearance.

Procedural items

- Re-format standard to bring it into conformance with the latest version of the Reliability Standard Development Procedure and the ERO Sanctions Guidelines.
- Remove references to RRO in the standard and substitute a responsible entity.
- Add newly developed compliance elements such as time horizons, violation risk factors, violation severity levels, etc.

Stakeholder items

- Prepare technical reference material such as a "white paper" to aid in understanding the technical basis for the standard.
- Review reporting criteria for Category 3 outages in the proposed technical reference material and may remove the reporting requirement of Category 3 outages in R.3 and R.4.
- Consider deleting requirement R.4.
- Review the reporting exemptions to include all category outages under major disasters in Requirement R3.2.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project 2007-07 Vegetation Management Web page

Project Schedule:

Project 2007-07 Schedule

Standard Drafting Team Roster:

Chairman	Richard E. Dearman	Tennessee Valley Authority
	Ron A. Adams	Duke Energy Carolina
	Tom Anderson	Lincoln Electric System
	Paul S. Beaulieu	Finley Engineering
	Stephen R. Cieslewicz	CN Utility Consulting LLC
	Randall F. Gann	Alabama Power Company
	Stephen Genua	Pepco Holdings, Inc.
	Jeff Hackman	Ameren Corp.
	Edward Mennella	Orange & Rockland Utilities
	Randall H. Miller	PacifiCorp
	David Morrell	New York State Department of Public Service
	John Pinney	Progress Energy
	John E. Schechter	American Electric Power
	John Tamsberg	Florida Power & Light Co.
	Stephen Tankersley	Pacific Gas and Electric Company
	Ron Turley	Western Area Power Administration
	Gary White	Oncor Electric Delivery
	Philip H. Whitmer	Georgia Power Company
	Ken Wright	Tucson Electric Power Co.
NERC Staff	Harry Tom	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
FAC-003-1 — Vegetation Management Program	
FERC Order 693	• …We recognize that many commenter's would like a more precise definition for the applicability of this Reliability Standard, and we direct the ERO to develop an acceptable definition that covers facilities that impact reliability but balances extending the applicability of this standard against unreasonably increasing the burden on transmission owners…
	• Evaluate suggestions by LPPC, APPA, and Avista in the standards development process.
	• Develop compliance audit procedures, using industry experts, which would identify appropriate inspection cycles based on local factors.
	• Define the minimum clearance needed to avoid sustained vegetation-related outages that apply to line crossing federal and non-federal lands.
	• Address issues that develop in the interim on a case-by-case basis
	• Incorporate suggestions to include facilities at lower voltages that are associated with IROLs.
	• We will not direct NERC to submit a modification to the general limitation on applicability as proposed in the NOPR. However, we will require the ERO to address the proposed modification through its Reliability Standards development process. As explained in the NOPR, the Commission is concerned that the bright-line applicability threshold of 200 kV will exclude a significant number of transmission lines that could impact Bulk-Power System reliability. Although the regional reliability organizations are given discretion to designate lower voltage lines under the proposed Reliability Standard, none have designated any operationally significant lines even though there are lower voltage lines involving IROL as suggested by Progress and SERC. We continue to be concerned that this approach will not prospectively result in the inclusion of all transmission lines that could impact Bulk-Power System reliability. In proposing to require the ERO to modify the Reliability Standard to apply to Bulk-Power System transmission lines that have an impact on reliability as determined by the ERO, we did not intend to make this Reliability Standard applicable to fewer facilities than it currently is with the 200 kV bright line applicability, but to extend the applicability to lower-voltage facilities that have an impact on reliability. We support the suggestions by Progress Energy, SERC and MISO to limit applicability to lower voltage lines associated with IROL and these suggestions should be part of the input to the Reliability Standards development process. Similarly, the ERO should evaluate the suggestions proposed by LPPC, APPA and Avista…..
	• Consider a phase-in timeframe if lower voltage facilities are included as applicable to this standard.
	• …. FirstEnergy and Xcel suggest that if the applicability of this Reliability Standard is expanded, the Commission should allow flexibility in complying with this Reliability Standard for lower-voltage facilities, or allow lower-voltage facilities one year before the Reliability Standard is implemented. The ERO should consider these comments when determining when it would request that the modification of this Reliability Standard to go into effect…..
	• Accordingly, the Commission directs the ERO to develop compliance audit procedures, using relevant industry experts, which would identify appropriate inspection cycles based on local

Source	Language
	factors. These inspection cycles are to be used in compliance auditing of FAC-003-1 by the ERO or Regional Entity to ensure such inspection cycles and vegetation management requirements are properly met by the responsible entities.
	• Accordingly, the Commission directs the ERO to develop a Reliability Standard that defines the minimum clearance needed to avoid sustained vegetation-related outages that would apply to transmission lines crossing both federal land and non-federal land. While this consensus is developed, the Commission directs the ERO to address any potential issues regarding mitigation measures needed to assure these minimum clearances on Forest Service lands are appropriate on a case-by-case basis. The Commission also directs the ERO to collect outage data for transmission outages of lines that cross both federal and non-federal lands, analyze it, and use the results of this analysis and information to develop a Reliability Standard that would apply to transmission lines crossing both federal and non-federal land.
	• FirstEnergy suggests that rights-of-way be defined to encompass the required clearance areas instead of the corresponding legal rights, and that the standards should not require clearing the entire right-of-way when the required clearance for an existing line does not take up the entire right-of-way. The Commission believes this suggestion is reasonable and should be addressed by the ERO. Accordingly, the Commission directs the ERO to address this suggestion in the Reliability Standards development process.
	• Address FirstEnergy's suggestion to clarify the definition of "rights-of-way" as part of the standards development process.
	• Collect outage data for transmission outages of lines that cross both federal and non-federal lands, analyze it, and use the results to develop a standard that would apply to both federal and non-federal lands.
	• Ensure inspection cycles and vegetation management requirements are properly met by the responsible entities.
	• Address the issue of "bright-line" applicability of 200 kV and above through the standards development process.
NERC Audit Observation Team	• It was pointed out that an entity did not need to be registered as a TO for FAC-003-1 to apply to them, only that they have transmission lines operated at 200 kV and above. This could include radial lines as well as generation leads at the 200kV and above level. This could mean functions other than TO would require FAC-003-1 to be in the audit scope. How are you looking at the applicability of FAC-003-1 as it applies to DPs, LSEs, and GOs etc. This could be applicable to many entities registered in multiple regions • TO's shall demonstrate compliance through self certification. Compliance monitoring shall conduct an on-site audit every five years or more frequently as deemed appropriate. Does this over-ride the six year audit cycle for TO's? • With regards to the vegetation management standard, what type of event would trigger a compliance investigation?
Version 0 Team	• RA vs. RRO • Too weak on compliance • Format inconsistencies

Project 2007-09 Generator Verification

Standards Involved:

PRC-019-1 — Coordination of Generator Voltage Regulator Controls with Unit Capabilities and Protection

PRC-024-1 — Generator Performance During Frequency and Voltage Excursions

MOD-024-1 — Verification of Generator Gross and Net Real Power Capability

MOD-025-1 — Verification of Generator Gross and Net Reactive Power Capability

MOD-026-1 —Verification of Models and Data for Generator Excitation System Functions

MOD-027-1 — Verification of Generator Unit Frequency Response

Research Needed:

None

Brief Description:

The scope of this project includes:

- Modifying the six standards associated with this project so they conform to the latest version of NERC's Reliability Standards Development Procedure and the ERO Rules of Procedure,
- Replacing the "fill-in-the-blank" requirements assigned to the Regional Reliability Organization with requirements that can be applied on a continent-wide basis and are assigned to users, owners or operators of the bulk power system,
- Considering and addressing issues identified in FERC orders, including the modifications to MOD-024-1 and MOD-025-1 as proposed in FERC Order 693, and
- Considering and addressing issues identified during Phase III & IV field testing.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project 2007-09 Generator Verification Web page

Project Schedule:

Project 2007-09 Schedule

Standard Drafting Team Roster:

Chairman	Robert W. Millard	ReliabilityFirst Corporation
Vice Chairman	Lee Y. Taylor	Southern Company Services, Inc.
	Baj Agrawal	Arizona Public Service Co.
	Thomas J. Bradish	RRI Energy
	Donald G. Davies	Western Electricity Coordinating Council
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	Dmitry Kosterev	Bonneville Power Administration
	David Kral	Xcel Energy, Inc.
	Gary Kruempel	MidAmerican Energy Co.
	Daniel J Leonard	GE Energy
	Craig Quist	PacifiCorp
	Balbir S. Sandhu	Manitoba Hydro
	William D Shultz	Southern Company Generation
	Vladimir Stanisic	Ontario Power Generation Inc.
	Ken Stenroos	Florida Power & Light Co.
	Rick Terrill	Luminant Energy
	Chifong L. Thomas	Pacific Gas and Electric Company
	Edward J. Wingard	American Electric Power
NERC Staff	Harry Tom	North American Electric Reliability Corporation
NERC Staff	Thomas Vandervort	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
PRC-019 — Coordination of Generator Voltage Regulator Controls with Unit Capabilities and Protection	
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
PRC-024 — Generator Performance During Frequency and Voltage Excursions	
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
MOD-024-1 — Verification of Generator Gross and Net Real Power Capability	
FERC Order 693	• Require users, owners, and operators of the system to provide this information. • Provide a work plan and compliance filing regarding the collection of information specified for standards that are deferred. • Clarify requirement R2 that specifies that the regional reliability organization shall provide generator gross and net real power capability verification within 30 calendar days of approval. The confusion centers on "approval" and when the 30-day period starts. • Document test conditions and the relationships between test conditions and generator output so that the amount of power that can be expected to be delivered from a generator at different conditions can be determined.
Fill in the Blank Team	• Review MOD-024 and MOD-025 concurrently to transition to uniform North American standards. • Remove the fill-in-the-blank aspects (correct reference to "…Regional Reliability Organization's procedures…"). • Goal is uniform North American standards for real and reactive power verification. Look at regional requirements and identify the best practice, commonalities and differences, and whether differences are needed for reliability.
Phase III/IV Team	• No requirement for the RRO to demonstrate that its procedures result in accurate information of gross and net real power capability of generators for steady state models • It is not clear in R3 to whom the Generator Owner will report the information. • Non compliance levels are too strict. A small utility with 15-20 units will be L4 non-compliant if they miss one unit
Team Comments	Provide clarity where the Planning Authority is mentioned
MOD-025-1 — Verification of Generator Gross and Net Reactive Power Capability	

Source	Language
FERC Order 693	• Provide a work plan and compliance filing regarding the collection of information specified for standards that are deferred. • Require verification of reactive power capability at multiple points over a unit's operating range. • Clarify requirement R2 that specifies that the regional reliability organization shall provide generator gross and net reactive power capability verification within 30 calendar days of approval. The confusion centers on "approval" and when the 30-day period starts.
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
Fill in the Blank Team	• Remove the fill-in-the-blank aspects (correct reference to "… Regional Reliability Organization's procedures…"). • Refer to MOD-024. • Review MOD-024 and MOD-025 concurrently to transition to uniform North American standards.
Phase III/IV Team	• These standards do not provide for uniform testing of generator capability. The determination of which units are tested, how frequently they are tested, and the criteria used for determining capability are left to individual regions. • R1.5.1: The benefit of verifying maximum capability of generators to absorb VArs at seasonal real power generation capability is unclear, particularly if this standard applies to virtually all generators. For the vast majority of units, the need to absorb VArs occurs during low-load conditions, when unit real power production is below maximum capability and the unit's ability to absorb VArs is greater. Therefore, the single datum for unit VAr absorption capability determined pursuant to this standard seems to be of little practical use, except for relatively few generators in a limited set of circumstances. • It is not clear in R3 to whom the Generator Owner will report the information. • Non compliance levels are too strict. A small utility with 15-20 units will be L4 non-compliant if they miss one unit. • Severity of non-compliance should be based on the percentage of the generator owner's total generation capability comprised of units required to be verified, rather than on the percentage (number) of generating units. Exempt units should be excluded from the total generation capability for determining level of non-compliance. • There is no clear reason for regional variations in capability testing. A generator in Georgia does not have more or less capability than an identical unit applied across the Florida line, despite the fact that one is in SERC and the other in FRCC. • Fundamental guidelines outlining some basic requirements (e.g., all units over 20 MW shall be tested annually under conditions that permit full net output of the unit for normal operation) are lacking.
Team Comments	Provide clarity where the Planning Authority is mentioned
MOD-026 Verification of Models and Data for Generator Excitation System Functions	
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
MOD-027 Verification of Generator Unit Frequency Response	

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Project 2007-11 Disturbance Monitoring

Standards Involved:
PRC-002-1 — Define and Document Disturbance Monitoring Equipment Requirements
PRC-018-1 — Disturbance Monitoring Equipment Installation and Data Reporting

Research Needed:
The standard drafting team identified a need to conduct a regional data analysis in order to establish technical requirements for DME locations and thresholds.

Brief Description:
PRC-002 and PRC-018 were approved in 2006.

PRC-002 is one of four reliability standards identified by the Regional Reliability Standards Working Group as a standard that has some requirements that need to be defined by each regional entity in a regional standard. The standard drafting team (SDT) will review PRC-002 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to or contained with the disturbance monitoring program documentation. The SDT shall determine which requirements should be continent-wide requirements and which requirements should be included in regional standards.

When revising PRC-002 and PRC-018 the SDT shall address issues already identified by FERC, other drafting teams and stakeholders. Note: Phasor measurement networks are to be addressed by Project 2008-06.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2007-11 Disturbance Monitoring Web page

Project Schedule:
Project 2007-11 Schedule

Standard Drafting Team Roster:

Chairman	Navin B. Bhatt, PhD., PE	American Electric Power
	Felix Amarh, PhD	Georgia Transmission Corporation
	Alan D. Baker	Florida Power & Light Co.
	James R. Detweiler	FirstEnergy Corp.
	Richard Ferner	Western Area Power Administration
	Barry G. Goodpaster	Exelon Business Services Company
	Willy Haffecke	City Utilities of Springfield
	Daniel J. Hansen	RRI Energy
	Charles J. Jensen	JEA
	Tracy M. Lynd	Consumers Energy
	Susan L. McGill	PJM Interconnection, L.L.C.
	Robert W. Millard	ReliabilityFirst Corporation
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Jeffrey M. Pond	National Grid
	Larry E. Smith	Alabama Power Company
	Jack Soehren	ITC Holdings
NERC Staff	Stephanie Monzon	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
PRC-002-1 — Define Regional Disturbance Monitoring and Reporting Requirements	
FERC Order 693	Consider if greater consistency can be achieved in the standard as suggested by Otter Tail, APPA, and Alcoa.
Phase III/IV Team	There is no criteria that the RROs must use in specifying the process for identifying locations where DMEs are required
Version 0 Team	• Digital inputs and load need to be added • IDWG identified deficiencies • More specificity in equipment requirements needed
VRFs Team	R1 — This standard and all related sub requirements are after the fact data analysis
PRC-018-1 — Disturbance Monitoring Equipment Installation and Data Reporting	
Fill in the Blank Team	• PRC-002 will be a continent-wide standard supported by Regional Reliability Standards. • Need regions to develop and submit regional standards. NERC standard requires region to have this done in 9 months from board adoption (from August 9). Regions need to do this as a regional standard, not a procedure or some other document. • Development of regional standards needs to be coordinated with Regional entities. Regional entities should begin process for developing regional standards once the drafting team for the North American standard has determined what elements of disturbance monitoring should be included in the continent-wide standard and what elements should be included in the regional standards. • Determine what elements (if any) of disturbance monitoring should be included in the North American standard and what elements should be included in the regional standards. • PRC-002 is directly related to PRC-018. PRC-018 requires the functional entities to comply with the requirements developed by each RRO.
VRFs Team	R3.4, 3.5, 3.6, 3.7 — Ambiguous

Project 2007-12 Frequency Response

Standards Involved:
BAL-003-0 — Frequency Response and Bias

Research Needed:
None

Brief Description:
This project involves developing a new standard for the collection of data needed to accurately model existing Frequency Response within each interconnection.

The project will support the following directive in FERC Order 693:

- Define the necessary amount of Frequency Response needed for Reliable Operation for each balancing authority with methods of obtaining and measuring that the frequency response is achieved.

Standards Development Status:
Project 2007-12 Frequency Response Web page

Project Schedule:
Project 2007-12 Schedule

Standard Drafting Team Roster

Chairman	William Herbsleb	PJM Interconnection, L.L.C.
	Don E Badley	Northwest Power Pool Corporation
	Terry Bilke	Midwest ISO, Inc.
	Les Hajagos	Kestrel Power Engineering Ltd
	Harvey Heinz Happ	New York State Department of Public Service
	Howard F. Illian	Energy Mark, Inc.
	David F. Lemmons	Xcel Energy, Inc.
	Clyde Loutan	California ISO
	Carlos Martinez	Electric Power Group
	James Murphy	Bonneville Power Administration
	Sydney Niemeyer	NRG Texas LP
	Michael Potishnak	ISO New England, Inc.
	Raymond L. Vice	Southern Company Services, Inc.
NERC Staff	Darrel Richardson	North American Electric Reliability Corporation
NERC Staff	Thomas Vandervort	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
BAL-003-0 — Frequency Response and Bias	
FERC Order 693	• Define the necessary amount of frequency response needed for reliable operation for each balancing authority with methods of obtaining and measuring that the frequency response is achieved. • Determine the appropriate periodicity of frequency response surveys necessary to ensure requirement R2 and other requirements are being met; also modify measure M1 based on this determination.

Project 2007-17 Protection System Maintenance & Testing

Standards Involved:
PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing
PRC-008-0 — Underfrequency Load Shedding Equipment Maintenance Programs
PRC-011-0 — UVLS System Maintenance and Testing
PRC-017-0 — Special Protection System Maintenance and Testing

Research Needed:
None

Brief Description:
Revise PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing, to consolidate PRC-005-1, PRC-008-0 — Underfrequency Load Shedding Equipment Maintenance Programs; PRC-011-0 — UVLS System Maintenance and Testing; and PRC-017-0 — Special Protection System Maintenance and Testing into a single maintenance and testing standard. Standards PRC-008-0, PRC-011-0, and PRC-017-0 would then be withdrawn.

The revised PRC-005 standard should address the issues raised in the FERC Order 693 and the issues addressed in the SPCTF report "Assessment of PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing; with implications for PRC-008-0, PRC-011-0, and PRC-017-0". The revised standard should also address the comments submitted by stakeholders during the development of Version 0, and Phase III & IV and should reflect improvements identified in the Reliability Standards Review Guidelines.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2007-17 Protection System Maintenance & Testing

Project Schedule:
Project 2007-17 Schedule

Standard Drafting Team Roster:

Chairman	Charles W. Rogers	Consumers Energy
	John Anderson	Xcel Energy, Inc.
	Merle Ashton	Tri-State G & T Association Inc.
	Bob Bentert	Florida Power & Light Co.
	John L. Ciufo	Hydro One, Inc.
	Richard Ferner	Western Area Power Administration
	Carol Gerou	Midwest Reliability Organization
	Roger D. Green	Southern Company Generation
	Russell Hardison, P.E.	Tennessee Valley Authority
	Dave Harper	NRG Texas Maintenance Services
	John Kruse	Commonwealth Edison Co.
	Mark Peterson	Great River Energy
	William D Shultz	Southern Company Generation
	Leonard Swanson, Jr.	National Grid USA
	Eric Udren	Quanta Technology
	Philip Winston	Georgia Power Company
	John Zipp	ITC Holdings
NERC Staff	Al Calafiore	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing	
FERC Order 693	• Consider FirstEnergy's and ISO-NE's suggestions to combine PRC-005, PRC-008, PRC-011, and PRC-017 into a single standard. • Maintenance and testing of a protection system must be carried out within a maximum allowable time interval that is appropriate for the type of protection system and its impact on the reliability of the bulk power system. 1475. In addition, for the reasons discussed in the NOPR, the Commission directs the ERO to develop a modification to PRC-005-1 through the Reliability Standards development process that includes a requirement that maintenance and testing of a protection system must be carried out within a maximum allowable interval that is appropriate to the type of the protection system and its impact on the reliability of the Bulk-Power System.
NERC Audit Observation Team	• As applicable, each TO, DP and GOP shall have a protection system maintenance and testing program for protection systems that affect the reliability of the BES. Does this include major equipment like circuit breakers and transformers? • Determine what on schedule means. Is an entity who maintained/tested 95% of their relays at the same level of non-compliance as an entity who maintained/tested 10% of their relays? • How do you verify compliance for cts/pts? How do you audit these within a scheduled maintenance program? As part of the procedure, most have accepted visual inspection. Some entities state that testing of the relays verify functionality of the ct/pts • How do you verify DC control power? All regions require functional testing of the breaker. This should include functional relay & station battery checks, including breaker tripping, not just a visual inspection.
Phase III/IV Team	• All generation protection systems whose misoperations impact the bulk electric system • All protection systems on the bulk electric system. • Modify applicability to clarify that the requirements are applicable to the following: • Need to add language to ensure the Regional Requirements focus on the most impactive scenarios • PRC 003 to 005 only address generator (and transmission) protective systems, without defining this term. • There is no performance requirement or measure of effectiveness of a maintenance program required by the standard
Version 0 Team	• Define evidence • Include breakers/switches in list • Not a standalone standard
PRC-008-0 — Underfrequency Load Shedding Equipment Maintenance Programs	
FERC Order 693	Maintenance and testing of a protection system must be carried out within a maximum allowable time interval that is appropriate for the type of protection system and its impact on the reliability of the bulk power system.

Source	Language
Fill in the Blank Team	Okay if PRC-006 is fixed
Version 0 Team	• Consistent wording from standard to standard required • Definition of evidence required
PRC-011-0 — UVLS System Maintenance and Testing	
FERC Order 693	Maintenance and testing of a protection system must be carried out within a maximum allowable time interval that is appropriate for the type of protection system and its impact on the reliability of the bulk power system.
Version 0 Team	• Define evidence • Exemptions for those with shunt reactors
PRC-017-0 — Special Protection System Maintenance and Testing	
FERC Order 693	• Includes a requirement that documentation identified in Requirement R2 shall be routinely provided to the ERO or Regional Entity. 1546….and (2) a requirement that documentation identified in Requirement R2 shall be routinely provided to the ERO or Regional Entity • Maintenance and testing of a protection system must be carried out within a maximum allowable time interval that is appropriate for the type of protection system and its impact on the reliability of the bulk power system. • Require that documentation identified in requirement R2 be routinely provided to NERC or the regional entity. that includes: (1) …… and (2) a requirement that documentation identified in Requirement R2 shall be routinely provided to the ERO or Regional Entity
Version 0 Team	• Define evidence • Need to retain two dates

Project 2007-18 Reliability-based Control

Standards Involved:
BAL-001-0 — Real Power Balancing Control Performance
BAL-003-0 — Frequency Response and Bias
EOP-002-2 — Capacity and Energy Emergencies
IRO-005-2 — Reliability Coordination — Current Day Operations

Research Needed:
None

Brief Description:
This project includes expanding on the work already done in developing the draft BAL-007 through BAL-011 by adding requirements to address the following concerns:

- To support elimination of SOL/IROL violations caused by excessive (as determined by this standard) Area Control Error
- To prevent Interconnection frequency excursions of short duration attributed to the ramping of on and off-peak Interchange Transactions
- To support timely transmission congestion relief by requiring corrective load/generation management within a defined timeframe when ACE is impacted by the curtailment of
- Interchange Transactions under Transmission Loading Relief procedures
- To address the directives of FERC Order 693.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual plan): Annual Plan Item 3.a.viii — Justification for NAESB consideration: WEQ SRS analysis

SRS Recommendation: The NERC/NAESB JESS has reviewed EOP-002-2 and identified that there is potential coordination opportunities..

Standards Development Status:
Project 2007-18 Reliability-based Control Web page

Project Schedule:
Project 2007-18 Schedule

Standard Drafting Team Roster:

Chairman	Douglas E. Hils	Duke Energy
	Larry Akens	Tennessee Valley Authority
	William Herbsleb	PJM Interconnection, L.L.C.
	Howard F. Illian	Energy Mark, Inc.
	Clyde Loutan	California ISO
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Sydney Niemeyer	NRG Texas LP
	LeRoy Patterson	Patterson Consulting
	Michael Potishnak	ISO New England, Inc.
	Mark Prosperi-Porta	British Columbia Transmission Corporation
	Thomas W. Siegrist	EnerVision, Inc.
	Glenn Stephens	Santee Cooper
	Stephen Swan	Midwest ISO, Inc.
	Raymond L. Vice	Southern Company Services, Inc.
NERC Staff	Stephen Crutchfield	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
BAL-001-0 — Real Power Balancing Control Performance	
FERC Order 693	Regional Differences to BAL-001-0: ERCOT Control Performance Standard 2: Include requirements concerning frequency response contained in Section 5 of the ERCOT protocols. Paragraph 313. The Commission approves the ERCOT regional difference as mandatory and enforceable. Order No. 672 explains that "uniformity of Reliability Standards should be the goal and the practice, the rule rather than the exception." However, the Commission has stated that, as a general matter, regional differences are permissible if they are either more stringent than the continent-wide Reliability Standard, or if they are necessitated by a physical difference in the Bulk-Power System. Regional differences must still be just, reasonable, not unduly discriminatory or preferential and in the public interest. 314. The Commission finds that ERCOT's approach under section 5 of the ERCOT protocols appears to be a more stringent practice than Requirement R2 in BAL-001-0 and therefore approves the regional difference. 315. As proposed in the NOPR, the Commission directs the ERO to file a modification of the ERCOT regional difference to include the requirements concerning frequency response contained in section 5 of the ERCOT protocols. As with other new regional differences, the Commission expects that the ERCOT regional difference will include Requirements, Measures and Levels of Non-Compliance sections.
BAL-003-0 — Frequency Response and Bias	
NERC Audit Observation Team	Both requirements need to be met?
EOP-002-2 — Capacity and Energy Emergencies	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Source	Language
IRO-005-2 — Reliability Coordination — Current Day Operations	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Project 2008-01 Voltage and Reactive Control

Standards Involved:
VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules

Research Needed:
In August 2008, the Transmission Issues Subcommittee (TIS) formed the Reactive Support/Control Sub team to develop a report to address the fundamental issues associated with voltage and reactive control. The results of the report are being used to support improvements to the existing VAR standards and may result in development of an additional VAR standard. The Reactive Support and Control White Paper was produced by the TIS and identifies technical requirements needed to determine the reactive resources required under different system states. The white paper identifies the need for requirements that address:

- criteria and associated rationale needed to determine the split of dynamic reactive supply (such as reactive power provided by the generators and other dynamic devices) and static reactive power supply (such as static capacitors and other static devices)
- criteria for distribution of the interconnection's reactive resource needs among transmission, distribution, and generation facilities

The drafting team will incorporate the white paper into the standards as well as address other issues identified in the tables below.

Brief Description:
This is a new project and supports a blackout recommendation. Industry debate is needed on whether there should be a North American standard that requires a specific amount of reserves, or whether requirements for specific reserves should continue to be addressed at the regional level. The requirements in the existing standards need to be upgraded to be more specific in defining voltage and reactive power schedules. Consideration should be given to adding a requirement for the Reliability Coordinator to monitor and take action if reactive power falls outside identified limits.

The project will incorporate the interpretation of VAR-002 Requirement 1 and Requirement 2.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual plan):
Annual Plan Item 1

Justification for NAESB consideration:
Industry recommendations

SRS Recommendation:
This project may need NAESB attention in the future. The WEQ SRS will place this on its watch list.

Standards Development Status:

Project 2008-01 Voltage and Reactive project Web page

Project Schedule:

Project 2008-01 Project Schedule

Standard Drafting Team Roster:

TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
VAR-001-1 — Voltage and Reactive Control	
FERC Order 693	"Address reactive power requirements for LSEs on a comparable basis with purchasing-selling entities. Paragraph 1856. The Commission agrees with SoCal Edison that not all LSEs are purchasing selling entities, because not all LSEs purchase or sell power from outside of their balancing authority area. This understanding is consistent with the NERC functional model and NERC glossary. Both LSEs and purchasing-selling entities should have some requirements to provide reactive power to appropriately compensate for the demand they are meeting for their customers. Neither a purchasing-selling entity nor a LSE should depend on the transmission operator to supply reactive power for their loads during normal or emergency conditions."
	"Expand the applicability to include LSEs and reliability coordinators and define the reliability coordinators monitoring responsibilities. Paragraph 1854. In a complex power grid such as the one that exists in North America, reliable operations can only be ensured by coordinated efforts from all operating entities in long-term planning, operational planning and real-time operations. To that end, the Staff Preliminary Assessment recommended and the NOPR proposed that the applicability of VAR-001-1 extend to reliability coordinators and LSEs. 1855. Since a reliability coordinator is the highest level of authority overseeing the reliability of the Bulk-Power System, the Commission believes that it is important to include the reliability coordinator as an applicable entity to assure that adequate voltage and reactive resources are being maintained. As MISO points out, other Reliability Standards address responsibilities of reliability coordinators, but we agree with EEI that it is important to include reliability coordinators in VAR-001-1 as well. Reliability coordinators have responsibilities in the IRO and TOP Reliability Standards, but not the specific responsibilities for voltage levels and reactive resources addressed by VAR-001-1, which have a great impact on system reliability. For example, voltage levels and reactive resources are important factors to ensure that IROLs are valid and operating voltages are within limits, and that reliability coordinators should have responsibilities in VAR-001-1 to monitor that sufficient reactive resources are available for reliable system operations. Accordingly, the ERO should modify VAR-001-1 to include reliability coordinators as applicable entities and include a new requirement(s) that identifies the reliability coordinator's monitoring responsibilities."
	"Include APPA's comments regarding varying power factor requirements due to system conditions and equipment in the standards development process. Paragraph 1860. APPA contends that it may be difficult to reach an agreement on acceptable ranges of net power factors at the interfaces where LSEs receive service from the Bulk-Power System because the acceptable range of power factors at any particular point on the electrical system varies based on many location-specific factors. APPA further states that system power factors will be affected by the transmission infrastructure used to supply the load. As an example, APPA states that an overhead circuit may operate at a higher power factor than an underground cable due to a substantial amount of reactive line charging, and that a transmission circuit carrying low levels of real power will tend to provide more reactive power, which will affect the need to switch off capacitor banks at the delivery point to manage delivery power factors."
	"Includes detailed and definitive requirements on "established limits" and "sufficient reactive resources", and identifies acceptable margins above the voltage instability points. Paragraph 1868. In the NOPR, the Commission expressed concern that the technical requirements containing terms such as "established limits" or "sufficient reactive resources" are not definitive enough to address voltage instability and ensure reliable operations.475 To address this concern, the NOPR proposed directing the ERO to modify VAR-001-1 to include more detailed

Source	Language
	and definitive requirements on “established limits” and “sufficient reactive resources” and identify acceptable margins (i.e. voltage and/or reactive power margins) above voltage instability points to prevent voltage instability and to ensure reliable operations. We will keep this direction, and direct the ERO to include this modification in this Reliability Standard. 1869. We recognize that our proposed modification does not identify what definitive requirements the Reliability Standard should use for “established limits” and “sufficient reactive resources.” Rather, the ERO should develop appropriate requirements that address the Commission’s concerns through the ERO Reliability Standards development process. The Commission believes that the concerns of Dynegy, EEI and MISO are best addressed by the ERO in the Reliability Standards development process. 1870. In response to EEI’s concerns about a prescriptive analytical methodology, we clarify that the Commission is not asking that the Reliability Standard dictate what methodology must be used to determine reactive power needs. Rather, the Commission believes that the Reliability Standard would benefit from having more defined requirements that clearly define what voltage limits are used and how much reactive resources are needed to ensure voltage instability will not occur under normal and emergency conditions. For example, in the NOPR, the Commission suggested that NERC consider WECC’s Reliability Criteria, which contain specific and definitive technical requirements on voltage and margin application. While we are not directing that the WECC reliability criteria be adopted, we believe they represent a good example of clearly-defined requirements for voltage and reactive margins. 1871. In sum, the Commission believes that minimum requirements for voltage levels and reactive resources should be clearly defined by placing more detailed requirements on the terms “established limits” and “sufficient reactive resources” in the Reliability Standard as discussed in the NOPR and the Staff Preliminary Assessment. As mentioned above, EEI’s concerns should be considered in the ERO’s Reliability Standards development process."
	Address the concerns of Dynegy, EEI, and MISO through the standards development process. Paragraph 1864. Dynegy supports the Commission’s proposal to include more definitive requirements on “established limits” and “sufficient reactive resources.” It recommends that VAR-001-1 be further modified to require the transmission operator to have more detailed and definitive requirements when setting the voltage schedule and associated tolerance band that is to be maintained by the generator operator. Dynegy states that the transmission operator should not be allowed to arbitrarily set these values, but rather should be required to have a technical basis for setting the required voltage schedule and tolerance band that takes into account system needs and any limitations of the specific generator. Dynegy believes that such a requirement would eliminate the potential for undue discrimination, as well as the possibility of imposing overly conservative and burdensome voltage schedules and tolerance bands on generator operators that could be detrimental to grid reliability, or conversely, the imposition of too low a voltage schedule and too wide a tolerance band that could also be detrimental to grid reliability. 1865. While MISO supports the concept of including more detailed requirements, it believes that there needs to be a definitive reason for establishing voltage schedules and tolerances, and that any situations monitored in this Reliability Standard need to be limited to core reliability requirements. 1866. EEI seeks clarification about whether the Commission is suggesting that reactive requirements should aim for significantly greater precision, especially in terms of planning for various emergency conditions. If so, EEI cautions the Commission against “‘putting too many eggs’ in the reactive power ‘basket.’”474 To the extent compliance takes place pursuant to all other modeling and planning assessments under the other Reliability Standards, EEI strongly believes that the Commission should have some high level of confidence that the system’s reactive power needs can be met satisfactorily across a broad range of contingencies that planners might reasonably anticipate. Moreover, EEI believes that requirements to successfully predict reactive power requirements in conditions of near-system collapse would require significantly more creative guesswork than solid analysis and contingency planning. For example, EEI notes that the combinations and permutations of how a voltage collapse could occur on a system as large as the eastern Interconnection are numerous. 1867. EEI suggests that, alternatively, the Commission should consider that reactive power evaluations

Source	Language
	should be conducted within a process that is documented in detail and includes a range of contingencies that might be reasonably anticipated, because this would avoid the 'one size fits all' problem, where a prescriptive analytical methodology does not fit with a particular system configuration. EEI believes that this flexible approach would provide a more effective planning tool for the industry, while satisfying the Commission's concerns over potentially inadequate reactive reserves. MRO notes that the need for, and method of providing for, reactive resources varies greatly, and if this Reliability Standard is expanded it must be done carefully. MRO believes that all entities should not be required to follow the same methodology to accomplish the goal of a reliable system.
	Address the power factor range at the interface between LSEs and the transmission grid. Paragraph 1861. In the NOPR, the Commission asked for comments on acceptable ranges of net power factor at the interface at which the LSEs receive service from the Bulk-Power System during normal and extreme load conditions. The Commission asked for these comments in response to concerns that during high loads, if the power factor at the interface between many LSEs and the Bulk-Power System is so low as to result in low voltages at key busses on the Bulk-Power System, then there is risk for voltage collapse. The Commission believes that Reliability Standard VAR-001-1 is an appropriate place for the ERO to take steps to address these concerns by setting out requirements for transmission owners and LSEs to maintain an appropriate power factor range at their interface. We direct the ERO to develop appropriate modifications to this Reliability Standard to address the power factor range at the interface between LSEs and the Bulk-Power System. 1862. We direct the ERO to include APPA's concern in the Reliability Standards development process. We note that transmission operators currently have access to data through their energy management systems to determine a range of power factors at which load operates during various conditions, and we suggest that the ERO use this type of data as a starting point for developing this modification. 1863. The Commission expects that the appropriate power factor range developed for the interface between the bulk electric system and the LSE from VAR-001-1 would be used as an input to the transmission and operations planning Reliability Standards. The range of power factors developed in this Reliability Standard provides the input to the range of power factors identified in the modifications to the TPL Reliability Standards. In the NOPR, the Commission suggested that sensitivity studies for the TPL Reliability Standards should consider the range of load power factors.
	Include controllable load among the reactive resources to satisfy reactive requirements, considering the comments of Southern California Edison and SMA in the development of the standard. Paragraph 1879. The Commission noted in the NOPR that in many cases, load response and demand-side investment can reduce the need for reactive power capability in the system.476 Based on this assertion, the Commission proposed to direct the ERO to include controllable load among the reactive resources to satisfy reactive requirements for incorporation into Reliability Standard VAR-001-1. While we affirm this requirement, we expect the ERO to consider the comments of SoCal Edison with regard to reliability and SMA in its process for developing the technical capability requirements for using controllable load as a reactive resource in the applicable Reliability Standards. 1877. SMA supports adoption of the proposal to include controllable load as a reactive resource. SMA notes that its members' facilities often include significant capacitor banks, and further, reducing load can reduce local reactive requirements. 1878. SoCal Edison suggests caution regarding the Commission's proposal to include controllable load as a reactive resource. It agrees that, when load is reduced, voltage will increase and for that reason controllable load can lessen the need for reactive power. However, SoCal Edison believes that controllable load is typically an energy product and there are other impacts not considered by the Commission's proposal to include controllable load as a reactive resource. For example, activating controllable load for system voltage control lessens system demand, requiring generation to be backed down. It is not clear to SoCal Edison whether any consideration has been given to the potential reliability or commercial impacts of the

Source	Language
	Commission's proposal.
	Perform voltage analysis periodically, using on-line techniques where commercially available and off-line techniques where not available on-line, to assist real-time operations, for areas susceptible to voltage instability. Paragraph 1875. In response to the concerns of APPA, SDG&E and EEI on the availability of tools, the Commission recognizes that transient voltage stability analysis is often conducted as an offline study, and that steady-state voltage stability analysis can be done online. The Commission clarifies that it does not wish to require anyone to use tools that are not validated for real-time operations. Taking these comments into consideration, the Commission clarifies its proposed modification from the NOPR. For the Final Rule, we direct the ERO, through its Reliability Standards development process, to modify Reliability Standard VAR-001-1 to include Requirements to perform voltage stability analysis periodically, using online techniques where commercially-available, and offline simulation tools where online tools are not available, to assist real-time operations. The ERO should consider the available technologies and software as it develops this modification to VAR-001-1 and identify a process to assure that the Reliability Standard is not limiting the application of validated software or other tools.
Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan: 2010-2012	Requirement R2 requires the TOP to acquire sufficient reactive resources. The statement probably ought to clearly delineate that this requirement is applicable to the operating horizon only and that the TP is responsible for adequate reactive resources in the planning horizon.
NERC Audit Observation Team	If the TOP does not supply the GOP with a voltage or reactive power schedule is that a noncompliance for the TOP?
Phase III/IV Team	Consolidate R8 and R9
	No criteria for what is an acceptable reactive margin.
	No requirement for verifying that the reactive resources are truly available.
	R10 remove "first" so as not to limit this requirement to first contingency conditions. As written with or without removing "first", R10 provides no additional information not already required in R3.
	R10.1 does 'disperse and locate' mean the same as 'dispatch'? If so, changing the wording to 'dispatch' would make the meaning clearer.
	R11 — Redundant with TOP-007
	R3 covers normal and contingency conditions, while R10 mentions only first contingency conditions. Is there a reason for this difference?
	R3 Suggest changing the phrase…"to protect the voltage"…. To "maintain the voltage"
	R3, R6, R10 go beyond the control of the responsible entity noted.
	R3, the Transmission Operator only has the reactive resources that exist in the area — how does the TO "acquire sufficient reactive resources" if existing resources are not adequate?
	R5 This requirement is an Open Access Transmission Tariff requirement and does not belong in a reliability standard.

Source	Language
	R6 and R10.1 presume that sufficient reactive resources are available.
	R7 and R8 — consider adding more specificity to distinguish the TOP's authority to direct others to operate (Each Transmission Operator shall operate owned devices or direct the operation of, within their normal operating parameters and capabilities, capacitive and inductive reactive resources within its area-including reactive generation scheduling; transmission line and reactive resource switching; and, if necessary, load shedding- to maintain system and Interconnection voltages within established limits.)
	R7 obligates Transmission Operators to know the status of all reactive power sources including AVRs and PSSs. Clarify that this means the generator is available and if dispatched will operate in voltage control mode and with the PSS active.
	R9.1 This requirement is not feasible. Cannot dictate where generation resources are to be disbursed or located.
	Should R3 be assigned to the TP?
	Should the word "acquire" in R3 be replaced with the word "operate"?
	The language in the measures and compliance sections such as "2.1.2 One incident of failing to maintain a voltage or reactive power schedule" is too vague and does not specify any duration that is acceptable or unacceptable to be off schedule.
	VAR-001 requirements (R1, R2, R7, R8, R9, R10, and R12) are redundant to the TOP standards
	What does the second sentence in R3 mean by the phrase 'transmission operator's share of the reactive requirements of interconnecting transmission circuits'? What would be the reactive requirements of transmission circuits?
	Will R6 also apply to wind generation absorbing reactive power at the point of interconnection?
Version 0 Team	• Add BA (R1 & 3)and RA (R5, 7, 8, 10 & 11) • Add GO as entity • Clarify if this includes distribution • Clarify responsibility for voltage support • Define high probability • Define voltage levels • Delete SOL violations • Expand to include relays • Mention power factor requirements for distribution • Move R9 to 5.2 • Not a standard but a business practice
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules	
FERC Order 693	Consider Dynegy's suggestion to improve the standard. Paragraph 1883. Dynegy believes that VAR-002-1 should be modified to require more detailed and definitive requirements when defining the time frame associated with an "incident" of non compliance (i.e., each 4-second scan, 10-minute integrated value, hourly integrated value). Dynegy states that, as written, this Reliability Standard does not define the time frame associated with an "incident" of non-compliance, but apparently leaves this decision to the transmission operator. Dynegy believes that either more detail should be added to the Reliability Standard to cure this omission, or the

Source	Language
	Reliability Standard should require the transmission operator to have a technical basis for setting the time frame that takes into account system needs and any limitations of the generator. Dynegy believes that this approach will eliminate the potential for undue discrimination and the imposition of overly conservative or excessively wide time frame requirements, both of which could be detrimental to grid reliability.
NERC Audit Observation Team	If a generator does not have an automatic voltage regulator do they need to install one?
Phase III/IV Team	R5 of VAR-002: Recognizing that such action would require the generator to change its loading level or cycle, the transmission operator should not rely on tap position changes on a step-up transformer with a no-load tap changer (NLTC) for periodic or seasonal system control, unless there is an explicit voluntary arrangement with the Generator Operator. For each instance of an urgent directive for such action, the transmission operator must justify its action to affected parties

Project 2008-02 Undervoltage Load Shedding

Standards Involved:
PRC-010-0 — Assessment of the Design and Effectiveness of UVLS Program
PRC-022-1 — Under-Voltage Load Shedding Program Performance

Research Needed:
Criteria for installing UVLS need to be identified. The "Technical Reference Paper Fault-Induced Delayed Voltage Recovery" was accepted by the NERC Planning Committee in June of 2009. This reference paper identifies a Fault Induced Delayed Voltage Recovery (FIDVR) as the phenomenon whereby system voltage remains at significantly reduced levels for several seconds after a transmission, sub transmission, or distribution fault has been cleared. Significant load loss due to motor protective device action can result, as can significant loss of generation, with a potential secondary effect of high system voltage due to load loss. A severe event can result in fast voltage collapse. This phenomenon should be addressed in the development of UVLS criteria.

Brief Description:
These standards should be consolidated. Missing are any criteria for identifying where UVLS should be installed.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster:
TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
PRC-010-0 — Technical Assessment of the Design and Effectiveness of Undervoltage Load Shedding Program	
FERC Order 693	Require that an integrated and coordinated approach be included in all protection systems on the bulk power system, including generators and transmission lines, generators' low-voltage ride-through capabilities, and UFLS and UVLS systems. Paragraph 1509. We appreciate MEAG's feedback to our response in the NOPR. For the reasons discussed in the NOPR, as well as our explanation above, the Commission approves Reliability Standard PRC-010-0 as mandatory and enforceable. In addition, the Commission directs the ERO to develop a modification to PRC-010-0 through the Reliability Standards development process that requires that an integrated and coordinated approach be included in all protection systems on the Bulk-Power System, including generators and transmission lines, generators' low voltage ride-through capabilities, and UFLS and UVLS programs.
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Fill in the Blank Team	Placeholder

Source	Language
Phase III/IV Team	• PRC-010 is a very weak standard — it only requires documentation and, in very broad terms, 'coordination' — it doesn't specify any level of desired performance or any specific scope for coordination. There should be some details to identify what the coordination must achieve — such as verification that the UVLS will trip when voltage drops to a specified voltage and verification that only a specified amount of load will be tripped and that other special protection systems will not be activated by the UVLS program. • There is no requirement that identifies the desired performance of a UVLS program (what voltage set points and timing are acceptable?). • What is the reliability-related need for the RRO to collect data on misoperations and operations of UVLS programs? Is this information used for anything?
Team Comments	Provide clarity where the Planning Authority is mentioned
Version 0 Team	• Define evidence • Exemptions for some who use shunt reactors • Level 4 vs. level 1 changes
PRC-022-1 — Under-Voltage Load Shedding Program Performance	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
FERC Order 693	Consider FirstEnergy's suggestions to revise requirement R1.3 as part of the standards development process. Paragraph 1564. FirstEnergy comments that Requirement R1.3 requires "a simulation of the event, if deemed appropriate by the RRO" and believes that the applicable entities such as transmission operators may not be able to simulate large system events. FirstEnergy suggests that Requirement R1.3 be revised to state that "a simulation of the event, if deemed appropriate, and assisted by the [regional reliability organization]."

Source	Language
Phase III/IV Team	• Consider incorporating into this family of standards a requirement that each TO should study, and implement if found effective, a UVLS program to mitigate the risk of voltage collapse or voltage instability in the BES. • The reliability-related need for the RRO to collect data on operations and misoperations isn't clear — should this be revised and made available instead to the Compliance Monitor or to the Planning Authority? • The TO should also be required to demonstrate that its UVLS program is coordinated with adjacent TOs.

Project 2008-06 Cyber Security — Order 706

Standards Involved:
CIP-002-1 — Critical Cyber Asset Identification
CIP-003-1 — Security Management Controls
CIP-004-1 — Personnel & Training
CIP-005-1 — Electronic Security Perimeter(s)
CIP-006-1 — Physical Security of Critical Cyber Assets
CIP-007-1 — Systems Security Management
CIP-008-1 — Incident Reporting and Response Planning
CIP-009-1 — Recovery Plans for Critical Cyber Assets

Research Needed:
None

Brief Description:
Implement changes to the Cyber Security Standards (above) as indicated in FERC Order 706.

This set of revisions in this project includes:

- Modifying the standards so they conform to the latest approved versions of the ERO Rules of Procedure as outlined in the Standard Review Guidelines identified in Attachment 1.
- Addressing the directives issued by FERC, in Order 706 relative to the approved Cyber Security Standards CIP-002-1 through CIP-009-1. Refer to http://www.ferc.gov/whats-new/comm-meet/2008/011708/E-2.pdf for the complete text of the final order. Specific requirements from the Order are identified in Attachment 2.
    - Emphasis on Order 706 directive for NERC to address revisions to the CIP standards considering applicable feature of the NIST Security Risk Management Framework among other resources.
- Incorporating clarifications from the Interpretation of CIP-006-1 Requirement 1.1.

Additional issues identified by stakeholders during the posting of this SAR are listed in Attachment 3.

Revisions should consider other Cyber-related standards, guidelines and activities:

- Consider adopting the NIST Security Risk Management Framework (includes GAO, OMB and FIPS)
- Consider other cyber security related documents such as NIST, ISO 27000 Family, CIPC WG Risk Assessment Guideline, MITRE corporation technical report, DHS, National Laboratories papers, DOE 417, IEC, ISA, etc.
- Stay apprised of coordination work between FERC, NEI and NRC in regard to the nuclear facility exemption issue with respect to regulatory gaps. As necessary modify the standards to reflect current determinations.

Standards Development Status:
Project 2008-06 Cyber Security Web page

Project Schedule:
TBD

Standard Drafting Team Roster:

Chairman	Jeri Domingo Brewer	U.S. Bureau of Reclamation
Vice Chairman	Kevin B. Perry	Southwest Power Pool Regional Entity
	Robert Antonishen	Ontario Power Generation Inc.
	Jim Brenton	Electric Reliability Council of Texas, Inc.
	Jackie Collett	Manitoba Hydro
	Jay S. Cribb	Southern Company Services, Inc.
	Joe Doetzl	Kansas City Power & Light Co.
	Sharon Edwards	Duke Energy
	Scott W. Fixmer	Exelon Corporation
	Gerald S. Freese	American Electric Power
	Philip Huff	Arkansas Electric Cooperative Corporation
	Frank Kim	Hydro One Networks, Inc.
	Richard Kinas	Orlando Utilities Commission
	John Lim, CISSP	Consolidated Edison Co. of New York
	David L. Norton	Entergy Corporation
	Christopher Peters	ICF International
	David S Revill	Georgia Transmission Corporation
	Scott Rosenberger	Luminant Energy
	Kevin Sherlin	Sacramento Municipal Utility District
	Jon Stanford	Bonneville Power Administration
	Keith Stouffer	National Institute of Standards & Technology
	John D. Varnell	Tenaska Power Services Co.
	William Winters	Arizona Public Service Co.
Consultant to NERC	Hal Beardall	Florida State University
Consultant to NERC	Joseph Bucciero	Bucciero Consulting, LLC
Consultant to NERC	Robert M. Jones	Florida State University
Consultant to NERC	Stuart Langton, PhD	Florida State University

NERC Staff	Tom Hofstetter	North American Electric Reliability Corporation
NERC Staff	Roger Lampila	North American Electric Reliability Corporation
NERC Staff	Scott Mix	North American Electric Reliability Corporation
NERC Staff	David Taylor	North American Electric Reliability Corporation
NERC Staff	Todd Thompson	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
CIP-001-1 — Sabotage Reporting	
FERC Order 693	Consider the need for wider application of the standard. Consider whether separate, less burdensome requirements for smaller entities may be appropriate. Paragraph 458. The Commission acknowledges the concerns of the commenter's about the applicability of CIP-001-1 to small entities and has addressed the concerns of small entities generally earlier in this Final Rule. Our approval of the ERO Compliance Registry criteria to determine which users, owners and operators are responsible for compliance addresses the concerns of APPA and others. 459. However, the Commission believes that there are specific reasons for applying this Reliability Standard to such entities, as discussed in the NOPR. APPA indicates that some small LSEs do not own or operate "hard assets" that are normally thought of as "at risk" to sabotage. The Commission is concerned that, an adversary might determine that a small LSE is the appropriate target when the adversary aims at a particular population or facility. Or an adversary may target a small user, owner or operator because it may have similar equipment or protections as a larger facility, that is, the adversary may use an attack against a smaller facility as a training "exercise." The knowledge of sabotage events that occur at any facility (including small facilities) may be helpful to those facilities that are traditionally considered to be the primary targets of adversaries as well as to all members of the electric sector, the law enforcement community and other critical infrastructures. 460. For these reasons, the Commission remains concerned that a wider application of CIP-001-1 may be appropriate for Bulk-Power System reliability. Balancing these concerns with our earlier discussion of the applicability of Reliability Standards to smaller entities, we will not direct the ERO to make any specific modification to CIP-001-1 to address applicability. However, we direct the ERO, as part of its Work Plan, to consider in the Reliability Standards development process, possible revisions to CIP-001-1 that address our concerns regarding the need for wider application of the Reliability Standard. Further, when addressing such applicability issues, the ERO should consider whether separate, less burdensome requirements for smaller entities may be appropriate to address these concerns.
	"Define "sabotage" and provide guidance on triggering events that would cause an entity to report an event. Paragraph 461. Several commenter's agree with the Commission's concern that the term "sabotage" should be defined. For the reasons stated in the NOPR, we direct that the ERO further define the term and provide guidance on triggering events that would cause an entity to report an event. However, we disagree with those commenter's that suggest the term "sabotage" is so vague as to justify a delay in approval or the application of monetary penalties. As explained in the NOPR, we believe that the term sabotage is commonly understood and that common understanding should suffice in most instances. Further, in the interim while the matter is being addressed by the Reliability Standards development process, we direct the ERO to provide advice to entities that have concerns about the reporting of particular circumstances as they arise. 462. Further, in defining sabotage, the ERO should consider FirstEnergy's suggestions to differentiate between cyber and physical sabotage and develop a threshold of materiality. However, regarding the latter suggestion, the Commission directs that guidance for a threshold of materiality must be designed carefully to mitigate the risk that an unsuccessful sabotage event is not correctly reported because it did not cause sufficient harm. 463. Requirement R1 of CIP-001-1 provides that an applicable entity must have procedures "for the recognition of and for making their operational personnel aware of sabotage events on its facilities and multi-site sabotage affecting larger portions of the Interconnection." The NOPR expressed concern that the provision does not establish baseline requirements regarding what

Source	Language
	issues should be addressed by the developed procedures. APPA goes even further and, characterizing it as an entity specific fill-in the-blank standard, contends that it lacks sufficient detail upon which the ERO can base compliance and enforcement efforts. 464. While the Commission believes that this Reliability Standard can and should be enhanced by specifying baseline requirements regarding what issues should be addressed in the procedures for recognizing sabotage events and making personnel aware of such events, it disagrees with APPA that Requirement R1 lacks sufficient detail on which to base ERO compliance and enforcement efforts. As indicated in Measure M1, an applicable entity must have and maintain the procedure as defined by Requirement R1. Thus, if an applicable entity cannot provide the required procedure to the ERO or a Regional Entity auditor upon request, it would likely be subject to an enforcement action. While we expect that an applicable entity that has made a good faith effort to develop a meaningful procedure to comply with Requirement R1 (and Measure M1) would not be subject to an enforcement action, an ERO or Regional Entity audit team may provide steps to improve the individual entity's procedure, which would serve as a baseline for that entity for any subsequent audit. Such an approach would be acceptable and allow for meaningful compliance in the interim until CIP-001-1 is modified pursuant to our directive."
	In the interim, provide advice to entities about the reporting of particular circumstances as they arise. Paragraph 461. Several commenter's agree with the Commission's concern that the term "sabotage" should be defined. For the reasons stated in the NOPR, we direct that the ERO further define the term and provide guidance on triggering events that would cause an entity to report an event.209 However, we disagree with those commenter's that suggest the term "sabotage" is so vague as to justify a delay in approval or the application of monetary penalties. As explained in the NOPR, we believe that the term sabotage is commonly understood and that common understanding should suffice in most instances.210 Further, in the interim while the matter is being addressed by the Reliability Standards development process, we direct the ERO to provide advice to entities that have concerns about the reporting of particular circumstances as they arise.
	Consider FirstEnergy's suggestions to differentiate between cyber and physical security sabotage and develop a threshold of materiality. Paragraph 451. A number of commenter's agree with the Commission's concern that the term "sabotage" needs to be better defined and guidance provided on the triggering events that would cause an entity to report an event. FirstEnergy states that this definition should differentiate between cyber and physical sabotage and should exclude unintentional operator error. It advocates a threshold of materiality to exclude acts that do not threaten to reduce the ability to provide service or compromise safety and security. SoCal Edison states that clarification regarding the meaning of sabotage and the triggering event for reporting would be helpful and prevent over-reporting.
	Incorporate a periodic review or updating of the sabotage reporting procedures and for their periodic testing. Consider a staggered schedule of annual testing and formal review every two to three years. Paragraph 466. The Commission affirms the NOPR directive and directs the ERO to incorporate a periodic review or updating of the sabotage reporting procedures and for the periodic testing of the sabotage reporting procedures. At this time, the Commission does not specify a review period as suggested by FirstEnergy and MRO and, rather, believes that the appropriate period should be determined through the ERO's Reliability Standards development process. However, the Commission directs that the ERO begin this process by considering a staggered schedule of annual testing of the procedures with modifications made when warranted formal review of the procedures every two or three years.
	"Include a requirement to report a sabotage event to the proper government authorities. Develop the language to specifically implement this directive. Paragraph 467. CIP-001-1, Requirement R4, requires that each applicable entity establish communications contacts, as applicable, with

Source	Language
	the local FBI or Royal Canadian Mounted Police officials and develop reporting procedures as appropriate to its circumstances. The Commission in the NOPR expressed concern that the Reliability Standard does not require an applicable entity to actually contact the appropriate governmental or regulatory body in the event of sabotage. Therefore, the Commission proposed that NERC modify the Reliability Standard to require an applicable entity to "contact appropriate federal authorities, such as the Department of Homeland Security, in the event of sabotage within a specified period of time."212 468. As mentioned above, NERC and others object to the wording of the proposed directive as overly prescriptive and note that the reference to "appropriate federal authorities" fails to recognize the international application of the Reliability Standard. The example of the Department of Homeland Security as an "appropriate federal authority" was not intended to be an exclusive designation. Nonetheless, the Commission agrees that a reference to "federal authorities" could create confusion. Accordingly, we modify the direction in the NOPR and now direct the ERO to address our underlying concern regarding mandatory reporting of a sabotage event. The ERO's Reliability Standards development process should develop the language to implement this directive."
	Explore ways to reduce redundant reporting, including central coordination of sabotage reports and a uniform reporting format. Paragraph 469. As noted above, FirstEnergy, EEI and others express concern regarding the potential for redundant reporting under CIP-001-1 and other government reporting standards, and the need for greater coordination. The Commission understands the concern about multiple reporting channels that may arise and the burden that this may present to applicable entities. We direct the ERO to explore ways to address these concerns — including central coordination of sabotage reports and a uniform reporting format — in developing modifications to the Reliability Standard with the appropriate governmental agencies that have levied the reporting requirements.
NERC Audit Observation Team	• Registered Entities have sabotage reporting processes and procedures in place but not all personnel has been trained. • "What is meant by: "establish contact with the FBI"? Is a phone number adequate? Many entities which call the FBI are referred back to the local authority. The AOT noted that on the FBI website it states to contact the local authorities. Is this a question for Homeland Security to deal with for us?" • Establish communications contacts, as applicable with local FBI and RAMP officials. Some entities are very remote and the sheriff is the only local authority does the FBI still need to be contacted? • Question: How do you "and make the operator aware" • How does this standard pertain to Load Serving Entities, LSE's?
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-

Source	Language
	040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Version 0 Team	• Object to multi-site requirement • Definition of sabotage required
VRFs Team	Adequate procedures will insure it is unlikely to lead to bulk electric system instability, separation, or cascading failures.
CIP-002-1 — Critical Cyber Asset Identification	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
CIP-003-1 — Cyber Security — Security Management Controls	
NERC Audit Observation Team	Security Management Controls specifies the minimum Critical Cyber Asset information to be protected in requirement R4.1. Among the information asset types identified by R4.1. are network topology diagrams. The context of this requirement is clear and applies to computer network topology diagrams relating to Critical Cyber Asset information only.
VRFs Team	R4.2 — only an administrative requirement
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf)

Source	Language
	• NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
CIP-004-1 — Cyber Security — Personnel & Training	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
VRFs Team	R3 - This needs to be looked at for 30 days - should be done prior to access being granted.
CIP-005-1 — Cyber Security — Electronic Security Perimeter(s)	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Source	Language
VRFs Team	• R1.3 — administrative definition • R1.5 — standard to comply with a standard = double jeopardy
CIP-006-1 — Cyber Security — Physical Security of Critical Cyber Assets	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
VRFs Team	• R1.5 & .9 — Should be consistent with CIP-005 • R1.8 - A requirement to meet other standard requirements - double jeopardy • R2.1, .2, .3 & .4 - These are 4 things from which to choose one or more, so no one of them is required. Should be a bulleted list, not subrequirements. • R3.1 — May statement
CIP-007-1 — Cyber Security — Systems Security Management	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Source	Language
VRFs Team	• R2 & 2.3 — An open port can lead to loss of system integrity. • R3 — An improper patch can lead to loss of system integrity.
CIP-008-1 — Incident Reporting and Response Planning	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
CIP-009-1 — Recovery Plans for Critical Cyber Assets	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Project 2008-12 Coordinate Interchange Standards

Standards Involved:

INT-001-3 — Interchange Transaction Tagging
INT-003-2 — Interchange Transaction Implementation
INT-004-1 — Interchange Transaction Modifications
INT-005-2 — Interchange Authority Distributes Arranged Interchange
INT-006-2 — Response to Interchange Authority
INT-007-1 — Interchange Confirmation
INT-008-2 — Interchange Authority Distributes Status
INT-009-1 — Implementation of Interchange
INT-010-1 — Interchange Coordination Exemptions

Research Needed:

None

Brief Description:

The modifications in the set of Coordinate Interchange Standards should address the following:

- Determine if the activities in the Coordinate Interchange standards correctly identify the responsible entity.
- Consider requiring the Sink Balancing Authority responsibility for Interchange Authority functions, using an interchange transaction tool process as defined in the latest approved version of the e-Tag Specifications.
- The existing requirements are tool-neutral — consider adding specific references to the e-Tagging process in the requirements
- Consider adding a requirement to have backup capability for use when the interchange transaction tool fails.
- Consider combining requirements into a fewer number of standards so that the resultant set of requirements follows a chronological sequence that is easier to follow.
- Address the directives issued by FERC in Order 693, and the stakeholder comments from the V0 drafting team and the Violation Risk Factor drafting team. (See Attachment 1)
- Determine if there is industry-wide support for the Interchange Subcommittee's Principles and definition supporting dynamic transfers and pseudo-ties and if there is support, modify the requirements and add definitions accordingly. Make other changes to the standards to bring them into conformance with the latest version of the Reliability Standards Development Procedure, Sanctions Guidelines and Uniform Compliance Monitoring and Enforcement Program.
- The work in this project should be done in two phases, with the first phase focused solely on clarifying the applicability of each requirement in the existing set of standards. All other revisions should take place in a second phase.

Coordination with NAESB:

The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual plan):

Annual Plan Item 3.a.viii

Justification for NAESB consideration:

Industry recommendations

SRS Recommendation:

The NERC/NAESB JESS was assigned to review and correct WEQ-004 Coordinate Interchange Business Practice Standard as needed based on activities in NERC Project 2008-12, Coordinate Interchange Standards Revisions and supporting EOP-002-2 R4 and R6.

Standards Development Status:

Project 2008-12 Coordinate Interchange Standards Web page

Project Schedule:

Project 2008-12 Project Schedule

Standard Drafting Team Roster:

Chairman	Joseph Gardner	Midwest ISO, Inc.
	Clint Aymond	Entergy Services, Inc.
	Kelly W Bertholet	Manitoba Hydro
	Eric Grau	Tennessee Valley Authority
	James Michael Hansen	Seattle City Light
	Peter Harris	ISO New England, Inc.
	Robert H. Harshbarger	Puget Sound Energy, Inc.
	Donald P. Lacen	Public Service Company of New Mexico
	Marcus V Lotto	Southern California Edison Co.
	Gregory D Maxfield	PacifiCorp
	David McRee	Duke Energy Carolina
	Joel L Mickey	Electric Reliability Council of Texas, Inc.
	Brian Neal	Bonneville Power Administration
	Michael Oatts	Southern Company Services, Inc.
	Christopher Pacella	PJM Interconnection, L.L.C.
NERC Staff	Andrew J. Rodriquez	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
NAESB Standards Review Subcommittee	NAESB Standards Review Subcommittee as input to the Reliability Standards Development Plan: 2010-2012: NAESB requests that NERC engage in coordination with them as needed on this project as it relates to item 3.a.viii in the NAESB WEQ 2009 Annual Plan.
INT-001-2 — Interchange Information	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
FERC Order 693	• Include a requirement that interchange information must be submitted for all point-to-point transfers entirely within a balancing authority area, including all grandfathered and "non-Order No. 888" transfers. • Consider Santa Clara's comments about the applicability of the LSE in the standard as part of the standards development process.
Regional Difference to INT-001/4: WECC Tagging Dynamic Schedules and Inadvertent Payback	Submit a filing within 90 days of the Order that provides the needed information or withdraws the regional variance.
VRF comments	• R1, 1.1, 2, 2.1, 2.2 – commercial and administrative
V0 Industry Comments	• R1 - Too stringent • R1 – Who tags dynamic schedules? • Load PSE responsibility is new restriction • Clarify tagging of reserves • R2.2 – 60 minute time frame questioned • Question on generation scheduling

Source	Language
	• Onerous to BA's • More commercial problem than reliability • Lack of compliance
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-003-2 — Interchange Transaction Implementation	
VRF Comments	R1, 1.1, 1.1.2, 1.2 – commercial and administrative
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-004-1 — Dynamic Interchange Transaction Modifications	
FERC Order 693	Consider adding levels of non-compliance to the standard.
Regional Difference to INT-001/4:	WECC Tagging Dynamic Schedules and Inadvertent Payback: Submit a filing within 90 days of the Order that provides the needed information or withdraws the regional variance.
V0 Industry Comments	• Replace TSP with TOP • Need to address tag curtailment • Suggested non-compliance levels • Non-compliance based on % • Use WECC criteria
VRF comments	R2, 2.2, 2.3 – commercial and administrative
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-005-2 — Interchange Authority Distributes Arranged Interchange	
FERC Order 693	Consider adding levels of non-compliance to the standard.
VRF comment	R5 – administrative
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-006-2 — Response to Interchange Authority	
FERC Order 693	• Include reliability coordinators and transmission operators as applicable entities. • Require reliability coordinators and transmission operators to review energy interchange transactions from the wide-area and local area reliability viewpoints respectively and, where their review indicates a potential detrimental reliability impact, communicate to the sink balancing authorities' necessary transaction modifications before implementation. • Consider the suggestions made by EEI and TVA and address questions raised by

Source	Language
	Entergy and Northern Indiana as part of the standard development process.
NERC Audit and Observation Team	Does confirmed action mean direct action needs to be taken or, does confirmed action mean that a process has been put in place that will take action and, the entity agrees with such since they have employed the program.
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-007-1 — Interchange Confirmation	
VRF comment	R1, 1.1, 1.3, 1.3.1, 1.3.2, 1.3.3, 1.3.4, 1.4 – administrative
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-008-2 — Interchange Authority Distributes Status	
FERC Order 693	Consider APPA's suggestion to clarify what reliability entity the standard applies as part of the standard development process.
VRF comments	R1.1.1 & 1.1.2 – commercial and administrative
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-009-1 — Implementation of Interchange	
FERC Order 693	Consider APPA's suggestion to clarify what reliability entity the standard applies as part of the standard development process.
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-010-1 — Interchange Coordination Exemptions	
FERC Order 693	Consider Northern Indiana's and ISO-NE's suggestions in the standards development process.
VRF comments	R1 & 3 – administrative
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA

Project 2009-01 Disturbance and Sabotage Reporting

Standards Involved:
CIP-001-0 — Sabotage Reporting
EOP-004-1 — Disturbance Reporting

Research Needed:
None

Brief Description:
The existing requirements need to be revised to be more specific — and there needs to be more clarity in what sabotage looks like.

CIP-001 may be merged with EOP-004 to eliminate redundancies. Acts of sabotage have to be reported to the DOE as part of EOP-004. Specific references to the DOE form need to be eliminated.

EOP-004 has some 'fill-in-the-blank' components to eliminate.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2009-01 Disturbance and Sabotage Reporting Web page

Project Schedule:
Project 2009-01 Project Schedule

Standard Drafting Team Roster:

Chairman	Ed Seddon	Orlando Utilities Commission
Vice Chairman	Judith A. James	Texas Regional Entity
SAR Requester	Patrick Brown	PJM Interconnection, L.L.C.
	Joseph G. DePoorter	Madison Gas and Electric Co.
	Brandy A Dunn	Western Area Power Administration
	Brian Evans-Mongeon	Utility Services LLC
	Brian M Harrell	SERC Reliability Corporation
	James E. Hartmann, Jr.	Electric Reliability Council of Texas, Inc.
	Tom Jones	Midwest ISO, Inc.
	David McRee	Duke Energy Carolina
	Mark Mullen	Xcel Energy, Inc.
	Drew Phillips	Independent Electricity System Operator
	Lewe Sessions	NextEra Energy Resources, LLC
	Raymond Tran	Ascendant Energy Services, LLC
NERC Staff	Stephen Crutchfield	North American Electric Reliability Corporation
NERC Staff	Scott Mix	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
EOP-004-1 — Disturbance Reporting	
Events Analysis Team	Reliability Issue: Coordination and follow up on lessons learned from event analyses Consider adding to EOP-004 – Disturbance Reporting Proposed requirement: Regional Entities (REs) shall work together with Reliability Coordinators, Transmission Owners, and Generation Owners to develop an Event Analysis Process to prevent similar events from happening and follow up with the recommendations. This process shall be defined within the appropriate NERC Standard
FERC Order 693	Ensure NERC's Rules of Procedure are revised to assure the Commission receives these reports in the same frame as the DOE. Paragraph 618: Requirement R3 addresses the reporting of disturbances to the regional reliability organizations and NERC. The Commission directs the ERO to change its Rules of Procedure to assure that the Commission also receives these reports within the same time frames as DOE.
	Consider all comments offered in a future modification of the reliability standard. Comments begin at paragraph 606 of the order. 606. EEI and FirstEnergy support the Commission's proposed modifications to the Reliability Standard. EEI states that data reporting requirements and other process requirements should be contained in enforceable Reliability Standards. FirstEnergy states that the proposed modification corresponds to good utility practice and that explicitly stating the requirement to provide data to NERC brings clarity to the expectations of NERC and the Commission. 607. APPA is concerned about the scope of Requirement R2 because, in its opinion, Requirement R2 appears to impose an open-ended obligation on entities such as generation operators and LSEs that may have neither the data nor the tools to promptly analyze disturbances that could have originated elsewhere. APPA proposes that Requirement R2 be modified to require affected entities to promptly begin analyses to ensure timely reporting to NERC and DOE. 608. Xcel expresses concern regarding what constitutes a reportable event for each applicable entity and recommends that the Reliability Standard be revised to define what a reportable event is for each entity that has reporting obligations. Further, Xcel states that the requirement in Requirement R3.4 for a final report within 60 days may not be feasible given the current WECC process, which among other things, requires the creation of a group to prepare the report and a 30-day posting of a draft report before it becomes final. Xcel also states that if the ultimate purpose of the report is to provide information to avoid a recurrence of a system disturbance, then the Reliability Standard should be revised to require the distribution of the report to similarly situated entities. 609. FirstEnergy states that, since nuclear units have their own NRC reporting procedures covering the Requirements under EOP-004-1, the Reliability Standard should specify that compliance with such operating procedures is sufficient to satisfy the requirements of EOP-004-1. FirstEnergy also states that the title of this Reliability Standard should be changed to "Disturbance Event Reporting" to indicate that the events covered under this Reliability Standard include a broad range of events that go beyond the events for which reports may be required under Reliability Standard BAL-002-0. 610. APPA states that NERC's November 15, 2006 revision partially fulfills the proposed modification to include Measures and Levels of Non-Compliance. APPA notes that EOP-004-1 did not provide Measures for R2, R3.2, R3.4, R4 and R5.
	Consider APPA's concern about generator operators and LSEs analyzing performance of their equipment and provide data and information on the equipment to assist others with analysis. Paragraph 607. APPA is concerned about the scope of Requirement R2 because, in its opinion, Requirement R2 appears to impose an open-ended obligation on entities such as generation operators and LSEs that may have neither the data nor the tools to promptly analyze disturbances that could have originated elsewhere. APPA proposes that Requirement R2 be modified to require affected entities to promptly begin analyses to ensure timely

Source	Language
	reporting to NERC and DOE.
	Include any requirements for users, owners, and operators of the bulk power system to provide data that will assist NERC in the investigation of a blackout or disturbance. Paragraph 617. While the Commission has identified concerns with regard to EOP-004-1, we believe that the proposal serves an important purpose in establishing requirements for reporting and analysis of system disturbances. Accordingly, the Commission approves Reliability Standard EOP-004-1 as mandatory and enforceable. In addition, pursuant to section 215(d) (5) of the FPA and § 39.5(f) of our regulations, the Commission directs the ERO to develop a modification to EOP-004-1 through the Reliability Standards development process that includes any Requirements necessary for users, owners and operators of the Bulk-Power System to provide data that will assist NERC in the investigation of a blackout or disturbance.
Fill in the Blank Team	• Consider changes to R1 and R3.4 to standardize the disturbance reporting requirements (requirements for disturbance reporting need to be added to this standard) • Regions currently have procedures, but not in the form of a standard. The drafting team will need to review regional requirements to determine reporting requirements for the North American standard.
NERC Audit Observation Team	Can there be a violation without an event?
Version 0 Team	• How does this apply to generator operator? • R3 – too many reports, narrow requirement to RC
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Project 2009-02 Real-time Tools

Standards Involved:
New

Research Needed:
No additional research needed. The NERC Real-Time Tools Best Practices Task Force (RTBPTF) performed an extensive, three-year process of fact finding and analysis supported by the results of their Real-Time Tools Survey, the most comprehensive survey ever conducted of current electric industry practices.

The RTBPTF summarized their findings in a report titled *Real-Time Tools Survey Analysis and Recommendations* dated March 13, 2008. The report includes the RTBPTF's recommendations for minimum acceptable capabilities and best practices for real-time tools necessary to ensure reliable electric system operation and reliability coordination.

Brief Description:
The scope of the SAR is to establish requirements for the functionality, performance, and management of tools used in support of Real-time System Operations. The intent is to describe 'what' needs to be done but not 'how' to do it.

This project will be responsive to the U.S.-Canada Power System Outage Task Force blackout recommendation 10: Establish Guidelines for Real-Time Operating Tools.

Standards Development Status:
Project 2009-02 Real-time Tools Web page

Project Schedule:
TBD

SAR Drafting Team Roster:

Chairman	Sam Brattini	KEMA
Vice Chairman	Chuck Abell	Ameren
SAR Requester	Jack Kerr	Dominion
	Greg Campbell	WECC
	Jay Dondetti	MISO
	Vinit Gupta	Entergy
	Mike Richardson	AEP
	Bob Savage	APS
	Bob Staton	Xcel
	Scott Vidler	Hydro One
	Jerry Whooley	PJM
NERC Staff	Edd Dobrowolski	North American Electric Reliability Corporation

Project 2009-03 Emergency Operations

Standards Involved:
EOP-001-0 — Emergency Operations Planning
EOP-002-2 — Capacity and Energy Emergencies
EOP-003-1 — Load Shedding Plans
IRO-001-1 — Reliability Coordination — Responsibilities and Authorities

Research Needed:
None

Brief Description:
The first three standards in the list above may be merged into a single standard. There are some requirements in IRO-001 that may be improved and merged into the new EOP standard

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual plan):
Annual Plan Item 3.a.viii

Justification for NAESB consideration:
WEQ SRS analysis
Industry recommendations

SRS recommendation:
Refer to Project 2007-18 Reliability Based Control

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster:
TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
EOP-001-0 — Emergency Operations Planning	
Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan: 2010-2012	• The NERC Glossary of terms defines a BA as: "The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time." In other words, responsible for supply and demand balance in the operating horizon. With this definition in mind, why is the BA responsible for EOP-001-1 R2.2 "Develop, maintain, and implement a set of plans to mitigate operating emergencies on the transmission system"? • The NERC Glossary of terms defines a TOP as: "(t)he entity responsible for the reliability of its 'local' transmission system, and that operates or directs the operations of the transmission facilities." With this definition in mind, why is the TOP made responsible for EOP-001-1 R2.1: "(d)evelop, maintain, and implement a set of plans to mitigate operating emergencies for insufficient generating capacity"? • Requirement R4 (and by reference Attachment 1-EOP-001-0) is applicable to both the Transmission Operator and Balancing Authority but includes items that are not applicable to the TOP and are only applicable to the BA, e.g., why is a TOP responsible for fuel supply? Why is a TOP responsible for R6.2 concerning emergency energy? Why is a TOP responsible for fuel supply in R6.4, and why is the TOP responsible for arranging energy delivery?
Real-time Best Practices Standards Study Group	Establish document plans and procedures for conservative operations
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
EOP-002-2 — Capacity and Energy Emergencies	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Other	Modify standard to conform to the latest version of NERC's Reliability Standards

Source	Language
	Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
EOP-003-1 — Load Shedding Plans	
Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan: 2010-2012	• With regard to requirement R2, why is the BA responsible for Under Frequency Load Shedding (UFLS) when PRC-006-0 and PRC-007-0 make it the responsibility of the Regional Entities, the TOPs, the Distribution Providers and the LSEs? Why is the BA responsible for Under Voltage Load Shedding (UVLS) when the responsibility should probably be just the TOP's? Isn't this requirement redundant with PRC-006-0 and PRC-007-0? • Requirement R2 of EOP-003-1 states: "Each Transmission Operator and Balancing Authority shall establish plans for automatic load shedding for underfrequency or undervoltage conditions." The standards drafting team for Project 2007-01 Underfequency Load Shedding should consider modifying this requirement as part of their project.
Real-time Best Practices Standards Study Group	Provide the location, Real-time status, and MWs of Load available to be shed.
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
INT-001-1 — Interchange Information	
FERC Order 693	Regional Difference to INT-001/4: WECC Tagging Dynamic Schedules and Inadvertent Payback: Submit a filing within 90 days of the Order that provides the needed information or withdraws the regional variance.
Version 0 Team	Lack of compliance
	More commercial problem than reliability
	Onerous to BA's
	Question on generation scheduling
	R2.2 – 60 minute time frame questioned
	Clarify tagging of reserves
	Load PSE responsibility is new restriction
	R1 – Who tags dynamic schedules?
	R1 - Too stringent
VRFs Team	R1, 1.1, 2, 2.1, 2.2 – commercial and administrative
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
INT-001-2 — Interchange Information	
FERC's December 20, 2007 Order in Docket Nos.	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC)

Source	Language
RC07-004-000, RC07-6-000, and RC07-7-000	footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
FERC Order 693	Consider Santa Clara's comments about the applicability of the LSE in the standard as part of the standards development process.
	Include a requirement that interchange information must be submitted for all point-to-point transfers entirely within a balancing authority area, including all grandfathered and "non-Order No. 888" transfers.
INT-003-1 — Interchange Transaction Implementation	
VRFs Team	R1, 1.1, 1.1.2, 1.2 – commercial and administrative
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
INT-004-1 — Dynamic Interchange Transaction Modifications	
FERC Order 693	Consider adding levels of non-compliance to the standard.
Version 0 Team	Suggested non-compliance levels
	Non-compliance based on %
	Need to address tag curtailment
	Replace TSP with TOP
	Use WECC criteria
VRFs Team	R2, 2.2, 2.3 – commercial and administrative
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Source	Language
INT-005-2 — Interchange Authority Distributes Arranged Interchange	
FERC Order 693	Consider adding levels of non-compliance to the standard.
VRFs Team	R5 – administrative
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
INT-006-1 — Response to Interchange Authority	
FERC Order 693	Consider the suggestions made by EEI and TVA and address questions raised by Entergy and Northern Indiana as part of the standard development process.
	Include reliability coordinators and transmission operators as applicable entities.
	Require reliability coordinators and transmission operators to review energy interchange transactions from the wide-area and local area reliability viewpoints respectively and, where their review indicates a potential detrimental reliability impact, communicate to the sink balancing authorities necessary transaction modifications before implementation.
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
INT-006-2 — Response to Interchange Authority	
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
NERC Audit Observation Team	Does confirmed action mean direct action needs to be taken or, does confirmed action mean that a process has been put in place that will take action and, the entity agrees with such since they have employed the program.
INT-007-1 — Interchange Confirmation	
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
VRFs Team	R1, 1.1, 1.3, 1.3.1, 1.3.2, 1.3.3, 1.3.4, 1.4 – administrative
INT-008-2 — Interchange Authority Distributes Status	
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
FERC Order 693	Consider APPA's suggestion to clarify what reliability entity the standard applies as part of the standard development process.
VRFs Team	R1.1.1 & 1.1.2 – commercial and administrative
INT-009-1 — Implementation of Interchange	

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
FERC Order 693	Consider APPA's suggestion to clarify what reliability entity the standard applies as part of the standard development process.
INT-010-1 — Interchange Coordination Exemptions	
FERC Order 693	Consider Northern Indiana's and ISO-NE's suggestions in the standards development process.
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
VRFs Team	R1 & 3 – administrative

Project 2009-04 Phasor Measurement Units

Standards Involved:
New

Research Needed:
Analysis of existing research needs to be conducted.

Brief Description:
This is a new project that was identified in 2006 in support of a blackout recommendation. Several industry studies were recently issued and these studies need to be analyzed to determine appropriate requirements for a NERC standard.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster:
TBD

Project 2009-05 Resource Adequacy Assessments

Standards Involved:
New

Research Needed:
None

Brief Description:
This is a continuation of a project from 2006 that was delayed for higher priority projects. The purpose of this standard is to implement some of the recommendations from the Resource and Transmission Adequacy Task Force Report and the Gas/Electricity Interdependency Task Force Report approved by the NERC BOT in 2004 related to resource adequacy.

As envisioned, the standard will require entities to create metrics to assess resource adequacy that takes into account various factors such as fuel deliverability, performing resource adequacy assessments, sharing the results of those assessments. The standard would also require that resource adequacy assessments be conducted according to those metrics.

NERC Staff is developing a paper discussing the options regarding resource adequacy issues. This issue may be better served through the NERC Rules of Procedure rather than a specific Reliability Standard. Two Regional Entities have developed draft standards relating to resource adequacy and these are being included in the consideration of options.

Standard Development Steps Completed:
The SAR has been posted for two comment periods but has not been finalized due to other conflicting higher priority projects. The SAR will be finalized and then work will be delayed on drafting the standard until 2008.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2009-05 Resource Adequacy Assessments

Project Schedule:
Project 2009-05 Project Schedule

Standard Drafting Team Roster:

Chairman	Mary H. Johannis	Bonneville Power Administration
Vice Chairman	Phil Fedora	Northeast Power Coordinating Council, Inc.
	Yong Cai	Sacramento Municipal Utility District
	Curt J. Dahl, P.E.	KeySpan Corp.
	Gregory S. Drake	New York Independent System Operator
	Andrew Fusco	North Carolina Eastern Municipal Power Agency
	William J. Head	Midwest Reliability Organization
	Daniel Huffman	FirstEnergy Corp.
	Tom Kaslow	Calpine Corporation
	Richard Kosch	Lincoln Electric System
	Garey C. Rozier	Southern Company Services, Inc.
	Donald M. Schlegel	American Electric Power
	Steve Scroggs	Florida Power & Light Co.
	Sam Waters	Progress Energy
NERC Staff	Stephen Crutchfield	North American Electric Reliability Corporation

Project 2009-06 Facility Ratings

Standards Involved:
FAC-008-1 — Facility Ratings
FAC-009-1 — Establish and Communicate Facility Ratings

Research Needed:
None

Brief Description:
The revisions to these two standards will result in a single standard that is responsive to the recommended changes identified in the Standard Review Guidelines attached to this SAR and also to two of the three applicable FERC directives in Order 693.

The proposed changes to FAC-008 and FAC-009 have already been through stakeholder review and reached consensus in 2008 on all requirements except the requirement (R7) developed to meet the FERC directive in Order 693 that required identification of the most limiting component of a facility and the theoretical increase in rating if the limitation were removed. Stakeholders indicated that this requirement (R7) did not have a reliability-related benefit, and voted against the inclusion of a requirement to meet this directive. Thus, this SAR proposes the same standard that was developed and balloted in late 2008, but without the requirement (R7).

Standards Development Status:
Project 2009-06 Facility Ratings Web page

Project Schedule:
TBD

Standard Drafting Team Roster:

Chairman	Paul B. Johnson, P.E.	American Electric Power
	Robert A. Birch	Florida Power & Light Co.
	Terry L. Crawley	Southern Company Services, Inc.
	Robert Kluge	American Transmission Company, LLC
	Robert W. Millard	ReliabilityFirst Corporation
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Philip Riley	Public Service Commission of South Carolina
	Tapani Seppa	The Valley Group, Inc.
	Vladimir Stanisic	Ontario Power Generation Inc.
	Ronald F. Szymczak	Exelon Corporation
	Chifong L. Thomas	Pacific Gas and Electric Company
NERC Staff	Stephen Crutchfield	North American Electric Reliability Corporation

Project 2009-07 Reliability of Protection Systems

Standards Involved:
New

Research Needed:
None

Brief Description:
The proposed standard requires facility owners to have protection system equipment installed such that, if there were a failure to a specified component of that protection system, the failure would not prevent meeting the BES performance identified in the TPL standards.

Standards Development Status:
Project 2009-07 Reliability of Protection Systems Web page

Project Schedule:
TBD

Standard Drafting Team Roster:

Chairman	Ed Taylor	Pacific Gas and Electric Co.
	Robert Johnson	Allegheny Power
	Clarence Bradley	Georgia Transmission Co.
	Jonathon Glidewell	Southern Company Transmission Co.
	James Hubertus	Public Service Electric and Gas Co.
	Steve Leistner	PacifiCorp
	Stanley J. Lewis	Consolidated Edison Co. of New York
	Susan L. McGill	PJM
	John Mulhausen	Florida Power & Light Co.
	Jill Muller	American Transmission Co., L.L.C.
	Bill Newell	Progress Energy
	Don Oatman, Jr.	Electric Reliability Council of Texas, Inc.
	Richard P. Quest	Xcel Energy
	Dean Sorensen	National Grid
	Xiaodong Sun	Ontario Power Generation, Inc.
	Roger Whitaker	Bonneville Power Administration
NERC Staff	Darrel Richardson	North American Electric Reliability Corporation

Project 2009-18 Withdraw Three Midwest ISO Waivers

Standards Involved:
BAL-006-2 — Inadvertent Interchange
INT-003-3 — Interchange Transaction Implementation

Research Needed:
None

Brief Description:
During their April 15-16, 2009 meeting the Standards Committee approved a SAR for removing waivers in the current NERC Standards associated with accommodating the operation of the Midwest ISO market in a multi-Balancing Authority environment. These waivers are no longer needed by the Midwest ISO now that the Midwest ISO is a Balancing authority:

- References to the Midwest ISO should be removed from the "Scheduling Agent Waiver" associated with INT-003-2 — Interchange Transaction Implementation.
- The "Enhanced Scheduling Agent Waiver" associated with INT-003-2 should be retired.
- References to the Midwest ISO should be removed from the "RTO Inadvertent Interchange Accounting Waiver" associated with BAL-006-1 — Inadvertent Interchange.

The purpose/industry need is to provide clarity in the applicability of the standard.

Standards Development Status:
Project 2009-18 Withdraw Three Midwest ISO Waivers Web page

Project Schedule:
TBD

Standard Drafting Team Roster:

Terry Bilke	Midwest ISO
Stephen Crutchfield	NERC Staff Coordinator

Project 2010-01 Support Personnel Training

Standards Involved:
New

Research Needed:
None

Brief Description:
This is a new project that was identified in support of a blackout recommendation. Stakeholders indicated a preference for completing work on a standard for real-time system operators before beginning work on this standard, due to resource limitations. The standard will require the use of a systematic approach to determining training needs of generator operators and operations planning and support staff with a direct impact on the reliable operations of the bulk power system.

The standard will require that entities have evidence that this systematic approach is used and require that each responsible entity have evidence that each of applicable personnel is competent to perform each assigned task that is on its company-specific list of reliability-related tasks.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster:
TBD

Project 2010-02 Connecting New Facilities to the Grid

Standards Involved:
FAC-001-0 — Facility Connection Requirements
FAC-002-0 — Coordination of Plans for New Facilities

Research Needed:
None

Brief Description:
A broad review needs to take place to ensure that all of the elements that should be addressed when a new facility is connected to the grid are included in the revised standard. New requirements are needed to require that the facility connection requirements are followed.

FAC-001 and FAC-002 have some 'fill-in-the-blank' components to eliminate.
The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual plan):
Annual Plan Item 1

Justification for NAESB consideration:
Industry recommendations

SRS Recommendation:
The WEQ SRS will add this project to its watch list.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster:
TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Phillip R. Kleckley (SERC EC Planning Standards Subcommittee (PSS)) as input to the Reliability Standards Development Plan:2010-2012	Consider adding a definition of "end user" to the NERC Glossary. (Note: This recommendation was received as part of the comments on Question 3 of the comments form for the "Draft Revision 6 of the SERC Facility Connection Requirements (FCR) Guideline".)
FAC-002-0 — Coordination of Plans for New Facilities	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Project 2010-03 Modeling Data

Standards Involved:

MOD-010-0 — Steady-State Data for Transmission System Modeling and Simulation
MOD-011-0 — Regional Steady-State Data Requirements and Reporting Procedures
MOD-012-0 — Dynamics Data for Transmission System Modeling and Simulation
MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures
MOD-014-0 — Development of Interconnection-Specific Steady State System Models
MOD-015-0 — Development of Interconnection-Specific Dynamics System Models
PRC-013-0 — Special Protection System Database
PRC-015-0 — Special Protection System Data and Documentation
PRC-020-1 — Under-Voltage Load Shedding Program Database
PRC-021-1 — Under-Voltage Load Shedding Program Data

Research Needed:

18 months study for dynamics modeling of load in simulations and analyses

Brief Description:

This is one of two projects aimed at identifying all the 'data provision' requirements and consolidating the requirements into fewer standards. Research is needed to clearly identify what data is needed to accurately model load in simulations and analyses. The requirements need to be more specific to clearly identify the format, etc., for providing data.

As envisioned, this project will result in the elimination of most if not all region-specific requirements and the revised requirements would include much more specificity. MOD-010 through MOD-015 has some 'fill-in-the-blank' components to eliminate.

Many of the requirements need to be realigned so that the data that is needed is provided to the entity that needs the data. In several of the existing standards, the data is provided to the RRO who then provides the data to the Planning Authority or other entities.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project has not started.

Project Schedule:

TBD

Standard Drafting Team Roster:

TBD

Issues to be Considered by the Standard Drafting Team:

MOD-010-0 — Steady-State Data for Modeling and Simulation of the Interconnected Transmission System	
ATFNSDT	The ATFNSDT identified several issues with regard to modeling data during their deliberations on revising the TPL standards. At one time, they talked about incorporating the gaps they found in TPL but after some deliberation and multiple comments, it was decided to pass them over to the eventual MOD SDT for inclusion in their SAR and the ultimate revisions to MOD-010. These items need to be entered in the issues database so that they are accurately passed on to that SDT: Each Distribution Provider shall provide its respective Planning Coordinator with modeling information for real and reactive Load forecast data for each year of the Transmission planning horizon at Transmission nodes based on expected or historical System performance including the expected mix of industrial, commercial, and residential Loads, within ninety days of a request for such information. Each Transmission Planner shall provide its respective Planning Coordinator with modeling information for Firm Transmission Service data, Interchange Schedules, and resources required to supply Load for each of its Balancing Authorities for each year of the Transmission planning horizon, within ninety days of a request for such information. Each Transmission Owner shall provide its respective Planning Coordinator with modeling information for known planned outages and long-term outages for Transmission equipment for each year of the Transmission planning horizon with consideration given to spare equipment strategy, within ninety days of a request for such information. Each Generator Owner shall provide its respective Planning Coordinator with modeling information for known planned outages and long-term outages for generation equipment for each year of the Transmission planning horizon, within ninety days of a request for such information. Each Resource Planner shall provide its respective Planning Coordinator with the modeling information for new planned Facilities for each year of the Transmission planning horizon including but not limited to generators, Reactive Power devices, and new technologies, within ninety days of a request for such information. Each Transmission Planner shall provide its respective Planning Coordinator with modeling information for new planned Facilities for each year of the Transmission planning horizon including but not limited to Transmission Lines, circuit breakers, Reactive Power devices, Protection System equipment and control devices, and new technologies, within ninety days of a request for such information. These items are seen as gaps in the supply of modeling data that need to be filled. The revised TPL standards will require that a TP/PC use this data and place the onus on acquiring it on the TP/PC. FERC staff is concerned that this approach is lacking in that it doesn't have a corresponding requirement for the applicable entities to supply said data and want to make certain that this 'gap' is eventually closed in MOD.
MOD-011-0 — Maintenance and Distribution of Steady-State Data Requirements and Reporting Procedures	
FERC Order 693	• Expand the applicability to include the planning authority. • Develop a work plan and submit a compliance filing that will facilitate the ongoing collection of the steady-state modeling and simulation data specified in this standard.

Fill in the Blank Team	• Revise NERC MOD-011 to clarify that the data reporting requirements must be uniform across each interconnection. • This should be a North American Standard containing requirements which are interconnection-wide. • MOD-010 and 011 are related. This is the MMWG work for the eastern interconnection. • Review MOD-010, MOD-011, MOD-012, and MOD-013 concurrently for modeling requirements and reporting. • Coordinate the revision of this standard with the revision to MOD-010. MOD-011 needs to be written as a North American standard with requirements for each interconnection.
Other	• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Version 0 Team	• Consistency across standards for non-compliance • Confidentiality of data • Add equipment types and variables • Not a standalone standard • Time element not cited in non-compliance • Several semantics issues • Locations of substations should be deleted
MOD-012-0 — Dynamics Data for Modeling and Simulation of the Interconnected Transmission System	
FERC Order 693	• Provide a list of faults and disturbances used in performing dynamics system studies for operation and planning. • Address critical energy infrastructure confidentiality issues as part of the standard development process. • Expand the applicability to include transmission operators, planning authorities, and transmission planners. • Require users, owners, and operators to submit data to the regional entities as needed for modeling studies and assessments.
Fill in the Blank Team	• This standard is directly related to MOD-013. • Coordinate the revision of this standard with the revision to MOD-013. MOD-013 needs to be written as a North American standard with requirements for each interconnection. Once MOD-013 is modified, the only changes needed to MOD-012 are the references to the appropriate requirements in MOD-013. • Review MOD-010, MOD-011, MOD-012, and MOD-013 concurrently for modeling requirements and reporting.
Other	• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Version 0 Team	• Not a standalone standard • Time element missing in non-compliance • Consistency of non-compliance • Confidentiality of data

MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures	
ATFNSDT	MOD-013 needs to ask for voltage ride through data from generators as per 693.
FERC Order 693	• Permit entities to estimate dynamics stat if they are unable to obtain unit specific information. • Require verification of the dynamic models with actual disturbance data. • Expand the applicability to include transmission operators, planning authorities, and transmission planners. • Develop a work plan and submit a compliance filing that will facilitate the ongoing collection of the dynamics modeling and simulation data specified in this standard.
Fill in the Blank Team	• Review MOD-010, MOD-011, MOD-012 and MOD-013 concurrently for modeling requirements and reporting. • This should be a North American Standard containing requirements which are interconnection-wide. • Revise MOD-013 to clarify that the data reporting requirements must be uniform across each interconnection. • MOD-012 and MOD-013 are related. This is the MMWG work for the Eastern Interconnection.
Other	• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Version 0 Team	• Several semantics issues • Consistency in non-compliance • Confidentiality of data • Timing element not mentioned in non-compliance • Not a standalone standard • 5 business days not sufficient
MOD-014-0 — Development of Steady-State System Models	
FERC Order 693	• If model output is not within the accuracy required, the model shall be modified to achieve the necessary accuracy. • Require models to be validated against actual system response. • Require users, owners, and operators to provide the validated models to regional reliability organizations. • Develop a work plan that will facilitate ongoing validation of steady-state models and submit a compliance filing to the Commission.
Fill in the Blank Team	No action
Other	• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Version 0 Team	• Define near-term vs. long-term • Timing element missing in non-compliance • Solved cases should not have violations • Consistency of non-compliance
MOD-015-0 — Development of Dynamics System Models	
FERC Order 693	• Require actual system events be simulated and dynamics system model output be validated against actual system response. • Require users, owners, and operators to provide the validated models to regional entity. • Develop a work plan that will facilitate ongoing validation of dynamics models and submit a compliance filing to the Commission.
Fill in the Blank Team	No action
Other	• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Version 0 Team	• Consistency of non-compliance • Timing element of non-compliance • Confidentiality of data
PRC-013-0 — Special Protection System Database	
FERC Order 693	Consider APPA's suggestions for interconnection-wide consistency in the standards development process.
Other	• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Fill in the Blank Team	• Related to PRC-015. • Review PRC-013 and PRC-015 together to properly reference regional standards (see notes of PRC-015 for options).
Version 0 Team	• Define evidence • Not a standalone standard
PRC-015-0 — Special Protection System Data and Documentation	
Fill in the Blank Team	• Consider impact of removing R1.2 from PRC-012-0 and revision of PRC-013-0, R1.1, 1.2, & 1.3 to include a specific list of items to be included in the RRO SPS database. The same list could be added to PRC-015, R1.1. However, it may be cleaner to move PRC-015-0, R1.1 and the data portion of R1.3 to PRC-013. (Note: revisions to PRC-012 are identified for a separate drafting team and are expected to take place after revisions to PRC-013 and PRC-015 are completed.) • Tied to PRC-013. • Review PRC-013 and PRC-015 together to properly reference regional standards (see notes of PRC-015 for options).
Other	• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO

	Rules of Procedure.
Version 0 Team	• Define evidence • Already covered elsewhere
PRC-020-1 — Under-Voltage Load Shedding Program Database	
Fill in the Blank Team	No action required
Phase III/IV Team	The reliability-related need for the RRO to have the data isn't clear
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Team Comments	Provide clarity where the Planning Authority is mentioned
PRC-021-1 — Under-Voltage Load Shedding Program Data	
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Fill in the Blank Team	No action required

Project 2010-04 Demand Data

Standards Involved:
MOD-016-1 — Actual and Forecast Demands, Net Energy for Load, Controllable DSM
MOD-017-0 — Aggregated Actual and Forecast Demands and Net Energy for Load
MOD-018-0 — Reports of Actual and Forecast Demand Data
MOD-019-0 — Forecasts of Interruptible Demands and DCLM Data
MOD-020-0 — Providing Interruptible Demands and DCLM Data
MOD-021-0 — Accounting Methodology for Effects of Controllable DSM in Forecasts

Research Needed:
None

Brief Description:
This is one of two projects aimed at identifying all the 'data provision' requirements and consolidating the requirements into fewer standards. As envisioned, this project will result in two standards — with MOD-016 through MOD-020 in a single standard, and MOD-021 in a separate standard. The requirements need to be more specific to clearly identify the format, etc., for providing data.

MOD-016, MOD-017, and MOD-019 have some 'fill-in-the-blank' components to eliminate. The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual plan):
Annual Plan Item 4.b

Justification for NAESB consideration:
Industry recommendations

SRS Recommendation:
The WEQ SRS will add this project to its watch list.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster:
TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
MOD-017-0 — Aggregated Actual and Forecast Demands and Net Energy for Load	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
MOD-018-0 — Reports of Actual and Forecast Demand Data	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
MOD-019-0 — Forecasts of Interruptible Demands and DCLM Data	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000,	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and

RC07-6-000, and RC07-7-000	associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
MOD-020-0 — Providing Interruptible Demands and DCLM Data	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
MOD-021-0 — Accounting Methodology for Effects of Controllable DSM in Forecasts	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Project 2010-05 Protection Systems

Standards Involved:
PRC-003-1 — Regional Requirements for Transmission and Generation Protection System Misoperations
PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations
PRC-012-0 — Special Protection System Review Procedure
PRC-014-0 — Special Protection System Assessment
PRC-016-0 — Special Protection System Misoperations

Research Needed:
None

Brief Description:
Consideration should be given to merging some of the standards to eliminate the need for cross-referencing.

PRC-003, PRC-004, PRC-014, and PRC-016 have some 'fill-in-the-blank' components to eliminate.

PRC-012 is one of the few 'fill-in-the-blank' standards that was identified by the Regional Reliability Standards Working Group as a standard that has some requirements that need to remain in regional standards.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster
TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
PRC-003-1 — Regional Requirements for Transmission and Generation Protection System Misoperations	
FERC Order 693	Consider if greater consistency can be achieved in the standard as suggested by APPA.
Fill in the Blank Team	• Modify PRC-003 to include specific requirements for each functional entity. Each of the regional plans needs to be reviewed to determine what should be included in the North American standard. The current PRC-003 defines requirements for RROs. The drafting team should revise PRC-004 to include proper references to the new PRC-003. • This is a North American Standard as written which places requirements on the regions to develop a procedure. However, PRC-004 requires functional entities to comply with the procedures the RROs develop. Craft a new PRC-003 as a North American standard containing the specific requirements for each functional entity. • Review PRC-003 and PRC-004 together to identify the specific requirements of the functional entities (include specific requirements for each functional entity).
Phase III/IV Team	• All transmission circuits 200 kV and above • Enhance the applicability section to clarify that the systems addressed by the requirements are limited to: • All transmission circuits 100 kV to 200 kV operationally significant circuits, as defined by the RROs • In R1.2 change format to content • The RRO should be required to demonstrate that the requirements developed in accordance with R1 produce the desired result. • Generator protection systems, whose misoperations impact the bulk electric system
Version 0 Team	• Change wording to reporting instead of monitoring • Need to define evidence
PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations	
FERC Order 693	• Consider ISO-NE's suggestion that LSEs and transmission operators should be listed as applicable entities. • The regional entity should develop procedures for corrective action plans.
Fill in the Blank Team	• Coordinate the revision of this standard with the revision to standard PRC-003. PRC-003 needs to be written as a North American standard with requirements for each functional entity as appropriate. Once PRC-003 is modified, the only changes needed to PRC-004 are the references to the appropriate requirements in PRC-003. • See notes for PRC-003-1. • Review PRC-003 and PRC-004 together to identify the specific requirements of the functional entities.
NERC Audit Observation Team	• "Document the process" • The Generator Owner shall analyze its generator protection system misoperations and

Source	Language
	implement corrective action plans to avoid future misoperations.
Phase III/IV Team	This standard should apply to all protection systems on the Bulk Electric System (BES) not just those that 'impact' the BES
Version 0 Team	Levels of non-compliance need to be redefined

Project 2010-06 Results-based Reliability Standards

Standards Involved:
Entire set of NERC Reliability Standards

Research Needed:
In 2008 the NERC Standards Committee Process Subcommittee conducted a review of the then existing NERC reliability standards and identified those that contained requirements that are administrative in nature or are simply explanatory text and which do not appear to contribute directly to meeting reliability objectives. The review results were presented to the Standards Committee at their April 16-17, 2009 meeting, and were adopted as the starting point for prioritizing standard changes and a basis for removing the administrative type of requirements. Detailed review results were included as Attachments 7di, 7dii and 7diii of the April 15-16, 2009 Standards Committee meeting agenda package.

In addition, as documented in Attachment 2 of the ERO Three-Year Assessment dated July 20, 2009 stakeholders recommend that the industry should "focus existing reliability standards and reliability standards development on areas that will lead to the greatest improvement in bulk power system reliability." Suggestions include: "(1) focus the development of new reliability standards on those that will lead to the greatest improvement in reliability; i.e., address the greatest risks of wide-area cascading outages; (2) reduce the number of existing reliability standards to just those that have a critical impact on reliability of the bulk power system and convert the remaining reliability standards to guidelines; and (3) develop a more systematic process for prioritizing new reliability standards development projects based on risks to the bulk power system."

In August 2009 an ad-hoc group was organized made up of representatives from the Standards Committee, Regional Entity staff, and NERC standards staff for developing a plan for transitioning the exiting set of NERC reliability standards into a set of revised reliability standards. The goal of the plan is to define a more focused set of reliability requirements that are predominantly performance-based, with a direct relation to bulk power system reliability. The plan is anticipated to be presented to the NERC Board of Trustees (BOT) at their November 4, 2009 meeting for consideration and approval.

Project Description:
Implement the plan approved by the NERC Board of Trustees (BOT) for improving the set of NERC reliability standards to be more focused on reliability performance. The plan is anticipated to be presented to the BOT during their November 4, 2009 meeting for consideration and approval.

Project 2010-07 Transmission Requirements at the Generator Interface

Standards Involved:

New

Research Needed:

None.

Project Description:

This project was proposed Mr. Gerry Adamski during the 2009 revision of the Reliability Standards Development Plan.

The Ad Hoc Group for Transmission Requirements at the Generator Interface plans to issue a final report document in October, 2009. This report contains a SAR and redline standards for a number of recommended changes to existing reliability standards requirements and the addition of several new requirements. These additions and modifications will add greater specificity and clarity to the expectations of those responsible for owning and operating the interconnection facilities that connect generators to the transmission grid. The changes address a significant concern for generator owners and generator operators regarding the believed improper assignment of transmission owner and operator requirements by virtue of their interconnection facilities.

If further information or discussion is required, please contact:

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Project 2012-01 Equipment Monitoring and Diagnostic Devices

Standards Involved:
New

Research Needed:
None

Brief Description:
This project was proposed Mr. R. W. Kenyon, J.D., P.E. during the 2008 revision of the Reliability Standards Development Plan.

The drafting team will propose Reliability Standard(s) covering the application of major equipment monitoring and diagnostic devices and procedures. As proposed by Mr. Kenyon, the Reliability Standard(s) will address dissolved gas and moisture sampling processes and the application on on-line monitoring devices to detect incipient faults within BES major components, such as EHV transformers. These processes and devices enable the equipment owner to detect evolving internal faults, allowing corrective action under controlled conditions. In some instances, early warning of evolving faults can permit field repair of the unit, avoiding a system fault and destruction of a major piece of equipment. In other circumstances, the warning obtained permits the equipment owner to monitor the situation and to schedule unit replacement in a deliberate, controlled manner. Again, occurrence of a major system fault and unscheduled loss of a major unit can be avoided. Obviously, such measures can contribute significantly to reliability of the Bulk Electric System.

Ideally, the proposed Reliability Standard(s) would make the application of this technology mandatory for classes of critical equipment, with EHV transformers and shunt reactors an obvious example. Similar diagnostic approaches could be taken on critical EHV and/or major generator Gas Insulated Switchgear. The general approach could follow PRC-005, where the owner must have a system, but particulars are left to the equipment owner. The proposed Reliability Standard(s) could extend to other equipment condition monitoring such as Doble testing.

In many instances, equipment owners already recognize the value of major equipment monitoring and have equipment and/or procedures in place addressing this technology. However, there is far less assurance that monitoring equipment is properly maintained, that scheduled routine sampling is being fully performed, and that full use is being made of data obtained. Again, as with the Protective Relay Standard PRC-005, the proposed Reliability Standard(s) would contribute to insuring that equipment owners have a program addressing this technology and are indeed following their program. In other instances, equipment owners without such equipment might be obligated to establish a monitoring program.

Project 2012-02 Physical Protection

Standards Involved:
New

Research Needed:
None

Project Description:
This project was proposed Mr. Wayne E. Guthrie during the 2009 revision of the Reliability Standards Development Plan.

The development of reliability standards for the physical protection of essential equipment, buildings and people located in power generation, transmission, or distribution system locations should be considered in on order to mitigate the associated reliability risks to the bulk power system. The ANSI NFPA 850 standard "Recommended Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations" provides a potential starting reference for such standards.

If further information or discussion is required, please contact:

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Attachment 1

Standard Authorization Request Form

Title of Proposed Standard	Protection Misoperations Revisions to PRC-003, PRC-004, PRC-012, and PRC-016
Request Date	June 10, 2009

SAR Requester Information	**SAR Type** (*Check a box for each one that applies.*)	
Name System Protection and Control Subcommittee	☐	New Standard
Primary Contact John Ciufo, Chairman	X	Revision to existing Standard
Telephone (416) 345-5258 Fax (416) 345-5406	X	Withdrawal of existing Standard (PRC-016)
E-mail john.ciufo@HydroOne.com	☐	Urgent Action

Purpose (Describe what the standard action will achieve in support of bulk power system reliability.)

A key element of bulk power system reliability is the performance of the Protection Systems. To properly gage Protection System performance, is necessary to have a consistent set of metrics on Protection System Misoperations. Current PRC standards and definitions related to Protection System Misoperations are confusing and do not support a good metric for measurement of Protection System performance.

Industry Need (Provide a justification for the development or revision of the standard, including an assessment of the reliability and market interface impacts of implementing or not implementing the standard action.)

Current PRC standards and definitions related to Protection System Misoperations are confusing and do not support a good metric for measurement of Protection System performance.

Brief Description (Provide a paragraph that describes the scope of this standard action.)

SPCS recommends creation of a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016.

Detailed Description (Provide a description of the proposed project with sufficient details for

the standard drafting team to execute the SAR.)

Standard PRC-003 is intended to ensure that all System Protection Misoperations are analyzed and mitigated according to guidelines established by the regions. The FERC, in Order 693, dated March 16, 2007, declared this standard as a "fill in the blank" type of standard that does not merit approval unless it is modified to make it more specific and consistent for all Regions. The SPCS concurs with the FERC order and provides recommendations on how the standard can be rewritten.

Because the procedures for analyzing and mitigating Misoperations were to be established by the regions, there is significant dissimilarity between the Misoperation data reported by each region, resulting in a virtually unusable misoperation metric for North America. SPCS recommends a change to the definition of Misoperation (Reportable Protection Misoperation) to provide uniformity to the misoperation data reported to the regions and NERC.

Protection System elements used for Special Protection Systems (SPS) or Remedial Action Schemes (RAS) are no different from those used for non Special Protection Systems. The revision to Standard PRC-003 should therefore apply to all Protection Systems, including SPS and RAS.

The SPCS also recommends that Standard PRC-016-0 – Special Protection System Misoperations, be requirements, merging its SPS/RAS Misoperation reporting, Corrective Action Plans, and tracking requirements into PRC-004 – Analysis and Mitigation of Transmission and Generation Protection System Misoperations.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and is coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should be modified to refer to that review process.

SPCS recommends creation of a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016.

See attached Technical Review document for additional details.

Reliability Functions

The Standard will Apply to the Following Functions *(Check box for each one that applies.)*		
☐	Reliability Coordinator	Responsible for the real-time operating reliability of its Reliability Coordinator Area in coordination with its neighboring Reliability Coordinator's wide area view.
☐	Balancing Authority	Integrates resource plans ahead of time, and maintains load-interchange-resource balance within a Balancing Authority Area and supports Interconnection frequency in real time.
☐	Interchange Authority	Ensures communication of interchange transactions for reliability evaluation purposes and coordinates implementation of valid and balanced interchange schedules between Balancing Authority Areas.
☐	Planning Coordinator	Assesses the longer-term reliability of its Planning Coordinator Area.
☐	Resource Planner	Develops a >one year plan for the resource adequacy of its specific loads within a Planning Coordinator area.
☐	Transmission Planner	Develops a >one year plan for the reliability of the interconnected Bulk Electric System within its portion of the Planning Coordinator area.
☐	Transmission Service Provider	Administers the transmission tariff and provides transmission services under applicable transmission service agreements (e.g., the pro forma tariff).
X	Transmission Owner	Owns and maintains transmission facilities.
☐	Transmission Operator	Ensures the real-time operating reliability of the transmission assets within a Transmission Operator Area.
X	Distribution Provider	Delivers electrical energy to the End-use customer.
X	Generator Owner	Owns and maintains generation facilities.
☐	Generator Operator	Operates generation unit(s) to provide real and reactive power.
☐	Purchasing-Selling Entity	Purchases or sells energy, capacity, and necessary reliability-related services as required.
☐	Market Operator	Interface point for reliability functions with commercial functions.
☐	Load-Serving Entity	Secures energy and transmission service (and reliability-related services) to serve the End-use Customer.

Reliability and Market Interface Principles

Applicable Reliability Principles *(Check box for all that apply.)*	
X	1. Interconnected bulk power systems shall be planned and operated in a coordinated manner to perform reliably under normal and abnormal conditions as defined in the NERC Standards.
☐	2. The frequency and voltage of interconnected bulk power systems shall be controlled within defined limits through the balancing of real and reactive power supply and demand.
☐	3. Information necessary for the planning and operation of interconnected bulk power systems shall be made available to those entities responsible for planning and operating the systems reliably.
☐	4. Plans for emergency operation and system restoration of interconnected bulk power systems shall be developed, coordinated, maintained and implemented.
☐	5. Facilities for communication, monitoring and control shall be provided, used and maintained for the reliability of interconnected bulk power systems.
☐	6. Personnel responsible for planning and operating interconnected bulk power systems shall be trained, qualified, and have the responsibility and authority to implement actions.
X	7. The security of the interconnected bulk power systems shall be assessed, monitored and maintained on a wide area basis.
☐	8. Bulk power systems shall be protected from malicious physical or cyber attacks.
Does the proposed Standard comply with all of the following Market Interface Principles? *(Select 'yes' or 'no' from the drop-down box.)*	
1. A reliability standard shall not give any market participant an unfair competitive advantage. Yes	
2. A reliability standard shall neither mandate nor prohibit any specific market structure. Yes	
3. A reliability standard shall not preclude market solutions to achieving compliance with that standard. Yes	
4. A reliability standard shall not require the public disclosure of commercially sensitive information. All market participants shall have equal opportunity to access commercially non-sensitive information that is required for compliance with reliability standards. Yes	

Related Standards

Standard No.	**Explanation**
PRC-003	Revise
PRC-004	Revise
PRC-012	Revise

PRC-016	Retire

Related SARs

SAR ID	Explanation

Regional Variances

Region	Explanation
ERCOT	
FRCC	
MRO	
NPCC	
SERC	
RFC	
SPP	
WECC	

NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

NERC SPCS Assessment of Standards:

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations
- PRC-016-1 — Special Protection System Misoperations

A Technical Review of Standards Prepared by the System Protection and Controls Subcommittee of the NERC Planning Committee

May 2009

to ensure the reliability of the bulk power system

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Table of Contents

This report was approved by the Planning Committee on June 10, 2009, for forwarding to the Standards Committee.

Introduction

When the original scope for the System Protection and Control Task Force (SPCTF, now the System Protection and Control Subcommittee – SPCS) was developed, one of the assigned items was to review all of the existing PRC-series of Reliability Standards, to advise the Planning Committee, and to develop Standards Authorization Requests, as appropriate, to address any perceived deficiencies.

This report presents the SPCS' assessment of three of the PRC standards pertaining to relay misoperations:

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations
- PRC-016-1 — Special Protection System Misoperations

This report serves as a precursor for a Standards Authorization Request (SAR) for modifications to PRC-003 that will be submitted by the SPCS.

Executive Summary

Standard PRC-003 is intended to ensure that all System Protection Misoperations are analyzed and mitigated according to guidelines established by the regions. The FERC, in Order 693, dated March 16, 2007, declared this standard as a "fill in the blank" type of standard that does not merit approval unless it is modified to make it more specific and consistent for all Regions. The SPCS concurs with the FERC order and provides recommendations on how the standard can be rewritten.

Because the procedures for analyzing and mitigating Misoperations were to be established by the regions, there is significant dissimilarity between the Misoperation data reported by each region, resulting in a virtually unusable misoperation metric for North America. SPCS recommends a change to the definition of Misoperation (Reportable Protection Misoperation) to provide uniformity to the misoperation data reported to the regions and NERC.

Protection System elements used for Special Protection Systems (SPS) or Remedial Action Schemes (RAS) are no different from those used for non Special Protection Systems. The revision to Standard PRC-003 should therefore apply to all Protection Systems, including SPS and RAS.

The SPCS also recommends that Standard PRC-016-0 — Special Protection System Misoperations, be requirements, merging its SPS/RAS Misoperation reporting, Corrective Action Plans, and tracking requirements into PRC-004 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and is coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should be modified to refer to that review process.

A Standards Authorization Request (SAR) will be submitted by the SPCS calling for a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016.

Assessment of PRC-003-1

PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems requires the regions to establish procedures for analysis of Misoperations. This has resulted in significant and substantive differences in regional procedures and this was noted in FERC's recommendation for "greater uniformity."

SPCS proposes updating the PRC-003-1 standard to be applicable to all regions based on following tenets:

1. **Applicability** — The existing standard says that the Protection Systems shall be reviewed but does not specify which systems apply to this standard.

   It is necessary for the new standard to define the protections systems to which the standard applies:

   - Transmission Protection Systems which trip:
     a. Transmission system elements 200-kV and above
     b. Operationally significant system elements 100-kV to 200-kV
     c. Transformers with 100-kV or higher on the low side
     d. GSU transformers with high side voltages of 100-kV or higher
   - Generation Protection Systems which trip:
     a. Transmission system elements 200-kV and above
     b. Operationally significant system elements 100-kV to 200-kV
     c. Transformers with 100-kV or higher on the low side
     d. GSU transformers with high side voltages of 100-kV or higher
     e. Generators connected through GSU transformers with high side voltages of 100-kV or higher
   - Protection Systems that trip aggregate generation of 75 MW or more (such as wind farms, geothermal, or solar) connected to the transmission system at 100-kV or higher.

2. **Definitions** — The NERC Glossary of Terms currently defines Misoperation as:

   Misoperation (current definition)

   - Any failure of a Protection System element to operate within the specified time when a fault or abnormal condition occurs within a zone of protection.
   - Any operation for a fault not within a zone of protection (other than operation as backup protection for a fault in an adjacent zone that is not cleared within a specified time for the protection for that zone).
   - Any unintentional Protection System operation when no fault or other abnormal condition has occurred unrelated to on-site maintenance and testing activity

   The existing definition does not address what are reportable and non-reportable misoperations. Reportable misoperations should be redefined in terms of both

dependability and security, as a function of the impact of the Protection Systems on the electric system performance. SPCS recommends the following definition:

Reportable Protection Misoperation (proposed definition)

Dependability (failure to operate):

- Failure of the composite Protection System to initiate the isolation of a faulted power system Element as designed or within its designed operating time.
- Failure of the composite Protection System to operate as intended for a non-fault condition, such as out-of-step, overload, etc., within its designed operating time.
- Failure of an SPS/RAS, UVLS system, or UFLS system to operate for an intended condition or within its designed operating time.

Security (false or undesirable operations):

- Improper operation of a Protection System in absence of a fault on the power system Element it is designed to protect.
- Improper operation of a Protection System during a fault on any other power system Element it is not designed to protect.
- Improper operation of an SPS/RAS, UVLS system, or UFLS system in absence of its designed trigger conditions.
- Over-response of an SPS/RAS, UVLS system, or UFLS system

Notes to the proposed definition:

A. The composite Protection System in the context of this standard is the total complement of protection for a system Element (line, bus, transformer, generator, etc). Primary and secondary protection of a given Element is considered as the composite Protection System, not two separate Protection Systems.

B. Delayed clearing, where a high-speed system is employed and is essential for transmission system performance, is considered a reportable misoperation of the high-speed system.

C. Lack of targeting of the high-speed system, such as when it is beat out by a high-speed zone, is not considered a reportable misoperation.

D. Multiple misoperations of a Protection System before it can be reasonably investigated and remedied should be considered as a single misoperation.

E. Failure to automatically reclose after a fault is not a reportable misoperation.

F. Human errors made in protection settings either as calculated or as installed, or wiring errors, which result in a misoperation are reportable.

G. Protection System operations related to on-site maintenance, testing, construction and or commissioning activities for that Protection System, when no fault or other abnormal condition has occurred, are not considered reportable Protection System misoperations.

H. Operations which are initiated by control systems (not by the Protection Systems), such as those associated with generator controls or turbine/boiler controls, SVCs,

FACTS, HVDC, circuit breaker mechanism, or insulation media, or other facility control systems, are not reportable Protection System misoperations.

I. *Protection System operations which occur with the protected element already out of service, that do not trip any in-service elements, are not reportable Protection System misoperations.*

3. **Reporting of Misoperations** — Because the current PRC-003 calls for regional procedures and reporting requirements, there is a wide variation in those requirements from region to region, making comparison of misoperations metrics at the NERC level virtually impossible. Since any assessment of the success or failure of the NERC protection-related standards to maintain or improve reliability depends on those metrics, it is important to provide for uniformity. The variations in definitions can be corrected by the adoption of the Reportable Protection Misoperation definition above. Uniform reporting can be addressed by following proposed reporting requirements:

   - Transmission Owner or Generation Owners that own Protection Systems shall submit a quarterly report of the total number of events , the number of Protection System misoperations, and the number of events still under analysis, in a prescribed format (to be part of the revised PRC-003 standard) no later than two calendar months after each quarter.
   - The regions shall, in turn, submit a quarterly report to NERC – consolidated data for the Region in a prescribed format (also part of the revised PRC-003 standard).
   - The regions shall provide any additional information on misoperations to NERC as requested.

4. **Peer Review of Misoperations —** Peer review of misoperations and tracking of mitigation plans is an important part of improving Protection System performance. Logically, that function should be done by the Regional Entities. However, since standards requirements cannot be placed on the Regional Entities, the following suggestions are made but the mechanics are left open.

   - The regions, through their appropriate committees or subcommittee, shall review the misoperation reports. This review should determine whether further analysis, data, or other documentation is required, and it will confirm that appropriate mitigation is defined and scheduled.
   - The regions should maintain records of the quarterly reports and confirm the implementation of any proposed mitigation plan.
   - The regions should track the mitigation of reported misoperations to avoid further occurrences.

Assessment of PRC-004 and PRC-016-0

NERC standards PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations, and PRC-016 – Special Protection System Misoperations both require that Protection System misoperations are analyzed and reported, and that corrective actions are taken where necessary. However, PRC-016 exclusively applies to special protection systems (SPS) also know as remedial action schemes (RAS). Since analysis and reporting of protection system misoperations is the same regardless of whether or not a SPS/RAS is involved; there is no need for a separate standard. Standard PRC-004-1 should be revised to include SPS/RAS, and PRC-016 should be retired.

SPS Corrective Action Plan Review

PRC-012-0 — Special Protection System Review Procedure is intended to provide a review procedure to ensure that all SPS/RAS are properly designed, meet performance requirements, and are coordinated with other Protection Systems.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and are coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should refer to that review process.

Proposed PRC-004-1 Revisions

SPCS recommends the following revisions to PRC-004-1 requirements to encompass those of PRC-016:

R1. The Transmission Owner and any Distribution Provider that owns a transmission Protection System or SPS shall each analyze its transmission Protection System or SPS Misoperations and shall develop and implement a Corrective Action Plan to avoid future Misoperations of a similar nature in accordance with Standard PRC-003 (revised).

R2. The Generator Owner shall analyze its generator Protection System or SPS Misoperations, and shall develop and implement a Corrective Action Plan to avoid future Misoperations of a similar nature in accordance with Standard PRC-003 (revised).

R3. The Transmission Owner, Generator Owner, and Distribution Provider that owns a transmission Protection System or an SPS shall provide documentation of the misoperation analyses and the Corrective Action Plans to its Regional Reliability Organization and NERC upon request (within 90 calendar days).

R4. All Corrective Action Plans for SPS shall be subject to SPS Review Procedures in accordance with Standard PRC-012.

Appendix A — System Protection and Control Subcommittee

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NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Reliability Standards Development Plan: 2010–2012

Volume III — Regional Reliability Standards Projects

to ensure the reliability of the bulk power system

October 7, 2009

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Introduction

NERC's Rules of Procedure Section 300 allows for a regional entity to develop regional reliability standards. A regional entity developing regional reliability standards must adhere to a NERC-approved regional reliability standards development procedure when developing its regional reliability standards. Each regional entity's regional standards development procedure is in Exhibit C of its regional delegation agreement with NERC.

NERC shall rebuttably presume that a regional reliability standard developed by a regional entity organized on an interconnection-wide basis in accordance with a regional reliability standards development process approved by NERC is just, reasonable, and not unduly discriminatory or preferential, and in the public interest, and consistent with such other applicable standards of governmental authorities. Regional reliability standards that are not proposed to be applied on an interconnection-wide basis are not presumed to be valid but may be demonstrated by the proponent to be valid. NERC's process for reviewing and approving proposed regional standards is delineated in its rules of procedure.

No regional reliability standard shall be effective within a region unless approved and filed by NERC with the Commission and the applicable authorities in Canada and Mexico and approved by such regulatory authorities. Regional reliability standards, when approved by FERC and the applicable authorities in Canada and Mexico, shall be made part of the body of NERC reliability standards and shall be enforced upon all applicable bulk-power system owners, operators, and users within the applicable regional entity's region, regardless of membership in the region.

Regional reliability standards shall provide for as much uniformity as possible with reliability standards across the interconnected bulk power system of the North American continent. A regional reliability standard shall be:

- more stringent than a continent-wide reliability standard, including regional standards that address matters that continent-wide reliability standards do not; or
- necessitated by a physical difference in the bulk power system.

This Volume III of NERC's Reliability Standards Development Plan identifies the standards anticipated to be developed by the individual regions over the next three years. With the exception of regional standards developed in support of continent-wide standards, the regional entities may independently initiate regional standards development and forward such standards to NERC for review and approval. NERC has identified 10 regional standards that are currently under development as listed in the index that follows this discussion. Additionally, four continent-wide standards projects identified in Volume II may require each of the eight regional entities to develop a companion regional standard, a total of 32 regional entity standards. Of this number, 13 projects have already been initiated by the Regional Entities. The NERC continent-wide projects that may require each regional entity to develop companion regional standards are:

- Project 2007-01 — Underfrequency Load Shedding
- Project 2007-05 — Balancing Authority Controls
- Project 2007-11 — Disturbance Monitoring
- Project 2008-04 — Protection Systems

In total, NERC has identified 42 proposed regional entity standards it expects to be developed over the course of the timeframe contemplated by this work plan.

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Regional Projects Possibly Requiring Coordination with NERC Continent-wide Projects

In this section, four regional reliability standards development projects are described. These four regional projects are:

Project 2007-01-RE — Underfrequency Load Shedding
Project 2007-05-RE — Balancing Authority Controls
Project 2007-11-RE — Disturbance Monitoring
Project 2008-04-RE — Protection Systems

These projects are being coordinated with NERC's continent-wide standards projects as described in Volume II of this three-year development plan. In general, the standard drafting team of the NERC continent-wide project working with industry stakeholders shall propose which requirements should be continent-wide and which should be included in regional standards. Further, the timing of these regional projects is driven to large degree by the timeline of the corresponding continent-wide project.

Additional information is found in the individual projects that follow.

2007-01-RE — Underfrequency Load Shedding — Regional Standards Development

Standards Involved:
Eight regional reliability standards (one for each of the eight regions) identifying regional requirements in support of the following continent-wide standards:

- PRC-006 — Development and Documentation of Regional Reliability Organizations' Underfrequency Load Shedding Programs
- PRC-007 — Assuring Consistency with Regional UFLS Programs
- PRC-009 — UFLS Performance Following an Underfrequency Event

Research Needed:
None

Brief Description:
This is a continuation of the corresponding project in Volume II of this work plan. Depending on the findings and determinations of the NERC standard draft team for Project 2007-01 Underfrequency Load Shedding (NERC UFLS SDT), it is anticipated that each region may be required to develop a regional standard that supports the continent-wide standard(s) developed for underfrequency load shedding.

PRC-006 is one of the few reliability standards identified by the Regional Reliability Standards Working Group as a standard that has some requirements that may need to be defined by each regional entity in a regional standard.

The NERC UFLS SDT will work with stakeholders to review PRC-006 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the UFLS program documentation. The NERC UFLS SDT working with industry stakeholders shall propose which requirements should be continent-wide requirements and which requirements should be included in regional standards.

PRC-007 and PRC-009 have some 'fill-in-the-blank' characteristics, as identified in the Regional Reliability Standards Working Group work plan, which need to be removed. These standards shall be included with PRC-006 for consideration as one or more revised standards as necessary for consistency and clarity of overall program requirements and any other associated programs and/or requirements that affect or impact the UFLS program.

Standard Development Status:
See NERC Project 2007-01 UFLS

Milestone Timeline:
See NERC UFLS SDT schedule

Related Links:

NERC Regional Reliability Standards Under Development
Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool, Inc. (SPP)
Texas Regional Entity (Texas RE)
Western Electricity Coordinating Council (WECC)

2007-05-RE — Balancing Authority Controls — Regional Standards Development

Standards Involved:
Eight regional reliability standards (one for each of the eight regions) identifying regional requirements in support of the following continent-wide standard:

- BAL-002 — Disturbance Control Performance

Research Needed:
None

Brief Description:
This is a continuation of the corresponding project in Volume II of this work plan. Depending on the findings and determinations of the NERC standard draft team for Project 2007-05 Balancing Authority Controls (NERC BAC SDT), it is anticipated that each region may be required to develop a regional standard that supports the continent-wide standard(s) developed for disturbance control performance.

BAL-002 is one of the few reliability standards identified by the Regional Reliability Standards Working Group (RRSWG) as a standard that has some requirements that may need to be defined by each regional entity in a regional standard. In particular, its October 2006 report, the RRSWG suggested the following related to BAL-002:

- In the long-term, regional reliability standards should be developed in support of North American standard BAL-002.
- Each regional entity should create a regional standard specifying its Contingency Reserve policy.
- The continent-wide BAL-002 should be modified to:
  - address FERC's May 11 comments and
  - revise R2 to remove reference to "sub-Regional Reliability Organization or Reserve Sharing Group".

The NERC BAC SDT will work with stakeholders to review BAL-002 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the BAC program documentation. The NERC BAC SDT shall determine which requirements should be continent-wide requirements and which requirements should be included in regional standards.

Standards Development Status:
See NERC Project 2007-05 Balancing Authority Controls

Milestone Timeline:
See NERC BAC SDT schedule

Related Links:

NERC Regional Reliability Standards Under Development
Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool, Inc. (SPP)
Texas Regional Entity (Texas RE)
Western Electricity Coordinating Council (WECC)

2007-11-RE — Disturbance Monitoring — Regional Standards Development

Standards Involved:
Eight regional reliability standards (one for each of the eight regions) identifying regional requirements in support of the following continent-wide standard:

- PRC-002 — Define and Document Disturbance Monitoring Equipment Requirements

Research Needed:
None

Brief Description:
This is a continuation of the corresponding project in Volume II of this work plan. Depending on the findings and determinations of the NERC standard draft team for Project 2007-11 Disturbance Monitoring (NERC DM SDT), it is anticipated that each region may be required to develop a regional standard that supports the continent-wide standard(s) developed for disturbance monitoring.

PRC-002 is one of the few reliability standards identified by the Regional Reliability Standards Working Group (RRSWG) as a standard that has some requirements that may need to be defined by each regional entity in a regional standard. In particular, in its October 2006 report the RRSWG suggested the following related to PRC-002:

- In the long-term, this should be a Regional Reliability Standard.
- As written, it is a requirement for each RRO to develop a comprehensive set of requirements for DME and can be enforced that way.
- PRC-002 is directly related to PRC-018. PRC-018 requires the functional entities to comply with the requirements developed by each RRO. Any references to each other embedded in the requirements of the two standards need verified.
- Need regions to develop and submit regional standards.

The NERC DM SDT will work with stakeholders to review PRC-002 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the DM program documentation. The NERC DM SDT working with industry stakeholders shall propose which requirements should be continent-wide requirements and which requirements should be included in regional standards.

Standards Development Status:
See NERC Project 2007-11 Disturbance Monitoring.

Milestone Timeline:
See NERC DM SDT schedule.

Related Links:
NERC Regional Reliability Standards Under Development

Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool, Inc. (SPP)
Texas Regional Entity (Texas RE)
Western Electricity Coordinating Council (WECC)

2008-04-RE — Protection Systems — Regional Standards Development

Standards Involved:
Eight regional reliability standards (one for each of the eight regions) identifying regional requirements in support of the following continent-wide standard:

- PRC-012 — Special Protection System Review Procedure

Research Needed:
None

Brief Description:
This is a continuation of the corresponding project in Volume II of this work plan. Depending on the findings and determinations of the NERC standard draft team for Project 2008-04 Protection Systems (NERC PS SDT), it is anticipated that each region may be required to develop a regional standard that supports the continent-wide standard(s) developed for special protection systems/schemes.

PRC-012 is one of the few reliability standards identified by the Regional Reliability Standards Working Group (RRSWG) as a standard that has some requirements that may need to be defined by each regional entity in a regional standard.

The NERC PS SDT will work with stakeholders to review PRC-012 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the special protection system program documentation. The NERC PS SDT working with industry stakeholders shall propose which requirements should be continent-wide requirements and which requirements should be included in regional standards.

Standards Development Status:
This project has not yet started.

Milestone Timeline:
The timeline for this project has not yet been established.

Related Links:
NERC Regional Reliability Standards Under Development
Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool, Inc. (SPP)
Texas Regional Entity (Texas RE)
Western Electricity Coordinating Council (WECC)

Florida Reliability Coordinating Council (FRCC)
Regional Reliability Standards Development Projects

PRC-002-FRCC-01 — Definition of FRCC Regional Disturbance Monitoring and Reporting Requirements — FRCC

Standards Involved:
PRC-002-FRCC-01 — Definition of FRCC Regional Disturbance Monitoring and Reporting Requirements — FRCC

Research Needed:
None

Brief Description:
FRCC plans to convert the existing handbook document, "FRCC Requirements for Disturbance Monitoring Equipment", revision dated June, 2006 into a new regional reliability standard, that complies with the requirements of NERC Reliability Standard, PRC-002-1 — "Define Regional Disturbance Monitoring and Reporting Requirements".

Standards Development Status:
See FRCC Definition of FRCC Regional Disturbance Monitoring and Reporting Requirements

Related Links:
See Florida Reliability Coordinating Council (FRCC) Standards Under Development page.

PRC-003-FRCC-01 — Misoperation of Protection Systems — FRCC

Standards Involved:
PRC-003 — FRCC-01 — Analysis of Misoperations of Transmission and Generation Protection Systems — FRCC

Research Needed:
None

Brief Description:
FRCC plans to convert the existing handbook document, "FRCC Requirements for Analysis of Protection Mis-operations & Corrective Actions Reporting", revision dated October 2003 into a new regional reliability standard, that complies with the requirements of NERC Reliability Standard, PRC-003-1 — "Regional Procedure for Analysis of Mis-operations of Transmission and Generation Protection Systems".

Standards Development Status:
See FRCC Regional Procedure for Analysis of Mis-operations of Transmission and Generation Protection Systems.

Related Links:
See Florida Reliability Coordinating Council (FRCC) Standards Under Development page.

PRC-006-FRCC-01 — FRCC Automatic Underfrequency Load Shedding Program

Standards Involved:
PRC-006-FRCC-01 — FRCC Automatic Underfrequency Load Shedding Program

Research Needed:
None

Brief Description:
FRCC plans to develop a regional standard to provide last resort system preservation measures by implementing an Underfrequency Load Shedding (UFLS) program.

In accordance with NERC Reliability Standard, PRC-006-0, "Development and Documentation of Regional Reliability Organizations' Underfrequency Load Shedding Programs", the FRCC plans to develop, coordinate, and document an UFLS program. These procedures are to be provided to the Load Serving Entities within the Region that are affected by the procedures.

Standards Development Status:
See FRCC Automatic Underfrequency Load Shedding Program

Related Links:
See Florida Reliability Coordinating Council (FRCC) Standards Under Development page.

PRC-024-FRCC-01 — Generator Performance During Frequency and Voltage Excursions — FRCC

Standards Involved:
PRC-024 — FRCC-01 — Generator Performance during Frequency and Voltage Excursions — FRCC

Research Needed:
None

Brief Description:
FRCC is developing a standard to establish “ride through” requirements for generators in the FRCC Region with respect to temporary grid voltage or frequency deviations from their normal range.

Standards Development Status:
See FRCC Regional Generator Performance During Frequency and Voltage Excursions.

Related Links:
See Florida Reliability Coordinating Council (FRCC) Standards Under Development page.

Midwest Reliability Organization (MRO) Regional Reliability Standards Development Projects

TPL-503-MRO-01 — System Performance Requirement — MRO

Standards Involved:
TPL-503-MRO-01 — System Performance Requirement — MRO

Research Needed:
None

Brief Description:
The MRO is developing a regional standard to ensure adequate interconnected transmission system performance in the MRO.

Standards Development Status:
See MRO System Performance Requirement.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

TPL-504-MRO-01 — Sub synchronous Resonance Requirement — MRO

Standards Involved:
TPL-504-MRO-01 — Subsynchronous Resonance Requirement — MRO

Research Needed:
None

Brief Description:
The MRO is developing a regional standard to ensure subsynchronous resonance with series compensated lines, torsional interaction with power system controls and generator shaft damage or excessive torsional fatigue due to network switching does not occur in the Midwest Reliability Organization ("MRO").

Standards Development Status:
See MRO Subsynchronous Resonance Requirement.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

PRC-502-MRO-01 — Power System Stabilizer Requirement — MRO

Standards Involved:
PRC-502-MRO-01 — Power System Stabilizer Requirement — MRO

Research Needed:
None

Brief Description:
The MRO is developing a regional standard to ensure that power system stabilizers are designed, installed and tuned as required to dampen power system oscillations in the Midwest Reliability Organization ("MRO"). To ensure small signal stability assessments are performed. To ensure testing programs are developed and poorly damped oscillations are analyzed and corrected.

Standards Development Status:
See MRO Power System Stabilizer Requirement.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

RES-501-MRO-01 — Generation Planning Reserve Requirements — MRO

Standards Involved:
RES-501-MRO-01 — Generation Planning Reserve Requirements — MRO

Research Needed:
None

Brief Description:
The MRO is developing a regional standard to establish common criteria by which to assess Resource Adequacy in the MRO for the short term and long term planning horizon.

Standards Development Status:
See MRO Generation Planning Reserve Requirements.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

PRC-006-MRO-01 — Development and Documentation of Regional UFLS Programs — MRO

Standards Involved:
PRC-006-MRO-01 — Development and Documentation of Regional UFLS Programs — MRO

Research Needed:
None

Brief Description:
The MRO will develop a regional reliability standard (Standard) with requirements for automatic Underfrequency Load Shedding (UFLS) programs. The regional Standards will require that UFLS programs arrest declining frequency and assist recovery of frequency following a frequency excursion. This standard will address the UFLS Regional Reliability Standard Characteristics developed by the NERC UFLS standard draft team.

Standards Development Status:
See MRO Development and Documentation of Regional UFLS Programs.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

Northeast Power Coordinating Council (NPCC) Regional Reliability Standards Development Projects

At this time, NPCC will be developing at least four regional standards projects as required to support reliability objectives and as may be required to support their associated continent-wide NERC reliability standards identified in the first part of this volume. NPCC will develop the initial four regional standards in conjunction with, and as set forth by the schedules associated with the continent-wide standards, or schedules set forth by FERC, or our members.

In conjunction with this effort, a project is underway to translate the NPCC Criteria into "Directories" to demonstrate consistency with the NERC Reliability Standards. These Directories will utilize the applicable NERC Functional Model language, contain reference to related NERC standards, clearly identify applicability and utilize NERC glossary terms and when no term is available, use NPCC defined terms. These Directories are updated and submitted to NERC periodically to satisfy the NERC requirement as outlined in the Rules of Procedure to maintain a catalog of regional criteria. The Directories may be viewed on the "Regional Documents" section of the NPCC website or accessed through a link on the NERC website.

PRC-006-NPCC-01 — Underfrequency Load Shedding Program — NPCC

Standards Involved:
PRC-006-NPCC-01 — Underfrequency Load Shedding Program — NPCC

Research Needed:
None

Brief Description:
This Standard will provide the detailed requirements and measures to automatically provide system preservation by implementing an automatic underfrequency load shedding program to respond to system underfrequency events. The Standard will also emphasize the need for coordination amongst the NPCC region's members, and those areas outside the NPCC footprint, and provide direction for refinements of underfrequency systems already in place. The standard will address issues that smaller entities may have due to reduced amounts of distribution feeders.

The Standard will ensure that all requirements will be identified to ensure compliance with relevant NERC standards.

The NPCC regional UFLS standard shall apply to Balancing Authority Areas "BA Areas" that are both synchronous and asynchronous to the eastern interconnection. BA Areas that are asynchronous (e.g. Quebec) will develop UFLS parameters with a different technical basis and requirements.

Standards Development Status:
The NPCC Regional Standards Committee has approved the Regional Standards Authorization Request, RSAR, drafting has begun and an open process posting for comments has been completed and in accordance with NPCC's, FERC filed and approved Regional Standards Development Procedure. NPCC is targeting member approvals by December 2009 with submission to NERC and FERC targeted for 2010.

Related Links:
See Northeast Power Coordinating Council's NPCC "Standards Under Development" page.

PRC-012-NPCC-01 — Special Protection Systems — NPCC

Standards Involved:
PRC-012-NPCC-01 — Special Protection Systems — NPCC

Research Needed:
None

Brief Description:
The proposed Standard will describe the requirements for the design of Special Protection Systems, and the technical criteria required to support its implementation. The Standard will also identify the need for close coordination among various parties to ensure that the Special Protection Systems are implemented correctly, and triggers and resulting actions are made known and communicated in an on-line database.

Standards Development Status:
The NPCC Regional Standards Committee has approved the Regional Standards Authorization Request, RSAR, drafting will begin shortly in accordance with NPCC's, FERC filed and approved Regional Standards Development Procedure. NPCC is targeting member approval the standard by December 2010 and submission to NERC and FERC is targeted for 2011.

Related Links:
See Northeast Power Coordinating Council's NPCC "Standards Under Development" page.

PRC-002-NPCC-01 — Disturbance Monitoring — NPCC

Standards Involved:
PRC-002-NPCC-01 — Disturbance Monitoring— NPCC

Research Needed:
None

Brief Description:
The Standard will establish the technical requirements for disturbance monitoring equipment, including:

- system operating parameters that are to be measured and recorded,
- how to determine/select a preferred location of this equipment,
- installation and equipment minimum technical requirements,
- data communication requirements,
- analysis tools.

Criteria for facility owner requirements for reporting disturbance data will also be defined.

Standards Development Status:
The NPCC Regional Standards Committee has approved the Regional Standards Authorization Request, RSAR, drafting has begun and an open process posting for comment has been completed in accordance with NPCC's, FERC filed and approved Regional Standards Development Procedure. NPCC is targeting member approval for this standard by December 2009 with submission to NERC and FERC targeted for 2010.

Related Links:
See Northeast Power Coordinating Council's NPCC "Standards Under Development" page.

ReliabilityFirst Corporation (RFC) Regional Reliability Standards Development Projects

MOD-024-RFC-01 — Generator Real (MW) Power Capability — RFC

Standards Involved:
MOD-024-RFC-01 — Verification of Generator Real (MW) Power Capability — RFC

Research Needed:
None

Brief Description:
RFC plans to develop a regional standard to ensure accurate information on generator gross and net Real (MWs) Power capability is available for steady-state models used to assess Bulk Electric System reliability.

Standards Development Status:
See RFC Verification and Data Reporting of Generator Gross and Net Real Power Capability project.

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page.

MOD-025-RFC-01 — Generator Reactive (MVAR) Power Capability — RFC

Standards Involved:
MOD-025-RFC-01 — Verification of Generator Reactive (MVAr) Power Capability — RFC

Research Needed:
None

Brief Description:
RFC plans to develop a regional standard to ensure accurate information on generator gross and net Reactive (MVAR) Power capability is available for steady-state models used to assess Bulk Electric System reliability.

Standards Development Status:
See RFC Verification and Data Reporting of Generator Gross and Net Reactive Power Capability project

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page.

BAL-502-RFC-02 — Resource Planning Reserve Requirement Standard — RFC

Standards Involved:
BAL-502-RFC-02 — Resource Planning Reserve Requirement Standard — RFC

Research Needed:
None

Brief Description:
RFC is developing a regional standard to establish requirements for a minimum level of resource adequacy to reliably serve all load in the ReliabilityFirst (RFC) corporate region.

Standards Development Status:
See RFC Planning Resource Adequacy Analysis, Assessment and Documentation.

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page.

PRC-006-RFC-01 — Automatic Underfrequency Load Shedding Requirements — RFC

Standards Involved:
PRC-006-RFC-01 — Automatic Underfrequency Load Shedding Requirements — RFC

Research Needed:
None

Brief Description:
RFC is developing a regional standard to establish requirements for automatic underfrequency load shedding (UFLS) to support NERC Reliability Standard PRC-006.

Standards Development Status:
See RFC Automatic Underfrequency Load Shedding Requirements.

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page

PRC-002-RFC-01 — Disturbance Monitoring and Reporting Requirements — RFC

Standards Involved:
PRC-002-RFC-01 — Disturbance Monitoring and Reporting Requirements — RFC

Research Needed:
None

Brief Description:
RFC is developing a regional standard to establish requirements establish requirements for Disturbance monitoring and reporting to support NERC Reliability Standard PRC-002.

Standards Development Status:
See RFC Disturbance Monitoring and Reporting Requirements

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page

PRC-012-RFC-01 — Special Protection System Requirements — RFC

Standards Involved:
PRC-012-RFC-01 — Special Protection System Requirements — RFC

Research Needed:
None

Brief Description:
RFC is developing a regional standard to establish requirements for the review, development and application of Special Protection Systems (SPS) in one RFC standard allowing the retirement of the associated legacy documents. The standard will ultimately be mandated by NERC in support of NERC PRC-012-1 as related to a review process as well as a unique RFC application criterion.

Standards Development Status:
See RFC Special Protection System Requirements Standard.

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page

SERC Reliability Corporation (SERC) Regional Reliability Standards Development Projects

SERC has no additional regional standards planned at this time beyond the four regional standards projects required to support their associated continent-wide NERC reliability standards identified in first part of this volume. SERC will develop these four regional standards in conjunction with, and as set forth by the schedules associated with, the continent-wide standards.

PRC-006-SERC-01 — Underfrequency Load Shedding Program — SERC

Standards Involved:
PRC-006-SERC-01 — Underfrequency Load Shedding Program — SERC

Research Needed:
None

Brief Description:
This standard will provide the measures to automatically provide system preservation by implementing an automatic underfrequency load shedding (UFLS) program to respond to system underfrequency events. The standard will also emphasize the need for coordination amongst the entities within the SERC footprint, and with those areas outside the SERC footprint. The standard requirements will ensure compliance with the NERC PRC-006-1 continent-wide standard, and other relevant NERC standards.

Standards Development Status:
The SERC Standards Committee accepted the SAR to develop a SERC UFLS Regional Reliability Standard on February 27, 2008 and assigned to the SERC Engineering Committee (EC). It was approved by the EC Executive Committee on April 25, 2008 and a standard draft team (or Responsible SERC Subgroup—RSS) was appointed on June 19, 2008. The first draft of the standard was posted for comments on September 19, 2008; second draft posted for comments on November 21, 2008; and the third draft was posted for information on February 9, 2009. Currently in Step 6 (*Drafting of a SERC Regional Reliability Standard*) of the 13 steps SERC Regional Standards Development Procedure. Plans are to update the third draft to make it consistent with the NERC continent-wide standard, post it for one more comment period, and take the final draft to ballot in the fourth quarter of 2009.

Related Links:
See the SERC Reliability Corporation Standards page

Southwest Power Pool, Inc. (SPP) Regional Reliability Standards Development Projects

PRC-006-SPP-01 — Automatic Underfrequency Load Shedding Program — SPP

Standards Involved:
PRC-006-SPP-01 — Automatic Underfrequency Load Shedding Program — SPP

Research Needed:
None

Brief Description:
The SPP Standard Drafting Team is in a process developing first draft of SPP regional standard for Underfrequency Load Shedding Program. The regional Standards will require that UFLS programs arrest declining frequency and assist recovery of frequency following a frequency excursion. This standard will consider the UFLS Regional Reliability Standard Characteristics developed by the NERC UFLS standard draft team.

Standards Development Status:
See SPP Standard Development Page

Related Links:
See Southwest Power Pool's (SPP) Standards Under Development page

Texas Regional Entity (Texas RE) Regional Reliability Standards Development Projects

BAL-001-TRE-01 — Regional Variance for CPS2 — Texas RE

Standards Involved:
BAL-001-TRE-01 Regional Variance for CPS2 — Texas RE

Research Needed:
None

Brief Description:
A Texas RE standard drafting team is drafting a regional variance to R2 of BAL-001-0 that still meets the purpose of the standard: Maintain Interconnection steady-state frequency within defined limits by balancing real power demand and supply in real-time. ERCOT currently has a NERC waiver for the CPS2 method (11/21/02) described in R2. This regional variance will provide what ERCOT employs instead of CPS2 to achieve the overall purpose of the BAL standard.

This variance will be the modification that was ordered by FERC in Order 693: As with other new regional differences, the commission expects that the ERCOT regional difference will include Requirements, Measures, and Levels of Non-Compliance sections. This regional variance will incorporate Section 5.9 of the ERCOT Protocols (and the applicable Nodal Protocol) to accomplish this objective. This variance as currently drafted will apply to the Balancing Authority that is ERCOT , GOs and GOPs.

Standards Development Status:
See Texas Regional Entity (Texas RE) Reliability Standards Tracking Status

Related Links:
SAR-003 Standard Drafting Team: Modification to ERCOT Waiver to R2 of BAL-001-0 CPS2

PRC-006-TRE-01 — Development and Documentation of Regional UFLS Program — Texas RE

Standards Involved:
PRC-006-TRE-01 — Development and Documentation of Regional UFLS Program — Texas RE

Research Needed:
None

Brief Description:
A Texas RE standard drafting team is currently following, reviewing, and commenting upon the characteristics of the NERC UFLS continent-wide standard that is under development (Project 2007-01). Depending on the specific characteristics and requirements of the continent-wide standard, and if necessary, the team will develop a regional reliability standard with requirements for automatic UFLS programs that will require that UFLS programs arrest declining frequency and assist recovery of frequency following a frequency excursion.

Standards Development Status:
See Texas Regional Entity (Texas RE) Reliability Standards Tracking Status

Related Links:
SAR-002 Standard Drafting Team: Development and Documentation of Regional UFLS Programs

Western Electricity Coordinating Council (WECC) Regional Reliability Standards Development Projects

VAR-001-WECC-1 — Voltage and Reactive Control — WECC

Standards Involved:
VAR-001-WECC-1 — Voltage and Reactive Control — WECC

Research Needed:
None

Brief Description:
The purpose of this standard is to ensure that voltage levels, reactive flows, and reactive resources are monitored, controlled, and maintained within limits in real time to protect equipment and the reliable operation of the Interconnection.

In the Western Interconnection, System Operating Limits for transmission paths in the Bulk Electric System assume that Automatic Voltage Regulators are in service to control voltage to support the transfer capability.

During the VAR-002-WECC-1 standard development process it was identified that not all WECC Transmission Operators provided voltage schedules to their Generation Operators. They are allowed to do this because Transmission Operators the NERC VAR-001-1a requirement R4 allows the option of providing reactive power schedules rather than voltage schedules. The practice of providing reactive power or power factor schedules forces Generation Operators to manually adjust their automatic voltage regulator (AVR) voltage setting by trial and error to find a voltage setting that will provide the exact amount of reactive power directed by the Transmission Operator. Since the voltage on the transmission grid varies throughout the day, the Generation Operator is forced to continuously reset the voltage on the AVR. This is an unnecessary and distracting manual control burden on the Generation Operator.

NERC VAR-002 requires the Generation Operator to comply exactly with the voltage schedule or reactive power schedule directed by the Transmission Operator. If the Transmission Operator provides a voltage schedule, the AVR can automatically maintain compliance with the NERC requirement. If the Transmission Operator refuses to provide a voltage schedule, and instead insists on providing a reactive power schedule, compliance can no longer depend on the automatic operation of the AVR. The VAR-002-WECC-1 standard prohibits the AVR from being switched to a constant reactive power mode of operation. Instead compliance becomes totally dependent on constant attention and readjustment by the Generation Operator. This significantly increases the risk of non-compliance for the Generator Operator.

Even more disturbing is the fact that this situation (the Transmission Operator specifying a constant reactive power output rather than a constant voltage level) defeats the intended purpose of the WECC VAR-002-WECC-1 standard, to prevent a voltage collapse. If the voltage does begin to collapse, the generator AVR, operating in constant voltage mode, will increase the reactive power output from the unit. That increase in reactive output means that the generator will no longer be producing the amount of reactive power specified by the Transmission Operator's reactive power schedule. Once this occurs, the Generation Operator must immediately reduce the reactive power provided by the generator or risk noncompliance with

NERC standard VAR-002, R2. That will result in the generator doing the exact opposite of what is needed to prevent a voltage collapse and exposes the Interconnection to a risk of blackout.

Therefore, the VAR-001-WECC-1 standard drafting team was form to develop a standard to require Transmission Operators to issue voltage schedules. The drafting team surveyed Transmission Operators and Generator Operators to identify scheduling practices that are causing confusion between Transmission Operators and Generator Operators. The first draft of a proposed VAR-001-WECC-1 Standard is expected to be posted for an initial 45 day comment period during the fourth quarter of 2009. The drafting team anticipates balloting and requesting WECC Board of Director approval during the second have of 2010.

WECC Standard VAR-001-WECC-1 is more stringent than a continent wide standard.

Standards Development Status:

See WECC Standards Development page at:
http://www.wecc.biz/Standards/Development/Pages/default.aspx

Related Links:

See http://www.wecc.biz/Standards/Development/WECC0046/default.aspx

EXHIBIT B

Complete Development Record for
Reliability Standards Development Plan: 2010–2012

Reliability Standards Development Plan: 2010-2012 Related Files

NERC revises its Reliability Standards Development Plan (Plan) on an annual basis. Industry comments and suggestions for improving the Plan are a vital part of the process employed by NERC to revise the Plan. This page is meant to help educate the industry about the Plan and to assist the industry in providing input on the revision of the Plan.

The Plan is used by NERC staff to identify and prioritize the reliability standard development projects in the immediate three-year horizon. It is the primary tool used by Standards staff to guide, and coordinate the development of reliability standards. It also serves as a communications tool for coordinating standards development work with applicable governmental agencies in the United States and Canada, and for engaging stakeholders in the standards development process.

The overall objective of the Plan is to improve the reliability of the Bulk Electric System through improved reliability standards. The standard drafting team assigned to each project is responsible for performing a top-to-bottom review and improvement of the standards associated with the project, including, but not limited to:

- revising the reliability objective, title, and purpose statement of the standards to be concise and clear,
- revising the applicability section of the standards to add specifications for entities, facilities, and responsibilities and integrate functional model changes,
- improving the wording of requirements and measures in the standards, and
- refining the compliance elements of the standards.

Each year NERC seeks industry input for improving the Plan. For example, we desire to receive suggestions and comments relative to, but not limited to:

- perceived gaps in the set of NERC reliability standards and recommendations for eliminating the perceived gaps,
- priorities (as implied by the timing of the projects) of the projects included in the work plan and recommendations for adjusting the timing of individual projects, and
- identification of potential future projects for addressing changes in or development of new reliability standards.

The Reliability Standards Suggestions and Comments form should be used for for providing your comments and suggestions to NERC on the Plan. If you wish to provide your comments or suggestions to NERC for improving the Plan, please return a completed form via e-mail to sarcomm@nerc.net with the words “Standards Suggestions” in the subject line.

2009 Project for Creating the Reliability Standards Development Plan: 2010-2012

The following documents are resources and information available related to the 2009 annual update of the NERC Reliability Standards Development Plan.

If you have questions pertaining to the Reliability Standards Development Plan please contact David Taylor at david.taylor@nerc.net.

Title / Summary	Date
2010-2012 Reliability Standards Development Plan Volume I, II, and III (16) **Reliability Standards Development Plan: 2010-2012 Submitted for NERC Board of Trustees Approval** Volume I - Overview Clean **(10)** | Redline **(11)** Volume II - List of Projects Clean **(12)** | Redline **(13)** Volume III - Regional Reliability Standards Projects Clean **(14)** | Redline **(15)**	10.22.2009

Comment Period Closed - August 28-September 28, 2009 (8) To submit comments about the Plan or NERC standards in general, please e-mail a completed copy of the Reliability Standards Suggestions and Comments form to sarcomm@nerc.net with the words “Development Plan” in the subject line. While general comments are always welcome, the deadline for this comment period is **September 28, 2009. (closed)** **Comments Received>> (9)**	10.01.2009
WEBINAR: Reliability Standards Development Plan: 2010-2012 (7) Reliability Standards Development Plan: 2010-2012 Speaker: David Taylor, Manager of Standards Development Slides>>	09.23.2009
Reliability Standards Development Plan: 2010-2012 - Volumes I, II, III (6) Comments on this draft of the Development Plan are due by COB **September 28, 2009.**	08.28.2009
Announcement: Comment Period Open for Development Plan 2010-2012 (5)	08.28.2009
Reliability Standards Development Plan Comments Received (4) Comments received from the May 20 - July 6, 2009 posting.	07.07.2009
Comment Period Closed - May 20-July 6, 2009 (3) To submit comments about the Plan or NERC standards in general, please e-mail a completed copy of the Reliability Standards Suggestions and Comments form to sarcomm@nerc.net with the words “Standards Suggestions” in the subject line. While general comments are always welcome, the deadline for this comment period is **July 6, 2009. (Closed)**	05.20.2009
Reliability Standards Development Plan: 2009-2011 - Volumes I, II, III (2) This version of the Development Plan has been approved by the Standards Committee and is pending BOT approval.	09.19.2008
Reliability Standards Suggestions and Comments Form (1)	08.28.2008

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Reliability Standards Suggestions and Comments

Introduction

NERC welcomes suggestions and comments targeted at improving the reliability of the bulk power system through improved reliability standards. Please use this form to submit your suggestions and/or comments related to NERC's Reliability Standards or Reliability Standards Development Plan. NERC will consider all suggestions and comments received and will incorporate the ideas submitted into a future standards development project or a future revision of the Reliability Standards Develop Plan, as appropriate.

A link to the current version of the Reliability Standards Development Plan can be found on NERC's standards Web page.

Please return all completed forms via e-mail to sarcomm@nerc.net with the words "Standards Suggestions" in the subject line.

Submission Information

Date:	
Submitted by (Name): *If submitted for a group, please complete the table at the end of this form.	**Organization:**
Phone:	**E-mail:**
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**

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Suggestion or Comment Detail (Complete only those items applicable to your submittal)
Notes: 1. Please be as specific as possible. 2. To the extent possible, please identify the specific element(s) of the standard (e.g. Requirement R1.2 or Section D.1.1 or Measure M1, etc.) each suggestion or comment pertains to. 3. If practical, please provide an example to clearly describe the issue. 4. If possible please provide a suggestion for improving the specific language of a standard to mitigate the issue.
1. Does this suggestion or comment address an existing standard? Yes ☐ No ☐ (If no, skip to the next question.)
Standard Number(s):
Standard Title(s):
Element(s) (i.e., Requirement R1.2., Measure M2., etc.):
Suggestion or Comment:
Example:
Recommendation for improvement:
2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan? Yes ☐ No ☐ (If no, skip to the next question.)
Project Number(s):
Project Title(s):
Suggestion or Comment:
Recommendation for improvement:

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)? Yes ☐ No ☐
Reliability Issue:
Suggestion or Comment:
Example:
Recommendation for improvement:
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment:
Example:
Recommendation for improvement:
Additional information:
Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Group Members (Names)	Group Member Organization	Region*	Segment*

* If more than one Region or Segment applies, please list all that apply.

Regional acronyms are:

Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool (SPP)
Texas Regional Entity (TRE)
Western Electricity Coordinating Council (WECC)

Segment numbers are:

1 — Transmission Owners
2 — RTOs and ISOs
3 — Load-serving Entities
4 — Transmission-dependent Utilities
5 — Electric Generators
6 — Electricity Brokers, Aggregators, and Marketers
7 — Large Electricity End Users
8 — Small Electricity End Users
9 — Federal, State, Provincial Regulatory or other Government Entities
10 — Regional Reliability Organizations and Regional Entities

NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Reliability Standards Development Plan: 2009–2011

Volume I
Overview
September 22, 2008

to ensure the reliability of the bulk power system

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www.nerc.com

Acknowledgement

The NERC Reliability Standards Program would like to thank all the individuals who invest their time and expertise in the development of NERC Reliability Standards and in the annual revision of this *Reliability Standards Development Plan*. The plan reflects comments and input from stakeholders, staff, the NERC technical community, and government agencies with oversight for electric reliability. Through collaboration and industry consensus, we expect to develop NERC Reliability Standards that are technically accurate, clear, enforceable, and provide an adequate level of reliability for the North American bulk power system. We know the results will support our overall goal of ensuring bulk power system reliability.

Table of Contents

Volume I: Overview

Volume II (provided separately): Project Descriptions

Volume III (provided separately): Regional Reliability Standards Projects

Introduction

Purpose

The *Reliability Standards Development Plan: 2009-2011* is the third version of the plan and serves to make current the 2008-2010 plan that was published in October 2007. This standards development plan is a management tool to guide, prioritize, and coordinate the development of reliability standards. The plan serves as a communications tool for coordinating standards development work with applicable governmental agencies in the United States and Canada, and for engaging stakeholders in standards development.

Summary of Modifications

This revised plan for 2009-2011 defines a total of four new standards development projects that were not included in the previous plans: two new projects for 2008, and one each for years 2009 and 2011. In addition, two projects that were originally planned to start in 2009 were initiated in 2008 due to a change in priority. Also, in response to industry comments concerning the ability to adequately review the many development projects underway or contemplated by the plan and to allow for additional unanticipated projects that inevitably will be identified, the projects for years 2009 and beyond were realigned to help ensure that adequate resources are available to support them. In addition, modifications were made to individual projects to:

- comply with FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000 regarding Load Serving Entities; and
- clearly identify the need for coordination with the North American Energy Standards Board (NAESB).

Projects within this Plan:

The total number of projects proposed in this plan increased to 39 from the 36 listed in the 2008-2010 version of the plan for the following reasons:

- One project identified in the 2008-2010 plan has been completed and has been removed from this plan:
  - A project initiated prior to 2005 — Operate Within Interconnection Reliability Operating Limits
- Two new projects initiated in 2008 but not identified in the 2008-2010 plan were added to this plan:
  - 2008-05 — Credible Multiple Element Contingencies
  - 2008-08 — EOP Violation Severity Levels Revisions
- Two new projects anticipated to commence in future years were added to this plan:
  - 2009-02 — Real-time Tools
  - 2011-01 — Equipment Monitoring and Diagnostic Devices

In addition, two projects identified in the 2008-2010 plan to commence in 2009 were revised and actually initiated early than anticipated in 2008:

  - 2008-12 — Coordinate Interchange Standards replaces Project 2009-03 — Interchange Information from the 2008-2010 plan
  - 2008-06 — Cyber Security Order 706 replaces Project 2009-07 — Cyber Security from the 2008-2010 plan

Realignment of Projects between Years

As part of the process employed in 2008 for revising the *Reliability Standards Development Plan*, NERC staff reached out to all stakeholders and asked for input on the plan. Similar to last year, several stakeholders indicated a concern that too many projects were under development concurrently and recommended that the work plan focus industry resources on the projects having the greatest impact on reliability in the near-term, while deferring those of less immediate reliability benefit.

Accordingly, this version of the plan realigns one project from 2008 to 2009 and four projects from 2009 to 2010:

- Project 2008-03 — Emergency Operations was moved to 2009 as Project 2009-03 — Emergency Operations
- Project 2009-02 — Connecting New Facilities to the Grid was moved to 2010 as Project 2010-02 — Connecting New Facilities to the Grid
- Project 2009-04 — Modeling Data was moved to 2010 as Project 2010-03 — Modeling Data
- Project 2009-05 — Demand Data was moved to 2010 as Project 2010-04 — Demand Data
- Project 2009-06 — Protection Systems was moved to 2010 as Project 2010-05 — Protection Systems

When developing this realignment of projects NERC staff took into consideration that the number of projects proposed for any particular year is directly impacted by the number of formal requests for interpretations submitted by industry. The number of requests for interpretations of NERC Reliability Standards is projected to increase until the cleanup of the Version 0 and some Version 1 standards is completed. As such, in addition to the standards projects outlined in the plan, the development plan contemplates the commitment needed from NERC staff and industry resources to support the development of the response and balloting for requests for interpretations. In 2007 NERC responded to seven formal requests for interpretations. In 2008, NERC anticipates to receive nine formal requests for interpretation, six of which have already been received as of this writing.

FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000 Regarding Load Serving Entities:

On March 4, 2008, NERC submitted a compliance filing in response to a December 20, 2007 Order, in which the Commission reversed a NERC decision to register three retail power marketers to comply with Reliability Standards applicable to load serving entities (LSEs) and directed NERC to submit a plan describing how it would address a possible "reliability gap" that NERC asserted would result if the LSEs were not registered. NERC's compliance filing included the following proposal for a short-term plan and a long-term plan to address the potential gap:

- Short-term: Using a posting and open comment process, NERC will revise the registration criteria to define "Non-Asset Owning LSEs" as a subset of Load Serving Entities and will specify the reliability standards applicable to that subset.
- Longer-term: NERC will determine the changes necessary to terms and requirements in reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers and process them through execution of the three-year *Reliability Standards Development Plan*.

In this revised *Reliability Standards Development Plan*, NERC is commencing the implementation of its stated long-term plan to address the issues surrounding accountability for loads served by retail marketers/suppliers. The NERC Reliability Standards Development Procedure will be used to identify the changes necessary to terms and requirements in reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers.

Specifically, the following description has been incorporated into the scope for affected projects in this revised *Reliability Standards Development Plan* that includes a standard applicable to Load Serving Entities:

> **Source:** FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000
>
> **Issue:** In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see:
>
> - FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf)
> - NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf),
> - FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and
> - NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Coordination with the North American Energy Standards Board (NAESB):

The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC *Reliability Standards Development Plan: 2008-2010* to identify those projects contained in the plan that may require complementary NAESB business practices. NAESB identified the following projects that may require coordinated NAESB business practices:

- Project 2006-07 — Transfer Capabilities — (ATC, TTC, CBM, TRM)
- Project 2006-08 — Transmission Loading Relief
- Project 2007-05 — Balancing Authority Controls
- Project 2007-18 — Reliability Based Control
- Project 2008-01 — Voltage and Reactive Control
- Project 2008-03 — Emergency Operations (moved to Project 2009-03 in this plan)
- Project 2009-02 — Connecting New Facilities to the Grid (moved to Project 2010-02 in this plan)
- Project 2009-03 — Interchange Information (moved to Project 20008-12 in this plan)

A new section titled "Coordination with NAESB" was added to the project description in Volume II of this plan for each of the projects identified immediately above and includes information related to the coordination with NAESB for the drafting team to consider in the development of the associated standard(s).

Other modifications:

As part of the process employed in 2008 for revising the *Reliability Standards Development Plan* NERC staff reached out to the stakeholder community asking for input on how to improve the plan. In so doing NERC received a number of comments that led to various modifications and improvements to the plan. Appendix A to this Volume I summarizes the comments received and NERC's response to the comments.

NERC staff contemplated the addition of a specific project to address the clean-up of V0 requirements for 22 standards[1] that have not yet been initiated in another existing work plan project. However, the staff chose not to create a separate project for this activity as there are projects with potentially higher reliability impacts for which the limited industry and staff resources should be dedicated. The V0 clean-up of these 22 standards will be undertaken when projects associated with these standards are initiated as outlined in the development plan.

Organization of Work Plan

The *Reliability Standards Development Plan: 2009–2011* is organized into three volumes.

Volume I provides an overview of the plan, including the history of the current status of standards development activities related to the development and approval of standards and includes:

- Introduction explaining the purpose of the plan and background.
- Plan description.
- Issues to be addressed in improving standards.

Volume II details the specific standards development projects and includes:

- Summary Reliability Standards Development Plan Schedule
- Project descriptions:

Volume III summarizes the regional reliability standards development activity anticipated over the three year period covered by the plan.

Goal

The goal of the *Reliability Standards Development Plan: 2009–2011* is to continue the development of NERC Reliability Standards to ensure that the set of NERC Reliability Standards in its entirety provides an adequate level of reliability for the North American bulk power system, and is enforceable upon all bulk power system users, owners, and operators in accordance with applicable statutes and regulations in the United States and Canada.

[1] FAC-001, FAC-002, MOD-010, MOD-011, MOD-012, MOD-013, MOD-014, MOD-015, MOD-016, MOD-017, MOD-018, MOD-019, MOD-020, MOD-021, PRC-003, PRC-004, PRC-012, PRC-013, PRC-014, PRC-015, PRC-016, PRC-020, PRC-021

Objectives as Part of the Goal

To meet this goal, NERC has several specific objectives that include:

- Addressing remaining blackout recommendations requiring new or revised standards.
- Addressing comments from industry, FERC, and others suggesting improvements to each standard, including those received from industry stakeholders during a public comment period.
- Addressing quality issues to ensure each standard has a clear statement of purpose, and has outcome-focused requirements that are clear and measurable.
- Ensuring measures and compliance elements are aligned to support the requirements within the standard and follow definitions outlined in the standards template.
- Reorganizing the standards more logically based on topic and removing redundancies.
- Addressing other pending proposals for new standards.
- Improving standard requirements by incorporating approved interpretations.
- Identifying less well-defined issues ("variables") that could lead to standard development activities in the work plan timeframe.
- Satisfying the requirement for a five-year review of all standards.

Considerations for Meeting Objectives

Developing excellent reliability standards is a long-term effort. This plan best supports the effort in that it is flexible and can be continuously adapted to circumstances and changing priorities, as demonstrated in this revised plan. This plan will be reviewed and maintained by the NERC Standards Committee and NERC standards program staff, and will be updated on an annual basis, or more frequently if needed.

Background

Authority

Through the enactment of the Energy Policy Act of 2005, Congress created Section 215 of the Federal Power Act (FPA). Section 215 assigns to the Commission the responsibility and authority for overseeing the reliability of the bulk power systems in the United States, including the setting and enforcing of mandatory reliability standards. In February 2006, the Commission issued Order No. 672 establishing its requirements for certifying an industry, self-regulating ERO, as envisioned in the legislation. On the basis of that order, NERC filed its application to become the ERO in the United States on April 4, 2006. NERC concurrently filed for similar recognition with the federal and provincial governments in Canada.

On July 20, 2006, the Commission issued its *Order Certifying the North American Electric Reliability Corporation as the Electric Reliability Organization and Ordering Compliance Filing*, finding that NERC met the requirements of Order No. 672. Since then, NERC has provided the requisite compliance filings and the Commission have issued several orders as a result to address the remaining issues with NERC's application and certification. NERC's filings with FERC[2] and the Commission's orders[3] can be found on the NERC Web site.[4]

[2] NERC filings to FERC, http://www.nerc.com/page.php?cid=1|8|170
[3] Commission orders, http://www.nerc.com/page.php?cid=1|8|170

On September 15, 2006, the National Energy Board of Canada announced a Memorandum of Understanding (MOU) recognizing NERC as the ERO in Canada. NERC also signed MOUs with Ontario, Quebec, and Nova Scotia in 2006. An interim MOU has been signed with Manitoba pending possible changes in its legislative regime for reliability. MOUs have been drafted and are expected to be concluded shortly with New Brunswick and Saskatchewan. NERC is working with the remaining Canadian provinces to accomplish the same understanding.

Standards Filings and Approvals

NERC has filed with the regulatory authorities in the U.S. and Canada petitions to approve numerous reliability standards that were proposed as new, modified, or retired reliability standards, as well as several interpretations, and, in the U.S., the Commission has taken action on a majority of these standards and interpretations. NERC has filed petitions for approval of 120 standards as mandatory and enforceable in the United States. The following summarizes the status of reliability standards filings in the U.S.:

- In March, 2007, the Commission issued Order No. 693, *Mandatory Reliability Standards for the Bulk Power System*. In this final rule, the Commission approved 83 reliability standards and directed improvements to 56 of these standards. The work plan addresses these improvements as well as the 24 standards that the Commission neither approved nor remanded, which are referred to as the "fill-in-the-blank" regional standards.
- In December 2007, the Commission issued its final rule in Order No. 705 approving Facilities Design, Connections, and Maintenance (FAC-010-1, FAC-011-1, and FAC-014-1) reliability standards.
- In January 2008, the Commission issued Order No. 706 that approved cyber security standards, CIP-002-1 through CIP-009-1.
- In July 2008, the Commission approved modifications to five reliability standards (INT-001, INT-004, INT-005-2, INT-006-2, and INT-008-2) from the Interchange family of NERC standards.
- NERC filed the following proposed reliability standards for regulatory authority approval but has yet to receive disposition of the requests for approval: PRC-023-1 — Transmission Relay Loadability; IRO-006-4 — Transmission Loading Relief; NUC-001-1 — Nuclear Plant Interface Coordination; MOD-001-1 — Available Transmission System Capability; MOD-008-1 — Transmission Reliability Margin Calculation Methodology; MOD-028-1 — Area Interchange Methodology; MOD-029-1 — Rated System Path Methodology; and MOD-030-1 — Flowgate Methodology.

At the regional level, the Commission also approved eight regional standards submitted by the Western Electricity Coordinating Council and approved by NERC for filing with the Commission and the Canadian regulatory authorities.

Detail on these and all filings and orders are found as links on the home page of NERC's Web site.

[4] NERC Web site, http://www.nerc.com/

Standards Development Process

NERC uses a process for refining, developing, and approving reliability standards, which has received national, formal accreditation and approval by federal regulators. A key element of the work plan is to review and upgrade all the existing standards based on the directives in the Commission's final rule, previous industry comments, and actual experience gathered from using the standards. Additionally, NERC's rules, and a condition of accreditation by the ANSI[5] require that each standard be reviewed at least every five years. NERC received ANSI accreditation on March 24, 2003. NERC anticipates completing its review and upgrade of standards identified in this work plan over several years in support of these accreditation requirements.

The *Reliability Standards Development Procedure*[6] provides a systematic approach to improve the standards and to document the basis for those improvements, and it will serve as the mechanism for achieving the improvements detailed in this plan. The standards development process includes active involvement of industry experts and stakeholders tasked with developing excellent standards.

In its April 2006 application to be certified as the ERO, NERC proposed to develop reliability standards in accordance with Section 300 (Reliability Standards Development) of its Rules of Procedure[7] and the *Reliability Standards Development Procedure*[8], which was incorporated into the Rules as Appendix A. In its June 2006 ERO Certification Order, the Commission found that NERC's proposed rules provide for reasonable notice and opportunity for public comment, due process, openness, and a balance of interests in developing reliability standards. The Commission noted that NERC's procedure calls for notifying and involving the public in developing a reliability standard. The development process is open to any person or entity with a legitimate interest in the reliability of the bulk power system. NERC considers the comments of all stakeholders, and a vote of stakeholders is required to approve a reliability standard before it is submitted for regulatory approval.

Furthermore, NERC also coordinates its reliability standards development activities with the business practices developed by the North American Energy Standards Board[9] (NAESB).

Background on Standards Development

The initial stage in the establishment of mandatory reliability standards began with the translation of the historical operating policies, planning standards, and compliance templates into a baseline set of working standards, referred to as Version 0 reliability standards.

This iteration of the work plan continues to focus attention on improving the baseline set of Version 0 reliability standards. Since the inaugural installation of the work plan was published, the Commission approved 94 reliability standards as mandatory and enforceable in the United States, although it directed modifications to 56 of those standards. The Commission held an additional 24 reliability standards as pending and NERC has proposed six additional standards for approval.

In Orders No. 693 and 693-A, *Mandatory Reliability Standards for the Bulk Power System*, and Order No. 890, *Preventing Undue Discrimination and Preference in Transmission Service*, the Commission built upon the information it provided in May 11, 2006 *Federal Energy Regulatory Commission Staff Preliminary Assessment*

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[5] ANSI accreditation, http://www.nerc.com/filez/ansi.html
[6] Reliability Standards Development Procedure, http://www.nerc.com/fileUploads/File/Standards/RSDP_V6_1_12Mar07.pdf
[7] NERC Rules of Procedure, http://www.nerc.com/files/NERC_Rules_of_Procedure_EFFECTIVE_20080321.pdf
[8] Reliability Standards Development Procedure, http://www.nerc.com/fileUploads/File/Standards/RSDP_V6_1_12Mar07.pdf
[9] NAESB http://www.nerc.com/page.php?cid=2|247|248

of Proposed Reliability Standards and the October 20, 2006 *Notice of Proposed Rulemaking — Mandatory Reliability Standards for the Bulk Power System*. In that Staff report, and then in the Commission's proposed rule, the FERC Staff initially, and then the Commission, stated that certain proposed standards are (1) ambiguous; (2) insufficient to ensure an adequate level of reliability; (3) fail to contain adequate "measures and compliance;" (4) may have an undue impact on competition; and (5) are "fill-in-the-blank" standards. The report and NOPR also pointed out that NERC has not completed standards addressing all recommendations made following the August 2003 Northeast blackout. The work plan enclosed here is intended to address these issues, as well as previous comments and issues noted by industry in the initial development of the standards.

Order No. 672[10] provides guidance on the factors the Commission will consider when determining whether proposed reliability standards meet the statutory criteria. For example, the Commission states that a proposed reliability standard must be designed to achieve a specified reliability goal and be clear and unambiguous regarding what is required and who is required to comply. In addition, while a proposed reliability standard does not have to reflect the "best practice," it cannot be based on the "lowest common denominator," if such a standard would not efficiently and effectively achieve its reliability goal.

Plan Description

Overview

The Projects: A significant portion of this *Reliability Standards Development Plan: 2009–2011* is dedicated to projects for revising the existing reliability standards to incorporate improvements. The plan groups the existing standards into projects based on content. Standards with related content are grouped together into a single project to allow a team of experts to consolidate the requirements, to eliminate redundancies, and to ensure consistency of all the requirements in all the standards. This approach makes the most efficient use of industry resources used in the standards development process.

A total of 39 projects are summarized in Volume II. Some of the projects address revising a single standard, such as FAC-003. One of the largest projects includes revising nine standards focusing on related topics: transmission operator performance standards TOP-001 to TOP-008 and the transmission operator authority standard PER-001. Managing the projects in this manner will provide an opportunity to clearly separate certification requirements (the capability to be a competent transmission operator) from the requirements measuring ongoing reliability performance. Those requirements are co-mingled in the existing standards.

Note that the project number indicates the year the project was or will be initiated and the sequence within the year, adjusted according to the reorganization discussed earlier.

The Drafting Teams: The size and makeup of the drafting teams will be determined according to the project scope. Some drafting teams may choose to subdivide the work. The teams will focus on effectively integrating the scope of the work within the project to ensure that the standards are consistent and comprehensive across the subject area.

[10] Order 672, http://www.nerc.com/files/final_rule_reliability_Order_672.pdf

Each drafting team will be provided a preliminary outline of the project scope, which is provided in Volume II, and then will prepare a Standard Authorization Request for industry review and comment. A unique development aspect of the projects included in the work plan, which is different from the development of the Version 0 translation, is that the drafting teams will not be inhibited from addressing at one time all necessary improvements to the standards, or from even proposing new changes to the standard, as long as the changes are within the content area of the standard. The goal is for the drafting team to develop the best possible standard within the defined subject area, as supported by a consensus of stakeholders.

The following list summarizes the projects included in this latest version of the *Reliability Standards Development Plan*:

Projects initiated in 2006:
2006-01 — System Personnel Training
2006-02 — Assess Transmission Future Needs
2006-03 — System Restoration and Blackstart
2006-04 — Backup Facilities
2006-06 — Reliability Coordination
2006-07 — Transfer Capabilities: ATC, TTC, CBM, and TRM
2006-08 — Transmission Loading Relief
2006-09 — Facility Ratings

Projects initiated in 2007:
2007-01 — Underfrequency Load Shedding
2007-02 — Operating Personnel Communications Protocols
2007-03 — Real-time Operations
2007-04 — Certifying System Operators
2007-05 — Balancing Authority Controls
2007-06 — System Protection Coordination
2007-07 — Vegetation Management
2007-09 — Generator Verification
2007-11 — Disturbance Monitoring
2007-12 — Frequency Response
2007-14 — Permanent Changes to CI Timing Table
2007-17 — Protection System Maintenance and Testing
2007-18 — Reliability-based Control
2007-23 — Violation Severity Levels

Projects initiated in 2008:
2008-01 — Voltage and Reactive Control
2008-02 — Undervoltage Load Shedding
2008-05 — Credible Multiple Element Contingencies
2008-06 — Cyber Security — Order 706
2008-08 — EOP Violation Severity Levels Revisions
2008-12 — Coordinate Interchange Standards

Projects anticipated to commence in 2009:

2009-01 — Disturbance and Sabotage Reporting
2009-02 — Real-time Tools
2009-03 — Emergency Operations
2009-04 — Phasor Measurements Units
2009-05 — Resource Adequacy Assessments

Projects anticipated to commence in 2010:
2010-01 — Support Personnel Training
2010-02 — Connecting New Facilities to the Grid
2010-03 — Modeling Data
2010-04 — Demand Data
2010-05 — Protection Systems

Projects anticipated to commence in 2011:
2011-01 — Equipment Monitoring and Diagnostic Devices

Regional Standards: Work on regional standards will be coordinated with the respective NERC projects. This plan includes Volume III *Regional Reliability Standards Projects* which summarizes regional standard development activities that are anticipated through 2011. These are provided as a reference and to identify development activities that will further require industry resources.

Project Schedules: Several of the identified projects require studies to develop the technology or methods that need to be used in the standards. The studies are identified within the project descriptions and the schedules of the projects allow time to complete the studies. The studies have been requested of the NERC Operating and Planning Committees, as well as other groups with the appropriate expertise to complete the study. In some cases, the project schedules and timelines have been adjusted to reflect the expected completion date of the companion study as identified in the committee work plans.

Project schedules were estimated with a certain set of base assumptions regarding the number of postings of each Standard Authorization Request and draft standard and the time needed to complete underlying studies. Project schedules are intended to estimate milestones and provide an indication regarding the progress on the projects. However, in most instances NERC believes it will be more important to focus on ensuring that the standards are correct, rather than to rush them through the process. Therefore, NERC anticipates that schedules could change over time. The Standards Committee and NERC staff will oversee the work of the drafting teams to ensure that teams maintain a productive and necessary pace, and inefficiency is avoided. Where project teams are active, this version of the plan includes a link to the applicable project schedule posted on the NERC website that, in some cases, is different than that initially postulated in earlier versions of the plan. To provide the latest status of each project, the plan includes hyperlinks to the respective project Web pages.

A summary overall schedule for the projects detailed in this plan is provided in Volume II.

Strategy for Project Resources

Reliability Standards Development Plan: 2009–2011 has been designed to recognize there are limits to available staff and industry resources to complete the projects immediately and concurrently. While the volume of work and schedules are aggressive, they are manageable because the work is being extended over several years, and because much of the work is revising and improving existing standards for which the issues are

already well-defined. However, the development of regional standards, the influx of formal interpretation requests, and the progress of the existing projects has impacted the deliverables noted in the plan and has been reflected in the proposed projects for 2009, 2010, and 2011.

The sequence of projects has been adjusted to spread the use of industry expertise over several years in the project. For example, system protection experts are a limited resource, as such each project requiring that expertise was spread out from the other for that reason. This same approach was used in sequencing most of the projects.

Global Improvements

Statutory Criteria

In accordance with Section 215 of the Federal Power Act, FERC may approve, by rule or order, a proposed reliability standard or modification to a reliability standard if it determines that "the standard is just, reasonable, not unduly discriminatory or preferential, and in the public interest."

The first three of these criteria can be addressed in large part by the diligent adherence to NERC's *Reliability Standards Development Procedure*, which has been certified by the American National Standards Institute (ANSI) as being open, inclusive, balanced, and fair. Users, owners, and operators of the bulk power system that must comply with the standards, as well as the end-users who benefit from a reliable supply of electricity and the public in general, gain some assurance that standards are just, reasonable, and not unduly discriminatory or preferential because the standards are developed through an ANSI-accredited procedure.

The remaining portion of the statutory test is whether the standard is "in the public interest." Implicit in the public-interest test is that a standard is technically sound and ensures a level of reliability that should be reasonably expected by end-users of electricity. Additionally, each standard must be clearly written, so that bulk power system users, owners, and operators are put on notice of the expected behavior. Ultimately, the standards should be defensible in the event of a governmental authority review or court action that may result from enforcing the standard and applying a financial penalty.

The standards must collectively provide a comprehensive and complete set of technically sound requirements that establish an acceptable threshold of performance necessary to ensure the reliability of the bulk power system. "An adequate level of reliability" would argue for both a complete set of standards addressing all aspects of bulk power system design, planning, and operation that materially affect reliability, and for the technical efficacy of each standard. The Commission directed NERC to define the term, "adequate level of reliability" as part of its January 18, 2007 Order on Compliance Filing. Accordingly, NERC's Operating and Planning Committees prepared the definition and the NERC Board approved it at its February 2008 meeting for filing with regulatory authorities. The NERC Standards Committee was then tasked to integrate the definition into the development of future reliability standards.

Quality Objectives

To achieve the goals outlined above, NERC has developed 10 quality objectives for the development of reliability standards. Drafting teams working on assigned projects are charged to ensure their work adheres to the following quality objectives:

1. **Applicability** — Each reliability standard shall clearly identify the functional classes of entities responsible for complying with the reliability standard, with any specific additions or exceptions noted. Such functional classes[11] include: ERO, Regional Entities, reliability coordinators, balancing authorities, transmission operators, transmission owners, generator operators, generator owners, interchange authorities, transmission service providers, market operators, planning coordinators, transmission planners, resource planners, load-serving entities, purchasing-selling entities, and distribution providers.

[11] These functional classes of entities are derived from NERC's Reliability Functional Model. When a standard identifies a class of entities to which it applies, that class must be defined in the Glossary of Terms Used in Reliability Standards.

Each reliability standard that does not apply to the entire North American bulk power system shall also identify the geographic applicability of the standard, such as an interconnection, or within a regional entity area. The applicability section of the standard should also include any limitations on the applicability of the standard based on electric facility characteristics, such as a requirement that applies only to the subset of distribution providers that own or operate underfrequency load shedding systems.

2. **Purpose** — Each reliability standard shall have a clear statement of purpose that shall describe how the standard contributes to the reliability of the bulk power system.
3. **Performance Requirements** — Each reliability standard shall state one or more performance requirements, which if achieved by the applicable entities, will provide for a reliable bulk power system, consistent with good utility practices and the public interest. Each requirement is not a "lowest common denominator" compromise, but instead achieves an objective that is the best approach for bulk power system reliability, taking account of the costs and benefits of implementing the proposal.
4. **Measurability** — Each performance requirement shall be stated so as to be objectively measurable by a third party with knowledge or expertise in the area addressed by that requirement. Each performance requirement shall have one or more associated measures used to objectively evaluate compliance with the requirement. If performance results can be practically measured quantitatively, metrics shall be provided within the requirement to indicate satisfactory performance.
5. **Technical Basis in Engineering and Operations** — Each reliability standard shall be based upon sound engineering and operating judgment, analysis, or experience, as determined by expert practitioners in that particular field.
6. **Completeness** — Each reliability standard shall be complete and self-contained. The standards shall not depend on external information to determine the required level of performance.
7. **Consequences for Noncompliance** — Each reliability standard shall make clearly known to the responsible entities the consequences of violating a standard, in combination with guidelines for penalties and sanctions, as well as other ERO and Regional Entity compliance documents.
8. **Clear Language** — Each reliability standard shall be stated using clear and unambiguous language. Responsible entities, using reasonable judgment and in keeping with good utility practices, are able to arrive at a consistent interpretation of the required performance.
9. **Practicality** — Each reliability standard shall establish requirements that can be practically implemented by the assigned responsible entities within the specified effective date and thereafter.
10. **Consistent Terminology** — Each reliability standard, to the extent possible, shall use a set of standard terms and definitions that are approved through the NERC reliability standards development process.

In addition to these factors, standard drafting teams also contemplate the following factors the Commission uses to approve a proposed reliability standard as outlined in Order No. 672. A standard proposed to be approved:

1. Must be designed to achieve a specified reliability goal

"321. The proposed Reliability Standard must address a reliability concern that falls within the requirements of section 215 of the FPA. That is, it must provide for the reliable operation of bulk power system facilities. It may not extend beyond reliable operation of such facilities or apply to other facilities. Such facilities include all those necessary for operating an interconnected electric energy transmission network, or any portion of that network, including control systems. The proposed

Reliability Standard may apply to any design of planned additions or modifications of such facilities that is necessary to provide for reliable operation. It may also apply to cyber security protection."

"324. The proposed Reliability Standard must be designed to achieve a specified reliability goal and must contain a technically sound means to achieve this goal.
Although any person may propose a topic for a Reliability Standard to the ERO, in the ERO's process, the specific proposed Reliability Standard should be developed initially by persons within the electric power industry and community with a high level of technical expertise and be based on sound technical and engineering criteria. It should be based on actual data and lessons learned from past operating incidents, where appropriate. The process for ERO approval of a proposed Reliability Standard should be fair and open to all interested persons."

2. Must contain a technically sound method to achieve the goal

"324. The proposed Reliability Standard must be designed to achieve a specified reliability goal and must contain a technically sound means to achieve this goal.

Although any person may propose a topic for a Reliability Standard to the ERO, in the ERO's process, the specific proposed Reliability Standard should be developed initially by persons within the electric power industry and community with a high level of technical expertise and be based on sound technical and engineering criteria. It should be based on actual data and lessons learned from past operating incidents, where appropriate. The process for ERO approval of a proposed Reliability Standard should be fair and open to all interested persons."

3. Must be applicable to users, owners, and operators of the bulk power system, and not others

"322. The proposed Reliability Standard may impose a requirement on any user, owner, or operator of such facilities, but not on others."

4. Must be clear and unambiguous as to what is required and who is required to comply

"325. The proposed Reliability Standard should be clear and unambiguous regarding what is required and who is required to comply. Users, owners, and operators of the Bulk-Power System must know what they are required to do to maintain reliability."

5. Must include clear and understandable consequences and a range of penalties (monetary and/or non-monetary) for a violation

"326. The possible consequences, including range of possible penalties, for violating a proposed Reliability Standard should be clear and understandable by those who must comply."

6. Must identify clear and objective criterion or measure for compliance, so that it can be enforced in a consistent and non-preferential manner

"327. There should be a clear criterion or measure of whether an entity is in compliance with a proposed Reliability Standard. It should contain or be accompanied by an objective measure of compliance so that it can be enforced and so that enforcement can be applied in a consistent and non-preferential manner."

7. Should achieve a reliability goal effectively and efficiently - but does not necessarily have to reflect "best practices" without regard to implementation cost

"328. The proposed Reliability Standard does not necessarily have to reflect the optimal method, or "best practice," for achieving its reliability goal without regard to implementation cost or historical regional infrastructure design. It should however achieve its reliability goal effectively and efficiently."

8. Cannot be "lowest common denominator," i.e., cannot reflect a compromise that does not adequately protect bulk power system reliability

"329. The proposed Reliability Standard must not simply reflect a compromise in the ERO's Reliability Standard development process based on the least effective North American practice — the so-called "lowest common denominator"—if such practice does not adequately protect Bulk-Power System reliability. Although the Commission will give due weight to the technical expertise of the ERO, we will not hesitate to remand a proposed Reliability Standard if we are convinced it is not adequate to protect reliability."

9. Costs to be considered for smaller entities but not at consequence of less than excellence in operating system reliability

"330. A proposed Reliability Standard may take into account the size of the entity that must comply with the Reliability Standard and the cost to those entities of implementing the proposed Reliability Standard. However, the ERO should not propose a "lowest common denominator" Reliability Standard that would achieve less than excellence in operating system reliability solely to protect against reasonable expenses for supporting this vital national infrastructure. For example, a small owner or operator of the Bulk-Power System must bear the cost of complying with each Reliability Standard that applies to it."

10. Must be designed to apply throughout North American to the maximum extent achievable with a single reliability standard while not favoring one area or approach

"331. A proposed Reliability Standard should be designed to apply throughout the interconnected North American Bulk-Power System, to the maximum extent this is achievable with a single Reliability Standard. The proposed Reliability Standard should not be based on a single geographic or regional model but should take into account geographic variations in grid characteristics, terrain, weather, and other such factors; it should also take into account regional variations in the organizational and corporate structures of transmission owners and operators, variations in generation fuel type and ownership patterns, and regional variations in market design if these affect the proposed Reliability Standard."

11. No undue negative effect on competition or restriction of the grid

"332. As directed by section 215 of the FPA, the Commission itself will give special attention to the effect of a proposed Reliability Standard on competition. The ERO should attempt to develop a proposed Reliability Standard that has no undue negative effect on competition. Among other possible considerations, a proposed Reliability Standard should not unreasonably restrict available transmission capability on the Bulk-Power System beyond any restriction necessary for reliability and should not limit use of the Bulk-Power System in an unduly preferential manner. It should not create an undue advantage for one competitor over another."

12. Implementation time

"333. In considering whether a proposed Reliability Standard is just and reasonable, the Commission will consider also the timetable for implementation of the new requirements, including how the proposal balances any urgency in the need to implement it against the reasonableness of the time allowed for those who must comply to develop the necessary procedures, software, facilities, staffing or other relevant capability."

13. Whether the reliability standard process was open and fair

"334. Further, in considering whether a proposed Reliability Standard meets the legal standard of review, we will entertain comments about whether the ERO implemented its Commission-approved Reliability Standard development process for the development of the particular proposed Reliability Standard in a proper manner, especially whether the process was open and fair. However, we caution that we will not be sympathetic to arguments by interested parties that choose, for whatever reason, not to participate in the ERO's Reliability Standard development process if it is conducted in good faith in accordance with the procedures approved by the Commission."

14. Balance with other vital public interests

"335. Finally, we understand that at times development of a proposed Reliability Standard may require that a particular reliability goal must be balanced against other vital public interests, such as environmental, social and other goals. We expect the ERO to explain any such balancing in its application for approval of a proposed Reliability Standard."

15. Any other relevant factors

"323. In considering whether a proposed Reliability Standard is just and reasonable, we will consider the following general factors, as well as other factors that are appropriate for the particular Reliability Standard proposed."

"337. In applying the legal standard to review of a proposed Reliability Standard, the Commission will consider the general factors above. The ERO should explain in its application for approval of a proposed Reliability Standard how well the proposal meets these factors and explain how the Reliability Standard balances conflicting factors, if any. The Commission may consider any other factors it deems appropriate for determining if the proposed Reliability Standard is just and reasonable, not unduly discriminatory or preferential, and in the public interest. The ERO applicant may, if it chooses, propose other such general factors in its ERO application and may propose additional specific factors for consideration with a particular proposed reliability standard."

Issues Related to the Applicability of a Standard

In Order No. 672, the Commission states that a proposed reliability standard should be clear and unambiguous regarding what is required and who is required to comply. Users, owners, and operators of the bulk power system must know what they are required to do to maintain reliability. Section 215(b) of the FPA requires all "users, owners and operators of the bulk power system" to comply with Commission-approved reliability standards.

The term "users, owners, and operators of the bulk power system" defines the statutory applicability of the reliability standards. NERC's Reliability Functional Model (Functional Model) further refines the set of users, owners, and operators by identifying categories of functions that entities perform so the applicability of each

standard can be more clearly defined. Applicability is clear if a standard precisely states the applicability using the functions an entity performs. For example, "Each generator operator shall verify the reactive power output capability of each of its generating units" states clear applicability compared with a standard that states "a bulk power system user shall verify the reactive power output capability of each generating unit." The use of the Functional Model in the standards narrows the applicability of the standard to a particular class or classes of bulk power system users, owners, and operators. A standard is more clearly enforceable when it narrows the applicability to a specific class of entities than if the standard simply references a wide range of entities, e.g., all bulk power system users, owners, and operators.

In determining the applicability of each standard and the requirements within a standard, the drafting team should follow the definitions provided in the NERC Glossary of Terms Used in Reliability standards and should also be guided by the Functional Model.

In addition to applying definitions from the Functional Model, the revised standards must address more specific applicability criteria that identify only those entities and facilities that are material to bulk power system reliability with regard to the particular standard.
In determining the applicability of each standard, the drafting team should review the registration criteria provided in the NERC Statement of Compliance Registry Criteria, which is the criteria for applicability. The registration criteria identify the criteria NERC uses to identify those entities responsible for compliance to the reliability standards. Any deviations from the criteria used in the Statement of Compliance Registry Criteria must be identified in the applicability section of the. It is also important to note that standard drafting teams cannot set the applicability of reliability standards to extend to entities beyond the scope established by the criteria for inclusion on NERC's Compliance Registry. This is expressly prohibited by Commission Order No. 693-A.

The goal is to place obligations on the entities whose performance will impact the reliability of the bulk power system, but to avoid painting the applicability with such a broad brush that entities are obligated even when meeting a requirement will make no material contribution to bulk power system reliability.

Every entity class described in the Functional Model performs functions that are essential to the reliability of the bulk power system. This point is best highlighted with the example that might be the most difficult to understand, the inclusion of distribution providers. Section 215 of the FPA specifically excludes facilities used in the local distribution of electric energy. Nonetheless, some of the NERC standards apply to a class of entities called distribution providers. Distribution providers are covered because, although they own and operate facilities in the local distribution of electric energy, they also perform functions affecting and essential to the reliability of the bulk power system. With regard to these facilities and functions that are material to the reliability of the bulk power system, a distribution provider is a bulk power system user. For example, requirements for distribution providers in the reliability standards apply to the underfrequency load shedding relays that are maintained and operated within the distribution system to protect the reliability of the bulk power system. There are also requirements for distribution providers to provide demand forecast information for the planning of reliable operations of the bulk power system.

A similar line of thinking can apply to every other entity in the Functional Model, including load-serving entities and purchasing-selling entities, which are users of the bulk power system to the extent they transact business for the use of transmission service or to transfer power across the bulk power system. NERC has specific requirements for these entities based on how these uses may impact the reliability of the bulk power

systems. Other functional entities are more obviously bulk power system owners and operators, such as reliability coordinators, transmission owners and operators, generator owners and operators, planning coordinators, transmission planners and resource planners. It is the extent to which these entities provide for a reliable bulk power system or perform functions that materially affect the reliability of the bulk power system that these entities fall under the jurisdiction of Section 215 of the FPA and the reliability standards. The use of the Functional Model simply groups these entities into logical functional areas to enable the standards to more clearly define the applicability.

Issues Related to Regional Entities and Reliability Organizations

Because of the transition from voluntary reliability standards to mandatory reliability standards, confusion has occurred over the distinction between Regional Entities and Regional Reliability Organizations. The regional councils have traditionally been the owners and members of NERC. They have been referred to as Regional Reliability Organizations in the Functional Model and in the reliability standards. In an era of voluntary standards and guides, it was acceptable that a number of the standards included requirements for Regional Reliability Organizations to develop regional criteria, procedures, and plans, and included requirements for entities within the region to follow those requirements. Section 215 of the FPA introduced a new term, called "Regional Entity." Regional Entities have specific delegated authorities, under agreements with NERC, to propose and enforce reliability standards within the region, and to perform other functions in support of the electric reliability organization. The former Regional Reliability Organizations have entered into delegation agreements with NERC to become Regional Entities for this purpose.

With regard to distinguishing between the terms Regional Reliability Organizations and Regional Entities, the following guidance should be used. The corporations that provide regional reliability services on behalf of their members are Regional Reliability Organizations. NERC may delegate to these entities a set of regional entity functions. The Regional Reliability Organizations perform delegated regional entity functions much like NERC is the organization that performs the ERO function. Regional Reliability Organizations may do things other than their statutory or delegated regional entity functions.

With the regions having responsibility for enforcement, it is no longer appropriate for the regions to be named as responsible entities within the standards. The work plan calls for removing requirements from the standards that refer to Regional Reliability Organizations, either by deleting the requirements or redirecting the responsibilities to the most applicable functions in the Functional Model, such as planning coordinators, reliability coordinators, or resource planners. In instances where a regional standard or criteria are needed, the ERO may direct the Regional Entities to propose a regional standard in accordance with ERO Rule 312.2, which states NERC, may "direct regional entities to develop regional reliability standards." There is no need to have a NERC standard that directs the regions to develop a regional standard. NERC standards should only include requirements for Regional Entities in those rare instances where the regions have a specific operational, planning, or security responsibility. In this case, Regional Entities (or NERC) may be noted as the applicable entity. However, these Regional Entities (or NERC) are held accountable for compliance to these requirements through NERC's rules of procedure that, by delegation agreement, extend to the Regional Entities. The Regional Entities are not users, owners or operators of the bulk power system and cannot be held responsible for compliance through the compliance monitoring and enforcement program. However, NERC and the Regional Entities can be held by the Commission to be in violation of its rules of procedure for failing to comply with the standards requirements to which it is assigned.

Many of the so-called regional "fill-in-the-blank" standards can be rewritten as North American standards, without diluting the requirements to a least-common-denominator solution. The "fill-in-the-blank" work plan included in Volume III of the first edition of the work plan addressed specific examples of standards that will become North American standards as a result of the projects in this work plan. These have been incorporated in total in this updated work plan. In those few cases where Regional Entities are required to develop regional standards, such as in under frequency load shedding, NERC can direct the regions to propose such standards and may, if necessary develop a uniform North American standard to serve as a default.

Issues Related to Ambiguity

Drafting teams should strive to remove all potential ambiguities in the language of each standard, particularly in the performance requirements. Redundancies should also be eliminated.

Specifically, each performance requirement must be written to include four elements:

- **Who** — defines which functional entity or entities are responsible for the requirements, including any narrowing or qualifying limits on the applicability to or of an entity, based on material impact to reliability.
- **Shall do what —** describes an action the responsible entity must perform.
- **To what outcome** — describes the expected, measurable outcome from the action.
- **Under what conditions** — describes specific conditions under which the action must be performed. If blank, the action is assumed to be required at all times and under all conditions.

Drafting teams should focus on defining measurable outcomes for each requirement, and not on prescribing *how* a requirement is to be met. While being more prescriptive may provide a sense of being more measurable, it does not add reliability benefits and may be inefficient and restrict innovation.

Issues Related to Technical Adequacy

In May 2006, the Commission Staff issued an assessment on the then proposed reliability standards. The Staff noted under a "technical adequacy" section that requirements specified in some standards may not be sufficient to ensure an adequate level of reliability. While Order No. 672 notes that "best practice" may be an inappropriately high standard, it also warns that a "lowest common denominator" approach will not be acceptable if it is not sufficient to ensure system reliability.

Each standard should clearly meet the statutory test of providing an adequate level of reliability to the bulk power system. Each requirement should be evaluated and the bar raised as needed, consistent with good practice and as supported by consensus.

Issues Related to Compliance Elements

Each reliability standard includes a section to address measures and a section to address compliance. Most of the major changes made to the template for reliability standards over the past year have been focused on re-aligning the content of standards to include the various elements needed to support mandatory compliance. The Uniform Compliance Enforcement Guidelines, ERO Sanctions Guidelines, and Compliance Registry Criteria have been modified and have been approved by the Commission. As each standard is revised, or as new standards are developed, drafting teams need to familiarize themselves with these documents to ensure that each

standard proposed for ballot is in a format that includes all the elements needed to support reliability and to ensure that the standard can be enforced for compliance.

The compliance-related elements of standards that may need to be modified to meet the latest approved versions of the various compliance documents noted above include the following:

- Each requirement must have an associated Violation Risk Factor.

  NERC is currently working through its Standards Committee to propose a modified model for Violation Risk Factors that if approved for use by the regulatory authorities will require the inclusion of a project to re-evaluate existing violation risk factor assignments. A project in support of this initiative is not expected until late 2009 at the earliest and will be contemplated for the next update of the work plan when greater certainty on project direction is expected.

- Each requirement must have an associated Time Horizon.
- The term, "Compliance Monitor" has been replaced with the term, "Compliance Enforcement Authority." Either the Regional Entity or the ERO may serve as the compliance enforcement authority. For most standards, the Regional Entity will serve as the compliance enforcement authority. In the situation where a Regional Entity has authority over a reliability coordinator, for example, the ERO will serve as the compliance enforcement authority to eliminate any conflict of interest.
- The eight processes used to monitor and enforce compliance have been assigned new names.
  - Compliance Audits
  - Self-Certifications
  - Spot Checking
  - Compliance Violation Investigations
  - Self-Reporting
  - Periodic Data Submittals
  - Exception Reporting
  - Complaints
- The audit cycles for various entities have been standardized so that the Reliability Coordinator, Transmission Operator and Balancing Authority will undergo a routine audit to assess compliance with each applicable requirement once every three years while all other responsible entities will undergo a routine audit once every six years.
- Levels of Non-compliance have been replaced with "Violation Severity Levels."

All requirements are subject to compliance audits, self-certification, spot checking, compliance violation investigations, self-reporting and complaints. Only a subset of requirements is subject to monitoring through periodic data submittals and exception reporting.

Measures: While a measure can be used for more than one requirement, there must be at least one measure for each requirement. A measure states what a responsible entity must have or do to demonstrate compliance to a third party, i.e., the compliance enforcement authority. Measures are proxies, or "yardsticks" used to evaluate whether required performance or outcomes have been achieved. Measures do not add new requirements or

expand the details of the requirements. Each measure shall be tangible, practical, and objective. A measure should be written so that achieving full compliance with the measure provides the compliance monitor with the necessary and sufficient information to demonstrate that the associated requirement was met by the responsible entity. Each measure should clearly refer to the requirement(s) to which it applies.

Violation Severity Levels: The Violation Severity Levels (formerly known as Levels of Non-Compliance) indicate how severely an entity violated a requirement. For example, in the Commission-approved standard on vegetation management (FAC-003-1 Vegetation Management Program), there are three Levels of Non-Compliance. The levels range from whether or not a respective program has all necessary documentation to meet the requirements, to the number of transmission outages due to tree contacts. Historically, there has been confusion about Levels of Non-Compliance. Some of the existing Levels of Non-Compliance incorporate reliability-related risk impacts or consequences. Going forward, the risk or consequences component should be addressed only by the Violation Risk Factor, while the Violation Severity Levels should only be used to categorize how badly the requirement was violated.

The Commission directed NERC to submit Violation Severity Levels for each of these 83 standards by March 1, 2008. Project 2007-23 in this updated work plan is the project team tasked with this effort. The drafting team should indicate a set of Violation Severity Levels that can be applied for the requirements within a standard. Violation Severity Levels replace the existing Levels of Non-Compliance. The Violation Severity Levels may be applied for each requirement or combined to cover multiple requirements, as long as it is clearly embedded within the compliance section of a standard which requirements are included.

Violation Risk Factors: Each drafting team is also instructed to develop a Violation Risk Factor for each requirement in a standard in accordance with the following definitions:

- **High Risk Requirement** — A requirement that, if violated, could directly cause or contribute to bulk power system instability, separation, or a cascading sequence of failures, or could place the bulk power system at an unacceptable risk of instability, separation, or cascading failures; or a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly cause or contribute to bulk power system instability, separation, or a cascading sequence of failures, or could place the bulk power system at an unacceptable risk of instability, separation, or cascading failures, or could hinder restoration to a normal condition.
- **Medium Risk Requirement** — A requirement that, if violated, could directly affect the electrical state or the capability of the bulk power system, or the ability to effectively monitor and control the bulk power system. However, violation of a medium risk requirement is unlikely to lead to bulk electric system instability, separation, or cascading failures; or a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly and adversely affect the electrical state or capability of the bulk power system, or the ability to effectively monitor, control, or restore the bulk power system. However, violation of a medium risk requirement is unlikely, under emergency, abnormal, or restoration conditions anticipated by the preparations, to lead to bulk power system instability, separation, or cascading failures, nor to hinder restoration to a normal condition.
- **Lower Risk Requirement** — A requirement that is administrative in nature and, a requirement that, if violated, would not be expected to affect the electrical state or capability of the bulk power system, or the ability to effectively monitor and control the bulk power system. A requirement that is administrative

in nature; or a requirement in a planning time frame that, if violated, would not, under the emergency, abnormal, or restorative conditions anticipated by the preparations, be expected to affect the electrical state or capability of the bulk power system, or the ability to effectively monitor, control, or restore the bulk power system.

Time Horizons: The drafting team must also indicate the time horizon available for mitigating a violation to the requirement:

- **Long-term planning** — a planning horizon of one year or longer.
- **Operations planning** — operating and resource plans from day-ahead up to and including seasonal.
- **Same-day operations** — routine actions required within the timeframe of a day, but not real-time.
- **Real-time operations** — actions required within one hour or less to preserve the reliability of the bulk electric system.
- **Operations assessment** — follow-up evaluations and reporting of real time operations.

Note that some requirements occur in multiple time horizons, and it is acceptable to have more than one time horizon for a single requirement.

The drafting team should seek input and review of all measures and compliance information from the compliance elements drafting team members assigned to support each standard drafting team or from the NERC compliance staff.

Fill-in-the-Blank Standards

The phrase "fill-in-the-blank" standards have been coined to refer to those standards that require a bulk power system user, owner, or operator to follow regional criteria that are not part of a NERC Reliability Standard. These "fill-in-the-blank" standards have been identified and discussed earlier in these comments. The practice of using "fill-in-the-blank" standards was acceptable historically when standards were voluntary, but not with standards that are mandatory and enforceable under statutory authority.

NERC recognized this issue early in the process of developing its application to become the ERO. NERC formed and staffed a program to coordinate the development of regional standards and to address the "fill-in-the-blank" issue. A team with representation from each region was formed and reviewed these particular standards to prepare recommendations for a course of action. The action plan and schedule to resolve each "fill-in-the-blank" standard were provided in Volume III of the original 2007-2009 plan and has been wholly incorporated into the projects identified in Volume II of the updated work plan.

There are several possible outcomes with regard to each of these particular standards. The work team completed a review to verify which standards are in fact "fill-in-the-blank," i.e., they require the responsible entity to perform in accordance with regional criteria that are outside the NERC Reliability Standards. There are several options to address each standard on a case-by-case basis:

Analysis Results	Recommended Action
Insufficient justification for regional differences.	Replace the standard with a uniform North American standard.
Mandatory enforcement is necessary for reliability but regional differences are justified.	Direct the regions to develop their regional criteria as consistent standards to be filed with NERC, FERC, and the applicable authorities in Canada for approval as ERO standards.
Mandatory enforcement is not necessary for reliability.	Retire the NERC standard and allow the regions to maintain voluntary criteria and procedures as needed to coordinate reliability in the region. No enforcement mechanism is provided under the FPA.

NERC supports the strong preference of the Commission for consistency with regard to regional standards, with statutory deference for regions organized on an interconnection-wide basis as required by statute. NERC will work to achieve such consistency and to provide sufficient justification for regional standards or variations to the NERC standards that are filed for Commission approval.

Coordination with NAESB

Many of the existing NERC standards are related to business practices, although their primary purpose is to support reliability. Reliability standards, business practices, and commercial interests are inextricably linked. An example of an existing standard that is both a reliability standard and a business practice is the Transmission Loading Relief (TLR) Procedure currently used as an interconnection-wide congestion management method in the Eastern Interconnection.

It would be safe to conclude that every reliability standard has some degree of commercial impact and therefore impacts competition. The statutory test to be applied by the Commission is whether the reliability standard has an "undue adverse effect" on competition.

NERC has taken several steps to ensure its reliability standards do not have any undue, adverse impact on business practices or competition. First, NERC coordinates the development of all standards with the North American Energy Standards Board (NAESB). In addition to this formal process, drafting teams work with NAESB groups to ensure effective coordination of wholesale electric business practice standards and reliability standards. NERC and NAESB follow their procedure for the joint development of standards in areas that have both reliability and business practice elements. This procedure is being implemented for all standards in which the reliability and business practice elements are closely related, thereby making joint development a more efficient approach.

This work plan includes several projects that require close coordination and joint development with NAESB:

- Project 2006-07 — Transfer Capabilities — (ATC, TTC, CBM, TRM)
- Project 2006-08 — Transmission Loading Relief
- Project 2007-05 — Balancing Authority Controls
- Project 2007-18 — Reliability Based Control
- Project 2008-01 — Voltage and Reactive Control
- Project 2008-12 — Coordinate Interchange Standards
- Project 2009-03 — Emergency Operations
- Project 2010-02 — Connecting New Facilities to the Grid

To ensure each reliability standard does not have an undue adverse effect on competition, NERC requires that each standard meet the following criteria:

- Competition — A reliability standard shall not give any market participant an unfair competitive advantage.
- Market Structures — A reliability standard shall neither mandate nor prohibit any specific market structure.
- Market Solutions — A reliability standard shall not preclude market solutions to achieve compliance with that standard.
- Commercially Sensitive Information — A reliability standard shall not require the public disclosure of commercially sensitive information. All market participants shall have equal opportunity to access commercially non-sensitive information that is required for compliance with reliability standards.

During the standards development process, each SAR drafting team asks the following question to determine if there is a need to develop a business practice associated with the proposed standard:

- Are you aware of any associated business practices that we should consider with this SAR?

Each standard drafting team also asks the following question to determine if there is a potential conflict between a reliability standard and business practice:

- Are you aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement? If yes, please identify the conflict.

Additional Considerations

Drafting teams should consider the following in reviewing and revising their assigned standards:

- **Title**: In general, the title should be concise and to the point. Care should be taken not to try to fully describe a standard through its title. The title should fit a single line in both the header and in the body of the standard.
- **Purpose**: Current purpose statements are inconsistent. The purpose should clearly state a benefit to the industry (value proposition) in fulfilling the requirements. The purpose should not simply state "the purpose is to develop a standard to…" The purpose should be tied to one or more of the reliability principles.
- **References**: A new section (F) has been added to the standards template for a listing of associated references that support implementation of the standard. Drafting teams may develop or reference supporting documents and provide a link in this section with approval of the Standards Committee.
- **Version histories**: Version histories should be expanded to include complete listings of what has been changed from version to version so that end-users can easily keep track of changes to standards. This will also serve as a type of audit trail for changes.

Resource Documents Used

NERC used several references when preparing this plan. These references provide detailed descriptions of the issues and comments that need to be considered by the drafting teams, and which are included in the second volume of the work plan, as they work on the standards projects defined in the plan. The references include:

- FERC NOPR on Reliability Standards, October 20, 2006.
- FERC Staff Preliminary Assessment of Proposed Reliability Standards, May 11, 2006.
- FERC Order No. 693 Mandatory Reliability standards for the Bulk Power System, March 16, 2007.
- FERC Order No. 693-A Mandatory Reliability Standards for the Bulk Power System, July 19, 2007.
- FERC Order No. 890 Preventing Undue Discrimination and Preference in Transmission Service, February 16, 2007.
- Comments of the North American Electric Reliability Council and North American Electric Reliability Corporation on Staff Preliminary Assessment of Reliability Standards, June 26, 2006.
- Comments of the North American Electric Reliability Corporation on Staff Preliminary Assessment of NERC Standards CIP-002 through CIP-009, February 12, 2007.
- Comments of the North American Electric Reliability Corporation on the Notice of Proposed Rulemaking for Facilities Design, Connections and Maintenance Reliability standards, September 19, 2007.
- Comments received during the development of Version 0 reliability standards.
- Consideration of comments of the Missing Compliance Elements drafting team.
- Consideration of comments of the Violation Risk Factors drafting team.
- Consideration of comments in the Phase III–IV standards.
- Comments received during industry comment period on work plan.
- Q&A for Standards and Compliance.

Appendix A — Summary of Industry Comments

Reliability Standards Development Plan 2009-2011
As of September 16, 2008

Comment 1

Name: David Schiada

Organization: SCE

Standard Title(s): To The NERC Reliability Standards Development Plan

Suggestion or Comment: Southern California Edison Company ("SCE") hereby submits its comments on the North American Electric Reliability Corporation's ("NERC") annual revision to the NERC Reliability Standards Development Plan (Plan).

SCE greatly appreciates the work that went into developing the Plan, and commends the NERC for the extensive overview and depth it provides regarding the development of reliability standards. SCE is generally supportive of the document and the goals NERC has set for the development of reliability standards. While the timelines identified in the Plan, like the Plan itself, are dynamic (non-static/ever changing) and should be used as targets, it should be recognized that timelines may need to be modified as drafting teams obtain more details on the scope of the projects.

NERC Response:
NERC staff agrees with SCE that that the timeline for any particular project may need to be modified as the respective drafting team for the project obtains additional details in the process of working on the project. It is NERC's goal to develop quality standards in a timeframe that is responsive to industry needs. It is not the intent of NERC staff to drive standards development projects to meet a particular schedule unless there is a specific need to meet a specific deadline.

Comment 2

Name: Denise Koehn

Organization: BPA

Project Number(s): 2007-07; 2009-07

Project Title(s): Vegetation Management; Cyber Security

Suggestion or Comment: Both of these projects should be "fast-tracked". All of the covered standards are the source of intense pressure from FERC and NERC, through the RROs, to the entities. In light of the importance this pressure implies, these standards should be corrected and perfected as soon as possible. With respect to FAC-003, there is ambiguity in what requirement to report when you have a Category 1 violation. Lots of people think they are supposed to report a violation of R3.4.1 when they have a Category 1 outage. The correct interpretation of what actually constitutes a violation should be clarified in the requirements language. With respect to the CIP standards, these standards are written in confusing, ambiguous, and conflicting ways that are causing the expenditure of large amounts of staff time and labor to try to reach agreement on how to meet them. For example, in both

CIP-004 R2 and CIP-004 R3, there are conflicting provisions to provide training and perform personnel risk assessments UPON RECEIVING ACCESS as well as ANNUALLY. The relationship between these two requirements is not identified at all, so a strict interpretation would force an entity to give the training and perform the personnel risk assessment on the same employee several times a year if that person's access privileges changed, for example if they moved from internal job to internal job.

NERC Response:

NERC staff agrees with BPA's suggestion of the importance of Project 2007-07 Vegetation Management and Project 2009-07 Cyber Security.

Project 2007-07 Vegetation Management is an active project. The standard drafting team for this project is working hard to bring the project to a close and is on target for completion in the first quarter of 2009.

With regard to Project 2009-07 Cyber Security, Project 2008-06 Cyber Security Order 706 has been initiated negating the need for Project 2009-07 Cyber Security. With this 2008 revision of the Reliability Standards Development Plan, Project 2009-07 Cyber Security is being eliminated and replaced with Project 2008-06 Cyber Security Order 706. Work on revising CIP standards 002 through 009 is already underway.

Suggestion or Comment: The NERC Reliability Standards work plan should consider a review of the need for a standard on Interconnection Operations Services and associated definitions related to ancillary services addressed in the pro-forma.

Recommendation for improvement: We believe that this review should be a joint NERC/NAESB project and is necessary due to the modifications that NERC has made in its reliability standards and definitions. These need to be reflected appropriately in the pro-forma language under the tariff schedules (Schedules 1 - 6 & 9).

NERC Response:

NERC, as the Electric Reliability Organization, is tasked with establishing measurable criteria for performance. While Interconnection Operations Services and/or Ancillary Services are products that can aid in meeting ERO-defined performance objectives, they are not in themselves performance criteria; however, NERC will coordinate with NAESB to the extent practical in the development of definition of Interconnection Operations Services and Ancillary Services terms.

Comment 3

Name: Louis Slade

Organization: Dominion Resources Services, Inc.

Project Number(s): 2009-01 and 2009-07

Project Title(s): Disturbance and Sabotage Reporting and Cyber Security

Suggestion or Comment: Given the mood of FERC I suggest to move them into 2009. At the very least, participants can fully vet reasons for the need to move with due diligence and caution.

NERC Response:

Project 2009-01 Disturbance and Sabotage Reporting is already scheduled to commence in 2009.

With regard to Project 2009-07 Cyber Security, Project 2008-06 Cyber Security Order 706 has been initiated negating the need for Project 2009-07 Cyber Security. With this 2008 revision of the Reliability Standards Development Plan, Project 2009-07 Cyber Security is being eliminated and replaced with Project 2008-06 Cyber Security Order 706. Work on revising CIP standards 002 through 009 is already underway.

Suggestion or Comment: Develop timeline for regions to develop 'fill-in-the blank' standards. Currently some regions are doing nothing while others have gone beyond the original 4 standards. Entities participating in many regions find this inconsistency to be frustrating.

Recommendation for improvement: Develop timeline for the 4 already identified 'fill-in-the blank' standards. Develop process that requires region(s) desiring additional regional standards first justify the need before NERC rather than develop and then submit to NERC hoping for approval.

NERC Response:

NERC standards staff is in regular contact with the individuals at each of the Regional Entities responsible for developing regional reliability standards. Coordination of the four standards you reference above is ongoing. In many instances, the Regional Entity has decided to commence work on the four 'fill-in-the blank' standards in order to able to better coordinate the development of the regional standard with the development of the continent-wide standard. This actually is to the benefit of those entities in the region affected by the standard.

Each Regional Entity has a FERC-approved regional standard development procedure. Embedded in the regional standard development process, a region seeking approval of a regional reliability standard must justify the need for the standard. It is incumbent on those that participate in the regional standards development process to determine the need to expend resources on developing a standard as they deem appropriate. Each of the regional standards development procedure mandates a fair and open process for the development of standards. As such any interested party in the region should have a voice in which standards development projects are pursued and which standards are not. NERC cannot require a Regional Entity to justify a regional standard before it is developed.

Comment 4

Name: Jack Kerr

Organization: Dominon Virginia Power

Suggestion or Comment: The Reliability Standards Development Plan should include the recommendations for new or improved reliability standards documented in the final report of the RTBPTF. One of the primary directives of the task force was to produce recommendations to inform the standards setting process. The best way to inform the process is to incorporate the recommendations into the Reliability Standards Development Plan. Given the enormous amount of work that the Plan currently entails, it would be reasonable to focus on the higher priority recommendations. These include the recommendations for mandatory reliability tools (the Reliability Toolbox).

NERC Response:

With this 2008 revision to the Reliability Standards Development Plan, a new project (Project 2009-02 Real-time Tools) has been identified for implementing the identified by the NERC Real-Time Tools Best Practices Task Force (RTBPTF) and documented in their report titled *Real-Time Tools Survey Analysis and Recommendations* and dated March 13, 2008

Suggestion or Comment: I am willing to assist NERC staff in the effort of prioritizing the recommendations from the RTBPTF Report and transcribing them into whatever format is appropriate for the Standards Development Plan.

NERC Response:

Thank you for the offer to assist NERC staff in the effort of prioritizing the recommendations from the RTBPTF Report; however, the standards drafting team appointed to Project 2009-02 Real-time Tools will be responsible proposing a priority for implementing the RTBPTF recommendations. Your offer is much appreciated though.

Comment 5

Name: R. W. Kenyon, J.D., P.E.

Organization: NERC

Reliability Issue: Reliability of Major BES Components

Suggestion or Comment: Develop Reliability Standards covering the application of major equipment monitoring and diagnostic devices and procedures.

Example: The Reliability Standard would address dissolved gas and moisture sampling processes and the application on on-line monitoring devices to detect incipient faults within BES major components, such as EHV transformers. These processes and devices enable the equipment owner to detect evolving internal faults, allowing corrective action under controlled conditions. In some instances, early warning of evolving faults can permit field repair of the unit, avoiding a system fault and destruction of a major piece of equipment. In other circumstances, the warning obtained permits the equipment owner to monitor the situation and to schedule unit replacement in a deliberate, controlled manner. Again, occurrence of a major system fault and unscheduled loss of a major unit can be avoided. Obviously, such measures can contribute significantly to reliability of the Bulk Electric System.

Recommendation for improvement: Ideally, the envisioned standard would make the application of this technology mandatory for classes of critical equipment, with EHV transformers and shunt reactors an obvious example. Similar diagnostic approaches should be taken on critical EHV and/or major generator Gas Insulated Switchgear. The general approach could follow PRC-005, where the owner must have a system, but particulars are left to the equipment owner. The standard could extend to other equipment condition monitoring such as Doble testing.

In many instances, equipment owners already recognize the value of major equipment monitoring and have equipment and/or procedures in place addressing this technology. However, there is far less assurance that monitoring equipment is properly maintained, that scheduled routine sampling is being fully performed, and that full use is being made of data obtained. Again, as with the Protective Relay Standard PRC-005, the standard would contribute to insuring that equipment owners indeed have a program addressing this technology and are indeed following their program. In other instances, equipment owners without such equipment might be obligated to establish a monitoring program.

NERC Response:

Because of your suggestion, a new project (2011-01 Equipment Monitoring and Diagnostic Devices) has been added to this 2008 revision of the Reliability Standards Development Plan to consider the development Reliability Standard(s) covering the application of major equipment monitoring and

diagnostic devices and procedures.

Comment 6

Name: Charlie Deleon

Organization: NRG

Reliability Issue: TLR procedures are not where they need to be today to promote a healthy, reliable, and fair transmission system.

Suggestion or Comment: NERC has acknowledged that improvements need to be made to the TLR process and that the Interchange Distribution Calculator (IDC) used by Reliability Coordinators is not sufficient to show actual system use. The serious increase in number and excessive use of TLR Level 5's in certain areas of the eastern interconnect result in reduced system reliability. NERC must take action to revise its TLR standards to address these issues.

Flaws in the IDC calculator lead to flaws in the curtailments and NNL relief obligations relied upon by Reliability Coordinators to ensure the integrity of the transmission system. The IDC calculator does not include real time data while modeling load uses. The IDC calculator, while looking at interchange transactions (i.e., transaction where the source and the sink are in different balancing authorities) correctly, does not properly reflect internal transactions (i.e., transactions where the source and sink are in the same balancing authority). This allows firm transactions to be cut on a constrained flowgate before non-firm transactions.

These issues are making it extremely difficult for Balancing Authorities to reliably manage their systems and plan for emergencies.

Example: For example, a single IPP located in Balancing Authority A and simultaneously selling firm power into Balancing Authority B and non-firm power to Balancing Authority B could have its firm transmission to Balancing Authority B curtailed by the IDC, while the non-firm transmission into Balancing Authority A would remain intact. This is true even if the transactions flowed across the same constrained flowgate because the internal Balancing Authority A schedule would not be considered by the IDC. Further, since every transaction in or out of the Balancing Authority B is considered interchange transactions, the IDC evaluates each Balancing Authority B firm transmission transactions for curtailment. Internal purchases by Balancing Authority A, however, are not subject to the same rigorous curtailment analysis.

Recommendation for improvement: The IDC needs to be modified to take into account real time topology. Due to the lack of any requirement to update input information, the IDC uses static information that does not reflect real time operations resulting IDC calculations which determine flowgate relief being incorrect since they are solving for constraints based on a transmission topology which differs from real time system topology. Also, the IDC does not properly capture and reflect internal schedules. The impacts on the flowgate are not considered by the IDC even though they could have a significant impact on the constraint. The result is that entities engaging in interchange transactions bear a disproportionate share of the system's reliability obligations.

The current TLR process allows non-firm transactions with a TDF of less than 5% to continue to flow. All contributing non-firm transactions should be curtailed first

NERC with input from the industry needs to address the flaws in the current process today that are threatening system reliability.

NERC Response:

NERC has received a SAR related to these same concerns. The SAR was jointly submitted by the Midwest ISO, PJM, and SPP, and is titled "Parallel Flow Visualization/Mitigation for Reliability Coordinators in the Eastern Interconnection." NERC suggests that these comments be submitted as part of the standards development process associated with the SAR once it is posted for industry comment.

Comment 7

Name: Patrick Brown

Organization: PJM

Reliability Issue: Reliability Standards Development Plan 2008-2010

Suggestion or Comment: PJM commends the NERC staff and industry contributors that put many hours of work into the development and revision of the Reliability Standards Development Plan: 2008-2010. Such efforts are greatly appreciated, and are key to guiding the work necessary in enhancing and ensuring the reliability of the bulk electric system. However, PJM is concerned with the scope and number of projects contained in the Reliability Standards Development Plan: 2008-2010. The plan contains 36 Standards Development Projects, provision for 6 high priority projects and up to 17 requests for formal interpretations of existing standard requirements in 2008 & 2009. With up to 9 standards included in each project, this presents an impressive undertaking that will tax not only NERC's resources, but that of the rest of the industry as well. With up to 15 industry representatives on each project, in addition to the need for thorough review and analysis of each recommended change, the limited NERC staff and industry resources will not be able to effectively support this large number of projects. This lack of resources, as well as unexpected delays in projects initiated in previous years, has already resulted in a number of projects being carried over into subsequent years. In addition to the increase in the overall number of projects, the current plan has also expanded the scope of work within each project to include a number of additions and modifications. Although this expansion is based in part on FERC directives emphasizing the urgency of the development of reliability standards, PJM does not believe that the work plan recognizes the reality of limited staff and industry resources to complete the projects as outlined in the current version of the plan. PJM recommends that NERC reevaluate its plan and develop a smaller list of priority projects that will yield the greatest impact to the reliability of the bulk electric system. This will allow NERC and the industry to address FERC and industry concerns regarding the reliability and security of the system while at the same time effectively managing the standards development work load. PJM also believes that the development of violation risk factors needs to be done in a uniform manner across all standards. NERC, with industry and regulatory input, should develop a well defined process for the development of VRF's to ensure this uniformity.
PJM fully supports NERC coordination with NAESB. However, the development of NERC Reliability

Standards should be closely monitored to ensure that all requirements related to business practices are developed under NAESB Standards rather than being included in the NERC Standards. A good example is the MOD standards, where the frequency of AFC and ATC calculations, an obvious business practice, was included in a NERC Reliability Standard. Again, PJM commends the NERC staff and industry contributors for their efforts in compiling a comprehensive work plan. We believe that the suggestions we have provided above will enhance the good work that has already been done, and help to ensure the security and reliability of the bulk electric system.

NERC Response:

NERC appreciates the industry resources necessary for the development of quality standards and is

cognizant of the fact that industry resources are not limitless. NERC staff coordinates all standards development activities through the NERC Standards Committee whose membership consists of industry representatives. In compliance with the NERC Reliability Standards Development Procedure, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. The Standards Committee protects the integrity and credibility of the standards development process. NERC staff facilitation of the standards development process in coordination with the Standards Committee takes into consideration the potential impact on industry resources when planning standards related projects and activities. Specific comments in how this Reliability Standards Development Plan could be modified to more effectively use industry resources are welcome.

With respect to the development of VRFs, the Process Subcommittee of the Standards Committee has taken on the responsibility of documenting how drafting teams should address Violation Risk Factors.

With respect to the coordination with NASBE, NERC coordinates with NAESB on a regular basis. Andy Rodriquez is NERC's Manager of Business Practice Coordination and is responsible to, among other things; ensure that coordination with NAESB takes place in the development of standards. Additionally, during this 2008 revision to the Reliability Standards Development Plan, NERC received comments from the NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee and incorporated received comments into the revised version of Volume II of the plan.

Comment 8

Name: Mark L Bennett

Organization: Gainesville Regional Utilities

Suggestion or Comment: My comment is more of a global observation. Of all the North American entities that are doing their best to accommodate the ever-changing standards and interpretation of the standards, it would be my suggestion to review and enforce what presently exists and ensure that all the standards are clear and unambiguous. Which I believe has taken place for the most part. In addition, I believe it is time to "resist implementing and developing new standards" until the industry catches up with all the changes that have taken place in recent years. Staffing has become a major issue with some of the smaller entities as to understanding and responding to the extreme amount of data and time required to ensure that all the standards are met within specific time frames.

Recommendation for improvement: Give the industry time to adapt to the changes that have taken place in the recent past.

NERC Response:

NERC appreciates the amount of industry resources necessary for the development of quality standards and is cognizant of the fact that industry resources are not limitless. NERC staff coordinates all standards development activities through the NERC Standards Committee whose membership consists of industry representatives. In compliance with the NERC Reliability Standards Development Procedure, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. The Standards Committee protects the integrity and credibility of the standards development process. NERC staff facilitation of the standards development process in coordination with the Standards Committee takes into consideration the potential impact on industry resources when planning standards related projects and activities. Specific comments in how this Reliability Standards Development Plan could be modified to more effectively use industry resources are welcome.

Comment 9

Name: Guy Zito

Organization: NPCC

Suggestion or Comment: The comments provided are to provide guidance for the 2009-2011 plan. We understand that a draft version has already been made, but is not yet available. The solicitation of comments should have been a precursor to its drafting, or should have been posted after its release to allow for comment on the document itself.

The following comments are on the 2008-2010 Work Plan and it is envisioned that the new work plan will address these.

In the Volume I Table of Contents the page number for Appendix A is incorrect (it is shown as page 1).

Volume I should be entitled Work Plan--remove the reference to schedule. Appendix A in Volume I have an overall "general" work plan for the projects. Move this general work schedule as a lead document to Volume II Project Descriptions for Long Range Plan, and then with each project include a detailed work plan that specifies dates for the drafting teams to achieve milestones. This will allow for more accurate and accountable project management.

Throughout the document Volume II is referred to as Appendix B. Suggest that the Appendix B designation be removed.

NERC Response:

Your suggestions have been incorporated into this 2008 revision to the Reliability Standards Development Plan.

Recommendation for improvement: Due to the ever increasing number of standards and projects and the aggressive schedule with which NERC has to address FERC comments, the RSC believes it is of vital importance that the individual drafting team develops, and adheres to the extent possible, milestones and goals and their associated deliverable dates. This will be of great benefit to the ever constrained resources of the industry and assist with the drafting efforts as well as make it easier and transparent to an organization if they want to participate in a drafting team effort.

It has proven very problematic to coordinate the development of Regional standards with the ERO standards if the drafting teams are allowed to work to their own schedules and not respect the timelines given or at least to develop their own schedules and publish them for the industry and update those schedules as issues such as voluminous comments to postings occur.

NERC Response:

NERC appreciates NPCC's comments relative to the development and adherence to milestones and goals to the extent possible. We are continually looking for ways to improve the accuracy of our projects schedules but due to the vast number of variable out of the direct control of NERC staff, it is very difficult to develop accurate project schedules. It is NERC's goal to develop quality standards in a timeframe that is responsive to industry needs. It is not the intent of NERC staff to drive standards development projects to meet a particular schedule unless there is a specific need to meet a specific deadline.

Comment 10

Name: Patricia Metro

Organization: NRECA

Suggestion or Comment: "Roles and Responsibilities: Standards Drafting Team Activities" guideline

Additional information: NRECA stresses the importance of completing the "Roles and Responsibilities: Standards Drafting Team Activities" guideline. Clearly defined roles and responsibilities for the Standards Committee, Standard Drafting Team Members, NERC Staff and Regulatory Staff will expedite the Standards Development Process enabling the completion of more projects included in the Standards Development Plan.

NERC Response:

NERC appreciates NRECA's comments relative to the importance of completing the "Roles and Responsibilities: Standards Drafting Team Activities" guideline. NERC staff is working to finalize the guidelines in coordination with industry and regulatory authority input.

Reliability Issue: # of projects and associated timelines

Suggestion or Comment: NRECA is concerned there is an unrealistic expectation that the projects included in the existing Standards Development Plan can be completed in the timeline provided for those projects. Because of this, it is imperative that the projects be prioritized with deadlines that are feasible for completion.

NERC Response:

NERC is continually looking for ways to improve the accuracy of our projects schedules but due to the vast number of variable out of the direct control of NERC staff, it is very difficult to develop accurate project schedules. It is NERC's goal to develop quality standards in a timeframe that is responsive to industry needs. It is not the intent of NERC staff to drive standards development projects to meet a particular schedule unless there is a specific need to meet a specific deadline. Specific comments in how this Reliability Standards Development Plan could be modified to more effectively use industry resources are welcome.

Comment 11

Name: Roman Carter

Organization: SOCO

Suggestion or Comment: 1. Work Plan Description (page 8) and Strategy for Project Resources (page 12): We agree that NERC's Plan should recognize the reality of limited staff and industry manpower resources available to complete the scheduled projects within the allotted time frame. The Plan suggests that NERC also recognizes the ongoing development of regional standards and the unexpected influx of interpretation requests from industry that have adversely impacted the deliverables in the plan and resulted in four projects being deferred to 2009. Based on the NERC Standards Under Development website, there are currently 37 projects under development, out for comment, or seeking interpretation. Given that industry utilizes a limited set of existing experienced personnel to comment on these projects and that these people have other job responsibilities critical to the reliability of the bulk power system, the time required to monitor standards development documentation, participate in standards

development meetings, and prepare comments on the standards puts a tremendous burden on the limited number of personnel that have the necessary expertise and on industry as a whole. While we concur with postponing work on four projects, we believe that further prioritization is required and that actions should be taken to bring the number of standards being developed at any given time in line with available NERC and industry personnel resources. It is not clear exactly how to balance manpower limitations against perceived critical reliability issues, but this balance must be maintained in order to ensure the quality and effectiveness of the reliability standards being developed.

2. Issues Related to the Applicability of a Standard (page 18): The 3-year plan should provide more guidance as to who can be held accountable for NERC standards. For example, in paragraph 3 of page 18, the Plan describes how a DP is held accountable even though they own and operate facilities in the local distribution of electrical energy. Since they perform functions affecting and essential to the reliability of the bulk power system, they are accountable for certain reliability standards. What about entities such as a Regional Entity who perform a function such as the IA. By registering as the IA, they coordinate the transfer power across the bulk power system. Can the Regional Entity be penalized for non-compliance even though they are not owners, users, or operators of the bulk power system?

3. Coordination with NAESB (page 25): The plan mentions that NERC coordinates the development of all standards with NAESB and the ISO/RTO Council through a memorandum of understanding and through the Joint Interface Committee (JIC). NERC no longer lists the JIC as a committee on their Website. Has this committee been dissolved and replaced with some other group to carry out this function?

NERC Response:

1) NERC appreciates the amount of industry resources necessary for the development of quality standards and is cognizant of the fact that industry resources are not limitless. NERC staff coordinates all standards development activities through the NERC Standards Committee whose membership consists of industry representatives. In compliance with the NERC Reliability Standards Development Procedure, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. The Standards Committee protects the integrity and credibility of the standards development process. NERC staff facilitation of the standards development process in coordination with the Standards Committee takes into consideration the potential impact on industry resources when planning standards related projects and activities. Specific comments in how this Reliability Standards Development Plan could be modified to more effectively use industry resources are welcome.

2) Each standard drafting team assigned to a project is charged to review, among other things, the Applicability of the standards, and in particular each requirement of each of the standards, associated with the project. In determining the applicability of each standard and the requirements within a standard, the drafting team should follow the definitions provided in the NERC Glossary of Terms Used in Reliability standards and should also be guided by the Functional Model. With respect to your specific example of IA functionality, Project 2008-12 Coordinate Interchange Standards has been initiated to, among other things, revise the set of Coordinate Interchange standards to ensure that each requirement is assigned to an owner, operator or user of the bulk power system, and not to a tool used to coordinate interchange.

3) Yes the NAESB Joint Interface Committee has been dissolved. The ISO/RTO council is recognized by both NERC and NAESB and therefore is able to offer their opinions and suggestions to both organizations.

Comment 12

Name: Terry Bilke

Organization: Midwest ISO

Suggestion or Comment:

We appreciate the effort that has gone into the development of the current standards and also the opportunity to comment. Our primary recommendations for the Standards Development Plan are to:

- Vet, clarify, and simplify definitions of VRFs and VSLs.
- Develop a standards database.
- Resolve incorrect functional model assignments from V0
- Implement a plan to simplify and clarify the standards.

Vet, clarify and simplify definitions of VRFs and VSLs

The Violation Risk Factor (VRF) definitions were never vetted through the stakeholder process and may not truly align with risk. The process used for the initial assignment of VRFs appears to reflect perceived importance more than a true assessment of risk. Drafting teams, who often have great personal investment in a standard, appear to be heavily weighting risk factors. As noted in the NERC *Reliability Criteria and Operating Limits Concepts* document, risk includes both probability and impact components. Accident theory notes the relationship between high-risk to medium-risk to low-risk events should follow a pyramid distribution. The actual distribution of assigned VRF looks more like an inverted pyramid as drafting teams, NERC staff, and then the FERC sequentially tend to escalate assigned VRFs. .

Violation Severity Levels (VSL) are another compliance element that did not go though a full industry vetting. There has been no process to assess the norms of performance and create the scales to apply the four levels (lower, moderate, high, severe). In addition, most requirements in the standards are attribute (yes-no) requirements. Is it appropriate to assume a "Severe" VSL for failure of any and all yes-no requirements?

Develop a Standards Database

We believe it is important for NERC to develop a database that is a mirror of and companion to the standards.

First, it is nearly impossible for a given entity to accurately identify every requirement and reference to that entity in the standards. There are requirements that give a specific functional entity a role, even though it is not identified as an applicable entity in the respective standard. Also, the sheer number of requirements means obligations will likely slip through the cracks.

Such a database would enable standards improvements. Comments could be easily captured on specific requirements (redundancy, ambiguity, informal and formal interpretations, etc.).

Resolve Incorrect Functional Model Assignments from V0

Planning Authority

There are over 100 references in the standards to the Planning Authority. Many requirements regarding this function are written as:

- the planning authority and the transmission planner will…
- the planning authority or the transmission planner will…

So either both the Planning Authority and the Transmission Planner are responsible for something or one or the other (not clear which) are responsible. This double / optional responsibility is not in line with accountability concepts.

The functional model has changed since the original V0 assignment of Planning Authority obligations. Just renaming the Planning Authority to Planning Coordinator in the standards as some have proposed will not fix the problem. The entities that are performing the closest thing to the Planning Authority function are the ISOs/RTOs, very large Transmission Operators, or the Regions where ISOs and RTOs

don't exist. Rather than asking these capstone entities to duplicate everything done by the local planner, the planning authority requirements should be restricted to wide-area coordinating functions. The fine-tuning of responsibilities in a given region or planning area can be identified via a joint-registration process.

Interchange Authority

We believe most of the Interchange Authority (IA) requirements should be retired. All of the requirements applicable to the IA (except CIP) were tagging process steps in Policy 3 that were converted to IA requirements in the V0 effort. There is not a common understanding of what the IA is. Since these are tagging process steps and tagging tools aren't users, owners, or operators, the requirements should be retired or moved to an informational document.

There is a current SAR on the INT standards. If this SAR corrects the IA problem, this suggestion could be removed from future versions of the plan.

Implement a Plan to Simplify and Clarify the Standards

Given the time available, the V0 process did a good job of converting the prior policies to the functional model. As part of the Version 0 effort, there was a conscious decision to include supporting information into the standard itself. At face value it is a good idea to have all this information all in one place. However, now there is a great deal of explanatory material in the standards that is formatted to appear as requirements. In reality, many of the "R"s used to label requirements in the V0 and subsequent standards are more precisely paragraph numbers than they are true requirements. We are now trying to figure out how to measure and apply risk to all the sentences that are really just supporting text. A simple example is the DCS. The true core requirement is to recover from all reportable events in 15 minutes. The rest of the Rs are an explanation of what that means, how it's handled in a Reserve Sharing Group and also the procedural reporting items. However, we are now moving down a path to assign measures and sanctions to 20 different things in this standard.

NERC and the industry should go through a process to identify those true core requirements that directly contribute to reliability.

NERC Response:

Vet, clarify, and simplify definitions of VRFs and VSLs.

The Process Subcommittee of the Standards Committee is currently addressing the issue you raise above relative to Violation Risk Factors (VRFs). With respect to Violation Severity Levels (VSLs), the Federal Energy Regulatory Commission (FERC) issued an order on June 19, 2008 relative to VSLs which NERC has sought clarification and rehearing for. Once FERC responds to NERC's request a definitive plan will be developed relative to the issues you raise above regarding VSLs.

Develop a standards database.

NERC is working with a vendor to develop the database requested. The initial phase of this effort will focus on the database to support the compliance administration function and is anticipated to be completed by the end of 2008. The next phase of the effort will focus on the development of the user interface that will permit the user-guided content you suggest in your comments above.

Resolve incorrect functional model assignments from V0

Each standard drafting team assigned to a project is charged to review, among other things, the Applicability of the standards, and in particular each requirement of each of the standards, associated with the project. In determining the applicability of each standard and the requirements within a standard, the drafting team should follow the definitions provided in the NERC Glossary of Terms Used in Reliability standards and should also be guided by the Functional Model. As each standard with applicability to Planning Authority is revised we encourage you to participate in the development of such standards to help elevate the problem articulated above. In addition, version 5 of the Functional Model is working on addressing the very issues you raise above relative to the Planning Authority.

With regard to comments related to the Interchange Authority, the SAR you refer to relates to Project 2008-12 Coordinate Interchange Standards. Project 2008-12 Coordinate Interchange Standards has been initiated to, among other things, revise the set of Coordinate Interchange standards to ensure that each requirement is assigned to an owner, operator or user of the bulk power system, and not to a tool used to coordinate interchange.

Implement a plan to simplify and clarify the standards.

The intent of this Reliability Standards Development Plan is to do just that, simplify and clarify standards. NERC does not write standards independent of industry participation. In the end it is the industry that actually ballots and approves reliability standards. NERC encourages and welcomes industry participation in the development of standards to achieve the simplification and clarification of each and every standard as you suggest. In the course of implementing the projects in this standards development plan, every NERC standard will be open to review at some point in time. As such, every standard and requirement will receive the attention you suggest in your comments above.

Comment 13

Name: Ed Skiba

Organization: NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee

Project Number(s): 2006-07, 2006-08, 2007-05, 2007-18, 2008-01, 2008-03, 2009-02, 2009-03

Project Title(s): Transfer Capabilities, Transmission Loading Relief, Balancing Authority Controls, Reliability Based Control, Voltage and Reactive Control, Emergency Operations, Connecting New Facilities to the Grid, Interchange Information.

Suggestion or Comment:

The NAESB Wholesale Electric Quadrant Standards Review Subcommittee (SRS) commends the NERC staff and industry contributors that put many hours of work into the development and revision of the Reliability Standards Development Plan: 2008-2010. Such efforts are greatly appreciated, and are key to guiding the work necessary in enhancing and ensuring the reliability of the bulk electric system.

The SRS conducted an analysis of the work plan in order to identify those projects contained in the NERC Reliability Standards Development Plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices.

Each project contained in the NERC Reliability Standards Development Plan 2008-2010, Volume II, was reviewed for potential NAESB input and development. Below are the NERC projects that may be appropriate for the development of NAESB business practices.

Project 2006-07: Transfer Capabilities

Related NAESB WEQ Projects:
Annual Plan Item 2.a
Annual Plan Item 2.b
Annual Plan Item 2.c

Justification for NAESB consideration:
FERC Order 890
Industry recommendations

SRS Recommendation:

No further SRS action required. This project is already covered by current NAESB WEQ projects. Coordination between NERC & NAESB is in progress.

Project 2006-08: Transmission Loading Relief

Related NAESB WEQ Projects:
Annual Plan Item 1.a.ii
Annual Plan Item 1.d
Annual Plan Item 2.b.vi

Justification for NAESB consideration:
FERC Order 890

SRS Recommendation:
This project is already covered by current NAESB WEQ projects. NERC should take into consideration WEQ Annual Plan Item 1.d in the development of the NERC Standard. Coordination between NERC and NAESB is in progress.

Project 2007-05: Balancing Authority Controls

Related NAESB WEQ Projects:
Annual Plan Item 1
Annual Plan Item 6.b
Provisional Item 5

Justification for NAESB consideration:
FERC Order 693
Project Description

SRS Recommendation:
During initial discussions (REF: Rae McQuade's letter to Gerry Adamski dated February 11, 2008), there was no identified need for business practices related to this project. NERC should point out any areas where they see a need for a business practice. This should be coordinated with the WEQ on current project Annual Plan Item 6.b.

Project 2007-18: Reliability Based Control

Related NAESB WEQ Projects:
Annual Plan Item 1

Justification for NAESB consideration:
WEQ SRS analysis

SRS Recommendation:
The WEQ SRS has referred this to the JISWG for consideration.

Project 2008-01: Voltage and Reactive Control

Related NAESB WEQ Projects:
Annual Plan Item 1

Justification for NAESB consideration:
Industry recommendations

SRS Recommendation:
This project may need NAESB attention in the future. The WEQ SRS will place this on its watch list. The SRS wishes to know if this is still an active NERC project, as it is not included on their Standards under Development list.

Project 2008-03: Emergency Operations

Related NAESB WEQ Projects:
Annual Plan Item 1

Justification for NAESB consideration:
WEQ SRS analysis
Industry recommendations

SRS recommendation:
See project 2007-18 above

Project 2009-02: Connecting New Facilities to the Grid

Related NAESB WEQ Projects:
Annual Plan Item 1

Justification for NAESB consideration:
Industry recommendations

SRS Recommendation:
The WEQ SRS will add this project to its watch list.

Project 2009-03: Interchange Information

Related NAESB WEQ Projects:
Annual Plan Item 1
Annual Plan Item 3

Justification for NAESB consideration:
Industry recommendations

SRS Recommendation:
The WEQ SRS will coordinate with the JISWG on this project.

NERC Response:

Your suggestions have been incorporated into this 2008 revision to the Reliability Standards Development Plan.

Suggestion or Comment:

Project: Better align definitions and terms between NERC & NAESB.

SRS Recommendation:

NAESB should coordinate with NERC in aligning terms and definitions between the two organizations.

Again, the SRS commends the NERC staff and industry contributors for their efforts in compiling a comprehensive work plan. We believe that the suggestions we have provided above will enhance the good work that has already been done, and help to ensure the security and reliability of the bulk electric

system.

NERC Response:

NERC staff has reviewed the terms used by both NERC and NAESB and agree the terms should be "consistent" (not necessarily "identical"). The following standard drafting teams will be asked to review the indicated terms and change as needed as part of their assignment:

Project 2006-07 Transfer Capabilities (ATC/TTC/CBM/TRM):

- Firm Transmission Service
- Network Integration Transmission Service
- Non-Firm Transmission Service
- Open Access Same-time Information System
- Point-to-Point Transmission Service
- Transmission Customer

Project 2006-08 Transmission Loading Relief:

- Reallocation

Project 2007-05 Balancing Authority Controls:

- Frequency Bias Setting
- Time Error
- Time Error Correction

Project 2008-12 Coordinate Interchange Standards:

- Interchange Schedule
- Interchange Transaction
- Interchange Transaction Tag (Tag)
- Request for Interchange
- Source BA
- Sink BA

Comment 14

Name: Larry Kezele

Organization: NERC Real-time Tools Best Practices Task Force

Suggestion or Comment:

See Attachment 1 to this Appendix A for a summary of the Real-time Tools Best Practices Task Report recommendations for new or revisions to existing reliability standards. The task force report is available at http://www.nerc.com/filez/rtbptf.html.

NERC Response:

Because of your suggestion, a new project (2009-02 Real-time Tools) has been added to this 2008

revision of the Reliability Standards Development Plan to implement certain recommendations of the RTBPTF's identified in their report titled *Real-Time Tools Survey Analysis and Recommendations* dated March 13, 2008.

Comment 15

Name: Suzanna Strangmeier, on behalf of the Standards Interface Subcommittee (SIS)

Organization: NERC Compliance Element Drafting Resource Pool

Standard Number(s): PER-004-2

Standard Title(s): Reliability Coordination -- Staffing

Element(s) (i.e., Requirement R1.2., Measure M2., etc.): R1. and its VSLs, R2. and its VSLs

Suggestion or Comment: R1. Comments:

This requirement (staffed by trained and certified operators 24/7) – this requirement is currently set up as a binary requirement.

The issue with this requirement is that it is possible that an operator may be certified but has not met all of his/her training requirements for a given period of time (proposed PER-005 R3), or not have a training program in place that meets training program requirements (proposed PER-005 R1 - systematic approach).

This CEDRP believes that this requirement is in need of further clarification from a compliance perspective to address the "trained" issue; in addition how is a violation is determined and counted? (E.g. is one hour without a certified operator that same as one shift? If a shift crosses a day's boundary (1800 to 0600) is that a single violation or two violations of this requirement). The CEDRP believes as currently written this requirement will be subject to multiple regional entity interpretations.

R2. Comments:

As currently written the CEDRP does not believe that this requirement is measurable, an objective VSL cannot be written.

Recommendation for improvement: R1. VSL Comments

CEDRP Proposed Lower VSL:The position has been staffed with a NERC Certified operator with 29 hours and less than 32 hours of emergency operation training over the last 12 months.

CEDRP Proposed Moderate VSL: The position has been staffed with a NERC Certified operator with 26 hours and less than 29 hours of emergency operation training over the last 12 months.

CEDRP Proposed High VSL:The position has been staffed with a NERC Certified operator with 22 hours and less than 26 hours of emergency operation training over the last 12 months.

CEDRP Proposed Severe VSL:The position has been staffed with a NERC Certified operator with 22 hours and less than 26 hours of emergency operation training over the last 12 months.

OR

The responsible entity has failed to be staffed with adequately trained and NERC-certified Reliability Coordinator operators, 24 hours per day, seven days per week.

R2. VSL Comments

As currently written the CEDRP does not believe that this requirement is measurable, an objective VSL cannot be written for Lower, Moderate, High, or Severe VSLs.
Reliability Issue: ensuring adequate staffing of trained and certified personnel for real-time operations
Suggestion or Comment: or R1., clarification on two items 1) the meaning of training versus certification, since an individual may be certified yet not have completed training for a given timeframe, and 2) to identify what constitutes violation timeframes, one hour versus a shift, and the boundaries of the timeframes where real-time shifts may include a spread over two days (1800-0600).
Recommendation for improvement: Provide additional, concrete language (numbers, or other qualifications) to clarify the meaning behind the general around-the-clock operations with respect to variations between staffing schedules hours/shifts, and the information needed to know how to identify clearly a violation.
Project Number(s): Project 2006-01, however, it will fall under Project 2006-06
Project Title(s): System Personnel Training, but will fall under Reliability Coordination
Suggestion or Comment: Some form of R1 is needed, and if R2 is deleted through modifications (additions or retirements) to this and related standards, this standard should be OK.
NERC Response: Thank you for your comments. Similar comments were submitted to the drafting team for Project 2006-01 System Personnel Training and were addressed as part of the standards development process for that project.

Comment 16 **Name:** Patrick Brown **Organization:** PJM Interconnection
Reliability Issue: Reliability Standards Development Plan 2009-2011
Suggestion or Comment: PJM commends the NERC staff and industry contributors that put many hours of work into the development of the Reliability Standards Development Plan: 2009-2011. Such efforts are greatly appreciated, and are key to guiding the work necessary in enhancing and ensuring the reliability of the bulk electric system. Although PJM continues to have concerns regarding the overall number of projects contained in the Reliability Standards Development Plan, as well as the expanded scope of work within each project, we believe that the additional realignment of projects between years will help ensure that those projects having the greatest impact on reliability in the near-term will be given a higher priority. We continue to caution that, as part of the standards development process, we must continue to be sensitive to the resources required, and available, to successfully complete these projects. PJM continues to fully support NERC's coordination with NAESB. PJM believes that NERC's inclusion of the NAESB Wholesale Electric Quadrant Standards Review Subcommittee's recommendations in the NERC Standards Development Plan will serve to better coordinate the efforts between the two organizations.

Again, PJM commends the NERC staff and industry contributors for their efforts in compiling a comprehensive work plan. We believe that the Plan in its current form will continue to enhance the good work that has already been done, and help to ensure the security and reliability of the bulk electric system.

NERC Response:

Thank you for your kind comments. It is essential for NERC and the industry to work closely together to develop reliability standards that will provide an adequate level of reliability for the North American bulk power system.

Comment 17

Name: Terry Bilke

Organization: Midwest ISO

Reliability Issue: Reliability Standards Development Plan 2009-2011

Suggestion or Comment: We appreciate all the work that has gone into the development plan. Please see Comment 12 in Appendix A of the current development plan. We believe these recommendations are critical to provide clearer standards that will let entities focus on what is important to reliability. We would offer one additional suggestion. It would be helpful if NERC could quantify and keep track of the standards effort in the following categories: 1. Originally forecasted projects, 2. New industry-requested standards and projects, and 3. Regulatory directed initiatives and re-work of filed standards. We believe this is important information to better forecast required resources for future development plans and the budgets to support them.

NERC Response:

Thank you for the constructive comments and recommendations. Comment 12 is addressed separately above. With respect to your recommendations regarding the tracking of the many standards development projects, we are always seeking better ways to communicate the progress of standards projects with industry and we will keep your recommendations in mind going forward.

Comment 18

Name: Jack Cashin/Barry Green

Organization: EPSA

Reliability Issue: Reliability Standards Development Plan 2009-2011

Suggestion or Comment: The Development Plan should also include a review of the applicability of the TO and TOP standards to Generators, where particular generators have a radial line that extends from their plant to a bulk electric system substation and have been asked by their respective Regional Entity to register their radial transmission for the TO/TOP function. Not only is review needed to create an applicable subset of TO/TOP standards when this situation surfaces, but then that subset of TO/TOP standards needs to be-written so that compliance obligations for a generation entity are clear and compliance is measurable.

Recommendation for improvement: The review of the applicability of the TO and TOP standards should include the following:

i) Articulation of the reliability gaps that may exist if applicable generators do not comply with the TO and TOP standards.

ii) If a gap is identified, determination of the applicability of the TO/TOP standards to generators including a review of any necessary modifications, additions or deletions of the TO and TOP standards such that they are appropriate for application to generators. In addition, there should also be consideration given to modifying the existing GO and GOP standards (as opposed to mapping the full set of TO and TOP standards to generators) such that the gaps can be addressed.

iii) Necessary changes to the standards implemented through the Reliability Standards Consensus Development Process.

Reliability Issue: To date, the specific reliability issue has not been well defined. A very small number of generators have been registered by their Regional Entities as TO and TOPs yet a generic reliability concern does not seem to have been specifically articulated. Rather a case by case approach has been adopted. "Our decision to affirm the registration decision of WECC and NERC is not a finding that all tie-line owners and operators should be registered as transmission owners and operators . . . . [United States of America Federal Energy Regulatory Commission, New Harquahala Generating Company, LLC Docket No. RC08-4-000 Order Denying Appeal of Electric Reliability Organization Compliance Registry Determination].

Suggestion or Comment: There is a need to clarify the reliability concern and then ensure that necessary standards are in place to address those concerns where they are present.

Recommendation for improvement: see recommendation in Section 2

NERC Response:

NERC has not yet identified a long-term solution to the interface issue between generators and the transmission grid. We will be collecting industry input to the issues surrounding this topic through a survey process that will be undertaken by the end of September. The information from this survey will be collated and a course of action to fully address this issue will be determined.

Real-time Tools Best Practices Task Force
Recommendations for New Reliability Standards or Revising to Existing Reliability Standards

August 7, 2008

RTBPTF Recommendation	RTBPTF Report Section/Page	Standard	Title	Requirement	Purpose
S1 – Alarm Tools	2.1/13-14	TOP-006	Monitoring System Conditions	New	Alarm Tool Availability
S1 – Telemetry Data Systems	1.1/29-33	TOP-005	Operational Reliability Information	Revise Appendix	Data Required to Support Operational Analysis
S1 – Telemetry Data Systems	1.1/33-35	IRO-002	Reliability Coordination – Facilities	New	Identify which BPS Elements to Telemeter
S1 – Telemetry Data Systems	1.1/35-39	IRO-005	Reliability Coordination – Current Day Operations	Revise R1 to include measurements	
S1 – Telemetry Data Systems	1.1/39-40	PRC-001	System Protection Coordination	Revise R6	Clarify Use of term “Monitor”
S1 – Telemetry Data Systems	1.1/40-44	TOP-006	Monitoring System Conditions	Revise TOP-006 to include measurements	
S1 – Telemetry	1.1/44-45	VAR-001	Voltage and	Revise VAR-	

RTBPTF Recommendation	RTBPTF Report Section/Page	Standard	Title	Requirement	Purpose
Data Systems			Reactive Control	001 to include measurements	
S1 – Telemetry Data Systems	1.1/45-46	COM-001	Telecommunications	New	Knowledge of Status of Telemetry Systems
S1 – Network Topology Processor	2.3/68-69	IRO-002	Reliability Coordination – Facilities	Revise R7	Require use of Network Topology Processor
S1 – State Estimator	2.5/104-107	IRO-002	Reliability Coordination – Facilities	Revise R7	Require use of State Estimator
S1 – Contingency Analysis	2.6/137-138	IRO-002	Reliability Coordination – Facilities	Revise R7	Require use of Contingency Analysis
S2 – List of BPS Elements	1.1/33-35	IRO-002	Reliability Coordination – Facilities	New	Identify which BPS Elements to Telemeter
S3 – RC Monitoring of BPS	1.1/35-39	IRO-005	Reliability Coordination – Current Day Operations	Revise R1	Include Measurements
S4 – Data Exchange Standards	1.2/57-59	TOP-005	Operational Reliability Information	New	Facilitate Power System Model Change Management

RTBPTF Recommendation	RTBPTF Report Section/Page	Standard	Title	Requirement	Purpose
S5 – Data Availability Standards	1.2/60-62	TOP-005	Operational Reliability Information	New	Facilitate Data Availability, System Maintenance, and System Redundancy
S6 – Weather Data	1.3/69-70	TOP-005	Operational Reliability Information	New	Weather Data for Situation Awareness
S7 – Alarm Tools Availability	2.1/13-14	TOP-006	Monitoring System Conditions	New	Alarm Tool Availability
S8 – Network Topology Processor Availability	2.3/69-70	TOP-006	Monitoring System Conditions	New	Network Topology Processor Availability
S8 – Network Topology Processor Availability	2.3/70-72	IRO-005	Reliability Coordination – Current Day Operations	Revise R1.1	Data processing to determine current network topology
S9 – Determining Wide-Area View Boundary	2.2/38-40	IRO-003	Reliability Coordination – Wide-Area View	New	Develop Uniform Process to Identifying a RCs wild-area boundary
S9 – Determining Wide-Area View Boundary	2.2/42-44	IRO-003	Reliability Coordination – Wide-Area View	R1 and R2	Include Measurements
S10 – Verify Use	2.2/44-45	IRO-002	Reliability	R7	Include Measurements

RTBPTF Recommendation	RTBPTF Report Section/Page	Standard	Title	Requirement	Purpose
of Wide-Area Visualization Tools			Coordination – Facilities		
S10 – Verify Use of Wide-Area Visualization Tools	2.2/45-51	IRO-005	Reliability Coordination – Current Day Operations	R1	Include Measurements
S10 – Verify Use of Wide-Area Visualization Tools	2.2/51-52	TOP-006	Monitoring System Conditions	R2	Include Measurements
S11 – State Estimator Availability	2.5/107-109	TOP-006	Monitoring System Conditions	New	State Estimator Availability
S11 – State Estimator Availability	2.5/109-110	TOP-006	Monitoring System Conditions	New	State Estimator Solution Quality
S12 – Contingency Analysis Availability	2.6/138-140	TOP-006	Monitoring System Conditions	New	Contingency Analysis Availability
S12 – Contingency Analysis Availability	2.6/140-141	TOP-006	Monitoring System Conditions	New	Contingency Analysis Solution Quality
S13 – Defining Contingencies	2.6/141-144	TOP-006	Monitoring System Conditions	New	Defining Contingencies

RTBPTF Recommendation	RTBPTF Report Section/Page	Standard	Title	Requirement	Purpose
S14 – Perform Power Flow Analysis	2.8/157-159	TOP-002	Normal Operations Planning	New	Require Hour-Ahead Power Flow Analysis
S14 – Perform Power Flow Analysis	2.8/157-159	IRO-004	Reliability Coordination – Operations Planning	New	Require Hour-Ahead Power Flow Analysis
S15 – Real-time Awareness of Load Shed Capability	2.13/185-186	IRO-005	Reliability Coordination – Current Day Operations	New	RC Awareness of Load Shed Capability
S16 – Monitor Contingency Reserves	3.1/13-14	BAL-002	Disturbance Control Performance	New	Calculation and Monitoring of Contingency Reserves
S17 – Monitor Operating and Reactive Reserves	3.1/14-15	BAL-005	Automatic Generation Control	New	Calculation and Monitoring of Operating and Reactive Reserves
S18 – Conservative Operations	3.3/25-26	TOP-001	Reliability Responsibilities and Authorities	New	Conservative Operations Plans and Procedures
S19 – Unknown Operating State	3.3/26-27	TOP-004	Transmission Operations	New	Address Operating in an Unknown Operating State
S20 – Operating	3.4/36-43	IRO and TOP		Coordination	Development of Operating

RTBPTF Recommendation	RTBPTF Report Section/Page	Standard	Title	Requirement	Purpose
Guides		Standards		and Clarification of Requirements	Guides
S21 – Operating Guides	3.4/36-43	IRO and TOP Standards		New	Review of Operating Guides
S22 – Operating Guides	3.4/36-43	IRO and TOP Standards		New	Temporary Operating Guides
S23 – Operating Guides	3.4/36-43	IRO and TOP Standards		New	Joint Operating Guides
S24 – Operating Guides	3.4/36-43	IRO and TOP Standards		New	Creating/Modifying Operating Guides
S25 – Operating Guides	3.4/36-43	IRO and TOP Standards		New	Creating/Modifying Operating Guides
S26 – Operating Guides	3.4/36-43	IRO and TOP Standards		New	Creating/Modifying Operating Guides
S27 – Operating Guides	3.4/36-43	IRO and TOP Standards		New	Purpose of Operating Guides
S28 – Operating Guides	3.4/36-43	IRO and TOP Standards		New	Assessment of Operating Guides
S29 – Operating Guides	3.4/36-43	IRO and TOP Standards		New	Identification of Control Actions within Operating Guides

RTBPTF Recommendation	RTBPTF Report Section/Page	Standard	Title	Requirement	Purpose
S30 – Operating Guides	3.4/36-43	IRO and TOP Standards		New	Criteria within Operating Guides to Support Operating Decisions
S31 – Operating Guides	3.4/36-43	IRO and TOP Standards		New	On-line Tools to Support Implementation of Operating Guides
S32 – Operating Guides	3.4/36-43	IRO and TOP Standards		New	Operator Accessibility to Operating Guides
S33 – Load Shed Capability	3.5/48-51	EOP-003	Load Shedding Plans	New	Operator Awareness of Real-time Load Shed Capability
S34 – BPS Reassessment and Re-posturing	3.6/55-57	TOP-004	Transmission Operations	New	Establish Procedures for Reassessing the BPS Following a Contingency
S34 – BPS Reassessment and Re-posturing	3.6/55-57	IRO-005	Reliability Coordination – Current Day Operations	New	Establish Procedures for Reassessing the BPS Following a Contingency
S35 – Operator Awareness of Blackstart Plans	3.7/63-64	EOP-005	System Restoration Plans	New	Operator Awareness of Availability Blackstart Resources
S36 – Coordination of Outages of Blackstart Plan	3.7/65	TOP-003	Planned Outage Coordination	New	Scheduled Outages of Blackstart Generation Resources and/or Transmission Restoration Paths

RTBPTF Recommendation	RTBPTF Report Section/Page	Standard	Title	Requirement	Purpose
Facilities					
S37 – Critical Equipment Monitoring	5.2/14-16	IRO-005	Reliability Coordination – Current Day Operations	New	Maintain a Critical Equipment Monitoring Document
S38- Critical Equipment	5.2/16	IRO-005	Reliability Coordination – Current Day Operations	New	Critical Equipment Status Event Logs
S39- Critical Equipment	5.2/17-18	IRO-005	Reliability Coordination – Current Day Operations	New	Critical Equipment Maintenance and Testing Document
S40- Critical Equipment	5.3/23-27	IRO-005	Reliability Coordination – Current Day Operations	New	Awareness of Critical Equipment Status

NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Reliability Standards Development Plan: 2009–2011

Volume II
List of Projects
September 22, 2008

to ensure the reliability of the bulk power system

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Table of Contents:

Introduction

There are 39 projects in this plan. For each project a project description is provided that outlines the general overview and scope of improvements to be considered in conjunction with the project.

Each project description includes a cover page that provides an overview of the project, including the project number, title, list of affected reliability standards, hyperlinks to associated portions of the NERC standards web pages, and a brief description of the project. The cover page is followed by a list of "Issues to be Considered by Drafting Team" for each reliability standard associated with the specific project.

The standard drafting team for each of these projects will be expected to review the assigned standards and modify the standards to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure as described in the "Global Improvements" section of Volume I of this *Reliability Standards Development Plan*.

Each list of "Issues to be Considered by Drafting Team" identifies the FERC directives from Orders 693, 890, and 706 and also includes comments provided by:

- The team working on identifying the "fill-in-the-blank" characteristics of the NERC reliability standards,
- Industry stakeholders,
- NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS),
- Version 0, Phase III & IV, Violation Risk Factors (VRFs), and Missing Measures and Compliance Elements drafting teams and others as noted.

The majority of comments provided by these entities can be found in the following references:

- FERC Order 693 Mandatory Reliability Standards for the Bulk-Power System
- FERC Order 693 — A, Order on Rehearing
- FERC Order 706 Mandatory Reliability Standards for Critical Infrastructure Protection
- FERC Order 706-A Mandatory Reliability Standards for Critical Infrastructure Protection
- FERC Order 890 Preventing Undue Discrimination and Preference in Transmission Service
- FERC NOPR Mandatory Reliability Standards for Critical Infrastructure Protection
- FERC NOPR — Mandatory Reliability Standards for the Bulk-Power System, dated October 20, 2006 — *Explanatory comments from NERC staff's discussion with FERC personnel on the NOPR are indicated in italic text contained within parenthesis*
- Summary of Comments for Addressing Fill-in-the-Blank Aspects of Reliability Standards, October 24, 2006
- Comments received during the development of Version 0 reliability standards
- Consideration of comments of the Missing Compliance Elements drafting team.
- Consideration of comments of the Violation Risk Factors drafting team
- Consideration of comments in the Phase III-IV standards
- SAR on Planning Authority (The requester agreed to not proceed with this SAR.) SAR on Applicability

Note that no value judgments have been made about the technical merits of any of the items included in each list of "Issues to be Considered by Drafting Team". Each standard drafting team for the specific project is expected to further investigate and properly address each of the issues listed.

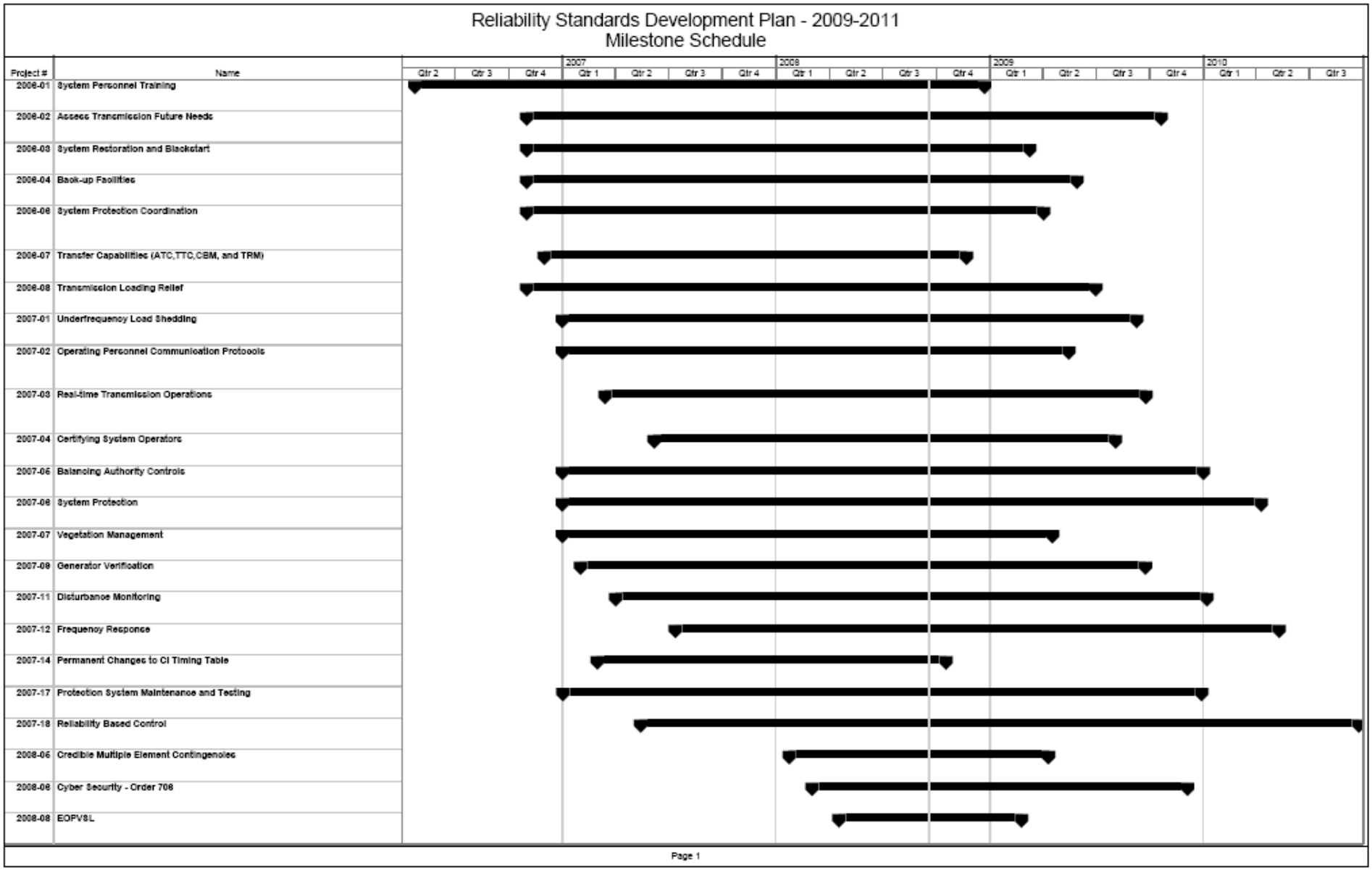
Also please note that the NERC Standards staff had previously met with FERC staff to discuss the October 20, 2006 FERC NOPR on Mandatory Reliability Standards for the Bulk-Power System in Docket No. RM06-16-000 — and drew the following conclusions from that discussion:

- The location of a requirement (which standard includes the recommended requirement) is not a concern — so if a requirement is recommended as an addition to one standard, but is actually added to another standard, that should be acceptable to FERC.
- When the term, 'performance metrics' is used, it can mean a measure of bulk power system performance, functional entity performance, or performance of a person in a position or a combination of all of these metrics.
- FERC does not have a set of proposed definitions for terms such as 'emergency' or 'critical facilities' and is relying on the drafting teams to develop and refine these terms, where needed, through the stakeholder consensus process.
- Where testing periodicity is proposed, the intent is to have a requirement that includes a technically-sound minimum testing interval.
- Where the intent of a proposed requirement can be accomplished by an alternate requirement, the alternate requirement should be acceptable to FERC. For example, proposals to add requirements for 'facilities,' can be met with requirements that specify that entities have the 'capabilities' of those facilities.

The three charts and tables on the pages which immediately follow have been provided as additional information for helping better understand each project:

- The first chart provided is an overall gantt chart for all currently open projects. More detailed project schedules are posted on the "Related Files" of each project. The intent of this overall gantt chart is top provide a quick reference of the overall project schedule for each project.
- The next table is provided as a quick reference identifying which project is associated with a particular standard and is sorted by standard number.
- The final table is provided as a quick reference identifying which standards are associated with each project and is sorted by project number.

Reliability Standards Development Plan Overall Project Schedules



Reference Identifying the Standard in each Project Sorted by Standard Number

Standard	Standard Name	Project Number
Resource and Demand Balancing (BAL) Standards		
BAL-001-0	Real Power Balancing Control Performance	Project 2007-18
BAL-001-0a	Real Power Balancing Control Performance	Project 2007-18
BAL-002-0	Disturbance Control Performance	Project 2007-05 and Project 2009-02
BAL-003-0	Frequency Response and Bias	Project 2007-18
BAL-003-0a	Frequency Response and Bias	Project 2007-18
BAL-004-0	Time Error Correction	Project 2007-05
BAL-004-1	Time Error Correction	Project 2007-05
BAL-005-0	Automatic Generation Control	Project 2007-05 and Project 2009-02
BAL-005-0b	Automatic Generation Control	Project 2007-05 and Project 2009-02
BAL-006-1	Inadvertent Interchange	Project 2007-05
Critical Infrastructure Protection (CIP) Standards		
CIP-001-1	Sabotage Reporting	Project 2009-01
CIP–002–1	Critical Cyber Asset Identification	Project 2008-06
CIP–003–1	Security Management Controls	Project 2008-06
CIP–004–1	Personnel and Training	Project 2008-06
CIP–005–1	Electronic Security Perimeter(s)	Project 2008-06
CIP-006-1	Physical Security	Project 2008-06
CIP-006-1a	Cyber Security — Physical Security	Project 2008-06
CIP–007–1	Systems Security Management	Project 2008-06
CIP–008–1	Incident Reporting and Response Planning	Project 2008-06
CIP–009–1	Recovery Plans for Critical Cyber Assets	Project 2008-06
Communications (COM) Standards		
COM-001-1	Telecommunications	Project 2006-06 and Project 2009-02
COM-002-2	Communications and Coordination	Project 2006-06 and Project 2007-02
Emergency Preparedness and Operations (EOP) Standards		
EOP-001-0	Emergency Operations Planning	Project 2008-08 and Project 2009-03
EOP-002-2	Capacity and Energy Emergencies	Project 2007-18 and Project 2008-08 and Project 2009-03
EOP-003-1	Load Shedding Plans	Project 2008-08 and Project 2009-02 and Project 2009-03

Standard	Standard Name	Project Number
EOP-004-1	Disturbance Reporting	Project 2008-08 and Project 2009-01
EOP-005-1	System Restoration Plans	Project 2006-03 and Project 2008-08 and Project 2009-02
EOP-006-1	Reliability Coordination — System Restoration	Project 2006-03 and Project 2008-08
EOP-007-0	Establish, Maintain, and Document a Regional Blackstart Capability Plan	Project 2006-03
EOP-008-0	Plans for Loss of Control Center Functionality	Project 2006-04 and Project 2008-08
EOP-009-0	Documentation of Blackstart Generating Unit Test Results	Project 2006-03 and Project 2008-08
Facilities Design, Connections, and Maintenance (FAC) Standards		
FAC-001-0	Facility Connection Requirements	Project 2010-02
FAC-002-0	Coordination of Plans for New Facilities	Project 2010-02
FAC-003-1	Transmission Vegetation Management Program	Project 2007-07
FAC-008-1	Facility Ratings Methodology	Project 2006-09
FAC-009-1	Establish and Communicate Facility Ratings	Project 2006-09
FAC-010-2	System Operating Limits Methodology for the Planning Horizon	Project 2008-04
FAC-011-1	System Operating Limits Methodology for the Operations Horizon	Project 2008-05
FAC-011-2	System Operating Limits Methodology for the Operations Horizon	Project 2008-05 Project 2008-04
FAC-012-1	Transfer Capability Methodology	Project 2006-07
FAC-013-1	Establish and Communicate Transfer Capabilities	Project 2006-07
FAC-014-2	Establish and Communicate System Operating Limits	Project 2008-04
Interchange Scheduling and Coordination (INT) Standards		
INT-001-3	Interchange Information	Project 2008-12
INT-003-2	Interchange Transaction Implementation	Project 2008-12
INT-004-1	Dynamic Interchange Transaction Modifications	Project 2008-12
INT-005-1	Interchange Authority Distributes Arranged Interchange	Project 2007-14 and Project 2010-03
INT-005-2	Interchange Authority Distributes Arranged Interchange	Project 2007-14 and Project 2008-12
INT-006-2	Response to Interchange Authority	Project 2007-14 and Project 2008-12
INT-007-1	Interchange Confirmation	Project 2008-12
INT-008-1	Interchange Authority Distributes Status	Project 2007-14 Project 2008-12

Standard	Standard Name	Project Number
INT-008-2	Interchange Authority Distributes Status	Project 2007-14 and Project 2008-12
INT-009-1	Implementation of Interchange	Project 2008-12
INT-010-1	Interchange Coordination Exemptions	Project 2008-12
Interconnection Reliability Operations and Coordination (IRO) Standards		
IRO-001-1	Reliability Coordination — Responsibilities and Authorities	Project 2006-06 and Project 2009-03
IRO-002-1	Reliability Coordination — Facilities	Project 2006-06 and Project 2009-02
IRO-003-2	Reliability Coordination — Wide-Area View	Project 2009-02
IRO-004-1	Reliability Coordination — Operations Planning	Project 2009-02
IRO-005-2	Reliability Coordination — Current-Day Operations	Project 2006-06 and Project 2007-18 and Project 2009-02
IRO-006-3	Reliability Coordination — Transmission Loading Relief	Project 2006-08
IRO-006-4	Reliability Coordination — Transmission Loading Relief	Project 2006-08
IRO-014-1	Procedures, Processes, or Plans to Support Coordination Between Reliability Coordinators	Project 2006-06
IRO-015-1	Notifications and Information Exchange Between Reliability Coordinators	Project 2006-06
IRO-016-1	Coordination of Real-time Activities Between Reliability Coordinators	Project 2006-06
Modeling, Data, and Analysis (MOD) Standards		
MOD-001-0	Documentation of TTC and ATC Calculation Methodologies	Project 2006-07
MOD-002-0	Review of TTC and ATC Calculations and Results	Project 2006-07
MOD-003-0	Procedure for Input on TTC and ATC Methodologies and Values	Project 2006-07
MOD-004-0	Documentation of Regional CBM Methodologies	Project 2006-07
MOD-005-0	Procedure for Verifying CBM Values	Project 2006-07
MOD-006-0	Procedure for the Use of CBM Values	Project 2006-07
MOD-007-0	Documentation of the Use of CBM	Project 2006-07
MOD-008-0	Documentation and Content of Each Regional TRM Methodology	Project 2006-07
MOD-009-0	Procedure for Verifying TRM Values	Project 2006-07
MOD-010-0	Steady-State Data for Transmission System Modeling and Simulation	Project 2010-03
MOD-011-0	Regional Steady-State Data Requirements and Reporting Procedures	Project 2010-03
MOD-012-0	Dynamics Data for Transmission System Modeling and Simulation	Project 2010-03

Standard	Standard Name	Project Number
MOD-013-1	RRO Dynamics Data Requirements and Reporting Procedures	Project 2010-03
MOD-014-0	Development of Interconnection-Specific Steady State System Models	Project 2010-03
MOD-015-0	Development of Interconnection-Specific Dynamics System Models	Project 2010-03
MOD-016-1	Actual and Forecast Demands, Net Energy for Load, Controllable DSM	Project 2010-04
MOD-017-0	Aggregated Actual and Forecast Demands and Net Energy for Load	Project 2010-04
MOD-018-0	Reports of Actual and Forecast Demand Data	Project 2010-04
MOD 019-0	Forecasts of Interruptible Demands and DCLM Data	Project 2010-04
MOD-020-0	Providing Interruptible Demands and DCLM Data	Project 2010-04
MOD-021-0	Accounting Methodology for Effects of Controllable DSM in Forecasts	Project 2010-04
MOD-024-1	Verification of Generator Gross and Net Real Power Capability	Project 2007-09
MOD-025-1	Verification of Generator Gross and Net Reactive Power Capability	Project 2007-09
MOD-026-1	Verification of Models and Data for Generator Excitation System Functions	Project 2007-09
MOD-027-1	Verification of Generator Unit Frequency Response	Project 2007-09
Personnel Performance, Training, and Qualifications (PER) Standards		
PER-001-0	Operating Personnel Responsibility and Authority	Project 2007-03
PER-002-0	Operating Personnel Training	Project 2006-01
PER-003-0	Operating Personnel Credentials	Project 2007-04
PER-004-1	Reliability Coordination — Staffing	Project 2006-01
Protection and Control (PRC) Standards		
PRC-001-1	System Protection Coordination	Project 2007-06 and Project 2009-02
PRC-002-1	Define Regional Disturbance Monitoring and Reporting Requirements	Project 2007-11
PRC-003-1	Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems	Project 2010-05
PRC-004-1	Analysis and Mitigation of Transmission and Generation Protection System Misoperations	Project 2010-05
PRC-005-1	Transmission and Generation Protection System Maintenance and Testing	Project 2007-17
PRC-006-0	Development and Documentation of Regional UFLS Programs	Project 2007-01

Standard	Standard Name	Project Number
PRC-007-0	Assuring Consistency with Regional UFLS Program Requirements	Project 2007-01
PRC-008-0	Underfrequency Load Shedding Equipment Maintenance Programs	Project 2007-17
PRC-009-0	UFLS Performance Following an Underfrequency Event	Project 2007-01
PRC-010-0	Assessment of the Design and Effectiveness of UVLS Program	Project 2008-02
PRC-011-0	UVLS System Maintenance and Testing	Project 2007-17
PRC-012-0	Special Protection System Review Procedure	Project 2010-05
PRC-013-0	Special Protection System Database	Project 2010-03
PRC-014-0	Special Protection System Assessment	Project 2010-05
PRC-015-0	Special Protection System Data and Documentation	Project 2010-03
PRC-016-0	Special Protection System Misoperations	Project 2010-05
PRC-017-0	Special Protection System Maintenance and Testing	Project 2007-17
PRC-018-1	Disturbance Monitoring Equipment Installation and Data Reporting	Project 2007-11
PRC-019-1	Coordination of Generator Voltage Regulator Controls with Unit Capabilities and Protection	Project 2007-09
PRC-020-1	Under-Voltage Load Shedding Program Database	Project 2010-03
PRC-021-1	Under-Voltage Load Shedding Program Data	Project 2010-03
PRC-022-1	Under-Voltage Load Shedding Program Performance	Project 2008-02
PRC-024-1	Under-Voltage Load Shedding Program Performance	Project 2007-09
Transmission Operations (TOP) Standards		
TOP-001-1	Reliability Responsibilities and Authorities	Project 2007-03 and Project 2009-02
TOP-002-2	Normal Operations Planning	Project 2007-03 and Project 2009-02
TOP-003-0	Planned Outage Coordination	Project 2007-03 and Project 2009-02
TOP-004-1	Transmission Operations	Project 2007-03 and Project 2009-02
TOP-004-2	Transmission Operations	Project 2007-03 and Project 2009-02
TOP-005-1	Operational Reliability Information	Project 2007-03 and Project 2009-02
TOP-006-1	Monitoring System Conditions	Project 2007-03 and Project 2009-02
TOP-007-0	Reporting SOL and IROL Violations	Project 2007-03
TOP-008-1	Response to Transmission Limit Violations	Project 2007-03

Standard	Standard Name	Project Number
Transmission Planning (TPL) Standards		
TPL-001-0	System Performance Under Normal Conditions	Project 2006-02
TPL-002-0	System Performance Following Loss of a Single BES Element	Project 2006-02
TPL-003-0	System Performance Following Loss of Two or More BES Elements	Project 2006-02
TPL-004-0	System Performance Following Extreme BES Events	Project 2006-02
TPL-005-0	Regional and Interregional Self-Assessment Reliability Reports	Project 2006-02
TPL-006-0	Assessment Data from Regional Reliability Organizations	Project 2006-02
Voltage and Reactive (VAR) Standards		
VAR-001-1	Voltage and Reactive Control	Project 2008-01 and Project 2009-02
VAR-001-1a	Voltage and Reactive Control	Project 2008-01 and Project 2009-02
VAR-002-1	Generator Operation for Maintaining Network Voltage Schedules	Project 2008-01
VAR-002-1a	Generator Operation for Maintaining Network Voltage Schedules	Project 2008-01

Reference Identifying the Standard in each Project Sorted by Project Number

Project 2006-01 System Personnel Training o PER-002-0 — Operating Personnel Training o PER-004-1 — Reliability Coordination — Staffing
Project 2006-02 Assess Transmission Future Needs o TPL-001-0 — System Performance Under Normal Conditions o TPL-002-0 — System Performance Following Loss of a Single BES Element o TPL-003-0 — System Performance Following Loss of Two or More BES Elements o TPL-004-0 — System Performance Following Extreme BES Events o TPL-005-0 — Regional and Interregional Self-Assessment Reliability Reports o TPL-006-0 — Assessment Data from Regional Reliability Organizations
Project 2006-03 System Restoration and Blackstart o EOP-005-1 — System Restoration Plans o EOP-006-1 — Reliability Coordination — System Restoration o EOP-007-0 — Establish, Maintain, and Document a Regional Blackstart Capability Plan o EOP-009-0 — Documentation of Blackstart Generating Unit Test Results
Project 2006-04 Back-up Facilities o EOP-008-0 Plans for Loss of Control Center Functionality
Project 2006-06 Reliability Coordination o COM-001-1 — Telecommunications o COM-002-2 — Communications and Coordination o IRO-001-1 — Reliability Coordination — Responsibilities and Authorities o IRO-002-1 — Reliability Coordination — Facilities o IRO-005-2 — Reliability Coordination — Current-Day Operations o IRO-014-1 — Procedures, Processes, or Plans to Support Coordination Between Reliability Coordinators o IRO-015-1 — Notifications and Information Exchange Between Reliability Coordinators o IRO-016-1 — Coordination of Real-time Activities Between Reliability Coordinators
Project 2006-07 Transfer Capabilities: ATC, TTC, CBM, and TRM o FAC-012-1 — Transfer Capability Methodology o FAC-013-1 — Establish and Communicate Transfer Capabilities o MOD-001-0 — Documentation of TTC and ATC Calculation Methodologies o MOD-002-0 — Review of TTC and ATC Calculations and Results o MOD-003-0 — Procedure for Input on TTC and ATC Methodologies and Values o MOD-004-0 — Documentation of Regional CBM Methodologies o MOD-005-0 — Procedure for Verifying CBM Values o MOD-006-0 — Procedure for the Use of CBM Values o MOD-007-0 — Documentation of the Use of CBM o MOD-008-0 — Documentation and Content of Each Regional TRM Methodology o MOD-009-0 — Procedure for Verifying TRM Values
Project 2006-08 Transmission Loading Relief o IRO-006-3 — Reliability Coordination — Transmission Loading Relief o IRO-006-4 — Reliability Coordination — Transmission Loading Relief
Project 2006-09 Facility Ratings o FAC-008-1 — Facility Ratings Methodology o FAC-009-1 Establish and Communicate Facility Ratings
Project 2007-01 Underfrequency Load Shedding o PRC-006-0 — Development and Documentation of Regional UFLS Programs o PRC-007-0 — Assuring Consistency with Regional UFLS Program Requirements o PRC-009-0 — UFLS Performance Following an Underfrequency Event
Project 2007-02 Operating Personnel Communications Protocols o COM-002-2 — Communications and Coordination
Project 2007-03 Real-time Operations o PER-001-0 — Operating Personnel Responsibility and Authority

- TOP-001-1 — Reliability Responsibilities and Authorities
- TOP-002-2 — Normal Operations Planning
- TOP-003-0 Planned Outage Coordination
- TOP-004-1 — Transmission Operations
- TOP-004-2 — Transmission Operations
- TOP-005-1 — Operational Reliability Information
- TOP-006-1 — Monitoring System Conditions
- TOP-007-0 — Reporting SOL and IROL Violations
- TOP-008-1 — Response to Transmission Limit Violations

Project 2007-04 Certifying System Operators

- PER-003-0 — Operating Personnel Credentials

Project 2007-05 Balancing Authority Controls

- BAL-002-0 — Disturbance Control Performance
- BAL-004-0 — Time Error Correction
- BAL-004-1 — Time Error Correction
- BAL-005-0 — Automatic Generation Control
- BAL-005-0b — Automatic Generation Control
- BAL-006-1 — Inadvertent Interchange

Project 2007-06 System Protection Coordination

- PRC-001-1 — System Protection Coordination

Project 2007-07 Vegetation Management

- FAC-003-1 — Transmission Vegetation Management Program

Project 2007-09 Generator Verification

- MOD-024-1 — Verification of Generator Gross and Net Real Power Capability
- MOD-025-1 — Verification of Generator Gross and Net Reactive Power Capability
- MOD-026-1 — Verification of Models and Data for Generator Excitation System Functions
- MOD-027-1 — Verification of Generator Unit Frequency Response
- PRC-019-1 — Coordination of Generator Voltage Regulator Controls with Unit Capabilities and Protection
- PRC-024-1 — Generator Performance During Frequency and Voltage Excursions

Project 2007-11 Disturbance Monitoring

- PRC–002-1 — Define Regional Disturbance Monitoring and Reporting Requirements
- PRC–018-1 — Disturbance Monitoring Equipment Installation and Data Reporting

Project 2007-14 Permanent Changes to CI Timing Table

- INT–005-1 — Interchange Authority Distributes Arranged Interchange
- INT–005-2 — Interchange Authority Distributes Arranged Interchange
- INT–006-2 — Response to Interchange Authority
- INT–008-1 — Interchange Authority Distributes Status
- INT–008-2 — Interchange Authority Distributes Status

Project 2007-17 Protection System Maintenance and Testing

- PRC–005-1 — Transmission and Generation Protection System Maintenance and Testing
- PRC–008-0 — Underfrequency Load Shedding Equipment Maintenance Programs
- PRC–011-0 — UVLS System Maintenance and Testing
- PRC–017-0 — Special Protection System Maintenance and Testing

Project 2007-18 Reliability-based Control

- BAL–001-0 — Real Power Balancing Control Performance
- BAL–001-0a — Real Power Balancing Control Performance
- BAL–003-0a — Frequency Response and Bias
- EOP–002-2 — Capacity and Energy Emergencies
- IRO–005-2 — Reliability Coordination — Current-Day Operations

Project 2008-01 Voltage and Reactive Control

- VAR–001-1 — Voltage and Reactive Control
- VAR–001-1a — Voltage and Reactive Control
- VAR–002-1 — Generator Operation for Maintaining Network Voltage Schedules
- VAR–002-1a — Generator Operation for Maintaining Network Voltage Schedules

Project 2008-02 Undervoltage Load Shedding
- PRC–010-0 — Assessment of the Design and Effectiveness of UVLS Program
- PRC–022-1 — Under-Voltage Load Shedding Program Performance

Project 2008-04 Facility Ratings (Pending Regulatory Approval)
- FAC–010-2 — System Operating Limits Methodology for the Planning Horizon
- FAC–011-2 — System Operating Limits Methodology for the Operations Horizon
- FAC–014-2 — Establish and Communicate System Operating Limits

Project 2008-05 Credible Multiple Element Contingencies
- FAC–011-1 — System Operating Limits Methodology for the Operations Horizon
- FAC–011-2 — System Operating Limits Methodology for the Operations Horizon

Project 2008-06 Cyber Security — Order 706
- CIP–002–1 — Critical Cyber Asset Identification
- CIP–003–1 — Security Management Controls
- CIP–004–1 — Personnel and Training
- CIP–005–1 — Electronic Security Perimeter(s)
- CIP–006-1 — Physical Security
- CIP–006-1a — Cyber Security — Physical Security
- CIP–007–1 — Systems Security Management
- CIP–008–1 — Incident Reporting and Response Planning
- CIP–009–1 — Recovery Plans for Critical Cyber Assets

Project 2008-08 EOP VSL Revisions
- EOP-001-0 — Emergency Operations Planning
- EOP-002-2 — Capacity and Energy Emergencies
- EOP-003-1 — Load Shedding Plans
- EOP-004-1 — Disturbance Reporting
- EOP-005-1 — System Restoration Plans
- EOP-006-1 — Reliability Coordination — System Restoration
- EOP-008-0 — Plans for Loss of Control Center Functionality
- EOP-009-0 — Documentation of Blackstart Generating Unit Test Results

Project 2008-12 Coordinate Interchange Standards
- INT-001-3 — Interchange Information
- INT-003-2 — Interchange Transaction Implementation
- INT-004-1 — Dynamic Interchange Transaction Modifications
- INT-005-2 — Interchange Authority Distributes Arranged Interchange
- INT-006-2 — Response to Interchange Authority
- INT-007-1 — Interchange Confirmation
- INT-008-1 — Interchange Authority Distributes Status
- INT-008-2 — Interchange Authority Distributes Status
- INT-009-1 — Implementation of Interchange
- INT-010-1 — Interchange Coordination Exemptions

Project 2009-01 Disturbance and Sabotage Reporting
- CIP-001-1 — Sabotage Reporting
- EOP-004-1 — Disturbance Reporting

Project 2009-02 Real-time Tools
- BAL-002-0 — Disturbance Control Performance
- BAL-005-0 — Automatic Generation Control
- BAL-005-0b — Automatic Generation Control
- COM-001-1 — Telecommunications
- EOP-003-1 — Load Shedding Plans
- EOP-005-1 — System Restoration Plans
- IRO-002-1 — Reliability Coordination — Facilities
- IRO-003-2 — Reliability Coordination — Wide-Area View
- IRO-004-1 — Reliability Coordination — Operations Planning
- IRO-005-2 — Reliability Coordination — Current-Day Operations
- PRC-001-1 — System Protection Coordination

- TOP-001-1 — Reliability Responsibilities and Authorities
- TOP-002-2 — Normal Operations Planning
- TOP-003-0 — Planned Outage Coordination
- TOP-004-1 — Transmission Operations
- TOP-004-2 — Transmission Operations
- TOP-005-1 — Operational Reliability Information
- TOP-006-1 — Monitoring System Conditions
- VAR-001-1 — Voltage and Reactive Control
- VAR-001-1a — Voltage and Reactive Control

Project 2009-03 Emergency Operations

- EOP-001-0 — Emergency Operations Planning
- EOP-002-2 — Capacity and Energy Emergencies
- EOP-003-1 — Load Shedding Plans
- IRO-001-1 — Reliability Coordination — Responsibilities and Authorities

Project 2010-02 Connecting New Facilities to the Grid

- FAC-001-0 — Facility Connection Requirements
- FAC-002-0 — Coordination of Plans for New Facilities

Project 2010-03 Modeling Data

- MOD-010-0 — Steady-State Data for Transmission System Modeling and Simulation
- MOD-011-0 — Regional Steady-State Data Requirements and Reporting Procedures
- MOD-012-0 — Dynamics Data for Transmission System Modeling and Simulation
- MOD-013-1 — RRO Dynamics Data Requirements and Reporting Procedures
- MOD-014-0 — Development of Interconnection-Specific Steady State System Models
- MOD-015-0 — Development of Interconnection-Specific Dynamics System Models
- PRC-013-0 — Special Protection System Database
- PRC-015-0 — Special Protection System Data and Documentation
- PRC-020-1 — Under-Voltage Load Shedding Program Database
- PRC-021-1 — Under-Voltage Load Shedding Program Data

Project 2010-04 Demand Data

- MOD-016-1 — Actual and Forecast Demands, Net Energy for Load, Controllable DSM
- MOD-017-0 — Aggregated Actual and Forecast Demands and Net Energy for Load
- MOD-018-0 — Reports of Actual and Forecast Demand Data
- MOD-019-0 — Forecasts of Interruptible Demands and DCLM Data
- MOD-020-0 — Providing Interruptible Demands and DCLM Data
- MOD-021-0 — Accounting Methodology for Effects of Controllable DSM in Forecasts

Project 2010-05 Protection Systems

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations
- PRC-012-0 — Special Protection System Review Procedure
- PRC-014-0 — Special Protection System Assessment
- PRC-016-0 — Special Protection System Misoperations

Project 2006-01 System Personnel Training

Standards Involved:

PER-002-0 — Operating Personnel Training
PER-004-1 — Reliability Coordination – Staffing
1200 — Urgent Action Standard — Cyber Security — 1211 Training

Research Needed:

None

Brief Description:

The standard requires the use of a systematic approach to determining training needs of the real-time system operators who work for the Reliability Coordinator, Balancing Authority and Transmission Operator. The standard requires each Reliability Coordinator, Balancing Authority and Transmission Operator to:

- Identify the desired performance for each real-time, reliability-related task performed by its real-time system operators.
- Measure the mismatch between actual and desired performance, and
- Use the results of the mismatch between desired and actual performance as the basis for determining training needs, developing, delivering and evaluating training.

The standard requires that entities have evidence that this systematic approach is used and requires that each responsible entity have evidence that each of its real-time system operators is competent to perform each assigned task that is on its company-specific list of reliability-related tasks.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project 2006-01 System Personnel Training Web page

Project Schedule:

Project 2006-01 Schedule

Target Completion Date:

Fourth quarter of 2008

Related Links:

Project 2006-01 Roster

Issues to be Considered by Drafting Team Project 2006-1 — System Personnel Training	
Standard #	**Title**
PER-002-0	Operating Personnel Training
Issues	FERC Order 693 Disposition: Approved with modifications • Identify the expectations of the training for each job function. • Develop training programs tailored to each job function with consideration to the individual training needs. • Expand the applicability section to include reliability coordinators, local transmission control center operating personnel, generator operators centrally-located at a generator control center with direct impact on the reliable operation of the bulk power system, and operations planning and operations support staff that carry out outage planning and assessments and those who develop SOLs, IROLs, or operating nomograms. • Use the systematic approach to training methodology in the development of new training programs. • Include the use of simulators by reliability coordinators, transmission operators, and balancing authorities that have operational control over a significant portion of load and generation. • Determine the feasibility of developing meaningful performance metrics associated with the effectiveness of the training programs. • Consider whether personnel that support EMS applications should be included in the mandatory training requirements. • Consider FirstEnergy's comments regarding the nuclear plant operators' training program as part of the standards development process. Fill-in-the-Blank Team Comments • R3.1 has regional text but it is unnecessary and could be removed V0 Industry Comments • Measure is weak • Other entities should be included • Replace 5 days with 32 contact hours as per agreement • Specify calendar year time increment Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Audit Observation Team • R3. The question was raised concerning how each of the regions interprets "training program objectives?" Either high level or down to the lesson plan objectives.

Issues to be Considered by Drafting Team Project 2006-01 — System Personnel Training	
Standard #	**Title**
PER-004-1	Reliability Coordination – Staffing
Issues	FERC Order 693 Disposition: Approve with modifications • Include formal training requirements for reliability coordinators similar to those addressed under PER-002. • Include requirements pertaining to personnel credentials for reliability coordinators similar to PER-003. • Consider the suggestions of FirstEnergy and Xcel as part of the standards development process. V0 Industry Comments • Calendar year timing increment • Other training needs to be defined Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Project 2006-02 Assess Transmission and Future Needs

Standards Involved:

TPL-001-0 — System Performance under Normal Conditions
TPL-002-0 — System Performance Following Loss of a Single BES Element
TPL-003-0 — System Performance Following Loss of Two or More BES Elements
TPL-004-0 — System Performance Following Extreme BES Events
TPL-005-0 — Regional and Interregional Self-Assessment Reliability Reports
TPL-006-0 — Assessment Data from Regional Reliability Organizations

Research Needed:

None

Brief Description:

The proposed work effort will establish requirements where requirements do not exist, and verify and clarify the existing standards for assessing and reporting the performance of planned bulk electric systems and the requirements for documenting plans to remedy any inadequacies identified in the process of conducting such assessments.

Consideration will be given to the many proposed improvements identified in the 'Issues' list for each of the above standards.

The drafting team will also work to incorporate the interpretation on TPL-002 Requirement R1.3.12 and Requirement R1.32 and the interpretation on TPL-003 Requirement R1.3.12 and Requirement R1.32.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project 2006-02 Assess Transmission and Future Needs Web Page

Project Schedule:

Project 2006-02 Schedule

Target Completion Date:

Fourth quarter of 2009

Related Links:

Project 2006-02 Roster

Issues to be Considered by Drafting Team Project 2006-02 — Assess Transmission and Future Needs		
Standard #		**Title**
TPL-001-0		System Performance Under Normal (No Contingency) Conditions (Category A)
Issues	FERC Order 693 Disposition: Approve with modifications • Determine critical system conditions and study years by conducting sensitivity analysis with due consideration of the factors outlined by the Commission. • Require a peer review of planning assessments with neighboring entities. • Modify requirement R1.3 to substitute the reference to regional reliability organization with regional entity. • Require assessments of outages of critical long lead time equipment, consistent with an entity's spare equipment strategy • Address concerns with footnote (a) of Table 1 with regard to applicability of emergency ratings and consistency of normal ratings and voltages with values obtained from other reliability standards and concerns raised by International Transmission with regard to the footnotes in Table 1. FERC Order 693 – TPL General Comments • Consider integrating TPL-001 through TPL-004 into one standard. • Submit an informational filing, in addition to regional criteria, all utility and RTO/ISO differences in transmission planning criteria that are more stringent than those specified by the TPL standards. • Consider the full range of variables when determining critical system conditions but only those deemed to be significant need to be assessed and documentation provided that explain the rational for selection. • System performance should be assessed based on contingencies that mimic what happens in real-time. • Entities that have planned and designed their systems on the basis of a different approach to single contingencies should work with NERC in developing plans to transition to this new approach. • Consider appropriate revisions to the reliability standards to deal with cyber security events. V0 Industry Comments • Several semantic issues • Clarify timing for submittal of corrective plan • Clarify use of applicable ratings in Table 1, note 'a' • Need to address deliverability to load • Define critical system conditions • Allow for engineering judgment in setting conditions for power flow • Do planned facilities include just those under construction? • Need to include multiple time frames • What is a major load center? • Table 1 – C.5 goes beyond double circuit outage criteria • Table 1, items 6, 7, 8 & 9 need footnote stating that they do not apply to generator breaker failure	

	• Table 1, note 'b' – clarify when to curtail firm deliveries Phase III/IV comments • Add a requirement to verify that there are sufficient reactive resources • Add a requirement to identify where UVLS should be installed VRF comment • R1 – time horizon should be long-term planning Comment from draft SAR on Planning Authority • Provide clarity where the Planning Authority is mentioned Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Issues to be Considered by Drafting Team Project 2006-02 — Assess Transmission and Future Needs	
Standard #	**Title**
TPL-002-0	System Performance Following Loss of a Single Bulk Electric System Element (Category B)
Issues	FERC Order 693 Disposition: Approved with modifications • Determine critical system conditions in the same manner as proposed in TPL-001. • Requires assessment of planned outages of long lead time critical equipment consistent with the entity's spare equipment strategy. • Requires all generators to ride through the same set of category B and C contingencies as required by wind generators in Order No. 661, or to simulate without this capability as tripping. • Document the load models used in system studies and the rationale for their use. • Clarify the phrase "permit operating steps necessary to maintain system control" in the footnote (a) and the use of emergency ratings. • Clarifies footnote (b) in regard to load loss following a single contingency specifying the amount and duration of consequential load loss and system adjustments permitted after the first contingency to return the system to a normal operating state. NERC should consider this through its standard development process. • Footnote (b) should not allow for firm load shedding or curtailment of firm transfers as part of the system adjustments. • Consider NRC's comments regarding clarifying the N-1 state as being always applicable to the current conditions as part of the standards development process. • Standard should be clarified to not allow an entity to plan for the loss of non-consequential load in the event of a single contingency. FERC Order 693 – TPL General Comments • Consider integrating TPL-001 through TPL-004 into one standard. • Submit an informational filing, in addition to regional criteria, all utility and RTO/ISO differences in transmission planning criteria that are more stringent than those specified by the TPL standards. • Consider the full range of variables when determining critical system conditions but only those deemed to be significant need to be assessed and documentation provided that explain the rational for selection. • System performance should be assessed based on contingencies that mimic what happens in real-time. • Entities that have planned and designed their systems on the basis of a different approach to single contingencies should work with NERC in developing plans to transition to this new approach. • Consider appropriate revisions to the reliability standards to deal with cyber security events. V0 Industry Comments • Define critical system conditions • Clarify timing for corrective plan • Address deliverability of generation to load

	• Clarify applicable ratings in Table 1, note 'a' • Don't include generation runback or redispatch • Must study all contingencies and multiple demand levels & time frames • Don't include planning outage • Single terminals are not included Phase III/IV comments • Add a requirement to verify that there are sufficient reactive resources • Add a requirement to identify where UVLS should be installed VRF comments • Time horizon should be long-term planning and R2.2 – redundant with R1.3.8 Comment from draft SAR on Planning Authority • Provide clarity where the Planning Authority is mentioned Standards Process • Incorporate approved formal interpretation Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Issues to be Considered by Drafting Team Project 2006-02 — Assess Transmission and Future Needs	
Standard #	**Title**
TPL-003-0	System Performance Following loss of Two or More Bulk Electric System Elements (Category C)
Issues	FERC Order 693 Disposition: Approved with modifications • Determine critical system conditions in the same manner as proposed in TPL-001. • Modify footnote © of Table 1 to clarify the term "controlled load interruption". • Applicable entities must define and document the proxies necessary to simulate cascading outages. • Tailor the purpose statement to reflect the specific goal of the standard. • Address LPPA's concerns on changes to footnotes of Table 1 through the standard development process. • Address NRC concerns as described in TPL-002 through the standards development process. • Consider the comments on major load pockets as part of the standards development process. FERC Order 693 – TPL General Comments • Consider integrating TPL-001 through TPL-004 into one standard. • Submit an informational filing, in addition to regional criteria, all utility and RTO/ISO differences in transmission planning criteria that are more stringent than those specified by the TPL standards. • Consider the full range of variables when determining critical system conditions but only those deemed to be significant need to be assessed and documentation provided that explain the rational for selection. • System performance should be assessed based on contingencies that mimic what happens in real-time. • Entities that have planned and designed their systems on the basis of a different approach to single contingencies should work with NERC in developing plans to transition to this new approach. • Consider appropriate revisions to the reliability standards to deal with cyber security events. V0 Industry Comments • Same as TPL-001 & 002 • TO should provide plan of action • Don't base penalties on low probability, low consequence events • Use NERC Compliance Reporting Process • Clearly identify outages Phase III/IV comments • Add a requirement to verify that there are sufficient reactive resources • Add a requirement to identify where UVLS should be installed VRF comment • Time horizon should be long-term planning

	• R2 – lack of consistency with TPL-001 & TPL-002 • R2.1 - lack of consistency with TPL-001 • R2.1.1 - lack of consistency with TPL-001 & TPL-004 • R2.1.2 - lack of consistency with TPL-001 & TPL-005 • R2.1.3 - lack of consistency with TPL-001 & TPL-006 • R2.2 - lack of consistency with TPL-001 & TPL-007 Comment from draft SAR on Planning Authority • Provide clarity where the Planning Authority is mentioned Standards Process • Incorporate approved formal interpretation Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Issues to be Considered by Drafting Team Project 2006-02— Assess Transmission and Future Needs	
Standard #	**Title**
TPL-004-0	System Performance Following Extreme Events Resulting in the Loss of Two or More Bulk Electric System Elements (Category D)
Issues	FERC Order 693 Disposition: Approve with modifications • Determine critical system conditions in the same manner as proposed in TPL-001. • Identify options for reducing the probability or impacts of extreme events that cause cascading. • Expand the list of category D events to include recent actual events. • Tailor the purpose statement to reflect the specific goal of the standard. FERC Order 693 – TPL General Comments • Consider integrating TPL-001 through TPL-004 into one standard. • Submit an informational filing, in addition to regional criteria, all utility and RTO/ISO differences in transmission planning criteria that are more stringent than those specified by the TPL standards. • Consider the full range of variables when determining critical system conditions but only those deemed to be significant need to be assessed and documentation provided that explain the rational for selection. • System performance should be assessed based on contingencies that mimic what happens in real-time. • Entities that have planned and designed their systems on the basis of a different approach to single contingencies should work with NERC in developing plans to transition to this new approach. • Consider appropriate revisions to the reliability standards to deal with cyber security events. V0 Industry Comments • Same as TPL-001 • Perform analysis on credible contingency • R1.3.9 – remove from extreme events • TO should determine which events to study Phase III/IV comments • Add a requirement to verify that there are sufficient reactive resources • Add a requirement to identify where UVLS should be installed Comment from draft SAR on Planning Authority • Provide clarity where the Planning Authority is mentioned Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. •

Issues to be Considered by Drafting Team Project 2006-02 — Assess Transmission and Future Needs		
Standard #	**Title**	
TPL-005-0	Regional and Interregional Self-Assessment Reliability Reports	
Issues	FERC Order 693 Disposition: Not approved or remanded • Encourages NERC to utilize input from the Commission's technical conferences on regional planning as directed in Order No. 890 to improve this standard. FERC Order 693 – TPL General Comments • Consider integrating TPL-001 through TPL-004 into one standard. • Submit an informational filing, in addition to regional criteria, all utility and RTO/ISO differences in transmission planning criteria that are more stringent than those specified by the TPL standards. • Consider the full range of variables when determining critical system conditions but only those deemed to be significant need to be assessed and documentation provided that explain the rational for selection. • System performance should be assessed based on contingencies that mimic what happens in real-time. • Entities that have planned and designed their systems on the basis of a different approach to single contingencies should work with NERC in developing plans to transition to this new approach. • Consider appropriate revisions to the reliability standards to deal with cyber security events. Fill-in-the-Blank Team Comments • New SAR needed V0 Industry Comments • Define fuel adequacy • An RRO can't make a mandatory request for another RRO to perform a study Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.	

Issues to be Considered by Drafting Team Project 2006-02 — Assess Transmission and Future Needs		
Standard #	**Title**	
TPL-006-0	Assessment Data from Regional Reliability Organizations	
Issues	FERC Order 693 Disposition: Not approved or remanded FERC Order 693 – TPL General Comments • Consider integrating TPL-001 through TPL-004 into one standard. • Submit an informational filing, in addition to regional criteria, all utility and RTO/ISO differences in transmission planning criteria that are more stringent than those specified by the TPL standards. • Consider the full range of variables when determining critical system conditions but only those deemed to be significant need to be assessed and documentation provided that explain the rational for selection. • System performance should be assessed based on contingencies that mimic what happens in real-time. • Entities that have planned and designed their systems on the basis of a different approach to single contingencies should work with NERC in developing plans to transition to this new approach. • Consider appropriate revisions to the reliability standards to deal with cyber security events. Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.	

Project 2006-03 System Restoration and Blackstart

Standards Involved:

EOP-005-1 — System Restoration Plans
EOP-006-1 — Reliability Coordination - System Restoration
EOP-007-0 — Establish, Maintain, and Document a Regional Blackstart Capability Plan
EOP-009-0 — Documentation of Blackstart Generating Unit Test Results

Research Needed:

None

Brief Description:

This project involves reviewing and revising the four referenced standards including:

- Resolving the issue of associating compliance measures with Attachment 1-EOP-005 elements,
- EOP-005 only requires the TOP and the BA to have a system restoration plan. The role of these and other entities, especially the Reliability Coordinator, needs to be defined.
- Both EOP-005 and EOP-006 contain a mix of requirements that address advance planning and real-time operations. The Standards Drafting Team (SDT) should consider the need to clearly delineate the two processes within the standards requirements.
- The elimination of 'fill-in-the-blank' components in EOP-007-0 and EOP-009.
- Other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable standards and consistent with establishing technically sufficient bulk power system blackstart and restoration standards.

Work is not to be limited to the 'To Do Lists'. Those items shall be considered but are not mandatory revisions**.** Consideration will also be given to the comments on the appropriate EOP standards in FERC Order #693, issued March 16, 2007.

Throughout the process, the SDT should identify any conflicts that are found with other existing standards and bring them to the attention of the Standards Committee for resolution.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project 2006-03 System Restoration and Blackstart Web page

Project Schedule:

Project 2006-03 Schedule

Target Completion Date:

First quarter of 2009

Related Links:

Project 2006-03 Roster

Issues to be Considered by Drafting Team Project 2006-03 — System Restoration and Blackstart	
Standard #	**Title**
EOP-005-1	System Restoration Plans
Issues	FERC Order 693 Disposition: Approved with modifications • Identify time frames for training and review of restoration plan requirements to simulate contingencies and prepare operators for anticipated and unforeseen events. • NERC shall gather data from simulations and drills of system restoration on the time it takes to restore power to the auxiliary power systems of nuclear power plants under its data gathering authority and report the information to the Commission on a quarterly basis. • Consider commenters concerns in future modifications of the reliability standard, including those that refer to Attachment 1. Fill-in-the-Blank Team Comments • Address EOP-005, EOP-006 EOP-007 and EOP-009 concurrently. • References in EOP-005, EOP-006, and EOP-009 to meet RRO/Regional requirements need to be modified and EOP-007 needs to be more specific. • See "Issues" for EOP-007 V0 Industry Comments • Priority to integrity of interconnection • BA does not have all required information • Interdependency of planning and implementation missing as well as between functional entities • LSE & GO should have plans • Additional element consideration • Can't really test plan Phase III/IV comments • Add LSEs to Applicability • Add a requirement for a blackstart agreement between the transmission operator and the generator owner - include items such as identification of generator owner/operator facilities required to participate in the blackstart plan; when and how quickly a blackstart unit must respond; and what cranking path requires energization • Add a requirement for a cranking path agreement between the transmission operator and the generator owner/operator • Condense the requirements and measures - R1 the requirement to develop the restoration plan and all the components required of that plan; and R2 the requirement to prove and document that the plan works. Then, two measurements would follow: one to assess the contents of the plan and one to assess the simulation or testing of the plan. • Need to resolve the issue of the elements on the Attachment – are these mandatory or not – there is a mismatch between R1 and levels of non-compliance • R3 – revise to place emphasis for TOP on restoring local transmission system as preparation for restoring the integrity of the Interconnection. • R4 – Add LSEs

	• R5 – replace 'periodic' with a specific periodicity for testing • R6 – add specificity to frequency and scope of required training • R11.5 - replace the word, 'may' with: The affected Transmission Operators shall not resynchronize the isolated area(s) with the surrounding area(s) until the following conditions are met: the voltage, frequency, and phase angle permit, the affected reliability coordinator(s) and the adjacent areas are notified, and reliability coordinator approval is given. • Delete R11.5.4. It does not seem reasonable or logical for a control area to be required to shed 5,000 MWs of load, for example, in order for their neighbor to reconnect 1,000 MWs of their own load. • R11.5. Should exclude islands within a system that do not affect surrounding areas VRF comments • R1, 5 & 8 – Does not just apply to local restoration • R2 – Could be broken up into 2 requirements • R11.4 – Ambiguous • R11.5 - This needs to be looked at for 30 days - should be done prior to access being granted. Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Audit and Observation Team • How do you include load to be shed in the System Restoration plan?

Issues to be Considered by Drafting Team Project 2006-03 — System Restoration and Blackstart		
Standard #	**Title**	
EOP-006-1	Reliability Coordination – System Restoration	
Issues	FERC Order 693 Disposition: Approved with modifications • Ensure the reliability coordinator is involved in the development and approval of system restoration plans. Fill-in-the-Blank Team Comments • Address EOP-005, EOP-006 EOP-007 and EOP-009 concurrently • References in EOP-005, EOP-006, and EOP-009 to meet RRO/Regional requirements need to be modified and EOP-007 needs to be more specific • See "Issues" for EOP-007 Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.	

Issues to be Considered by Drafting Team Project 2006-03 — System Restoration and Blackstart	
Standard #	**Title**
EOP-007-0	Establish, Maintain, and Document a Regional Blackstart Capability Plan

Issues

FERC Order 693
Disposition: Not approved or remanded

- Until the changes to EOP-006-1 are implemented, the regional reliability organization should continue to perform this role (approval).
- Consider EEI, FirstEnergy and MRO's suggestions in future revisions to the standard.

Fill-in-the-Blank Team Comments

- Address EOP-005, EOP-006 EOP-007 and EOP-009 concurrently
- References in EOP-005, EOP-006, and EOP-009 to meet RRO/Regional requirements need to be modified and EOP-007 needs to be more specific.
- This is currently a fill-in-the-blank standard tied to EOP-005, EOP-006, and EOP-009; every region should have procedures currently in place required by EOP-007-0; question why this is even an RRO function; they are not operating entities, should be RCs and operating entities that have the black start plan; black start plans need to be coordinated regionally.
- Consider retiring EOP-007 and moving these elements to EOP-005; EOP-006; and EOP-009. That would remove fill-in-blank elements. Still may need to evaluate role of RRO.R1 & R2 considerations
- Consider rewording of references in EOP-005, EOP-006, and EOP-009 to RRO/regional requirements and
- Define the specific requirements for R 1.2, R 1.3, etc. and either clearly defines in EOP-007 or retires EOP-007 and place specific requirements in EOP-005, EOP-006, and EOP-009.
- Consider developing testing requirements on a national basis – this is already well established across the regions. The harder task is isolating the restoration issues in the various standards as described in the EOP-007 write-up to merge into a new NERC standard which then establishes which units are designated Blackstart units. This standard could be written independent of the units' identity and focus on testing of any Blackstart unit.

V0 Industry Comments

- Clarify testing requirements

Other

- 0Modify standard to conform with the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Issues to be Considered by Drafting Team Project 2006-03 — System Restoration and Blackstart	
Standard #	**Title**
EOP-009-0	Documentation of Blackstart Generating Unit Test Results
Issues	FERC Order 693 Disposition: Approved • Consider suggestions for improvements in future revisions of the standards. Fill-in-the-Blank Team Comments • Address EOP-005, EOP-006 EOP-007 and EOP-009 concurrently. • References in EOP-005, EOP-006, and EOP-009 to meet RRO/Regional requirements need to be modified and EOP-007 needs to be more specific. • See "Issues" for EOP-007 V0 Industry Comments • Distinction between RA & TO vs. RRO for test results Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Audit and Observation Team • Test per year • Test 1/3 of the black-start units per year

Project 2006-04 Backup Facilities

Standards Involved:

EOP-008-0 — Plans for Loss of Control Center Functionality

Research Needed:

A study of backup capabilities needed to support reliable operations is required.

Brief Description:

The requirements in EOP-008 need additional specificity. The development revision to EOP-008 may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards. In addition, the efforts of the OC Backup Control Center Task Force will be used as one of the inputs to the revision of EOP-008. Also, there may be backup facility requirements in some other standards, and those requirements should be considered for movement into this standard.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project 2006-04 Backup Facilities Web page

Project Schedule:

Project 2006-04 Schedule

Target Completion Date:

Second quarter of 2009**Related Links:**

Project 2006-04 Roster

Issues to be Considered by Drafting Team Project 2006-04 — Backup Facilities	
Standard #	**Title**
EOP-008-0	Plans for Loss of Control Center Functionality
Issues	FERC Order 693 Disposition: Approved with modifications Include a requirement that provides for backup capabilities that, at a minimum, must: • Be independent of the primary control center • Be capable of operating for a prolonged period of time, generally defined by the time it takes to restore the primary control center. • Provide for a minimum functionality to replicate the critical reliability functions of the primary control center. • Provides that the extent of the backup capability be consistent with the impact of the loss of the entity's primary control center on the reliability of the bulk power system. • Includes a requirement that all reliability coordinators have full backup control centers; • Requires transmission operators and balancing authorities that have operational control over significant portions of generation and load to have minimum backup capabilities discussed above but may do so through contracting for these services instead of through dedicated backup control centers. V0 Industry Comments • How does staff know control center is lost? (Note – A system health monitor concept or equivalent functionality is what is desired here.) • How is backup control achieved? • Max. time to restore capabilities VRF comments • R1 - Not having a written plan does not directly cause or contribute to bulk electric system instability, separation, or a cascading sequence of failures, or could place the bulk electric system at an unacceptable risk of instability, separation, or cascading • R1.1 - Not having a written plan is unlikely, under emergency, abnormal, or restoration conditions anticipated by the preparations, to lead to bulk electric system instability, separation, or cascading failures, nor to hinder restoration to a normal condition. Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Audit and Observation Team • Compliance levels don't align with the measures or requirements.

Project 2006-06 Reliability Coordination

Standards Involved:

COM-001-1 — Telecommunications
COM-002-2 — Communications and Coordination
IRO-001-1 — Reliability Coordination – Responsibilities and Authorities
IRO-002-1 — Reliability Coordination – Facilities
IRO-005-2 — Reliability Coordination – Current-Day Operations
IRO-014-1 — Procedures to Support Coordination between Reliability Coordinators
IRO-015-1 — Notifications and Information Exchange Between Reliability Coordinators
IRO-016-1 — Coordination of Real-time Activities between Reliability Coordinators

Research Needed:

Operating Committee study of IROLs and situational awareness tools

Brief Description

Most of the requirements in this set of standards were translated from Operating Policies as part of the Version 0 process. There have been suggestions for improving these requirements, and the drafting team will consider comments submitted by stakeholders, drafting teams and FERC in determining what changes should be proposed to stakeholders.

The drafting team will review all of the requirements in this set of standards and make a determination, with stakeholders, on whether to:

- Modify the requirement to improve its clarity and measureability while removing abiguity Move the requirement (into another SAR or Standard or to the certification process or standards)
- Eliminate the requirement (either because it is redundant or because it doesn't support bulk power system reliability).

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project 2006-06 Reliability Coordination Web page

Project Schedule:

Project 2006-06 Schedule

Target Completion Date:

Second quarter of 2009

Related Links:

Project 2006-06 Roster

Issues to be Considered by Drafting Team Project 2006-06 — Reliability Coordination	
Standard #	**Title**
COM-001-1	Telecommunications
Issues	FERC Order 693 Disposition: Approved with modifications • Include generator operators and distribution providers in the list of applicable entities and create appropriate requirements for them. • Address TAPS, Entergy, Six Cities, and FirstEnergy concerns through the standard development process. • Specify requirements for using telecommunication facilities during normal and emergency conditions that reflect the roles of the applicable entities and their impact of reliable operation, and include adequate flexibility. V0 Industry Comments • Redundant with Policy 5A, R1 • Many players missing • Apply R1 to all but smallest entities VRF comments • R6 — administrative requirement Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Standards Drafting Team Coordinators Meeting • COM-001-1 Telecommunications is being reviewed and revised under Project 2006-06 Reliability Coordination; however, it has been agreed that all requirements of COM-001-1 except R4 will be addressed by the SDT for Project 2006-06 and that requirement R4 will be addressed by the SDT for Project 2007-02 Operating Personnel Communications Protocols. If either part of this agreement is not maintained, COM-001-1 will need revisited.

Issues to be Considered by Drafting Team Project 2006-06 — Reliability Coordination	
Standard #	**Title**
COM-002-2	Communications and Coordination
Issues	FERC Order 693 Disposition: Approved with modifications • Include distribution providers in the list of applicable entities. • Address APPA's concern through the standard development process. • Include a requirement for the reliability coordinator to assess and approve only those actions that have impacts beyond the area views of the transmission operators and balancing authorities. Include how to determine whether an action needs to be assessed by the reliability coordinator. • Consider Xcel's suggestion that the entity taking operating actions should not be held responsible for the delays caused by the reliability coordinator's assessment and approval. • Address Santa Clara, FirstEnergy, and Six Cities concerns in the reliability standards development process. • Include APPA's suggestions to complete the measures and levels of non-compliance. V0 Industry Comments • Voice with generators not required • R1 — include reliability authority • R2 — include sabotage and security • R4 — clarify repeat back requirement with regard to emergency Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Standards Drafting Team Coordinators Meeting • COM-002-2 Communication and Coordination is being reviewed and revised under both Project 2006-06 Reliability Coordination and Project 2007-02 Operating Personnel Communications Protocols; however, it has been agreed that: • Requirement R1will be addressed by the SDT for Project 2006-06 and • Requirement R2 will be addressed by the SDT for Project 2007-02 Operating Personnel Communications Protocols. • If either part of this agreement is not maintained, COM-002-2 will need revisited.

Issues to be Considered by Drafting Team Project 2006-06 — Reliability Coordination	
Standard #	**Title**
IRO-001-1	Reliability Coordination – Responsibilities and Authorities

Issues

FERC Order 693

Disposition: Approve with modifications

- Eliminate the references to the regional reliability organization as an applicable entity.
- Consider commenters' suggestions as part of the standards development process.
- Consider adding measures and levels of non-compliance

V0 Industry Comments

- Inability to perform needs to be communicated
- What is meant by 'interest of other entity'?

VRF comments

- R6 — Since the RC must be NERC certified, it stands to reason that anyone performing RC tasks should be certified. However, since the RC still retains the accountability for actions, and requirement 4 handles the agreements, this requirement is a medium risk.

Other

- Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

NERC Audit and Observation Team

- R8 — All applicable registered functions shall comply with RC directives unless such actions would violate safety, equipment or regulatory or statutory requirements. Inform the RC immediately of the inability to perform such directives. For audit purposes, what is acceptable evidence?

FERC's December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000

- In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be applied. Each drafting team responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see:
  - FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf)
  - NERC's March 4, 2008

	(http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf) and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Issues to be Considered by Drafting Team Project 2006-06 — Reliability Coordination		
Standard #	**Title**	
IRO-002-1	Reliability Coordination – Facilities	
Issues	FERC Order 693 Disposition: Approved with modifications • Require a minimum set of tools that must be made available to the reliability coordinator. V0 Industry Comments • R5 – define synchronized information system • R7 – define 'adequate' tools and 'wide-area' • Words such as 'easily understood' and 'particular emphasis' need to be tightened Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.	

Issues to be Considered by Drafting Team Project 2006-06 — Reliability Coordination	
Standard #	**Title**
IRO-005-2	Reliability Coordination – Current-Day Operations

Issues

FERC Order 693
Disposition: Approved with modifications

- Provide further clarification that reliability coordinators and transmission operators direct control actions, not LSEs as part of the standard development process.
- Include measures and levels of non-compliance.
- Measures and levels of non-compliance specific to IROL violations must be commensurate with the magnitude, duration, frequency, and causes of the violations and whether these occur during normal or contingency conditions.
- Conduct a survey on IROL practices and actual operating experiences by requiring reliability coordinators to report any violations of IROLS, their causes, the date and time, the durations and magnitudes in which actual operations exceeds IROLs to NERC on a monthly basis for one year beginning August 2, 2007.

Fill-in-the-Blank Team Comments

- R14 has regional reference

V0 Industry Comments

- R10, 11 & 12 – RA not empowered to do this

Other

- Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

FERC's December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000

- In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be applied. Each drafting team responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see:
  - FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf)
  - NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf),
  - FERC's April 4, 2008 Order

		(http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf) and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Issues to be Considered by Drafting Team Project 2006-06 — Reliability Coordination		
Standard #		**Title**
IRO-014-1		Procedures, Processes, or Plans to Support Coordination Between Reliability Coordinators
Issues	FERC Order 693 Disposition: Approved Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.	

Issues to be Considered by Drafting Team Project 2006-06 Reliability Coordination		
Standard #		**Title**
IRO-015-1		Notifications and Information Exchange Between Reliability Coordinators
Issues	FERC Order 693 Disposition: Approved Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.	

Issues to be Considered by Drafting Team Project 2006-06 — Reliability Coordination		
Standard #		**Title**
IRO-016-1		Coordination of Real-Time Activities Between Reliability Coordinators
Issues	FERC Order 693 Disposition: Approved VRF comments • R1.2.1 & R2 – ambiguous Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.	

Project 2006-07 Transfer Capabilities — (ATC, TTC, CBM, TRM)

Standards Involved:

FAC-012-1 — Transfer Capabilities Methodology
FAC-013-1 — Establish and Communicate Transfer Capabilities
MOD-001-0 — Documentation of TTC and ATC Calculation Methodologies
MOD-002-0 — Review of TTC and ATC Calculations and Results
MOD-003-0 — Procedure for Input on TTC and ATC Methodologies and Values
MOD-004-0 — Documentation of Regional CBM Methodologies
MOD-005-0 — Procedure for Verifying CBM Values
MOD-006-0 — Procedures for Use of CBM Values
MOD-007-0 — Documentation of the Use of CBM
MOD-008-0 — Documentation and Content of Each Regional TRM Methodology
MOD-009-0 — Procedure for Verifying TRM Values

Research Needed:

None

Brief Description:

Most of the requirements in this set of standards were translated from the former Planning Standards as part of the Version 0 process. There have been suggestions for improving these requirements, and the drafting team will consider comments submitted by stakeholders, drafting teams and FERC in determining what changes should be proposed to stakeholders.

The drafting team will review all of the requirements in this set of standards and make a determination, with stakeholders, on whether to:

- Modify the requirement to improve its clarity and measureability while removing abiguity Move the requirement (into another SAR or Standard or to the certification process or standards)
- Eliminate the requirement (either because it is redundant or because it doesn't support bulk power system reliability).

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:

The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2008 Annual plan):
Annual Plan Item 2.a
Annual Plan Item 2.b

Annual Plan Item 2.c

Justification for NAESB consideration:

FERC Order 890
Industry recommendations

SRS Recommendation:

No further SRS action required. This project is already covered by current NAESB WEQ projects. Coordination between NERC & NAESB is in progress.

Standard Development Status:

Project 2006-07 Transfer Capabilities — (ATC, TTC, CBM, and TRM)

Project Schedule:

Project 2006-07 Schedule

Target Completion Date:

Third quarter of 2008 and the fourth quarter of 2008

Related Links:

Project 2006-07 Roster

Issues to be Considered by Drafting Team Project 2006-07 — Transfer Capabilities (ATC, TTC, CBM, TRM)	
Standard #	**Title**
FAC-012-1	Transfer Capability Methodology
Issues	FERC Order 890 • 223. With respect to a timeline for completion, the Commission concurs with NERC that a significant amount of work remains to be done on ATC-related reliability standards development. We also agree with the many commenters who state that the NOPR's proposed six-month timeline is too short for such a complex assignment. Although NERC projects that it may be able to complete the process by the summer of 2007 (which is approximately six months from the date of the Final Rule), we believe NERC should have additional flexibility with respect to its timeline. Accordingly, we direct public utilities, working through NERC, to modify the ATC-related reliability standards within 270 days after the publication of the Final Rule in the Federal Register. We also direct public utilities to work through NAESB to develop business practices that complement NERC's new reliability standards within 360 days after the publication of the Final Rule in the Federal Register. Finally, we direct NERC and NAESB to file, within 90 days of publication of the Final Rule in the Federal Register, a joint status report on standards and business practices development and a work plan for completion of this task within the timeframe established above.160 • 237. The Commission adopts the NOPR proposal and directs public utilities, working through NERC, to develop consistent practices for calculating TTC/TFC. We direct public utilities, working through NERC, to address, through the reliability standards process, any differences in developing TTC/TFC for transmission provided under the pro forma OATT and for transfer capability for native load and reliability assessment studies. FERC Order 693 Disposition: Not approved or remanded • Should provide a framework for transfer capability calculation methodology, including data inputs and modeling assumptions. • Should be an umbrella organization within the Eastern Interconnection and others to assure consistency. This is best done by NERC as the ERO. • Process used to determine transfer capabilities should be transparent to the stakeholders. The results of those calculations should be available to qualified entities on a confidential basis. • The process and criteria used to determine transfer capabilities for use in calculating ATC must be identical to those used in planning and operating the system. Fill-in-the-Blank Team Comments • Remove "required by its Regional Reliability Organization to establish inter-regional and intra-regional Transfer Capabilities "from Applicability section (4.1 and 4.2) of both FAC-012 and FAC-013. • Comment from draft SAR on Planning Authority • Provide clarity where the Planning Authority is mentioned Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

	NERC/NAESB Coordination • The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Firm Transmission Service Network Integration Transmission Service Non-Firm Transmission Service Open Access Same-time Information System Point-to-Point Transmission Service Transmission Customer

Issues to be Considered by Drafting Team Project 2006-07 — Transfer Capabilities (ATC, TTC, CBM, TRM)	
Standard #	**Title**
FAC-013-1	Establish and Communicate Transfer Capabilities
Issues	FERC Order 890 • 223. With respect to a timeline for completion, the Commission concurs with NERC that a significant amount of work remains to be done on ATC-related reliability standards development. We also agree with the many commenters who state that the NOPR's proposed six-month timeline is too short for such a complex assignment. Although NERC projects that it may be able to complete the process by the summer of 2007 (which is approximately six months from the date of the Final Rule), we believe NERC should have additional flexibility with respect to its timeline. Accordingly, we direct public utilities, working through NERC, to modify the ATC-related reliability standards within 270 days after the publication of the Final Rule in the Federal Register. We also direct public utilities to work through NAESB to develop business practices that complement NERC's new reliability standards within 360 days after the publication of the Final Rule in the Federal Register. Finally, we direct NERC and NAESB to file, within 90 days of publication of the Final Rule in the Federal Register, a joint status report on standards and business practices development and a work plan for completion of this task within the timeframe established above.160 • 237. The Commission adopts the NOPR proposal and directs public utilities, working through NERC, to develop consistent practices for calculating TTC/TFC. We direct public utilities, working through NERC, to address, through the reliability standards process, any differences in developing TTC/TFC for transmission provided under the pro forma OATT and for transfer capability for native load and reliability assessment studies. FERC Order 693 Disposition: Approved with modifications • Make the standard applicable to reliability coordinators. Fill-in-the-Blank Team Comments • Remove "required by its Regional Reliability Organization to establish inter-regional and intra-regional Transfer Capabilities "from Applicability section (4.1 and 4.2) of both FAC-012 and FAC-013. V0 Industry Comments • Not reviewed • Comment from draft SAR on Planning Authority • Provide clarity where the Planning Authority is mentioned Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Audit and Observation Team • R2 — What do we mean by "schedule for delivery"? NERC/NAESB Coordination • The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC

	and NAESB: Firm Transmission Service Network Integration Transmission Service Non-Firm Transmission Service Open Access Same-time Information System Point-to-Point Transmission Service Transmission Customer

Issues to be Considered by Drafting Team Project 2006-07 — Transfer Capabilities (ATC, TTC, CBM, TRM)	
Standard #	**Title**
MOD-001-0	Documentation of Total Transfer Capability and Available Transfer Capability Calculation Methodologies
Issues	FERC Order 890 • 211. As TDU Systems note, there is neither a definition of AFC in NERC's Glossary nor an existing reliability standard that discusses the AFC method. In order to achieve consistency in each component of the ATC calculation (discussed below), we direct public utilities, working through NERC, to develop an AFC definition and requirements used to identify a particular set of transmission facilities as a flowgate. However, we remind transmission providers that our regulations require the posting of ATC values associated with a particular path, not AFC values associated with a flowgate. Transmission providers using an AFC methodology must therefore convert flowgate (AFC) values into path (ATC) values for OASIS posting. In order to have consistent posting of the ATC, TTC, CBM, and TRM values on OASIS, we direct public utilities, working through NERC, to develop in the MOD-001 standard a rule to convert AFC into ATC values to be used by transmission providers that currently use the flowgate methodology. • 212. The Commission also believes that further clarification is necessary regarding the calculation algorithms for firm and non-firm ATC.150 Currently, NERC has no standards for calculating non-firm ATC. We find that the same potential for discrimination exists for non-firm transmission service as for firm service and that greater uniformity in both firm and non-firm ATC calculations will substantially reduce the remaining potential for undue discrimination. Therefore, we direct public utilities, working through NERC, to modify related ATC standards by implementing the following principles for firm and non-firm ATC calculations: (1) for firm ATC calculations, the transmission provider shall account only for firm commitments; and (2) for non-firm ATC calculations, the transmission provider shall account for both firm and non-firm commitments, postbacks of redirected services, unscheduled service, and counterflows. We understand that these principles are currently followed by most transmission providers and believe they should be clearly set forth in the ATC-related reliability standards. As described below, each transmission provider's Attachment C must include a detailed formula for both firm and non-firm ATC, consistent with the modified ATC-related reliability standards. • 223. With respect to a timeline for completion, the Commission concurs with NERC that a significant amount of work remains to be done on ATC-related reliability standards development. We also agree with the many commenters who state that the NOPR's proposed six-month timeline is too short for such a complex assignment. Although NERC projects that it may be able to complete the process by the summer of 2007 (which is approximately six months from the date of the Final Rule), we believe NERC should have additional flexibility with respect to its timeline. Accordingly, we direct public utilities, working through NERC, to modify the ATC-related reliability standards within 270 days after the publication of the Final Rule in the Federal Register. We also direct public utilities to work through NAESB to develop business practices that complement NERC's new reliability standards within 360 days after the publication of the Final Rule in the Federal Register. Finally, we direct NERC and NAESB to file, within 90 days of publication of the Final Rule in the Federal

	Register, a joint status report on standards and business practices development and a work plan for completion of this task within the timeframe established above.160 • 237. The Commission adopts the NOPR proposal and directs public utilities, working through NERC, to develop consistent practices for calculating TTC/TFC. We direct public utilities, working through NERC, to address, through the reliability standards process, any differences in developing TTC/TFC for transmission provided under the pro forma OATT and for transfer capability for native load and reliability assessment studies. • 243. To achieve greater consistency in ETC calculations and further reduce the potential for undue discrimination, the Commission adopts the NOPR proposal and directs public utilities, working through NERC and NAESB, to develop a consistent approach for determining the amount of transfer capability a transmission provider may set aside for its native load and other committed uses. We expect that NERC will address ETC through the MOD-001 reliability standard rather than through a separate reliability standard. 169 By using MOD-001, the ETC calculation can be adjusted to be applicable to each of the three ATC methodologies under development by NERC. • 244. In order to provide specific direction to public utilities and NERC, we determine that ETC should be defined to include committed uses of the transmission system, including (1) native load commitments (including network service), (2) grandfathered transmission rights, (3) appropriate point-to-point reservations, 170 (4) rollover rights associated with long-term firm service, and (5) other uses identified through the NERC process. ETC should not be used to set aside transfer capability for any type of planning or contingency reserve, which are to be addressed through CBM and TRM.171 In addition, in the short-term ATC calculation, all reserved but unused transfer capability (non-scheduled) shall be released as non-firm ATC. • 245. We agree with TDU Systems that inclusion of all requests for transmission service in ETC would likely overstate usage of the system and understate ATC. We therefore find that reservations that have the same point of receipt (POR) (generator) but different point of delivery (POD) (load), for the same time frame, should not be modeled in the ETC calculation simultaneously if their combined reserved transmission capacity exceeds the generator's nameplate capacity at POR. This will prevent overly unrealistic utilization of transmission capacity associated with power output from a generator identified as a POR. We direct public utilities, working through NERC, to develop requirements in MOD-001 that lay out clear instructions on how these reservations should be accounted. One approach that could be used is examining historical patterns of actual reservation use during a particular season, month, or time of day. • 292. The Commission also adopts the NOPR proposal to require transmission providers to use data and modeling assumptions for the short- and long-term ATC calculations that are consistent with that used for the planning of operations and system expansion, respectively, to the maximum extent practicable. This includes, for example: (1) load levels, (2) generation dispatch, (3) transmission and generation facilities maintenance schedules, (4) contingency outages, (5) topology, (6) transmission reservations, (7) assumptions regarding transmission and generation facilities additions and retirements, and (8) counterflows. We find that requiring consistency in the data and modeling assumptions used for ATC calculations will remedy the potential for undue discrimination by eliminating discretion and ensuring comparability in the manner in which a transmission provider operates and

	plans its system to serve native load and the manner in which it calculates ATC for service to third parties. The Commission directs public utilities, working through NERC, to modify ATC standards to achieve this consistency. • 293. With regard to EPSA's request for the standardization of additional data inputs, we believe they are already captured in the Commission's proposal as adopted in this Final Rule. Xcel asks the Commission to require consistency in the determination of counterflows in the calculation of ATC. Counterflows are included in the list of assumptions that public utilities, working through NERC, are required to make consistent. We believe that counterflows, if treated inconsistently, can adversely affect reliability and competition, depending on how they are accounted for. Accordingly, we reiterate that public utilities, working through NERC and NAESB, are directed to develop an approach for accounting for counterflows, in the relevant ATC standards and business practices. We find unnecessary Xcel's request that we require a date certain for specific issues in the Western Interconnection to be addressed. Above we require public utilities, working through NERC, to modify the ATC standards within 270 days after the publication of the Final Rule in the Federal Register. • 295. We offer the following clarifications. In response to Southern, we clarify that we require consistent use of assumptions underlying operational planning for short-term ATC and expansion planning for long-term ATC calculation. We also clarify that there must be a consistent basis or approach to determining load levels. For example, one approach may be for transmission providers to calculate load levels using an on- and off-peak model for each month when evaluating yearly service requests and calculating yearly ATC. The same (peak- and off-peak) or alternative approaches may be used for monthly, weekly, daily and hourly ATC calculations. Regardless of the ultimate choice of approach, it is imperative that all transmission providers use the same approach to modeling load levels to enable the meaningful exchange of data among transmission providers. Accordingly, we direct public utilities, working through NERC, to develop consistent requirements for modeling load levels in MOD-001 for the services offered under the pro forma OATT. • 296. With respect to modeling of generation dispatch, we direct public utilities, working through NERC, to develop requirements in NERC's MOD-001 reliability standard specifying how transmission providers shall determine which generators should be modeled in service, including guidance on how independent generation should be considered. We agree with Ameren that any modeling of base generation dispatch must model generators, including merchant generators, as they are expected to run. Accordingly, we direct public utilities, working through NERC, to revise reliability standard MOD-001 by specifying that base generation dispatch will model (1) all designated network resources and other resources that are committed or have the legal obligation to run, as they are expected to run and (2) uncommitted resources that are deliverable within the control area, economically dispatched as necessary to meet balancing requirements. • 297. Regarding transmission reservations modeling, we direct public utilities, working through NERC, to develop requirements in reliability standard MOD-001 that specify (1) a consistent approach on how to simulate reservations from points of receipt to points of delivery when sources and sinks are unknown and (2) how to model existing reservations. • 301. The Commission adopts the NOPR proposal and requires the development of reliability standards that ensure ATC is calculated at consistent intervals among transmission providers. The Commission thus directs public utilities, working through NERC and NAESB, to revise reliability standard MOD-

	001 to require ATC to be recalculated by all transmission providers on a consistent time interval and in a manner that closely reflects the actual topology of the system, e.g., generation and transmission outages, load forecast, interchange schedules, transmission reservations, facility ratings, and other necessary data. This process must also consider whether ATC should be calculated more frequently for constrained facilities. ATC-related requirements for OASIS posting are discussed below. • 310. The Commission adopts the NOPR proposal and directs public utilities, working through NERC, to revise the related MOD reliability standards to require the exchange of data and coordination among transmission providers and, working through NAESB, to develop complementary business practices. The following data shall, at a minimum, be exchanged among transmission providers for the purposes of ATC modeling: (1) load levels; (2) transmission planned and contingency outages; (3) generation planned and contingency outages; (4) base generation dispatch; (5) existing transmission reservations, including counterflows; (6) ATC recalculation frequency and times; and (7) source/sink modeling identification. The Commission concludes that the exchange of such data is necessary to support the reforms requiring consistency in the determination of ATC adopted in this Final Rule. As explained above, transmission providers are required to coordinate the calculation of TTC/TFC and ATC/AFC with others and this requires a standard means of exchanging data. • 338. We adopt EEI's proposal that the Commission revise Attachment C, section 3(f) to replace the word "prove" with the word "demonstrate." The word "demonstrate" more accurately describes the showing we expect the transmission provider to make. We agree that the word "prove" implies a standard of proof that we did not intend to impose. We also acknowledge TVA's comments that the NERC standards drafting team is developing standards that should address "double counting" in ATC calculations in general. However, we require that the information in Attachment C be sufficient to demonstrate that a transmission provider is not double counting CBM in its ATC calculation. • 389. We affirm our statement in the NOPR proposal acknowledging that transfer capability associated with transmission reservations that are not scheduled in real time is required to be made available as non-firm, and posted on OASIS. • 486. The Commission adopts the information exchange principle as to both network and point-to-point transmission customers. Accordingly, we will require transmission providers, in consultation with their customers and other stakeholders, to develop guidelines and a schedule for the submittal of information. In order for the Final Rule's planning process to be as open and transparent as possible, the information collected by transmission providers to provide transmission service to their native load customers must be transparent and, to that end, equivalent information must be provided by transmission customers to ensure effective planning and comparability. We clarify that the information must be made available at regular intervals to be identified in advance. Information exchanged should be a continual process, the frequency of which should be addressed in the transmission provider's compliance filing required by the Final Rule. However, we expect that the frequency and planning horizon will be consistent with ERO requirements. FERC Order 693 Disposition: Not approved or remanded

	• Tied to Order No. 890, in which Commission developed policies to lessen, if not eliminate, opportunities to discriminate against competitive power suppliers in access to the transmission system. • Industry-wide consistency and transparency of all ATC components and methodology. This includes modeling load levels, transmission reservations, and generation dispatch scenarios consistently. • Provide a framework for ATC, TTC, and ETC calculation, developing industry-wide consistency of all ATC components. Three methodologies are expected: contract path ATC, network ATC, and network AFC. • Require disclosure of algorithms for both firm and non-firm ATC and processes used in the calculation. • Identify a detailed list of information to be exchanged among transmission providers for the purposes of ATC modeling. • Include a requirement that assumptions used in the ATC and AFC calculations should be consistent with those used for planning the expansion of or operation of the bulk power system. • Require ATC to be updated on a consistent time interval. • Provides predictable and sufficiently accurate, consistent, equivalent, and replicable ATC calculations. • Provides for the conversion of AFC to ATC. • Applicable entities must make available their assumptions and contingencies underlying ATC and TTC calculations. • Focus of ATC/AFC with this standard; FAC-012-1 should focus on TTC/TFC. • Identify applicable entities in terms of users, owners, and operators of the bulk power system. Fill-in-the-Blank Team Comments • R1 contains regional reference V0 Industry Comments • Delete – NAESB business • Delete 'in conjunction with members' as not part of NERC's concern • List those not required to post ATC • Need to include BA • Clarify R.1.7 Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC/NAESB Coordination • The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Firm Transmission Service Network Integration Transmission Service Non-Firm Transmission Service Open Access Same-time Information System Point-to-Point Transmission Service Transmission Customer

<table>
<tr><th colspan="3">Issues to be Considered by Drafting Team
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<tr><td colspan="2">MOD-002-0</td><td>Review of Transmission Service Provider Total Transfer Capability and Available Transfer Capability Calculations and Results</td></tr>
<tr><td>Issues</td><td colspan="2">FERC Order 693
Disposition: Not approved or remanded

V0 Industry Comments
• Should be with NAESB
• Should be in conjunction with BA
• Evidence = mail receipt

Other
• Modify standard to conform to the latest version of NERC’s Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

NERC/NAESB Coordination

• The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB:

Firm Transmission Service
Network Integration Transmission Service
Non-Firm Transmission Service
Open Access Same-time Information System
Point-to-Point Transmission Service
Transmission Customer</td></tr>
</table>

Issues to be Considered by Drafting Team Project 2006-07 — Transfer Capabilities (ATC, TTC, CBM, TRM)	
Standard #	**Title**
MOD-003-0	Regional Procedure for Input on Total Transfer Capability and Available Transfer Capability Methodologies and Values
Issues	FERC Order 693 Disposition: Not approved or remanded • Consider APPA's suggestion that MOD-003 may be redundant and should be eliminated through the standards development process if certain reporting requirements are included in MOD-001. V0 Industry Comments • Need to include BA • Recourse needs to be specified Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC/NAESB Coordination • The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Firm Transmission Service Network Integration Transmission Service Non-Firm Transmission Service Open Access Same-time Information System Point-to-Point Transmission Service Transmission Customer

Issues to be Considered by Drafting Team Project 2006-07 Transfer — Capabilities (ATC, TTC, CBM, TRM)	
Standard #	**Title**
MOD-004-0	Documentation of Regional Reliability Organization Capacity Benefit Margin Methodologies
Issues	FERC Order 890 • 212. The Commission also believes that further clarification is necessary regarding the calculation algorithms for firm and non-firm ATC.150 Currently, NERC has no standards for calculating non-firm ATC. We find that the same potential for discrimination exists for non-firm transmission service as for firm service and that greater uniformity in both firm and non-firm ATC calculations will substantially reduce the remaining potential for undue discrimination. Therefore, we direct public utilities, working through NERC, to modify related ATC standards by implementing the following principles for firm and non-firm ATC calculations: (1) for firm ATC calculations, the transmission provider shall account only for firm commitments; and (2) for non-firm ATC calculations, the transmission provider shall account for both firm and non-firm commitments, postbacks of redirected services, unscheduled service, and counterflows. We understand that these principles are currently followed by most transmission providers and believe they should be clearly set forth in the ATC-related reliability standards. As described below, each transmission provider's Attachment C must include a detailed formula for both firm and non-firm ATC, consistent with the modified ATC-related reliability standards. • 256. The Commission concludes that it is appropriate to allow LSEs to retain the option of setting aside transfer capability in the form of CBM to maintain their generation reliability requirement. We agree with commenters that, without CBM, LSEs would have to increase their generation reserve margins by contracting for generation capacity, which may result in higher costs without additional reliability benefits. We require, however, the development of standards for how CBM is determined, allocated across transmission paths, and used in order to limit misuse of transfer capability set aside as CBM. Transmission providers also must reflect the set-aside of transfer capability as CBM in the development of the rate for point-to-point transmission service to ensure comparable treatment for point-to-point to customers. • 257. The Commission therefore adopts a combination of the NOPR options one and two, and declines to adopt option three. First, we require public utilities, working through NERC and NAESB, to develop clear standards for how the CBM value shall be determined, allocated across transmission paths, and used. We understand that NERC has already begun the process of modifying several of the CBM-related reliability standards and that the drafting process is a joint project with NAESB. Second, we require transmission providers to reflect the set-aside of transfer capability as CBM in the development of the rate for point-to-point transmission service. • 259. To ensure CBM is used for its intended purpose, CBM shall only be used to allow an LSE to meet its generation reliability criteria. Consistent with Duke's statement, we clarify that each LSE within a transmission provider's control area has the right to request the transmission provider to set aside transfer capability as CBM for the LSE to meet its historical,

	state, RTO, or regional generation reliability criteria requirement such as reserve margin, loss of load probability (LOLP), the loss of largest units, etc. • 260. We direct public utilities, working through NERC, to develop clear requirements for allocating CBM over transmission paths and flowgates. While we do not mandate a particular methodology for allocating CBM to paths and flowgates, one approach could be based on the location of the outside resources or spot market hubs that an LSE has historically relied on during emergencies resulting from an energy deficiency. • 261. We concur with TAPS' proposal that all LSEs should have access to CBM and meaningful input into how much transfer capability is set aside as CBM. In the transparency section below, we provide detailed requirements regarding availability of documentation used to determine the amount of transfer capability to be set aside as CBM and the posting of CBM values and narratives. Access to this documentation will enable LSEs to validate how much transfer capability is set aside as CBM on each system and provide them with information to question whether the set-aside is consistent with the reliability standards and this Final Rule. • 262. Concerning TAPS' proposal to remove the reservation decision from the sole discretion of transmission providers, we determine that LSEs should be permitted to call for use of CBM, if they do so pursuant to conditions established in the reliability standards development process. We direct public utilities working through NERC to modify the CBM-related standards to specify the generation deficiency conditions during which an LSE will be allowed to use the transfer capability reserved as CBM. In addition, we direct that transmission set aside as CBM shall be zero in non-firm ATC calculations. Finally, we order public utilities to work with NAESB to develop an OASIS mechanism that will allow for auditing of CBM usage. • 273. The Commission also adopts the NOPR proposal to establish standards specifying the appropriate uses of TRM to guide NERC and NAESB in the drafting process. Transmission providers may set aside TRM for (1) load forecast and load distribution error, (2) variations in facility loadings, (3) uncertainty in transmission system topology, (4) loop flow impact, (5) variations in generation dispatch, (6) automatic sharing of reserves, and (7) other uncertainties as identified through the NERC reliability standards development process. Because load, facility loading and other uncertainties constantly deviate, we will not require that TRM set aside capacity be set at zero in the non-firm ATC calculation. In other words, we will not require transfer capability that is set aside as TRM to be sold on a non-firm basis. We find that clear specification in this Final Rule of the permitted purposes for which entities may reserve CBM and TRM will virtually eliminate double-counting of TRM and CBM. • 354. The Commission adopts the CBM posting requirements proposed in the NOPR. In doing so, we amend our OASIS regulations to incorporate the directives established in the CBM Order. Accordingly, we require transmission providers to post (and update) the CBM amount for each path. In addition, the Commission requires transmission providers to make any transfer capability set aside for CBM but unused for such purpose available on a non-firm basis and to post this availability on OASIS. Furthermore, the Commission requires transmission providers to post (and update) the TRM values for the paths on which the transmission provider already posts ATC, TTC, and CBM. • 358. The Commission incorporates into its regulations the requirement in

	the CBM Order for a transmission provider to periodically reevaluate its transfer capability set aside for CBM. With respect to TAPS' concerns over the effort involved in the reevaluation process, we will require CBM studies to be performed at least every year. This requirement is consistent with the CBM Order, in which the Commission stated that the level of ATC set aside for CBM should be reevaluated periodically to take into account more certain information (such as assumptions that may not have, in fact, materialized).204 While changes requiring a reevaluation of CBM are longer-term in nature (e.g., installation of a new generator or a long-term outage), quarterly may be too frequent, though two years may be too long and may prevent a portion of the CBM set aside from being released as ATC. Moreover, annual reevaluation is consistent with the current NERC standard being developed in MOD-005.205 The requirement to evaluate CBM at least every year also is consistent with the CBM Order in that the Commission directed transmission providers to periodically reevaluate their generation reliability needs so as to make known the need for CBM and to post on OASIS their practices in this regard. FERC Order 693 Disposition: Not approved or remanded • Clarify that CBM shall be set aside upon request of any LSE within a balancing area to meet its verifiable historical, state, RTO, or regional generation reliability criteria. • Develop requirements regarding transparency of the generation planning studies used to determine CBM values. • Make clear the process for how CBM is allocated across transmission paths or flowgates. • Add LSE as an applicable entity. • Ensure that CBM, TRM, and ETC cannot be used for the same purpose, e.g. loss of the identical generating unit. • Coordinate with NAESB business practices. • Consider APPA's suggestion that MOD-004 may be redundant and could be eliminated is MOD-002 is modified to include reporting requirements. V0 Industry Comments • Regional coordination missing • RRO members not a NERC issue • Gen. planning criteria not available • Restrictions on TSP unfair Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. FERC's December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000 • In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that

	appropriate Reliability Standards and associated requirements are applied to retail marketers must be applied. Each drafting team responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf) and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject. NERC/NAESB Coordination • The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Firm Transmission Service Network Integration Transmission Service Non-Firm Transmission Service Open Access Same-time Information System Point-to-Point Transmission Service Transmission Customer

Issues to be Considered by Drafting Team Project 2006-07 — Transfer Capabilities (ATC, TTC, CBM, TRM)	
Standard #	**Title**
MOD-005-0	Procedure for Verifying Capacity Benefit Margin Values
Issues	FERC Order 693 • Consider APPA's comment to incorporate MOD-004 and MOD-005 into MOD-006 through the standards development process. V0 Industry Comments • Some systems are exempt and aren't noted here • Relationship between shared reserves & CBM • Remove reference to members Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC/NAESB Coordination • The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Firm Transmission Service Network Integration Transmission Service Non-Firm Transmission Service Open Access Same-time Information System Point-to-Point Transmission Service Transmission Customer

<table>
<tr><th colspan="3">Issues to be Considered by Drafting Team
Project 2006-07 — Transfer Capabilities (ATC, TTC, CBM, TRM)</th></tr>
<tr><th colspan="2">Standard #</th><th>Title</th></tr>
<tr><td colspan="2">MOD-006-0</td><td>Procedures for the Use of Capacity Benefit Margin Values</td></tr>
<tr><td>Issues</td><td colspan="2">FERC Order 693
Disposition: Approve with modifications
• Include a requirement that CBM and TRM will not be used for the same purpose.
• CBM should be used for emergency generation deficiencies.
• Modify requirement R1.2 to define generation deficiency based on a specific energy emergency alert level.
• CBM should be zero in the calculation of non-firm ATC.
• Expand applicability section to include entities that use CBM, such as LSEs.

V0 Industry Comments
• CBM is import only
• CBM restrictions unfair and could lead to unreliability

Other
• Modify standard to conform to the latest version of NERC’s Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

NERC/NAESB Coordination
• The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB:
Firm Transmission Service
Network Integration Transmission Service
Non-Firm Transmission Service
Open Access Same-time Information System
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Project 2006-07 — Transfer Capabilities (ATC, TTC, CBM, TRM)</th></tr>
<tr><th colspan="2">Standard #</th><th>Title</th></tr>
<tr><td colspan="2">MOD-007-0</td><td>Documentation of the Use of Capacity Benefit Margin</td></tr>
<tr><td>Issues</td><td colspan="2">FERC Order 693
Disposition: Approve with modifications
• Expand applicability section to include entities that use CBM, such as LSEs.
• Expand applicability section to include balancing authorities as well.

V0 Industry Comments
• Definition required as to who and when to report to

Other
• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

NERC/NAESB Coordination

• The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB:

Firm Transmission Service
Network Integration Transmission Service
Non-Firm Transmission Service
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Transmission Customer</td></tr>
</table>

Issues to be Considered by Drafting Team Project 2006-07 — Transfer Capabilities (ATC, TTC, CBM, TRM)	
Standard #	**Title**
MOD-008-0	Documentation and Content of Each Regional Transmission Reliability Margin Methodology
Issues	FERC Order 890 • 272. The Commission adopts the NOPR proposal and requires public utilities, working through NERC, to complete the ongoing process of modifying TRM standards MOD-008 and MOD-009. We understand that the standard drafting process is underway as a joint project with NAESB. • 273. The Commission also adopts the NOPR proposal to establish standards specifying the appropriate uses of TRM to guide NERC and NAESB in the drafting process. Transmission providers may set aside TRM for (1) load forecast and load distribution error, (2) variations in facility loadings, (3) uncertainty in transmission system topology, (4) loop flow impact, (5) variations in generation dispatch, (6) automatic sharing of reserves, and (7) other uncertainties as identified through the NERC reliability standards development process. Because load, facility loading and other uncertainties constantly deviate, we will not require that TRM set aside capacity be set at zero in the non-firm ATC calculation. In other words, we will not require transfer capability that is set aside as TRM to be sold on a non-firm basis. We find that clear specification in this Final Rule of the permitted purposes for which entities may reserve CBM and TRM will virtually eliminate double-counting of TRM and CBM. • 275. In addition, we direct public utilities, working through NERC, to establish an appropriate maximum TRM. One acceptable method may be to use a percentage of ratings reduction, i.e., model the system assuming all facility ratings are reduced by a specific percentage. This is a relatively simple method and, if adopted as the reliability standard's method, should not restrict a transmission provider from using a more sophisticated method that may allow for greater ATC without reducing overall reliability. FERC Order 693 Disposition: Not approved or remanded • Include clear requirements for how TRM should be calculated, including a methodology for determining maximum TRM values, and allocated across paths. • Clear requirements for permitted purposes for which TRM can be set aside and used. • Clear requirements for availability of documentation that supports TRM determination. • Expand the applicability to include planning authorities and reliability coordinators. V0 Industry Comments • Exemptions missing • RRO in conjunction with its members is not NERC subject matter Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

	NERC/NAESB Coordination • The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Firm Transmission Service Network Integration Transmission Service Non-Firm Transmission Service Open Access Same-time Information System Point-to-Point Transmission Service Transmission Customer

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Project 2006-07 — Transfer Capabilities (ATC, TTC, CBM, TRM)</th></tr>
<tr><th colspan="2">Standard #</th><th>Title</th></tr>
<tr><td colspan="2">MOD-009-0</td><td>Procedure for Verifying Transmission Reliability Margin Values</td></tr>
<tr><td>Issues</td><td colspan="2">FERC Order 693
Disposition: Not approved or remanded

V0 Industry Comments
• Margin values not provided to users

Other
• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

NERC/NAESB Coordination

• The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB:

Firm Transmission Service
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Transmission Customer</td></tr>
</table>

Project 2006-08 Transmission Loading Relief

Standards Involved:

IRO-006-3 — Reliability Coordination – Transmission Loading Relief

Research Needed:

None

Brief Description:

This is a project that is carried over from 2006. This project involves a coordinated effort with NAESB to clarify and refine the requirements in the standard and identify which requirements are needed to support reliability and which requirements are needed to support a business practice. A part of this project is to modify the requirements so that the Interchange Distribution Calculator will accept market data, thus eliminating the need for the existing regional differences and to make other necessary modifications as identified by stakeholders.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:

The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2008 Annual plan):

Annual Plan Item 1.a.ii
Annual Plan Item 1.d
Annual Plan Item 2.b.vi

Justification for NAESB consideration:

FERC Order 890

SRS Recommendation:

This project is already covered by current NAESB WEQ projects. NERC should take into consideration WEQ Annual Plan Item 1.d in the development of the NERC Standard. Coordination between NERC and NAESB is in progress.

Standard Development Status:

Project 2006-08 Transmission Loading Relief Web page

Project Schedule:

Project 2006-08 Schedule

Target Completion Date:

Phase 2: third quarter of 2009

Phase 3: first quarter of 2009

Related Links:

Project 2006-08 Roster

Issues to be Considered by Drafting Team Project 2006-08 Transmission Loading Relief	
Standard #	**Title**
IRO-006-3	Reliability Coordination – Transmission Loading Relief
Issues	FERC Order 693 Disposition: Approve with modifications • Include a clear warning that TLR procedures are not appropriate and not effective to mitigate an actual IROL violation. • Identifies the available alternatives to mitigate an IROL violation other than the use of the TLR procedure. Consider the suggestions of MidAmerican and Xcel when developing the modification. • Modify the WECC and ERCOT load relief procedures to ensure consistency with the standard form of the reliability standard including requirements, measures, and levels of non-compliance. Regional Difference to IRO-006: PJM/MISO/SPP Enhanced Congestion Management Disposition: Not Approved or Remanded. • Commission will allow the twelve-month PJM/MISO/SPP field test to conclude before taking further action on the variance. • Instructs the RTOs to continue working with the non-market regions to develop revised seams agreements that allow for equitable and feasible treatment of market flows in the NERC TLR/redispatch process. • Allow the NERC Operating Committee to address the technical merits of netting flow impacts in the interchange distribution calculator. FERC Order 890 • 911. The Commission has determined that modifications to the current planning redispatch requirement and creation of a conditional firm option are both necessary for provision of reliable and non-discriminatory point-to-point transmission service. The planning redispatch and conditional firm options represent different ways of addressing similar problems. They can be used to remedy a system condition that occurs infrequently and prevents the granting of a long-term firm point-to-point service. These options also can be used to provide service until transmission upgrades are completed to provide fully firm service. Planning redispatch involves an ex ante determination of whether out-of-merit order generation resources can be used to maintain firm service. Conditional firm involves an ex ante determination of whether there are limited conditions or hours under which firm service can be curtailed to allow firm service to be provided in all other conditions or hours. As we explain below, both techniques are currently used under certain conditions by transmission providers to serve native load and, hence, it is necessary to make comparable services available to transmission customers in order to avoid undue discrimination. • 1074. We adopt a secondary network curtailment priority to apply for the hours or specific system conditions when conditional firm service is conditional. During nonconditional periods, conditional firm service is subject to pro rata curtailment consistent with curtailment of other

	long-term firm service. Thus, secondary network service and conditional firm service when it is conditional will share the same curtailment priority. Also, there is no conflict with reliability standards because conditional firm service will be subject to pro rata curtailment with all other firm uses of the system once conditional curtailment hours, if that is the option selected, are exhausted. • 1075. The secondary network curtailment priority is appropriate because the customer is paying the long-term firm point-to-point rate and thus should receive the highest non-firm curtailment priority during the conditional curtailment hours or during specified system conditions. Adoption of this curtailment priority overcomes what could otherwise be significant implementation hurdles. It allows for implementation of the service without changes to existing NERC TLR practices. NERC and members of the industry need not undertake the time-consuming and expensive process of establishing a new curtailment priority that is between firm and non-firm service as some commenters requested. Use of this curtailment priority also avoids attendant decisions relating to the method of curtailment that should apply, i.e., pro rata or transactional curtailment, for a quasi-firm curtailment priority. It is also consistent with existing interruption provisions of the pro forma OATT which provide that secondary service cannot be interrupted for economic reasons.659 This is consistent with our determination that conditional firm service when it is conditional is curtailable only to maintain reliable operation of the transmission system. • 1076. We reject EEI's argument that the curtailment priority for conditional firm service is inconsistent with Commission precedent regarding priority non-firm service only for network customers. EEI's argument is inapposite. Long-term firm point-to-point customers taking fully firm service without the conditional firm option do not need access to priority non-firm service as EEI suggests. They have assurance that their service will not be interrupted for economic reasons and will only be curtailed on a comparable basis with network service. This would not be the case for conditional firm customers. We also find that EEI has failed to explain the connection between the conditional firm transmission service and the availability of reliability re-dispatch options, i.e., generators on its system that can ramp up or down in response to a curtailment. We reject Powerex's request that transmission providers be required to show that existing long-term rights are protected. Each addition of a new long-term firm transaction impacts the rights of existing firm customers to some extent. • 1077. We disagree with commenters' suggestion that the NERC IDC must be changed to accommodate conditional firm service. We reiterate that we are not creating a new curtailment priority in this Final Rule. We also disagree that new tags that combine a firm and non-firm priority must be developed in order to implement the conditional firm option. The curtailment priority in a tag can be changed ahead of the operating hour based on a near-term forecast of system conditions.660 We are cognizant that daily and hourly operations to change the tags for conditional firm customers likely involve the need for control room coordination and development of an appropriate tracking process. As the Commission described in the NOPR, new tracking and tagging business practices for this service

	must be developed by each transmission provider. Thus, we are allowing a sufficient period for the development of these business practices, i.e., 180 days from the date of publication of this Final Rule in the Federal Register. As directed above, transmission providers must coordinate with other transmission providers in their regions to develop these tracking and tagging business practices. FERC Order 693 Disposition: Approve with modifications • Include a clear warning that TLR procedures are not appropriate and not effective to mitigate an actual IROL violation. • Identifies the available alternatives to mitigate an IROL violation other than the use of the TLR procedure. Consider the suggestions of MidAmerican and Xcel when developing the modification. • Modify the WECC and ERCOT load relief procedures to ensure consistency with the standard form of the reliability standard including requirements, measures, and levels of non-compliance. V0 Industry Comments • Usage of TLR log questioned • Some inconsistencies with current usage VRF comments • R2.1, .2 & .3 – not a requirement, just a suggested instruction • R6 – redundant Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC/NAESB Coordination • The SDT should review the definition of the following term and coordinate with NAESB so that the definition is consistent between NERC and NAESB: Reallocation

Project 2006-09 Facility Ratings

Standards Involved:

FAC-008-1 — Facility Ratings Methodology
FAC-009-1 — Establish and Communicate Facility Ratings

Research Needed:

None

Brief Description:

The revisions to these two standards will result in a single standard that is responsive to the recommended changes identified in the Standard Issues Forms attached to the SAR.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standard Development Status:

Project 2006-09 Facility Ratings Web page

Project Schedule:

Project 2006-09 Schedule

Target Completion Date:

Fourth quarter of 2008

Related Links:

Project 2006-09 Roster

Issues to be Considered by Drafting Team Project 2006-09 — Facility Ratings	
Standard #	**Title**
FAC-008-1	Facility Ratings Methodology
Issues	FERC Order 693 Disposition: Approve with modifications • Consider EEI's suggestion for having this information available for review upon request of a registered user, owner, and operator as part of the standards development process. • Require transmission and generator facility owners to document underlying assumptions and methods used to determine normal and emergency facility ratings. • Ensure that the methodology chosen is consistent with standards developed in an open process like IEEE or CIGRE. • Consider comments raised by LPPC and MRO as part of the standards development process. • Identify and document the limiting component for all facilities and the increase in rating if that component were no longer the limiting component, i.e. the rating for the second-most limiting component, for facilities associated with an IROL, a limitation of TTC, an impediment to generator deliverability, or an impediment to service in major cities or load pockets. • Consider International Transmission's comments regarding applying this directive only for lines where the conductor itself is not the limiting element as part of the standards development process. • Consider comments from FirstEnergy and MISO that generators will have difficulty determining the increase in ratings due to the next limiting element through the standards development process. • Consider Xcel's comments that an actual test be used by generator operators to determine capabilities as part of the standards development process. • Consider FirstEnergy's comments that compliance with NRC rating methodologies should be assumed to comply with NERC reliability standards as part of the standards development process. • Consider the comments by the Valley Group regarding dynamic line ratings as part of the standards development process. • Add or update the compliance measures in the standard as part of the standards development process. Comment from draft SAR on Planning Authority • Provide clarity where the Planning Authority is mentioned Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Issues to be Considered by Drafting Team Project 2006-09 Facility Ratings	
Standard #	**Title**
FAC-009-1	Establish and Communicate Facility Ratings
Issues	FERC Order 693 Disposition: Approved Comment from draft SAR on Planning Authority • Provide clarity where the Planning Authority is mentioned Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Project 2007-01 Underfrequency Load Shedding

Standards Involved:

PRC-006-0 — Development and Documentation of Regional ULS Program Requirements
PRC-007-0 — Assuring Consistency with Regional UFLS Programs
PRC-009-0 — UFLS Performance Following an Underfrequency Event

Research Needed:

None

Brief Description:

PRC-006 is one of the few reliability standards identified by the Regional Reliability Standards Working Group as a standard that has some requirements that need to be defined by each regional entity in a regional standard.

The standard drafting team (SDT) will work with stakeholders to review PRC-006 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the UFLS program documentation. The SDT shall determine which requirements should be continent-wide requirements and which requirements should be included in regional standards.

PRC-007 and PRC-009 have some 'fill-in-the-blank' characteristics, as identified in the Regional Reliability Standards Working Group work plan, which need to be removed. These standards shall be included with PRC-006 for consideration as one or more revised standards as necessary for consistency and clarity of overall program requirements and any other associated programs and/or requirements that affect or impact the UFLS program.

The standard drafting team may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standard Development Status:

Project 2007-01 Underfrequency Load Shedding Web page

Project Schedule:

Project 2007-01 Schedule

Target Completion Date:

Third quarter of 2009

Related Links:

Project 2007-01 Roster

Issues to be Considered by Drafting Team Project 2007-01 — Underfrequency Load Shedding	
Standard #	**Title**
PRC-006-0	Development and Documentation of Regional Reliability Organizations' Underfrequency Load Shedding Programs

Issues	FERC Order 693 Disposition: Not approved or remanded • Transfer responsibility from the regional reliability organization to the regional entity. Fill-in-the-Blank Team Comments • Modify R1 to require each Region to develop a regional standard, and • Determine what elements (if any) of UFLS should be included in the North American standard and what elements should be included in the regional standards. • Development of regional standards needs to be coordinated with Regional entities. Regional entities should begin process for developing regional standards once the drafting team for the North American standard has determined what elements of UFLS should be included in the continent-wide standard and what elements should be included in the regional standards. • PRC-006 will be a continent-wide standard supported by Regional Reliability Standards. • Related PRC-007, PRC-008, and 009. V0 Industry Comments • Not a standalone standard • Who do you submit compliance material to? • Need to define evidence Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

<table>
<tr><th colspan="3">Issues to be Considered by Drafting Team
Project 2007-01 — Underfrequency Load Shedding</th></tr>
<tr><th colspan="2">Standard #</th><th>Title</th></tr>
<tr><td colspan="2">PRC-007-0</td><td>Assuring Consistency of Entity Underfrequency Load Shedding Programs with Regional Reliability Organizations' Underfrequency Load Shedding Program Requirements</td></tr>
<tr><td>Issues</td><td colspan="2">FERC Order 693
Disposition: Approved

Fill-in-the-Blank Team Comments
• Change "program" to "standard" in R1.
• Coordinated with PRC-006.
• The regional procedures need to be converted to a standard to implement this.

V0 Industry Comments
• Need to include RA
• Need to refine levels of non-compliance

Other
• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

FERC's December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000
• In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be applied. Each drafting team responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see:
• FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf)
• NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf),
• FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf) and
• NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.</td></tr>
</table>

Issues to be Considered by Drafting Team Project 2007-01 — Underfrequency Load Shedding		
Standard #	**Title**	
PRC-009-0	Analysis and Documentation of Underfrequency Load Shedding Performance Following an Underfrequency Event	
Issues	FERC Order 693 Disposition: Approved Fill-in-the-Blank Team Comments • Change "program" to "standard'. • See issues for PRC-007. V0 Industry Comments • Define evidence • 90 days vs. 30 days • Exemptions for those with shunt reactors who don't shed load Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. FERC's December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000 • In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be applied. Each drafting team responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf) and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.	

Project 2007-02 Operating Personnel Communications Protocols

Standards Involved:

COM-002-2

Research Needed:

None

Brief Description:

This is a new project that was identified in support of a blackout recommendation #26. This standard will require the use of specific communication protocols, especially for communications during alerts and emergencies. The standard will be applicable to transmission operators, balancing authorities, reliability coordinators, generator operators and distribution providers.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standard Development Status:

Project 2007-02 Operating Personnel Communications Protocols Web page

Project Schedule:

Project 2007-02 Schedule

Target Completion Date:

First quarter of 2009

Related Links:

Project 2007-02 Roster

Issues to be Considered by Drafting Team Project 2007-02 Operating Personnel Communications Protocols	
Standard #	**Title**
COM-002-2	Communications and Coordination
Issues	FERC Order 693 Disposition: Approve with modifications • Establish tightened communication protocols, especially for communications during alerts and emergencies. Establish uniformity to the extent practical on a continent-wide basis. V0 Industry Comments • Voice with generators not required • R1 – include reliability authority • R2 – include sabotage and security • R4 – clarify repeat back requirement with regard to emergency Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Standards Drafting Team Coordinators Meeting • R2 - COM-002-2 Communication and Coordination is being reviewed and revised under both Project 2006-06 Reliability Coordination and Project 2007-02 Operating Personnel Communications Protocols; however, it has been agreed that: • Requirement R1will be addressed by the SDT for Project 2006-06 and • Requirement R2 will be addressed by the SDT for Project 2007-02 Operating Personnel Communications Protocols. • If either part of this agreement is not maintained, COM-002-2 will need revisited. • Requirements R1, R3, R4, and R5 (for coordination in planning time frame) of PRC-001-1 System Protection Coordination are better addressed in COM-002 Communications and Coordination. • (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.) • R4 — COM-001-1 Telecommunications is being reviewed and revised under Project 2006-06 Reliability Coordination; however, it has been agreed that all requirements of COM-001-1 except R4 will be addressed by the SDT for Project 2006-06 and that requirement R4 will be addressed by the SDT for Project 2007-02 Operating Personnel Communications Protocols. If either part of this agreement is not maintained, COM-001-1 will need revisited.

Project 2007-03 Real-time Operations

Standards Involved:

TOP-001-1 — Reliability Responsibilities and Authorities
TOP-002-2 — Normal Operations Planning
TOP-003-0 — Planned Outage Coordination
TOP-004-1 — Transmission Operations
TOP-005-1 — Operational Reliability Information
TOP-006-1 — Monitoring System Conditions
TOP-007-0 — Reporting SOL and IROL Violations
TOP-008-1 — Response to Transmission Limit Violations
PER-001-0 — Operating Personnel Responsibility and Authority

Research Needed:

Operating Committee study of situational awareness tools

Brief Description:

Most of the requirements in this set of standards were translated from Operating Policies as part of the Version 0 process. There have been suggestions for improving these requirements, and the drafting team will consider comments submitted by stakeholders, drafting teams and FERC in determining what changes should be proposed to stakeholders.

The drafting team will review all of the requirements in this set of standards and make a determination, with stakeholders, on whether to:

- Move the requirement (into another SAR or Standard or to the certification process or standards)
- Eliminate the requirement (either because it is redundant or because it does not support bulk power system reliability).
- Improve clarity of, improve measurability of, and remove ambiguity from the remaining requirements
- Bring the set of standards into conformance with the latest version of the Reliability Standards Development Procedure and the ERO Sanctions Guidelines.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standard Development Status:

Project 2007-03 Real-time Operations Web page

Project Schedule:

Project 2007-03 Schedule

Target Completion Date:

Third quarter of 2009

Related Links:

Project 2007-03 Roster

Issues to be Considered by Drafting Team Project 2007-03 — Real-time Operations	
Standard #	**Title**
TOP-001-1	Reliability Responsibilities and Authorities
Issues	FERC Order 693 Disposition: Approve with modifications • Clarify the definition of "emergency" and define the criteria for entering into the various states. Also define the authority for declaring these states. • Consider Santa Clara's comments on requirements R7.2 and R7.3 on transmission operator notification requirements as part of the standards development process. • Includes measures and levels of non-compliance for requirement R8 • Consider adding other measures and levels of non-compliance. V0 Industry Comments • Define emergency • Need to expand included entities • What is 'clear decision making authority'? • Need to define single, central communications point during emergencies • Some emergencies will require follow up notification as opposed to immediate Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Audit and Observation Team • Does this imply that a GOP can call another GOP and request an output change without going through the RC, BA or TOP?

Issues to be Considered by Drafting Team Project 2007-03 — Real-time Operations	
Standard #	**Title**
TOP-002-2	Normal Operations Planning
Issues	FERC Order 693 Disposition: Approve with modifications • Delete references to confidentiality in requirements R3 and R4. • Address critical energy infrastructure confidentiality as part of the routine standard development process. • Next-day analysis for all IROLs must identify and communicate control actions to system operators that can be implemented within 30 minutes following a contingency. • Requires next-day analysis of minimum voltages at nuclear power plants auxiliary power buses. • Inform the nuclear plant operator in real-time if the auxiliary power bus voltages cannot be maintained. • Requires simulation contingencies to match what will actually happen in the field. • Consider the comments of ISO-NE and the NRC with respect to requirement R12 and measure M7 as part of the standard development process. Fill-in-the-Blank Team Comments • Remove "in accordance with NERC, Regional Reliability Organization, sub regional, and local reliability requirements" from R6 and "in accordance with filed tariffs and/or regional Total Transfer Capability and Available Transfer Capability calculation processes" from R12. V0 Industry Comments • Limit of 2 tests per year • Coordination of planning required • Reliability should 'trump' confidentiality • Define 'without intentional delay' • Define N-1 VRF comments • R2 – administrative in nature, not a real requirement • R9 – related to INT-003 • R14 & 14.1 – ambiguous Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Standards Drafting Team Coordinators Meeting • Requirements R2, R5, and R6 (for coordination in real-time) of PRC-001-1 System Protection Coordination are better addressed in the TOP family of standards: • Consider putting R5 of PRC-001-1 in: TOP-002 R1, R3, R4, or R5 or

	TOP-003 – R1, R3, R4 • (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.) FERC's December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000 • In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be applied. Each drafting team responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf) and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Issues to be Considered by Drafting Team Project 2007-03 — Real-time Operations	
Standard #	**Title**
TOP-003-0	Planned Outage Coordination
Issues	FERC Order 693 Disposition: Approve with modifications • Communicate scheduled outages to all affected entities well in advance to ensure reliability and accuracy of ATC calculations. • Incorporate an appropriate lead time for planned outages using suggestions from the various commenters. • Consider TVA's suggestion for including breaker outages within the meaning of facilities that are subject to advance notice for planned outages. • Require any facility, that in the opinion of the reliability coordinator, balancing authority, or transmission operator, will have a direct impact on the reliability of the bulk power system be subject to the requirement R1 for planned outage coordination. V0 Industry Comments • Submit outage data ASAP but no later than noon day ahead • RA can't request outage cancellation • Outage information needed sooner than 1 day prior VRF comments • R4 – poorly written Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Standards Drafting Team Coordinators Meeting • Requirements R2, R5, and R6 (for coordination in real-time) of PRC-001-1 System Protection Coordination are better addressed in the TOP family of standards: • Consider putting R5 of PRC-001-1 in: TOP-002 R1, R3, R4, or R5 or TOP-003 – R1, R3, R4 • Consider putting R6 of PRC-001-1 in: TOP-003 R5 or TOP-006 • (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.)

Issues to be Considered by Drafting Team Project 2007-03 — Real-time Operations	
Standard #	**Title**
TOP-004-1	Transmission Operations
Issues	FERC Order 693 Disposition: Approve with modifications • Modify requirement R4 to state that the system should be restored to respect proven limits as soon as possible taking no more than 30 minutes. • Defines high risk conditions under which the system must be operated to respect multiple outages in requirement R3. • Consider Santa Clara's comments regarding changes to requirement R2 in the standards development process. • Perform a survey of the prevailing operating practices and actual operating experiences surrounding IROL limits. • Reliability coordinators should report any IROL violations to NERC on a monthly basis for one year beginning August 2, 2007. • NERC should report the results of the survey to the Commission within 18 months of the effective date of this rule. V0 Industry Comments • Clarify roles • Define SOL & IROL • Operations should conform to planning standards • Vagueness in application of IROL limits • Specify disconnection as acceptable in R5 • Define (or remove) practical Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Audit Observation Team • R4. - Transmission operator enters an unknown state. What does this mean?

Issues to be Considered by Drafting Team Project 2007-03 — Real-time Operations	
Standard #	**Title**
TOP-005-1	Operational Reliability Information
Issues	FERC Order 693 Disposition: Approve with modifications • Include information about the operational status of special protection systems and power system stabilizers in Attachment 1. • Delete references to confidentiality agreements but ensure critical energy infrastructure confidentiality is addressed in the standards development process. • Consider FirstEnergy's modifications to Attachment 1 and ISO-NE's recommended revision to requirement R4 in the standards development process. V0 Industry Comments • Need to include GO & LSE • Data update is too slow • Generator data should include voltage control & stabilizers • GO needs to supply data to BA & TO Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Standards Drafting Team Coordinators Meeting • Requirements R2, R5, and R6 (for coordination in real-time) of PRC-001-1 System Protection Coordination are better addressed in the TOP family of standards: • Consider putting R2 of PRC-001-1 in TOP-005 • (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.)

Issues to be Considered by Drafting Team Project 2007-03 — Real-time Operations	
Standard #	**Title**
TOP-006-1	Monitoring System Conditions
Issues	FERC Order 693 Disposition: Approve with modifications • Add requirement related to the provision of minimum capabilities that are necessary to enable operators to deal with real-time situations and to ensure reliable operation of the bulk power system. • Clarify the meaning of "appropriate technical information" concerning protective relays. • Consider APPA's comments regarding missing measures in the standards development process. V0 Industry Comments • GO needs to provide normal & emergency data • Monitor frequency at multiple points • Need to match roles with FM • Load forecasting data required VRF comments • R1, 1.1, 1.2 – 'available in emergency situation' may be needed • R3 – define appropriate • R4 – What information is required and what is a load pattern? Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Standards DT Coordinators Meeting 20080520 • Requirements R2, R5, and R6 (for coordination in real-time) of PRC-001-1 System Protection Coordination are better addressed in the TOP family of standards: • Consider putting R6 of PRC-001-1 in: TOP-003 R5 or TOP-006 • (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.)

Issues to be Considered by Drafting Team Project 2007-03 — Real-time Operations	
Standard #	**Title**
TOP-007-0	Reporting System Operating Limit (SOL) and Interconnection Reliability Operating Limit (IROL) Violations
Issues	FERC Order 693 Disposition: Approved • Eliminate overlapping matters in TOP-007 and TOP-008. • Consider the NRC's comments on voltage requirements as part of the standards development process. V0 Industry Comments • Not enforceable with current criteria • RA should be included • More of a compliance issue than an true standard • Need to tighten the non-compliance terms • Need to define evidence of evaluation Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Issues to be Considered by Drafting Team Project 2007-03 — Real-time Operations		
Standard #	**Title**	
TOP-008-1	Response to Transmission Limit Violations	
Issues	FERC Order 693 Disposition: Approved • Consider APPA's comments regarding missing measures in the standards development process. Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.	

Issues to be Considered by Drafting Team Project 2007-03 — Real-time Operations	
Standard #	**Title**
PER-001-0	Operating Personnel Responsibility and Authority
Issues	FERC Order 693 Disposition: Approved V0 Industry Comments • Data retention should be 1 year Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Project 2007-04 Certifying System Operators

Applicable Standards:

PER-003-0 — Operating Personnel Credentials

Research Needed:

None

Brief Description:

This Version 0 Standard requires the Reliability Coordinator, Balancing Authority and Transmission Operator to staff its real-time operating positions with personnel that have a NERC certification credential.

The standard will be revised to address the directives from FERC Order 693 and industry comments from Version 0.

The standard will also be revised to conform to the latest version of the Reliability Standards Development Procedure and the ERO Sanctions Guidelines. The standard drafting team will apply the Reliability Standard Review Guidelines when modifying the standard.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project 2007-04 Certifying System Operators Web page

Project Schedule:

Project 2007-04 Schedule

Target Completion Date:

Third quarter of 2009

Related Links:

Project 2007-04 Roster

Issues to be Considered by Drafting Team Project 2007-04 — Certifying System Operators	
Standard #	**Title**
PER-003-0	Operating Personnel Credentials
Issues	FERC Order 693 Disposition: Approve with modifications • Specify the minimum competencies that must be demonstrated to become and remain a certified operator. • Identify the minimum competencies operating personnel must demonstrate to be certified. • Consider grandfathering certification requirements for transmission operator personnel as part of the standards development process. V0 Industry Comments • Non-compliance levels missing • Need to define 'current' • Need to specify exact position titles and match to credentials • Problem with wording change from 'both' to 'either' • Need to define critical tasks • Staffing plan is out of scope Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Audit and Observation Team • Who needs to be certified?

Project 2007-05 Balancing Authority Controls

Standards Involved:

BAL-002-0 — Disturbance Control Performance
BAL-004-0 — Time Error Correction
BAL-005-1 — Automatic Generation Control
BAL-006-1 — Inadvertent Interchange

Research Needed:

None

Brief Description:

The standard drafting team will:

- Work collaboratively with NAESB to ensure that the elements of these standards that are need to support reliability are include in the revised standard
- Consider comments receive during the initial development of this set of standards and other comments received from ERO regulatory authorities and stakeholders
- Bring the standards into conformance with the latest version of the Reliability Standards Development Procedure and the ERO Rules of Procedures
- Incorporate language to eliminate two interpretations (BAL-005, Requirement 17)
- Incorporate language to make permanent the Urgent Action removal of some of the reliability coordinator's requirements in BAL-004
- Review all of the requirements in the standards listed above.

For each existing requirement, the standard drafting team will also work with NAESB and stakeholders to:

- Eliminate redundancy (or overlap) in the requirements and associated business practices
- Identify requirement that should be moved into other SARs, standards, or business practices
- Eliminate requirements that do not support bulk power reliability
- Improve clarity of, improve measurability of, and remove ambiguity from the remaining requirements

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:

The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2008 Annual plan):
Annual Plan Item 1
Annual Plan Item 6.b

Provisional Item 5

Justification for NAESB consideration:

FERC Order 693
Project Description

SRS Recommendation:

During initial discussions (REF: Rae McQuade's letter to Gerry Adamski dated February 11, 2008), there was no identified need for business practices related to this project. NERC should point out any areas where they see a need for a business practice. This should be coordinated with the WEQ on current project Annual Plan Item 6.b.

Standards Development Status:

Project 2007-05 Balancing Authority Controls Web page

Project Schedule:

Project 2007-05 Schedule

Target Completion Date:

TBD

Related Links:

Project 2007-05 Roster

Issues to be Considered by Drafting Team Project 2007-05 — Balancing Authority Controls	
Standard #	**Title**
BAL-002-0	Disturbance Control Performance
Issues	FERC Order 693 Disposition: Approved with modifications • Modify to make requirements R4.2 and R6.2 refer to NERC rather than the NERC Operating Committee. • Substitute regional entity for regional reliability organization <u>Including Demand-Side Management as a Resource</u> • Include a requirement that explicitly provides that DSM may be used as a resource for contingency reserves. • DSM should be treated on a comparable basis and must meet similar technical requirements as other resources providing this service <u>Continent-wide Contingency Reserve Policy</u> • Include a continent-wide contingency reserve policy, which should include uniform elements (definitions and requirements) • Policy can allow for regional differences, but should include procedures to determine the appropriate mix of operating reserves, spinning and non-spinning, as well as requirements pertaining to the specific amounts of operating reserves based on the load characteristics and magnitude, topology, and mix of resources in the region. <u>Disturbance Control Standard and the Associated Reserve Requirement</u> • Address Commission concerns about having enough contingency reserves to respond to an event on the system in requirement 3.1 and how such reserves are measured. • Requires any single reportable disturbance that has a recovery time of 15 minutes or longer be reported as a violation. • Define a significant (frequency) deviation and a reportable event, taking into account all events that have an impact on frequency, and how balancing authorities should respond. • Include a frequency response requirement. • Measures should be available in real-time to balancing authorities. Fill-in-the-Blank Team Comments • Modify R2 to remove reference to "sub-Regional Reliability Organization or Reserve Sharing Group", and • Determine what elements of contingency reserve should be included in the North American standard and what elements should be included in the regional standard. • Development of regional standards needs to be coordinated with Regional entities. Regional entities should begin process for developing regional standards once the drafting team for the North American standard has determined what elements of contingency reserve should be included in the continent-wide standard and what elements should be included in the regional standards. • Regional reliability standards will be developed in support of North American standard BAL-002. • Each RRO will need to create a regional standard specifying its

	Contingency Reserve policy. V0 Industry Comments • Modify R2 • Determine N. America vs. regional elements • Need regional standards in support of N. American Standards Process • Incorporate approved formal interpretation Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Audit and Observation Team • R2 — What is a sub-region • R2 — Should the reserve sharing group be audited or the members? This should be tied to registration for consistency. NERC/NAESB Coordination • The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Frequency Bias Setting Time Error Time Error Correction

Issues to be Considered by Drafting Team Project 2007-05 — Balancing Authority Controls		
Standard #	**Title**	
BAL-004-0	Time Error Correction	
Issues	FERC Order 693 Disposition: Approved with modifications • Include levels of non-compliance and additional measures for requirement R3. • In the five-year review cycle of the standard, perform research that would provide a technical basis for the present or any alternative approach that is more effective and helps reduce inadvertent interchange. Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC/NAESB Coordination • The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Frequency Bias Setting Time Error Time Error Correction	

Issues to be Considered by Drafting Team Project 2007-05 — Balancing Authority Controls	
Standard #	**Title**
BAL-005-1	Automatic Generation Control
Issues	FERC Order 693 Disposition: Approved with modifications • Develop a process to calculate the minimum regulating reserve for a balancing authority, taking into account expected load and generation variation and transactions being ramped in and out. • Change title to be neutral as to the source of regulating reserves and allows the inclusion of technically qualified DSM. • If regulation is being provided over non-firm transmission service, the entity receiving the regulation must have a back-up plan to include the loss of the non-firm transmissions service as referenced in requirement R5. • Address comments of Xcel and FirstEnergy when the standard is revisited in the work plan. • Include a measure that provides for a verification process over the required automatic generation control, or regulating reserves a balancing authority maintains V0 Industry Comments • Purpose statement • Re-order & re-word requirements • Define data requirements • Non-compliance missing VRF comments • R12 - sub-requirements should be separate requirements • R12.3 – redundant • R14 - Check for redundancy of second statement. This seems to be a real-time requirement - not planning. Is this for archival data requirements? Standards Process • Incorporate approved formal interpretation Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Audit and Observation Team • What the difference between BAL-005-0 and BAL-005-1? FERC's December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000 • In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a

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<table>
<tr><th colspan="3">Issues to be Considered by Drafting Team
Project 2007-05 — Balancing Authority Controls</th></tr>
<tr><th colspan="2">Standard #</th><th>Title</th></tr>
<tr><td colspan="2">BAL-006-1</td><td>Inadvertent Interchange</td></tr>
<tr><td>Issues</td><td colspan="2">FERC Order 693
Disposition: Approved with modifications
• Add measures concerning the accumulation of large inadvertent interchange balances and levels of non-compliance.
• Examine the WECC time error correction procedure as a possible guide.

Regional Differences to BAL-006-1: Inadvertent Interchange Accounting and Financial Inadvertent Settlement
Disposition: Approved with modifications

• Reference the current reliability standards and are in the standard form, which includes requirements, measures, and levels of non-compliance.
• Explore FirstEnergy’s request to define the function of a waiver in the reliability standard development process.

V0 Industry Comments
• Purpose/Requirement contradiction
• Split requirements
• Wording in R4
• Requirements mixed in Compliance
• Non-compliance missing

Other
• Modify standard to conform to the latest version of NERC’s Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

NERC/NAESB Coordination

• The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB:

Frequency Bias Setting
Time Error
Time Error Correction</td></tr>
</table>

Project 2007-06 System Protection Coordination

Standards Involved:

PRC-001-1 — System Protection Coordination

Research Needed:

Identification of criteria for determining where to install protection systems

Brief Description:

The existing PRC-001 Standard has been identified in the Reliability Standards Development Plan as requiring revision, within the FERC Order 693 as requiring revisions, and by a SPCTF report (attached) which identified a number of issues with the existing standard (the SPCTF report, which precedes FERC Order 693, also includes observations from the preceding FERC NOPR on RM-06-16-000). This revision of PRC-001 should address concerns from these sources and should include upgrades to bring the revised standard into conformance with the latest version of the ERO Rules of Procedure.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project 2007-06 System Protection Web page

Project Schedule:

Project 2007-06 Schedule

Target Completion Date:

Second quarter of 2010

Related Links:

Project 2007-06 Roster

Issues to be Considered by Drafting Team Project 2007-06 — System Protection Coordination	
Standard #	**Title**
PRC-001-1	System Protection Coordination
Issues	FERC Order 693 Disposition: Approve with modifications • Clarify the term "corrective action". • Consider FirstEnergy's and the California PUC's comments about the maximum time for corrective actions in the standards development process. • Upon detection of failures in relays or protection system elements on the bulk power system that threaten reliability, relevant transmission operators must be informed promptly, but within a specified period of time. • Once informed, transmission operators must carry out corrective control actions that return the system to a stable state that respects system requirements as soon as possible and no longer than 30 minutes. • Measures and levels of non-compliance incorrectly reference non-existent requirements. V0 Industry Comments • Effects on reliability may not be known • Consistent terminology as to neighbor vs. affected • Not all criteria moved over from policies Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Project 2007-07 Vegetation Management

Standards Involved:

FAC-003-1 — Vegetation Management Program

Research Needed:

None

Brief Description:

This is a Version 1 standard that was approved in 2006. It has some 'fill-in-the-blank' components to eliminate. In addition, the following comments submitted by FERC and stakeholders need to be addressed in the refinement of the standard:

FERC Order 693 items

Address the issue regarding applicability:

- Work with the reliability entities and the ERO to collect and make available to the FERC, a list of critical lower voltage transmission lines. (Refer to Applicability 4.3 section of the standard.)
- Consider other criteria in determining applicability of the standard to sub 200kV lines.

Address the issue of clearances for lines on both federal and non-federal lands:

- Review and analyze outage data (collected by the ERO) then consider defining clearances needed to avoid sustained vegetation-related outages that would apply to transmission lines crossing both federal and non-federal land.
- Consider revising the definition of right of way to encompass required clearance areas.
- Review the suitability of IEEE 516-2003 standard for minimum vegetation clearance.

Procedural items

- Re-format standard to bring it into conformance with the latest version of the Reliability Standard Development Procedure and the ERO Sanctions Guidelines.
- Remove references to RRO in the standard and substitute a responsible entity.
- Add newly developed compliance elements such as time horizons, violation risk factors, violation severity levels, etc.

Stakeholder items

- Prepare technical reference material such as a "white paper" to aid in understanding the technical basis for the standard.
- Review reporting criteria for Category 3 outages in the proposed technical reference material and may remove the reporting requirement of Category 3 outages in R.3 and R.4.
- Consider deleting requirement R.4.
- Review the reporting exemptions to include all category outages under major disasters in Requirement R3.2.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project 2007-07 Vegetation Management Web page

Project Schedule:

Project 2007-07 Schedule

Target Completion Date:

First quarter of 2009

Related Links:

Project 2007-07 Roster

Issues to be Considered by Drafting Team Project 2007-07 — Vegetation Management	
Standard #	**Title**
FAC-003-1	Transmission Vegetation Management Program
Issues	FERC Order 693 Disposition: Approved with modifications • Address the issue of "bright-line" applicability of 200 kV and above through the standards development process. • Incorporate suggestions to include facilities at lower voltages that are associated with IROLs. • Evaluate suggestions by LPPC, APPA, and Avista in the standards development process. • Consider a phase-in timeframe if lower voltage facilities are included as applicable to this standard. • Develop compliance audit procedures, using industry experts, which would identify appropriate inspection cycles based on local factors. • Ensure inspection cycles and vegetation management requirements are properly met by the responsible entities. • Define the minimum clearance needed to avoid sustained vegetation-related outages that apply to line crossing federal and non-federal lands. • Address issues that develop in the interim on a case-by-case basis. • Collect outage data for transmission outages of lines that cross both federal and non-federal lands, analyze it, and use the results to develop a standard that would apply to both federal and non-federal lands. • Address FirstEnergy's suggestion to clarify the definition of "rights-of-way" as part of the standards development process. V0 Industry Comments • RA vs. RRO • Too weak on compliance • Format inconsistencies Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Audit and Observation Team • It was pointed out that an entity did not need to be registered as a TO for FAC-003-1 to apply to them, only that they have transmission lines operated at 200 kV and above. This could include radial lines as well as generation leads at the 200kV and above level. This could mean functions other than TO would require FAC-003-1 to be in the audit scope. How are you looking at the applicability of FAC-003-1 as it applies to DPs, LSEs, and GOs etc. This could be applicable to many entities registered in multiple regions • With regards to the vegetation management standard, what type of event would trigger a compliance investigation? • TO's shall demonstrate compliance through self certification. Compliance monitoring shall conduct an on-site audit every five years or more frequently as deemed appropriate. Does this over-ride the six year audit cycle for TO's?

Project 2007-09 Generator Verification

Standards Involved:

PRC-019-1 — Coordination of Generator Voltage Regulator Controls with Unit Capabilities and Protection

PRC-024-1 — Generator Performance During Frequency and Voltage Excursions

MOD-024-1 — Verification of Generator Gross and Net Real Power Capability

MOD-025-1 — Verification of Generator Gross and Net Reactive Power Capability

MOD-026-1 —Verification of Models and Data for Generator Excitation System Functions

MOD-027-1 — Verification of Generator Unit Frequency Response

Research Needed:

None

Brief Description:

The scope of this project includes:

- Modifying the six standards associated with this project so they conform to the latest version of NERC's Reliability Standards Development Procedure and the ERO Rules of Procedure,
- Replacing the "fill-in-the-blank" requirements assigned to the Regional Reliability Organization with requirements that can be applied on a continent-wide basis and are assigned to users, owners or operators of the bulk power system,
- Considering and addressing issues identified in FERC orders, including the modifications to MOD-024-1 and MOD-025-1 as proposed in FERC Order 693, and
- Considering and addressing issues identified during Phase III & IV field testing.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project 2007-09 Generator Verification Web page

Project Schedule:

Project 2007-09 Schedule

Target Completion Date:

Third quarter of 2009

Related Links:

Project 2007-09 Roster

Issues to be Considered by Drafting Team Project 2007-09 — Generator Verification		
Standard #		**Title**
PRC-019-1		Coordination of Generator Voltage Regulator Controls with Unit Capabilities and Protection
Issues	Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.	

Issues to be Considered by Drafting Team Project 2007-09 — Generator Verification		
Standard #		**Title**
PRC-024-1		Generator Performance During Frequency and Voltage Excursions
Issues	Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.	
Misc. Items		Compliance missing. Phase III/IV field test.

Issues to be Considered by Drafting Team Project 2007-09 — Generator Verification	
Standard #	**Title**
MOD-024-1	Verification of Generator Gross and Net Real Power Capability
Issues	FERC Order 693 Disposition: Not Approved or Remanded. • Require users, owners, and operators of the system to provide this information. • Document test conditions and the relationships between test conditions and generator output so that the amount of power that can be expected to be delivered from a generator at different conditions can be determined. • Clarify requirement R2 that specifies that the regional reliability organization shall provide generator gross and net real power capability verification within 30 calendar days of approval. The confusion centers on "approval" and when the 30-day period starts. • Provide a work plan and compliance filing regarding the collection of information specified for standards that are deferred. Fill-in-the-Blank Team Comments • Review MOD-024 and MOD-025 concurrently to transition to uniform North American standards. • Remove the fill-in-the-blank aspects (correct reference to "… Regional Reliability Organization's procedures…"). • Goal is uniform North American standards for real and reactive power verification. Look at regional requirements and identify the best practice, commonalities and differences, and whether differences are needed for reliability. Phase III/IV comments • No requirement for the RRO to demonstrate that its procedures result in accurate information of gross and net real power capability of generators for steady state models • It is not clear in R3 to whom the Generator Owner will report the information. • Non compliance levels are too strict. A small utility with 15-20 units will be L4 non-compliant if they miss one unit Comment from draft SAR on Planning Authority • Provide clarity where the Planning Authority is mentioned Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Issues to be Considered by Drafting Team Project 2007-09 — Generator Verification	
Standard #	**Title**
MOD-025-1	Verification of Generator Gross and Net Reactive Power Capability
Issues	FERC Order 693 Disposition: Not Approved or Remanded. • Require verification of reactive power capability at multiple points over a unit's operating range. • Clarify requirement R2 that specifies that the regional reliability organization shall provide generator gross and net reactive power capability verification within 30 calendar days of approval. The confusion centers on "approval" and when the 30-day period starts. • Provide a work plan and compliance filing regarding the collection of information specified for standards that are deferred. Fill-in-the-Blank Team Comments • Review MOD-024 and MOD-025 concurrently to transition to uniform North American standards. • Remove the fill-in-the-blank aspects (correct reference to "… Regional Reliability Organization's procedures…"). • Refer to MOD-024. Phase III/IV comments • These standards do not provide for uniform testing of generator capability. The determination of which units are tested, how frequently they are tested, and the criteria used for determining capability are left to individual regions. • Fundamental guidelines outlining some basic requirements (e.g., all units over 20 MW shall be tested annually under conditions that permit full net output of the unit for normal operation) are lacking. • There is no clear reason for regional variations in capability testing. A generator in Georgia does not have more or less capability than an identical unit applied across the Florida line, despite the fact that one is in SERC and the other in FRCC. • R1.5.1: The benefit of verifying maximum capability of generators to absorb VArs at seasonal real power generation capability is unclear, particularly if this standard applies to virtually all generators. For the vast majority of units, the need to absorb VArs occurs during low-load conditions, when unit real power production is below maximum capability and the unit's ability to absorb VArs is greater. Therefore, the single datum for unit VAr absorption capability determined pursuant to this standard seems to be of little practical use, except for relatively few generators in a limited set of circumstances. • It is not clear in R3 to whom the Generator Owner will report the information. • Non compliance levels are too strict. A small utility with 15-20 units will be L4 non-compliant if they miss one unit. • Severity of non-compliance should be based on the percentage of the generator owner's total generation capability comprised of units required to be verified, rather than on the percentage (number) of

	generating units. Exempt units should be excluded from the total generation capability for determining level of non-compliance. Comment from draft SAR on Planning Authority • Provide clarity where the Planning Authority is mentioned Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Issues to be Considered by Drafting Team Project 2007-09 — Generator Verification		
Standard #		**Title**
MOD-026-1		Verification of Models and Data for Generator Excitation System Functions
Issues	Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.	
Misc. Items		Compliance missing. Phase III/IV field test.

Issues to be Considered by Drafting Team Project 2007-09 — Generator Verification		
Standard #		**Title**
MOD-027-1		Verification of Generator Unit Frequency Response
Issues	Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.	
Misc. Items		Compliance missing. Phase III/IV field test.

Project 2007-11 Disturbance Monitoring

Standards Involved:

PRC-002-1 — Define and Document Disturbance Monitoring Equipment Requirements
PRC-018-1 — Disturbance Monitoring Equipment Installation and Data Reporting

Research Needed:

None

Brief Description:

PRC-002 and PRC-018 were approved in 2006.
PRC-002 is one of four reliability standards identified by the Regional Reliability Standards Working Group as a standard that has some requirements that need to be defined by each regional entity in a regional standard. The standard drafting team (SDT) will review PRC-002 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to or contained with the disturbance monitoring program documentation. The SDT shall determine which requirements should be continent-wide requirements and which requirements should be included in regional standards.

When revising PRC-002 and PRC-018 the SDT shall address issues already identified by FERC, other drafting teams and stakeholders. Note: Phasor measurement networks are to be addressed by Project 2008-06.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project 2007-11 Disturbance Monitoring Web page

Project Schedule:

Project 2007-11 Schedule

Target Completion Date:

Second quarter of 2009

Related Links:

Project 2007-11 Roster

Issues to be Considered by Drafting Team Project 2007-11 — Disturbance Monitoring	
Standard#	**Title**
PRC-002-1	Define Regional Disturbance Monitoring and Reporting Requirements
Issues	FERC Order 693 Disposition: Not Approved or Remanded. • Consider if greater consistency can be achieved in the standard as suggested by Otter Tail, APPA, and Alcoa. V0 Industry Comments • More specificity in equipment requirements needed • IDWG identified deficiencies • Digital inputs and load need to be added Phase III/IV comments • There is no criteria that the RROs must use in specifying the process for identifying locations where DMEs are required VRF comment • R1 - This standard and all related sub requirements are after the fact data analysis. Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Issues to be Considered by Drafting Team Project 2007-11 — Disturbance Monitoring	
Standard#	**Title**
PRC-018-1	Disturbance Monitoring Equipment Installation and Data Reporting
Issues	FERC Order 693 Disposition: Approved Fill-in-the-Blank Team Comments • Determine what elements (if any) of disturbance monitoring should be included in the North American standard and what elements should be included in the regional standards. • Development of regional standards needs to be coordinated with Regional entities. Regional entities should begin process for developing regional standards once the drafting team for the North American standard has determined what elements of disturbance monitoring should be included in the continent-wide standard and what elements should be included in the regional standards. • PRC-002 will be a continent-wide standard supported by Regional Reliability Standards. • PRC-002 is directly related to PRC-018. PRC-018 requires the functional entities to comply with the requirements developed by each RRO. • Need regions to develop and submit regional standards. NERC standard requires region to have this done in 9 months from board adoption (from August 9). Regions need to do this as a regional standard, not a procedure or some other document. VRF comments • R3.4, 3.5, 3.6, 3.7 – Ambiguous Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Project 2007-12 Frequency Response

Standards Involved:

New Standard

Research Needed:

None

Brief Description:

This project involves developing a new standard for the collection of data needed to accurately model existing Frequency Response within each interconnection.

The project will support the following directive in FERC Order 693:

- Define the necessary amount of Frequency Response needed for Reliable Operation for each balancing authority with methods of obtaining and measuring that the frequency response is achieved.

Standards Development Status:

Project 2007-12 Frequency Response Web page

Project Schedule:

Project 2007-12 Schedule

Target Completion Date:

Second quarter of 2010

Related Links:

Project 2007-12 Roster

Project 2007-14 Permanent Changes to CI Time Table

Standards Involved:

INT-005-2 — Interchange Authority Distributes Arranged Interchange
INT-006-2 — Response to Interchange Authority
INT-008-2 — Interchange Authority Distributes Status

Research Needed:

None

Brief Description:

An Urgent Action SAR to modify the Timing Table in three of the Coordinate Interchange standards (INT-005, INT-006, and INT-008) was approved by its ballot pool on March 30, 2007. The Urgent Action SAR modified the timing table so that the reliability assessment period for WECC was lengthened from 5 minutes to 10 minutes for e-tags submitted less than 1 hour and greater than 20 minutes prior to ramp start.

This project is limited to replacing the timing table in the set of standards.

Standards Development Status:

Project 2007-14 Permanent Changes to CI Time Table Web page

Project Schedule:

Project 2007-14 Schedule

Target Completion Date:

Fourth quarter of 2008

Related Links:

Project 2007-14 Roster

Issues to be Considered by Drafting Team Project 2007-14 — Permanent Changes to CI Time Table	
Standard #	**Title**
INT-005-2	Interchange Authority Distributes Arranged Interchange
Issues	Other • Modify the Assessment Period for WECC from 5 minutes to 10 minutes for e-Tags submitted between 1 hour and 20 minutes prior to ramp start. Default ramp start for transactions beginning at the top of the hour is 10 minutes prior to the top of the hour with 20 minute duration. The effect in most cases would be to increase the assessment period from 5 minutes to 10 minutes for e-Tags submitted between xx:00 and xx:30 that have start times of xx+1:00. The Timing Table appears in INT-005-1, INT-006-1, and INT-008-1. • Update the Timing Table to Reflect the Categories (On-time, Late, and After-the-fact) used in the latest E-Tag Specification with respect to receipt of an Arranged Interchange (RFI): - Include designation of request status based on start and submittal times. - Include assess times for After-The-Fact (ATF) requests.

Issues to be Considered by Drafting Team Project 2007-14 — Permanent Changes to CI Time Table	
Standard #	**Title**
INT-006-2	Response to Interchange Authority
Issues	Other • Modify the Assessment Period for WECC from 5 minutes to 10 minutes for e-Tags submitted between 1 hour and 20 minutes prior to ramp start. Default ramp start for transactions beginning at the top of the hour is 10 minutes prior to the top of the hour with 20 minute duration. The effect in most cases would be to increase the assessment period from 5 minutes to 10 minutes for e-Tags submitted between xx:00 and xx:30 that have start times of xx+1:00. The Timing Table appears in INT-005-1, INT-006-1, and INT-008-1. • Update the Timing Table to Reflect the Categories (On-time, Late, and After-the-fact) used in the latest E-Tag Specification with respect to receipt of an Arranged Interchange (RFI): - Include designation of request status based on start and submittal times. - Include assess times for After-The-Fact (ATF) requests.

Issues to be Considered by Drafting Team Project 2007-14 — Permanent Changes to CI Time Table		
Standard #	**Title**	
INT-008-2	Interchange Authority Distributes Status	
Issues	Other • Modify the Assessment Period for WECC from 5 minutes to 10 minutes for e-Tags submitted between 1 hour and 20 minutes prior to ramp start. Default ramp start for transactions beginning at the top of the hour is 10 minutes prior to the top of the hour with 20 minute duration. The effect in most cases would be to increase the assessment period from 5 minutes to 10 minutes for e-Tags submitted between xx:00 and xx:30 that have start times of xx+1:00. The Timing Table appears in INT-005-1, INT-006-1, and INT-008-1. • Update the Timing Table to Reflect the Categories (On-time, Late, and After-the-fact) used in the latest E-Tag Specification with respect to receipt of an Arranged Interchange (RFI): - Include designation of request status based on start and submittal times. - Include assess times for After-The-Fact (ATF) requests.	

Project 2007-17 Protection System Maintenance & Testing

Standards Involved:

PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing
PRC-008-0 — Underfrequency Load Shedding Equipment Maintenance Programs
PRC-011-0 — UVLS System Maintenance and Testing
PRC-017-0 — Special Protection System Maintenance and Testing

Research Needed:

None

Brief Description:

Revise PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing, to consolidate PRC-005-1, PRC-008-0 — Underfrequency Load Shedding Equipment Maintenance Programs; PRC-011-0 — UVLS System Maintenance and Testing; and PRC-017-0 — Special Protection System Maintenance and Testing into a single maintenance and testing standard. Standards PRC-008-0, PRC-011-0, and PRC-017-0 would then be withdrawn.

The revised PRC-005 standard should address the issues raised in the FERC Order 693 and the issues addressed in the SPCTF report "Assessment of PRC-005-1 – Transmission and Generation Protection System Maintenance and Testing; with implications for PRC-008-0, PRC-011-0, and PRC-017-0". The revised standard should also address the comments submitted by stakeholders during the development of Version 0, and Phase III & IV and should reflect improvements identified in the Reliability Standards Review Guidelines.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project 2007-17 Protection System Maintenance & Testing

Project Schedule:

Project 2007-17 Schedule

Target Completion Date:

Third quarter of 2009

Related Links:

Project 2007-17 Roster

Issues to be Considered by Drafting Team Project 2007-17 — Protection System Maintenance & Testing	
Standard #	**Title**
PRC-005-1	Transmission and Generation Protection System Maintenance and Testing
Issues	FERC Order 693 Disposition: Approve with modifications • Maintenance and testing of a protection system must be carried out within a maximum allowable time interval that is appropriate for the type of protection system and its impact on the reliability of the bulk power system. • Consider FirstEnergy's and ISO-NE's suggestions to combine PRC-005, PRC-008, PRC-011, and PRC-017 into a single standard. V0 Industry Comments • Not a standalone standard • Include breakers/switches in list • Define evidence Phase III/IV comments • PRC 003 to 005 only addresses generator (and transmission) protective systems, without defining this term. • Need to add language to ensure the Regional Requirements focus on the most impactive scenarios • Modify applicability to clarfify that the requirements are applicable to the following: • All protection systems on the bulk electric system. • All generation protection systems whose misoperations impact the bulk electric system • There is no performance requirement or measure of effectiveness of a maintenance program required by the standard Other Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Audit Observation Team • As applicable, each TO, DP and GOP shall have a protection system maintenance and testing program for protection systems that affect the reliability of the BES. Does this include major equipment like circuit breakers and transformers? • Determine what on schedule means. Is an entity who maintained/tested 95% of their relays at the same level of non-compliance as an entity who maintained/tested 10% of their relays? • How do you verify DC control power? All regions require functional testing of the breaker. This should include functional relay & station battery checks, including breaker tripping, not just a visual inspection. • How do you verify compliance for cts/pts? How do you audit these within a scheduled maintenance program? As part of the procedure, most have accepted visual inspection. Some entities state that testing of the relays verify functionality of the ct/pts

Issues to be Considered by Drafting Team Project 2007-17 — Protection System Maintenance & Testing		
Standard #	**Title**	
PRC-008-0	Underfrequency Load Shedding Equipment Maintenance Programs	
Issues	FERC Order 693 Disposition: Approve with modifications • Maintenance and testing of a protection system must be carried out within a maximum allowable time interval that is appropriate for the type of protection system and its impact on the reliability of the bulk power system. Fill-in-the-Blank Team Comments • Okay if PRC-006 is fixed V0 Industry Comments • Consistent wording from standard to standard required • Definition of evidence required Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.	

Issues to be Considered by Drafting Team Project 2007-17 — Protection System Maintenance & Testing		
Standard #	**Title**	
PRC-011-0	UVLS System Maintenance and Testing	
Issues	FERC Order 693 Disposition: Approve with modifications • Maintenance and testing of a protection system must be carried out within a maximum allowable time interval that is appropriate for the type of protection system and its impact on the reliability of the bulk power system. V0 Industry Comments • Define evidence • Exemptions for those with shunt reactors Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.	

Issues to be Considered by Drafting Team Project 2007-17 — Protection System Maintenance & Testing	
Standard #	**Title**
PRC-017-0	Special Protection System Maintenance and Testing
Issues	FERC Order 693 Disposition: Approve with modifications • Maintenance and testing of a protection system must be carried out within a maximum allowable time interval that is appropriate for the type of protection system and its impact on the reliability of the bulk power system. • Require that documentation identified in requirement R2 be routinely provided to NERC or the regional entity. V0 Industry Comments • Define evidence • Need to retain two dates Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Project 2007-18 Reliability-based Control

Standards Involved:

BAL-001-0 - Real Power Balancing Control Performance
BAL-003-0 - Frequency Response and Bias
EOP-002-2 - Capacity and Energy Emergencies
IRO-005-2 - Reliability Coordination — Current Day Operations

Research Needed:

None

Brief Description:

This project includes expanding on the work already done in developing the draft BAL-007 through BAL-011 by adding requirements to address the following concerns:

- To support elimination of SOL/IROL violations caused by excessive (as determined by this standard) Area Control Error
- To prevent Interconnection frequency excursions of short duration attributed to the ramping of on and off-peak Interchange Transactions
- To support timely transmission congestion relief by requiring corrective load/generation management within a defined timeframe when ACE is impacted by the curtailment of
- Interchange Transactions under Transmission Loading Relief procedures
- To address the directives of FERC Order 693.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:

The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2008 Annual plan):
Annual Plan Item 1

Justification for NAESB consideration:
WEQ SRS analysis

SRS Recommendation:
The WEQ SRS has referred this to the JISWG for consideration.

Standards Development Status:

Project 2007-18 Reliability-based Control Web page

Project Schedule:

Project 2007-18 Schedule

Target Completion Date:

Third quarter of 2010

Related Links:

Project 2007-18 Roster

Issues to be Considered by Drafting Team Project 2007-18 — Reliability-based Control		
Standard #	**Title**	
BAL-001-0	Real Power Balancing Control Performance	
Issues	FERC Order 693 Disposition: Approved Regional Differences to BAL-001-0: ERCOT Control Performance Standard 2 Disposition: Approved with modifications • Include requirements concerning frequency response contained in Section 5 of the ERCOT protocols. • Include requirements, measures, and levels of non-compliance sections. Standards Process • Incorporate approved formal interpretation Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.	

Issues to be Considered by Drafting Team Project 2007-18 — Reliability-based Control	
Standard #	**Title**
BAL-003-0	Frequency Response and Bias
Issues	FERC Order 693 Disposition: Approved with modifications • Include levels of non-compliance • Determine the appropriate periodicity of frequency response surveys necessary to ensure requirement R2 and other requirements are being met; also modify measure M1 based on this determination. • Define the necessary amount of frequency response needed for reliable operation for each balancing authority with methods of obtaining and measuring that the frequency response is achieved. Standards Process • Incorporate approved formal interpretation Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Audit and Observation Team • R2 and R5 — Both requirements need to be met?

Issues to be Considered by Drafting Team Project 2007-18 — Reliability-based Control	
Standard #	**Title**
EOP-002-2	Capacity and Energy Emergencies
Issues	FERC Order 693 Disposition: Approved with modification • Address emergencies resulting not only from insufficient generation but also insufficient transmission capability, particularly as it affects the implement of the capacity and energy emergency plan. • Include all technically feasible resource options, including demand response and generation resources • Ensure the TLR procedure is not used to mitigate actual IROL violations. Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Audit and Observation Team • M2 —This NERC standard references the RC or BA to implement its capacity and energy plans. The RC does not have capacity and energy plans. • Is this event driven? FERC's December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000 • In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be applied. Each drafting team responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf) and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Issues to be Considered by Drafting Team Project 2007-18 — Reliability-based Control	
Standard #	**Title**
IRO-005-2	Reliability Coordination — Current Day Operations
Issues	Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. FERC's December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000 • In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be applied. Each drafting team responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf) and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Project 2007-23 Violation Severity Levels

Standards Involved:

All 83 FERC approved standards.

Research Needed:

None

Brief Description:

Replace Levels of Non-compliance with Violation Severity Levels in the 83 standards approved by FERC. Obtain stakeholder consensus on the criteria used for assignment of violation severity levels.
The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project 2007-23 Violation Severity Levels Web page

Project Schedule:

Project 2007-23 Schedule

Target Completion Date:

Fourth quarter of 2008

Related Links:

Project 2007-23 Roster

Project 2008-01 Voltage and Reactive Control

Standards Involved:

VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules

Research Needed:

Determine how to determine the amount of voltage and reactive reserves are needed. The research should identify how to determine the split of control between the reactive power provided by the generator and reactive power provided through reactors and power system stabilizers located geographically distant from the generator.

Research should identify how to subdivide an interconnection's need for reactive reserves amongst its Transmission Operators.

Brief Description:

This is a new project and supports a blackout recommendation. Industry debate is needed on whether there should be a North American standard that requires a specific amount of reserves, or whether requirements for specific reserves should continue to be addressed at the regional level. The requirements in the existing standards need to be upgraded to be more specific in defining voltage and reactive power schedules. Consideration should be given to adding a requirement for the Reliability Coordinator to monitor and take action if reactive power falls outside identified limits.

The project will incorporate the interpretation of VAR-002 Requirement 1 and Requirement 2.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:

The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2008 Annual plan):
Annual Plan Item 1

Justification for NAESB consideration:
Industry recommendations

SRS Recommendation:
This project may need NAESB attention in the future. The WEQ SRS will place this on its watch list. The SRS wishes to know if this is still an active NERC project, as it is not included on their Standards under Development list.

Standards Development Status:

Project has not started.

Project Schedule:

Project 2008-01 Project Schedule

Target Completion Date:

Fourth quarter of 2011

Related Links:

Project 2008-01 Roster

Issues to be Considered by Drafting Team Project 2008-01 — Voltage and Reactive Control	
Standard #	**Title**
VAR-001-1	Voltage and Reactive Control
Issues	FERC Order 693 Disposition: Approve with modifications • Expand the applicability to include LSEs and reliability coordinators and define the reliability coordinators monitoring responsibilities. • Address reactive power requirements for LSEs on a comparable basis with purchasing-selling entities. • Include APPA's comments regarding varying power factor requirements due to system conditions and equipment in the standards development process. • Includes detailed and definitive requirements on "established limits" and "sufficient reactive resources", and identifies acceptable margins above the voltage instability points. • Address the concerns of Dynegy, EEI, and MISO through the standards development process. • Perform voltage analysis periodically, using on-line techniques where commercially available and off-line techniques where not available on-line, to assist real-time operations, for areas susceptible to voltage instability. • Include controllable load among the reactive resources to satisfy reactive requirements, considering the comments of Southern California Edison and SPA in the development of the standard. • Address the power factor range at the interface between LSEs and the transmission grid. V0 Industry Comments • Not a standard but a business practice • Expand to include relays • Define voltage levels • Clarify if this includes distribution • Clarify responsibility for voltage support • Add GO as entity • Mention power factor requirements for distribution • Add BA (R1 & 3)and RA (R5, 7, 8, 10 & 11) • Move R9 to 5.2 • Delete SOL violations • Define high probability Phase III/IV comments • No requirement for verifying that the reactive resources are truly available. • No criteria for what is an acceptable reactive margin. o R3, R6, R10 go beyond the control of the responsible entity noted. o R3, the Transmission Operator only has the reactive resources that exist in the area-- how does the TO "acquire sufficient reactive resources" if existing resources are not adequate?

	o Should R3 be assigned to the TP? o Should the word "acquire" in R3 be replaced with the word "operate"? o R6 and R10.1 presume that sufficient reactive resources are available. • R3 covers normal and contingency conditions, while R10 mentions only first contingency conditions. Is there a reason for this difference? • R3 Suggest changing the phrase…"to protect the voltage"…. to "maintain the voltage" • What does the second sentence in R3 mean by the phrase 'transmission operator's share of the reactive requirements of interconnecting transmission circuits'? What would be the reactive requirements of transmission circuits? • R5 This requirement is an Open Access Transmission Tariff requirement and does not belong in a reliability standard. • Will R6 also apply to wind generation absorbing reactive power at the point of interconnection? • R7 obligates Transmission Operators to know the status of all reactive power sources including AVRs and PSSs. Clarify that this means the generator is available and if dispatched will operate in voltage control mode and with the PSS active. • R7 and R8 – consider adding more specificity to distinguish the TOP's authority to direct others to operate (Each Transmission Operator shall operate owned devices or direct the operation of, within their normal operating parameters and capabilities, capacitive and inductive reactive resources within its area-including reactive generation scheduling; transmission line and reactive resource switching; and, if necessary, load shedding- to maintain system and Interconnection voltages within established limits.) • Consolidate R8 and R9 • R9.1 this requirement is not feasible. Cannot dictate where generation resources are to be disbursed or located. • R10 remove "first" so as not to limit this requirement to first contingency conditions. As written with or without removing "first", R10 provides no additional information not already required in R3. • R10.1 does 'disperse and locate' mean the same as 'dispatch'? If so, changing the wording to 'dispatch' would make the meaning clearer. • R11 –Redundant with TOP-007 • The language in the measures and compliance sections such as "2.1.2 One incident of failing to maintain a voltage or reactive power schedule" is too vague and does not specify any duration that is acceptable or unacceptable to be off schedule. • VAR-001 requirements (R1, R2, R7, R8, R9, R10, and R12) are redundant to the TOP standards Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Audit Observation Team • R4 — If the TOP does not supply the GOP with a voltage or reactive power schedule is that a noncompliance for the TOP?

Issues to be Considered by Drafting Team Project 2008-01 — Voltage and Reactive Control		
Standard #		**Title**
VAR-002-1		Generator Operation for Maintaining Network Voltage Schedules
Issues	FERC Order 693 Disposition: Approved • Consider Dynegy's suggestion to improve the standard. Phase III/IV comments • R5 of VAR-002: Recognizing that such action would require the generator to change its loading level or cycle, the transmission operator should not rely on tap position changes on a step-up transformer with a no-load tap changer (NLTC) for periodic or seasonal system control, unless there is an explicit voluntary arrangement with the Generator Operator. For each instance of an urgent directive for such action, the transmission operator must justify its action to affected parties Standards Process • Incorporate approved formal interpretation Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Audit Observation Team • If a generator does not have an automatic voltage regulator do they need to install one?	

Project 2008-02 Undervoltage Load Shedding

Standards Involved:

PRC-010-0 — Assessment of the Design and Effectiveness of UVLS Program
PRC-022-1 — Under-Voltage Load Shedding Program Performance

Research Needed:

Criteria for installing UVLS need to be identified.

Brief Description:

These standards should be consolidated. Missing are any criteria for identifying where UVLS should be installed.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project has not started.

Project Schedule:

Project 2008-02 Project Schedule

Target Completion Date:

TBD

Related Links:

Project 2008-02 Roster

Issues to be Considered by Drafting Team Project 2008-02 — Undervoltage Load Shedding	
Standard #	**Title**
PRC-010-0	Technical Assessment of the Design and Effectiveness of Undervoltage Load Shedding Program
Issues	FERC Order 693 Disposition: Approve with modifications • Require that an integrated and coordinated approach be included in all protection systems on the bulk power system, including generators and transmission lines, generators' low-voltage ride-through capabilities, and UFLS and UVLS systems. V0 Industry Comments • Define evidence • Level 4 vs. level 1 changes • Exemptions for some who use shunt reactors Phase III/IV comments • PRC-010 is a very weak standard – it only requires documentation and, in very broad terms, 'coordination' – it doesn't specify any level of desired performance or any specific scope for coordination. There should be some details to identify what the coordination must achieve – such as verification that the UVLS will trip when voltage drops to a specified voltage and verification that only a specified amount of load will be tripped and that other special protection systems will not be activated by the UVLS program. • There is no requirement that identifies the desired performance of a UVLS program (what voltage set points and timing are acceptable?). • What is the reliability-related need for the RRO to collect data on misoperations and operations of UVLS programs? Is this information used for anything? Comment from draft SAR on Planning Authority • Provide clarity where the Planning Authority is mentioned Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. FERC's December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000 • In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated

	requirements are applied to retail marketers must be applied. Each drafting team responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf) and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Issues to be Considered by Drafting Team Project 2008-02 — Undervoltage Load Shedding	
Standard #	**Title**
PRC-022-1	Under-Voltage Load Shedding Program Performance
Issues	FERC Order 693 Disposition: Approved. • Consider FirstEnergy's suggestions to revise requirement R1.3 as part of the standards development process. Phase III/IV comments • Consider incorporating into this family of standards a requirement that each TO should study, and implement if found effective, a UVLS program to mitigate the risk of voltage collapse or voltage instability in the BES. • The TO should also be required to demonstrate that its UVLS program is coordinated with adjacent TOs. • The reliability-related need for the RRO to collect data on operations and misoperations isn't clear – should this be revised and made available instead to the Compliance Monitor or to the Planning Authority? Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. FERC's December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000 • In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be applied. Each drafting team responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf) and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Project 2008-05 Credible Multiple Element Contingencies

Standards Involved:

FAC-011-2 — System Operating Limits Methodology for the Operations Horizon

Research Needed:

None

Brief Description:

Revise FAC-011-2 to require consideration of credible multiple element contingencies for determining system operating limits (SOLs) in the operating horizon, as defined in TLP-003-0 and FAC-010-1 in the planning horizon (TPL-001-1, which is proposed to replace TPL-001-0 through TPL-004-0, would continue to require consideration of credible multiple element contingencies).

Credible multiple element contingencies pose a threat to the reliability of the bulk electric system in North America. As per an analysis conducted by PPL Electric Utilities, presented to the NERC Planning Committee on March 15, 2006, historical data shows multiple element contingency events occurred on the PJM system on an average of 18 times per year during the 1996-2003 period, clearly showing that these are not uncommon events. Not developing both planning and operating standards for determining SOLs that consider multiple facility forced outages, i.e., Category C contingencies, despite the frequent occurrence of such events, would be accepting a type of event that could lead to a high risk of unreliable performance. Therefore, the system must be postured for meeting Category C contingencies for determining SOLs in the operating horizon, as is now required by Standards TPL-003-0 and FAC-010-1 in the planning horizon. Strengthening of FAC-011-1, by considering credible multiple element contingencies, would make this standard consistent with TPL-003-0 and FAC-010-1, and would improve system performance by operating, as well as planning to Category C contingencies.

Standards Development Status:

Project 2008-05 Credible Multiple Element Contingencies Web page

Project Schedule:

Project 2008-05 Project Schedule (TBD)

Target Completion Date:

TBD

Related Links:

Project 2008-05 Roster

Project 2008-06 Cyber Security — Order 706

Standards Involved:

CIP-002-1 — Critical Cyber Asset Identification
CIP-003-1 — Security Management Controls
CIP-004-1 — Personnel & Training
CIP-005-1 — Electronic Security Perimeter(s)
CIP-006-1 — Physical Security of Critical Cyber Assets
CIP-007-1 — Systems Security Management
CIP-008-1 — Incident Reporting and Response Planning
CIP-009-1 — Recovery Plans for Critical Cyber Assets

Research Needed:

None

Brief Description:

Implement changes to the Cyber Security Standards (above) as indicated in FERC Order 706.

This set of revisions in this project includes:

- Modifying the standards so they conform to the latest approved versions of the ERO Rules of Procedure as outlined in the Standard Review Guidelines identified in Attachment 1.
- Addressing the directives issued by FERC, in Order 706 relative to the approved Cyber Security Standards CIP-002-1 through CIP-009-1. Refer to http://www.ferc.gov/whats-new/comm-meet/2008/011708/E-2.pdf for the complete text of the final order. Specific requirements from the Order are identified in Attachment 2.
    - Emphasis on Order 706 directive for NERC to address revisions to the CIP standards considering applicable feature of the NIST Security Risk Management Framework among other resources.
- Incorporating clarifications from the Interpretation of CIP-006-1 Requirement 1.1.

Additional issues identified by stakeholders during the posting of this SAR are listed in Attachment 3.

Revisions should consider other Cyber-related standards, guidelines and activities:

- Consider adopting the NIST Security Risk Management Framework (includes GAO, OMB and FIPS)
- Consider other cyber security related documents such as NIST, ISO 27000 Family, CIPC WG Risk Assessment Guideline, MITRE corporation technical report, DHS, National Laboratories papers, DOE 417, IEC, ISA, etc.
- Stay apprised of coordination work between FERC, NEI and NRC in regard to the nuclear facility exemption issue with respect to regulatory gaps. As necessary modify the standards to reflect current determinations.

Standards Development Status:

Project 2008-06 Cyber Security Web page

Project Schedule:

Project 2008-06 Project Schedule (TBD)

Target Completion Date:

TBD

Related Links:

Project 2008-06 Roster

Issues to be Considered by Drafting Team Project 2008-06 — Cyber Security	
Standard #	**Title**
CIP-002-1	Cyber Security — Critical Cyber Asset Identification
Issues	FERC Cyber NOPR Comments Paragraph 325 - Add missing Violation Risk Factors to Requirement R3.1 Paragraph 41 Add that a responsible entity must implement a plan, policy or procedure that it is required to develop. (CIP-002-009) Paragraph 48 Develop a self-certification process with more frequent certifications, either tied to target dates in the schedule or perhaps quarterly or semi-annual certifications. Paragraph 58 Remove references to the "reasonable business judgment" language. Paragraph 77 Treat instances where technical feasibility is invoked as exceptions that require certain alternative courses of action; Paragraph 77 Interpret the term "technical feasibility" narrowly as applying to the technical characteristics of existing assets and having no relation to the considerations of business judgment discussed above; Paragraph 79 Establish a structure to require accountability from those who rely on "technical feasibility" as the basis for an exception as discussed in Paragraph 79 of the NOPR. This proposed structure should include a review by senior management of the expediency and effectiveness of the manner in which a responsible entity has addressed each of these three proposed conditions. Paragraph 79 Require a responsible entity to report and justify to the ERO and the Regional Entity for approval each exception and its expected duration. In situations where any of the proposed conditions are not satisfied, the ERO or the Regional Entity would inform the responsible entity that its claim to an exception based on technical feasibility is insufficient and therefore not approved. Failure to timely rectify the deficiency would invalidate the exception for compliance purposes. Paragraph 82 Consider making "technically feasible," and derivative forms of that phrase as used in the CIP Reliability Standards, defined terms in NERC's glossary, pursuant to the prior clarifications, without any reference to reasonable business judgment. Paragraph 88 Consider the development and implementation of the NIST standards to determine if they contain provisions that will better protect the Bulk-Power System. Seek and consider comments from those federal entities (TVA and WAPA) on the effectiveness of the NIST standards and on any implementation issues. Paragraphs 330 Modify the Violation Risk Factors as directed in the NOPR list of proposed Actions. Paragraphs 77 Eliminate the "acceptance of risk" option from the CIP 83-86 Reliability Standards; Paragraphs 77/80 Develop an annual report that quantifies, on a wide-

	area basis, the frequency with which responsible entities invoke "technical feasibility" or other provisions that produce the same outcome as discussed in Paragraphs 77 and 80 of the NOPR. The report should include aggregated information with sufficient detail for the Commission to understand the frequency in which specific provisions are being invoked as well as mitigation and remediation plans over time and by region Paragraph 103 Provide some basic guidance on the content or considerations to be applied in a risk assessment methodology. Proper risk-based assessment methodology to identify critical assets should examine (1) the consequences of the loss of the asset to the Bulk-Power System and (2) the consequence to the Bulk-Power System if an adversary gains control of the asset for intentional misuse. Paragraph 104 ERO and Regional Entities provide reasonable technical support to such entities that would assist them in determining whether their assets are critical to the Bulk-Power System. Paragraph 108 Include a requirement that a senior manager annually review and approve the risk-based assessment methodology. Paragraph 113 Include a mechanism for the external review and approval of critical asset lists based on a regional perspective. Paragraph 115 Modify Requirement R1.2 to clarify the requirement to show why specific assets were or were not chosen as critical assets, and to require the consideration of misuse of control Industry Work Plan Comment – Compliance Measures • Consider MISO's comment that the standard should be measured at the standard level rather than the individual requirement level. Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. FERC's December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000 • In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be applied. Each drafting team responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order

	(http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf) and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Issues to be Considered by Drafting Team Project 2008-06 — Cyber Security	
Standard #	**Title**
CIP-003-1	Cyber Security — Security Management Controls
Issues	VRF comments • R4.2 – only an administrative requirement FERC Cyber NOPR Comments Paragraph 325 - Add missing Violation Risk Factors to Requirement R4.1 and Requirement R5.1.2 Paragraph 41 Add that a responsible entity must implement a plan, policy or procedure that it is required to develop. (CIP-002-009) Paragraph 48 Develop a self-certification process with more frequent certifications, either tied to target dates in the schedule or perhaps quarterly or semi-annual certifications. Paragraph 58 Remove references to the "reasonable business judgment" language. Paragraph 77 Treat instances where technical feasibility is invoked as exceptions that require certain alternative courses of action; Paragraph 77 Interpret the term "technical feasibility" narrowly as applying to the technical characteristics of existing assets and having no relation to the considerations of business judgment discussed above; Paragraph 79 Establish a structure to require accountability from those who rely on "technical feasibility" as the basis for an exception as discussed in Paragraph 79 of the NOPR. This proposed structure should include a review by senior management of the expediency and effectiveness of the manner in which a responsible entity has addressed each of these three proposed conditions. Paragraph 79 Require a responsible entity to report and justify to the ERO and the Regional Entity for approval each exception and its expected duration. In situations where any of the proposed conditions are not satisfied, the ERO or the Regional Entity would inform the responsible entity that its claim to an exception based on technical feasibility is insufficient and therefore not approved. Failure to timely rectify the deficiency would invalidate the exception for compliance purposes. Paragraph 82 Consider making "technically feasible," and derivative forms of that phrase as used in the CIP Reliability Standards, defined terms in NERC's glossary, pursuant to the prior clarifications, without any reference to reasonable business judgment. Paragraph 88 Consider the development and implementation of the NIST standards to determine if they contain provisions that will better protect the Bulk-Power System. Seek and consider comments from those federal entities (TVA and WAPA) on the effectiveness of the NIST standards and on any implementation issues. Paragraphs 330 Modify the Violation Risk Factors as directed in the NOPR

	list of proposed Actions. Paragraphs 77 Eliminate the "acceptance of risk" option from the CIP 83-86 Reliability Standards; Paragraphs 77/80 Develop an annual report that quantifies, on a wide-area basis, the frequency with which responsible entities invoke "technical feasibility" or other provisions that produce the same outcome as discussed in Paragraphs 77 and 80 of the NOPR. The report should include aggregated information with sufficient detail for the Commission to understand the frequency in which specific provisions are being invoked as well as mitigation and remediation plans over time and by region Paragraph 126-127 Provide additional guidance for the topics and processes that the required cyber security policy should address to ensure that the responsible entity reasonably protects its critical cyber assets as explained in Paragraph 126-127 of the NOPR. Paragraph 132 Modify Requirement R3 of CIP-003-1 to require a responsible entity to periodically submit to the Regional Entity the documentation of exceptions to the cyber security policy. Paragraph 133 Clarify that the exceptions mentioned in Reliability Standard CIP-003-1, Requirements R2.3 and R3, do not except responsible entities from the requirements of the CIP Reliability Standards. Paragraph 136 Modify CIP-003-1, to make clear the senior manager's ultimate responsibility. Paragraph 139 Modify Reliability Standards CIP-003-1, CIP-004-1, and/or CIP-007-1, to ensure and make clear that access to protected information is revoked promptly. Paragraph 144 Modify Requirement R6 of Reliability Standard CIP-003-1 to include in the process of change control and configuration management a requirement for detection and monitoring controls to determine if changes are made as intended and to investigate whether any unintended or unplanned changes have been made. Paragraph 147 Modify Reliability Standard CIP-003-1 to provide direction regarding the issues and concerns that a "mutual distrust" posture must address to protect the control system from the "outside world." Paragraph 312 R6 - The CIP Reliability Standards should specifically state that a change control process should include procedures for a tested backup. Adding language, such as "these procedures are to include practices to test and verify the operability of the backup before it is stored and relied upon for recovery," would eliminate this ambiguity. Industry Work Plan Comment – Compliance Measures • Consider MISO's comment that the standard should be measured at the standard level rather than the individual requirement level. Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

	NERC Audit and Observation Team • R4.1 — Security Management Controls specifies the minimum Critical Cyber Asset information to be protected in requirement R4.1. Among the information asset types identified by R4.1. are network topology diagrams. The context of this requirement is clear and applies to computer network topology diagrams relating to Critical Cyber Asset information only. FERC's December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000 • In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be applied. Each drafting team responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf) and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Issues to be Considered by Drafting Team Project 2008-06 — Cyber Security	
Standard #	**Title**
CIP-004-1	Cyber Security — Personnel & Training
Issues	VRF comment • R3 - This needs to be looked at for 30 days - should be done prior to access being granted. FERC Cyber NOPR Comments Paragraph 325 - Add missing Violation Risk Factors to Requirement R2.2.2 and Requirement R2.2.3 Paragraph 41 Add that a responsible entity must implement a plan, policy or procedure that it is required to develop. (CIP-002-009) Paragraph 48 Develop a self-certification process with more frequent certifications, either tied to target dates in the schedule or perhaps quarterly or semi-annual certifications. Paragraph 58 Remove references to the "reasonable business judgment" language. Paragraph 77 Treat instances where technical feasibility is invoked as exceptions that require certain alternative courses of action; Paragraph 77 Interpret the term "technical feasibility" narrowly as applying to the technical characteristics of existing assets and having no relation to the considerations of business judgment discussed above; Paragraph 79 Establish a structure to require accountability from those who rely on "technical feasibility" as the basis for an exception as discussed in Paragraph 79 of the NOPR. This proposed structure should include a review by senior management of the expediency and effectiveness of the manner in which a responsible entity has addressed each of these three proposed conditions. Paragraph 79 Require a responsible entity to report and justify to the ERO and the Regional Entity for approval each exception and its expected duration. In situations where any of the proposed conditions are not satisfied, the ERO or the Regional Entity would inform the responsible entity that its claim to an exception based on technical feasibility is insufficient and therefore not approved. Failure to timely rectify the deficiency would invalidate the exception for compliance purposes. Paragraph 82 Consider making "technically feasible," and derivative forms of that phrase as used in the CIP Reliability Standards, defined terms in NERC's glossary, pursuant to the prior clarifications, without any reference to reasonable business judgment. Paragraph 88 Consider the development and implementation of the NIST standards to determine if they contain provisions that will better protect the Bulk-Power System. Seek and consider comments from those federal entities (TVA and WAPA) on the effectiveness of the NIST standards and on any implementation issues. Paragraphs 330 Modify the Violation Risk Factors as directed in the NOPR list of proposed Actions.

	Paragraphs 77 Eliminate the "acceptance of risk" option from the CIP 83-86 Reliability Standards; Paragraphs 77/80 Develop an annual report that quantifies, on a wide-area basis, the frequency with which responsible entities invoke "technical feasibility" or other provisions that produce the same outcome as discussed in Paragraphs 77 and 80 of the NOPR. The report should include aggregated information with sufficient detail for the Commission to understand the frequency in which specific provisions are being invoked as well as mitigation and remediation plans over time and by region Paragraph 158 Require affected personnel to receive the required training before obtaining access to critical cyber assets (rather than within 90 days of access authorization), but allowing limited exceptions, such as during emergencies, subject to documentation and mitigation. Paragraph 159 Require responsible entities to identify "core training" elements to ensure that essential training elements will not go unheeded in an emergency and other contingency situations where full training prior to access will not best serve the reliability of the Bulk-Power System. Alternate provisions for emergencies and certain other conditions could be designed, such as requiring documentation of all personnel who received access to particular equipment during the emergency and whether they received a briefing or any other training prior to their access concerning the specific facilities; the extent to which people needed for the emergency had received general training and possessed appropriate specialized expertise for the circumstance; and any risk mitigation steps taken during the emergency access. Paragraph 159 Consider what, if any, modifications to CIP-004-1 should be made to address the concern raised by the ISA Group that security trainers be adequately trained themselves. Paragraph 160 Clarify that the cyber security training programs required by Requirement R2 are intended to encompass training on the networking hardware and software and other issues of electronic interconnectivity supporting the operation and control of the critical cyber assets. One method of clarification the ERO should consider is the addition of a provision such as that contained in CIP-005-1, Requirement R1.4, which specifically subjects any non-critical cyber asset within a defined electronic security perimeter to the Reliability Paragraph 161 Increase the guidance in the Reliability Standard as to the scope and quality of training. Examples of some areas where the inclusion of guidance can be considered are: control of electronic devices (such as laptop computers), the appropriate audiences for the training, delivery methods, and updates of training materials. Paragraph 161 Consider relevant aspects of the cited NIST Special Publications, as well as other relevant models, to improve CIP-004-1 and prevent a lowest common denominator result. Paragraph 166 Develop modifications to Requirement R2 to provide that newly-hired personnel and vendors should not have access to critical cyber assets, except in specified circumstances such as an emergency. The ERO

	should determine the parameters of such exceptional circumstances in developing the proposed modification through its Reliability Standards development process. Paragraph 166 The 30-day window allowing access before the personnel risk assessment is completed remain in effect for current employees and vendors with existing contractual relationships with the responsible entity as of the effective date of the Reliability Standard. We propose to direct that the ERO include, in developing modifications to CIP-004-1, criteria that address circumstances in which current personnel can continue access to critical cyber assets during the 30-day investigative period during initial compliance with CIP-004-1. Paragraph 169 Require immediate revocation of access privileges when an employee, contractor, or vendor no longer performs a function that requires authorized physical or electronic access to a critical cyber asset for any reason (including disciplinary action, transfer, retirement or termination). Paragraph 169 Modify Requirement R4 to make clear that unescorted physical access should be denied to individuals that are not identified on the authorization list. Paragraph 173 Address the "joint use" concerns expressed by APPA/LPPC while developing any modifications to these Reliability Standards directed in a final rule. Regardless of whether a facility subject to CIP-004-1 is jointly owned or not, all entities that have access to it must comply with CIP-004-1. Each entity, however, is responsible for only its compliance and may not attempt to block or limit another's access on the basis of its perception that the other entity has not complied with CIP-004-1. Industry Work Plan Comment – Compliance Measures • Consider MISO's comment that the standard should be measured at the standard level rather than the individual requirement level. Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. FERC's December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000 • In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be applied. Each drafting team responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address

	the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf) and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Issues to be Considered by Drafting Team Project 2008-06 — Cyber Security	
Standard #	**Title**
CIP-005-1	Cyber Security — Electronic Security Perimeter(s)
Issues	VRF comments • R1.3 – administrative definition • R1.5 – standard to comply with a standard = double jeopardy FERC Cyber NOPR Comments Paragraph 325 - Add missing Violation Risk Factors to the Requirement R1.5 Paragraph 41 Add that a responsible entity must implement a plan, policy or procedure that it is required to develop. (CIP-002-009) Paragraph 48 Develop a self-certification process with more frequent certifications, either tied to target dates in the schedule or perhaps quarterly or semi-annual certifications. Paragraph 58 Remove references to the "reasonable business judgment" language. Paragraph 77 Treat instances where technical feasibility is invoked as exceptions that require certain alternative courses of action; Paragraph 77 Interpret the term "technical feasibility" narrowly as applying to the technical characteristics of existing assets and having no relation to the considerations of business judgment discussed above; Paragraph 79 Establish a structure to require accountability from those who rely on "technical feasibility" as the basis for an exception as discussed in Paragraph 79 of the NOPR. This proposed structure should include a review by senior management of the expediency and effectiveness of the manner in which a responsible entity has addressed each of these three proposed conditions. Paragraph 79 Require a responsible entity to report and justify to the ERO and the Regional Entity for approval each exception and its expected duration. In situations where any of the proposed conditions are not satisfied, the ERO or the Regional Entity would inform the responsible entity that its claim to an exception based on technical feasibility is insufficient and therefore not approved. Failure to timely rectify the deficiency would invalidate the exception for compliance purposes. Paragraph 82 Consider making "technically feasible," and derivative forms of that phrase as used in the CIP Reliability Standards, defined terms in NERC's glossary, pursuant to the prior clarifications, without any reference to reasonable business judgment. Paragraph 88 Consider the development and implementation of the NIST standards to determine if they contain provisions that will better protect the Bulk-Power System. Seek and consider comments from those federal entities (TVA and WAPA) on the effectiveness of the NIST standards and on any implementation issues. Paragraphs 330 Modify the Violation Risk Factors as directed in the NOPR

	list of proposed Actions. Paragraphs 77 Eliminate the "acceptance of risk" option from the CIP 83-86 Reliability Standards; Paragraphs 77/80 Develop an annual report that quantifies, on a wide-area basis, the frequency with which responsible entities invoke "technical feasibility" or other provisions that produce the same outcome as discussed in Paragraphs 77 and 80 of the NOPR. The report should include aggregated information with sufficient detail for the Commission to understand the frequency in which specific provisions are being invoked as well as mitigation and remediation plans over time and by region Paragraph 181 Implement a defensive security approach including two or more defensive measures in a defense in depth posture. Paragraph 188 Ensure access is granted only to users who have corresponding job responsibilities. Paragraph 188 Requirement R2.4 should provide greater clarity regarding the expectation for adequate compliance by identifying examples of specific verification technologies that would satisfy the Requirement, while also allowing compliance pursuant to other technically equivalent measures or technologies. Paragraph 189 Providing such basic security measures as access control can be accomplished using/placing measures "in front of" systems as opposed to "inside" systems. Such an approach can be used to secure even older, yet functioning, legacy systems. Evaluate the issue and provide specific guidance to responsible entities that must face such issues. Paragraph 197 Develop a bifurcated review requirement of access logs at electronic access points in which readily available logs are reviewed more frequently than every 90 days. The Commission believes such review should be performed at least weekly. must include in the Reliability Standard guidance on how a responsible entity should designate individual assets as "readily accessible" or "not readily accessible," Paragraph 201 Require a vulnerability assessment of the electronic access points as part of, or contemporaneously with, any modifications to the electronic security perimeter or defense in depth strategy. Paragraph 201 Requirement R4 should provide for the conduct of live vulnerability assessments at least once every three years, with subsequent annual paper assessments in the intervening years. Industry Work Plan Comment – Compliance Measures Consider MISO's comment that the standard should be measured at the standard level rather than the individual requirement level. Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. FERC's December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-

	004-000, RC07-6-000, and RC07-7-000
	• In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be applied. Each drafting team responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see:
	  • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf)
	  • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf),
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Issues to be Considered by Drafting Team Project 2008-06 — Cyber Security	
Standard #	**Title**
CIP-006-1	Cyber Security — Physical Security of Critical Cyber Assets
Issues	VRF comments • R1.5 & .9 – Should be consistent with CIP-005 • R1.8 - A requirement to meet other standard requirements - double jeopardy • R2.1, .2, .3 & .4 - These are 4 things from which to choose one or more, so no one of them is required. Should be a bulleted list, not sub-requirements. • R3.1 – May statement FERC Cyber NOPR Comments Paragraph 41 Add that a responsible entity must implement a plan, policy or procedure that it is required to develop. (CIP-002-009) Paragraph 48 Develop a self-certification process with more frequent certifications, either tied to target dates in the schedule or perhaps quarterly or semi-annual certifications. Paragraph 58 Remove references to the "reasonable business judgment" language. Paragraph 77 Treat instances where technical feasibility is invoked as exceptions that require certain alternative courses of action; Paragraph 77 Interpret the term "technical feasibility" narrowly as applying to the technical characteristics of existing assets and having no relation to the considerations of business judgment discussed above; Paragraph 79 Establish a structure to require accountability from those who rely on "technical feasibility" as the basis for an exception as discussed in Paragraph 79 of the NOPR. This proposed structure should include a review by senior management of the expediency and effectiveness of the manner in which a responsible entity has addressed each of these three proposed conditions. Paragraph 79 Require a responsible entity to report and justify to the ERO and the Regional Entity for approval each exception and its expected duration. In situations where any of the proposed conditions are not satisfied, the ERO or the Regional Entity would inform the responsible entity that its claim to an exception based on technical feasibility is insufficient and therefore not approved. Failure to timely rectify the deficiency would invalidate the exception for compliance purposes. Paragraph 82 Consider making "technically feasible," and derivative forms of that phrase as used in the CIP Reliability Standards, defined terms in NERC's glossary, pursuant to the prior clarifications, without any reference to reasonable business judgment. Paragraph 88 Consider the development and implementation of the NIST standards to determine if they contain provisions that will better protect the Bulk-Power System. Seek and consider comments from those federal entities (TVA and WAPA) on the effectiveness of the NIST standards and on any implementation issues. Paragraphs 330 Modify the Violation Risk Factors as directed in the NOPR list of

proposed Actions.

Paragraphs 77 Eliminate the "acceptance of risk" option from the CIP 83-86 Reliability Standards;

Paragraphs 77/80 Develop an annual report that quantifies, on a wide-area basis, the frequency with which responsible entities invoke "technical feasibility" or other provisions that produce the same outcome as discussed in Paragraphs 77 and 80 of the NOPR. The report should include aggregated information with sufficient detail for the Commission to understand the frequency in which specific provisions are being invoked as well as mitigation and remediation plans over time and by region

Paragraph 209 Treat the allowance of "alternative measures" as "interim actions" developed and implemented as part of a mitigation plan under a "technical feasibility" exception.

Paragraph 214 A responsible entities must, at a minimum, implement two or more different security procedures when establishing a physical security perimeter around critical cyber assets.

Paragraph 221 (1) A readily accessible critical cyber asset be tested every year with a one-year record requirement for the retention of testing, maintenance, and outage records; and (2) a non- readily accessible critical cyber asset be tested in a three-year cycle with a three-year record retention requirement.

Standards Process
- Incorporate approved formal interpretation

Industry Work Plan Comment – Compliance Measures
- Consider MISO's comment that the standard should be measured at the standard level rather than the individual requirement level.

Other
- Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

FERC's December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000

- In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be applied. Each drafting team responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see:
  - FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf)
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Issues to be Considered by Drafting Team Project 2008-06 — Cyber Security	
Standard #	**Title**
CIP-007-1	Cyber Security — Systems Security Management
Issues	VRF comment • R2 & 2.3 - An open port can lead to loss of system integrity. • R3 **-** An improper patch can lead to loss of system integrity. FERC Cyber NOPR Comments Paragraph 325 - Add missing Violation Risk Factors to the Requirement R5.1, Requirement R5.3.3, and Requirement R7 Paragraph 41 Add that a responsible entity must implement a plan, policy or procedure that it is required to develop. (CIP-002-009) Paragraph 48 Develop a self-certification process with more frequent certifications, either tied to target dates in the schedule or perhaps quarterly or semi-annual certifications. Paragraph 58 Remove references to the "reasonable business judgment" language. Paragraph 77 Treat instances where technical feasibility is invoked as exceptions that require certain alternative courses of action; Paragraph 77 Interpret the term "technical feasibility" narrowly as applying to the technical characteristics of existing assets and having no relation to the considerations of business judgment discussed above; Paragraph 79 Establish a structure to require accountability from those who rely on "technical feasibility" as the basis for an exception as discussed in Paragraph 79 of the NOPR. This proposed structure should include a review by senior management of the expediency and effectiveness of the manner in which a responsible entity has addressed each of these three proposed conditions. Paragraph 79 Require a responsible entity to report and justify to the ERO and the Regional Entity for approval each exception and its expected duration. In situations where any of the proposed conditions are not satisfied, the ERO or the Regional Entity would inform the responsible entity that its claim to an exception based on technical feasibility is insufficient and therefore not approved. Failure to timely rectify the deficiency would invalidate the exception for compliance purposes. Paragraph 82 Consider making "technically feasible," and derivative forms of that phrase as used in the CIP Reliability Standards, defined terms in NERC's glossary, pursuant to the prior clarifications, without any reference to reasonable business judgment. Paragraph 88 Consider the development and implementation of the NIST standards to determine if they contain provisions that will better protect the Bulk-Power System. Seek and consider comments from those federal entities (TVA and WAPA) on the effectiveness of the NIST standards and on any implementation issues. Paragraphs 330 Modify the Violation Risk Factors as directed in the NOPR list

	of proposed Actions. Paragraphs 77 Eliminate the "acceptance of risk" option from the CIP 83-86 Reliability Standards; Paragraphs 77/80 Develop an annual report that quantifies, on a wide-area basis, the frequency with which responsible entities invoke "technical feasibility" or other provisions that produce the same outcome as discussed in Paragraphs 77 and 80 of the NOPR. The report should include aggregated information with sufficient detail for the Commission to understand the frequency in which specific provisions are being invoked as well as mitigation and remediation plans over time and by region Paragraph 230 Modify Requirement R1 and its subparts to require documentation of each significant difference between the testing and the production environments, and how each such difference is mitigated or otherwise addressed. Paragraph 234 Revise Requirement R2 and its subparts to reflect our determinations discussed above to remove the "acceptance of risk" language and to impose the same conditions and reporting requirements here for "technical limitations" as imposed elsewhere in this NOPR regarding "technical feasibility." Paragraph 239 The "acceptance of risk" language must be removed in R3also. Paragraph 244 The "acceptance of risk" language must be removed here (R4), and the same conditions and reporting requirements regarding "technical feasibility" that apply elsewhere are applicable here. Paragraph 244 Modify Requirement R4 to include safeguards against personnel introducing, either maliciously or unintentionally, viruses or malicious software to a cyber asset within the electronic security perimeter through remote access, electronic media, or other means. Paragraph 251 Revise Requirement R6 to include a requirement that logs be reviewed on a weekly basis for readily accessible critical assets and reviewed within the retention period for assets that are not readily accessible. Accessibility should take into account both physical remoteness and available communications channels. We would expect control centers to fall within the "readily accessible" category. Paragraph 252 Revise Requirement R6.4 to clarify that while the retention period for all logs specified in Requirement R6 is 90 days, the retention period for logs mentioned in Requirement R6.3 for the support of incident response as required in CIP-008-1 is the retention period required by CIP-008-1, i.e., three years. Paragraph 256 Clarify that R7 assures that there is no opportunity for unauthorized retrieval of data from a cyber asset prior to discarding it or redeploying it. Paragraph 260 Provide more direction on what features, functionality, and vulnerabilities the responsible entities should address when conducting the vulnerability assessments. Paragraph 260 Revise Requirement R8.4 to require an entity-imposed timeline for completion of the already-required action plan.

	Paragraph 263 Modify Requirement R9 to state that the changes resulting from modifications to the system or controls shall be documented in a 30-day time period. Industry Work Plan Comment – Compliance Measures • Consider MISO's comment that the standard should be measured at the standard level rather than the individual requirement level. Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. FERC's December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000 • In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be applied. Each drafting team responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf) and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Issues to be Considered by Drafting Team Project 2008-06 — Cyber Security		
Standard #	**Title**	
CIP-008-1	Cyber Security — Incident Reporting and Response Planning	
Issues	FERC Cyber NOPR Comments Paragraph 41 Add that a responsible entity must implement a plan, policy or procedure that it is required to develop. (CIP-002-009) Paragraph 48 Develop a self-certification process with more frequent certifications, either tied to target dates in the schedule or perhaps quarterly or semi-annual certifications. Paragraph 58 Remove references to the "reasonable business judgment" language. Paragraph 77 Treat instances where technical feasibility is invoked as exceptions that require certain alternative courses of action; Paragraph 77 Interpret the term "technical feasibility" narrowly as applying to the technical characteristics of existing assets and having no relation to the considerations of business judgment discussed above; Paragraph 79 Establish a structure to require accountability from those who rely on "technical feasibility" as the basis for an exception as discussed in Paragraph 79 of the NOPR. This proposed structure should include a review by senior management of the expediency and effectiveness of the manner in which a responsible entity has addressed each of these three proposed conditions. Paragraph 79 Require a responsible entity to report and justify to the ERO and the Regional Entity for approval each exception and its expected duration. In situations where any of the proposed conditions are not satisfied, the ERO or the Regional Entity would inform the responsible entity that its claim to an exception based on technical feasibility is insufficient and therefore not approved. Failure to timely rectify the deficiency would invalidate the exception for compliance purposes. Paragraph 82 Consider making "technically feasible," and derivative forms of that phrase as used in the CIP Reliability Standards, defined terms in NERC's glossary, pursuant to the prior clarifications, without any reference to reasonable business judgment. Paragraph 88 Consider the development and implementation of the NIST standards to determine if they contain provisions that will better protect the Bulk-Power System. Seek and consider comments from those federal entities (TVA and WAPA) on the effectiveness of the NIST standards and on any implementation issues. Paragraphs 330 Modify the Violation Risk Factors as directed in the NOPR list of proposed Actions. Paragraphs 77 Eliminate the "acceptance of risk" option from the CIP 83-86 Reliability Standards; Paragraphs 77/80 Develop an annual report that quantifies, on a wide-area basis, the frequency with which responsible entities invoke "technical feasibility"	

	or other provisions that produce the same outcome as discussed in Paragraphs 77 and 80 of the NOPR. The report should include aggregated information with sufficient detail for the Commission to understand the frequency in which specific provisions are being invoked as well as mitigation and remediation plans over time and by region Paragraph 270 Develop and include in CIP-008-1 language that takes into account a breach that may occur through cyber or physical means Paragraph 270 Harmonize, but not necessarily limit, the meaning of the term reportable incident with other reporting mechanisms, such as DOE Form 417 Paragraph 270 Recognize that the term "reportable incident" should not be triggered by ineffectual and untargeted attacks that proliferate on the internet Paragraph 280 Modify CIP-008-1 to require a responsible entity to contact appropriate government authorities and industry participants in the event of a Cyber Security Incident as soon as possible, but, in any event, within one hour of the event, even if it is a preliminary report. The reporting timeframe should run from the discovery of the incident by the responsible entity, and not the occurrence of the incident. Paragraph 286 Refine R2 to require responsible entities to maintain documentation of paper drills, full operational drills, and responses to actual incidents, all of which must include lessons learned. Paragraph 286 Require revisions to the Incident Response Plan to address these lessons learned. Paragraph 286 Provide guidance on the meaning of the term “full operational exercise.” Paragraph 286 Require responsible entities to perform a “full operational exercise” at least once every three years, or to fully document its reason for not conducting an exercise in full operational mode pursuant to the technical feasibility parameters discussed earlier in the NOPR. Industry Work Plan Comment – Compliance Measures • Consider MISO’s comment that the standard should be measured at the standard level rather than the individual requirement level. Other • Modify standard to conform to the latest version of NERC’s Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. FERC’s December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000 • In FERC’s December 20, 2007 Order, the Commission reversed NERC’s Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a “reliability gap” if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be applied. Each drafting team

		responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf) and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Issues to be Considered by Drafting Team Project 2008-06 — Cyber Security	
Standard #	**Title**
CIP-009-1	Cyber Security — Recovery Plans for Critical Cyber Assets
Issues	FERC Cyber NOPR Comments Paragraph 41 Add that a responsible entity must implement a plan, policy or procedure that it is required to develop. (CIP-002-009) Paragraph 48 Develop a self-certification process with more frequent certifications, either tied to target dates in the schedule or perhaps quarterly or semi-annual certifications. Paragraph 58 Remove references to the "reasonable business judgment" language. Paragraph 77 Treat instances where technical feasibility is invoked as exceptions that require certain alternative courses of action; Paragraph 77 Interpret the term "technical feasibility" narrowly as applying to the technical characteristics of existing assets and having no relation to the considerations of business judgment discussed above; Paragraph 79 Establish a structure to require accountability from those who rely on "technical feasibility" as the basis for an exception as discussed in Paragraph 79 of the NOPR. This proposed structure should include a review by senior management of the expediency and effectiveness of the manner in which a responsible entity has addressed each of these three proposed conditions. Paragraph 79 Require a responsible entity to report and justify to the ERO and the Regional Entity for approval each exception and its expected duration. In situations where any of the proposed conditions are not satisfied, the ERO or the Regional Entity would inform the responsible entity that its claim to an exception based on technical feasibility is insufficient and therefore not approved. Failure to timely rectify the deficiency would invalidate the exception for compliance purposes. Paragraph 82 Consider making "technically feasible," and derivative forms of that phrase as used in the CIP Reliability Standards, defined terms in NERC's glossary, pursuant to the prior clarifications, without any reference to reasonable business judgment. Paragraph 88 Consider the development and implementation of the NIST standards to determine if they contain provisions that will better protect the Bulk-Power System. Seek and consider comments from those federal entities (TVA and WAPA) on the effectiveness of the NIST standards and on any implementation issues. Paragraphs 330 Modify the Violation Risk Factors as directed in the NOPR list of proposed Actions. Paragraphs 77 Eliminate the "acceptance of risk" option from the CIP 83-86 Reliability Standards; Paragraphs 77/80 Develop an annual report that quantifies, on a wide-area basis, the frequency with which responsible entities invoke "technical feasibility"

	or other provisions that produce the same outcome as discussed in Paragraphs 77 and 80 of the NOPR. The report should include aggregated information with sufficient detail for the Commission to understand the frequency in which specific provisions are being invoked as well as mitigation and remediation plans over time and by region Paragraphs 293 Explicitly require actual implementation when the "events or conditions of varying duration and severity" occur. Paragraph 303 R2 - Require a full operational exercise once every three years (unless an actual incident occurs), but to permit reliance on table-top exercises annually in other years. Further, we propose, in conjunction with the above proposed modification, that the ERO consider the appropriateness of a "technical feasibility" option, in the limited fashion proposed earlier in this NOPR. Paragraph 304 Either define in its Glossary the term "full operational exercise" or provide more direction directly in the Reliability Standard as to the parameters of the term. Paragraph 308 Modify Requirement R3 of CIP-009-1 to shorten the timeline for updating recovery plans to 30 days, while continuing to allow up to 90 days for completing the communications of that update to responsible personnel. Paragraph 312 R4 - Incorporate guidance that the backup and restoration processes and procedures required by Requirement R4 should include, at least with regard to significant changes made to the operational control system, verification that they are operational before the backups are stored or relied upon for recovery purposes. Paragraph 319 Provide direction that backup practices include regular procedures to ensure verification that backups are successful and backup failures are addressed, thus guaranteeing that backups are available for future use. Insertion of language such as, "backup procedures are to include regular verification of successful completion and procedures to address backup failures" would satisfy this goal. Paragraphs 297- Incorporate use of good forensic data collection practices into 298 R1 of this CIP Reliability Standard. Make clear that such practices should not impede or restrict system restoration and to consider whether it is necessary to include a "technical feasibility" provision. Industry Work Plan Comment – Compliance Measures • Consider MISO's comment that the standard should be measured at the standard level rather than the individual requirement level. Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. FERC's December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000 • In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned

		physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be applied. Each drafting team responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf) and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Project 2008-08 EOP Violation Severity Levels Revisions

Standards Involved:

EOP-001-0 — Emergency Operations Planning
EOP-002-1 — Capacity and Energy Emergencies
EOP-003-1 — Load Shedding Plans
EOP-004-1 — Disturbance Reporting
EOP-005-1 — System Restoration Plans
EOP-006-1 — Reliability Coordination — System Restoration
EOP-008-0 — Plans for Loss of Control Center Functionality
EOP-009-0 — Documentation of Blackstart Generating Unit Test Results

Research Needed:

None

Brief Description:

The Federal Energy Regulatory Commission (FERC) in its Order on Compliance Filing dated June 7, 2007, directed NERC to replace the "Levels of Non-compliance" with "Violation Severity Levels" (VSLs) in the 83 previously approved reliability standards by March 1, 2008. Project 2007-23 Violation Severity Levels was initiated to respond to FERC's directive. The VSLs for all 83 "regulatory approved" standards plus the VSLs for NUC-001 (a total of 84 standards) were developed and balloted in conjunction with Project 2007-23 Violation Severity Levels using nine separate ballots. The ballot for the VSLs for the 8 Emergency Preparedness and Operations (EOP) reliability standards shown above failed to meet the required two-thirds majority of the weighted segment votes cast in the affirmative. As a result, the NERC Board of Trustees directed the Standards Committee to take the necessary steps needed to expedite the development of a revised group of EOP VSLs for filing with FERC.

Revise the VSLs for the 8 EOP reliability standards that failed to meet the required two-thirds majority of the weighted segment votes cast in the affirmative. The revised VSLs will be re-submitted to the industry for approval and, once approved, will be filed with the appropriate regulatory authorities as directed by the board.

Standards Development Status:

Project 2008-08 EOP Violation Severity Levels Revisions Web page

Project Schedule:

Project 2008-08 Project Schedule (TBD)

Target Completion Date:

TBD

Related Links:

Project 2008-08 Roster

Project 2008-12 Coordinate Interchange Standards

Standards Involved:

INT-001-3 — Interchange Transaction Tagging
INT-003-2 — Interchange Transaction Implementation
INT-004-1 — Interchange Transaction Modifications
INT-005-2 — Interchange Authority Distributes Arranged Interchange
INT-006-2 — Response to Interchange Authority
INT-007-1 — Interchange Confirmation
INT-008-2 — Interchange Authority Distributes Status
INT-009-1 — Implementation of Interchange
INT-010-1 — Interchange Coordination Exemptions

Research Needed:

None

Brief Description:

The modifications in the set of Coordinate Interchange Standards should address the following:

- Determine if the activities in the Coordinate Interchange standards correctly identify the responsible entity.
- Consider requiring the Sink Balancing Authority responsibility for Interchange Authority functions, using an interchange transaction tool process as defined in the latest approved version of the e-Tag Specifications.
- The existing requirements are tool-neutral - consider adding specific references to the e-Tagging process in the requirements
- Consider adding a requirement to have backup capability for use when the interchange transaction tool fails.
- Consider combining requirements into a fewer number of standards so that the resultant set of requirements follows a chronological sequence that is easier to follow.
- Address the directives issued by FERC in Order 693, and the stakeholder comments from the V0 drafting team and the Violation Risk Factor drafting team. (See Attachment 1)
- Determine if there is industry-wide support for the Interchange Subcommittee's Principles and definition supporting dynamic transfers and pseudo-ties and if there is support, modify the requirements and add definitions accordingly. Make other changes to the standards to bring them into conformance with the latest version of the Reliability Standards Development Procedure, Sanctions Guidelines and Uniform Compliance Monitoring and Enforcement Program.

The work in this project should be done in two phases, with the first phase focused solely on clarifying the applicability of each requirement in the existing set of standards. All other revisions should take place in a second phase.

Coordination with NAESB:

The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2008 Annual plan):
- Annual Plan Item 1
- Annual Plan Item 3

Justification for NAESB consideration:
- Industry recommendations

SRS Recommendation:
- The WEQ SRS will coordinate with the JISWG on this project.

Standards Development Status:

Project 2008-12 Coordinate Interchange Standards Web page

Project Schedule:

Project 2008-12 Project Schedule (TBD)

Target Completion Date:

TBD

Related Links:

Project 2008-12 Roster

Issues to be Considered by Drafting Team Project 2008-12 — Coordinate Interchange Standards	
Standard #	**Title**
INT-001-2	Interchange Information
Issues	FERC Order 693 Disposition: Approve with modifications • Include a requirement that interchange information must be submitted for all point-to-point transfers entirely within a balancing authority area, including all grandfathered and "non-Order No. 888" transfers. • Consider Santa Clara's comments about the applicability of the LSE in the standard as part of the standards development process. Regional Difference to INT-001/4: WECC Tagging Dynamic Schedules and Inadvertent Payback Disposition: Not approved or remanded • Submit a filing within 90 days of the Order that provides the needed information or withdraws the regional variance. Regional Difference to INT-001/3: MISO Energy Flow Information Disposition: Approved V0 Industry Comments • R1 - Too stringent • R1 – Who tags dynamic schedules? • Load PSE responsibility is new restriction • Clarify tagging of reserves • R2.2 – 60 minute time frame questioned • Question on generation scheduling • Onerous to BA's • More commercial problem than reliability • Lack of compliance VRF comments • R1, 1.1, 2, 2.1, 2.2 – commercial and administrative Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. FERC's December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000 • In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be applied.

	Each drafting team responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf) and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject. NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA

Issues to be Considered by Drafting Team Project 2008-12 — Coordinate Interchange Standards	
Standard #	**Title**
INT-003-2	Interchange Transaction Implementation
Issues	FERC Order 693 Disposition: Approved Regional Difference to INT-001/3: MISO Energy Flow Information Disposition: Approved Regional Difference to INT-003: MISO/SPP Scheduling Agent Disposition: Approved Regional Difference to INT-003: MISO Enhanced Scheduling Agent Disposition: Approved VRF Comments • R1, 1.1, 1.1.2, 1.2 – commercial and administrative Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA

Issues to be Considered by Drafting Team Project 2008-12 — Coordinate Interchange Standards	
Standard #	**Title**
INT-004-1	Dynamic Interchange Transaction Modifications
Issues	FERC Order 693 Disposition: Approved • Consider adding levels of non-compliance to the standard. Regional Difference to INT-001/4: WECC Tagging Dynamic Schedules and Inadvertent Payback Disposition: Not approved or remanded • Submit a filing within 90 days of the Order that provides the needed information or withdraws the regional variance. V0 Industry Comments • Replace TSP with TOP • Need to address tag curtailment • Suggested non-compliance levels • Non-compliance based on % • Use WECC criteria VRF comments • R2, 2.2, 2.3 – commercial and administrative Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA

Issues to be Considered by Drafting Team Project 2008-12 — Coordinate Interchange Standards	
Standard #	**Title**
INT-005-2	Interchange Authority Distributes Arranged Interchange
Issues	FERC Order 693 Disposition: Approved • Consider adding levels of non-compliance to the standard. VRF comment • R5 – administrative Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA

Issues to be Considered by Drafting Team Project 2008-12 — Coordinate Interchange Standards	
Standard #	**Title**
INT-006-2	Response to Interchange Authority
Issues	FERC Order 693 Disposition: Approve with modifications • Include reliability coordinators and transmission operators as applicable entities. • Require reliability coordinators and transmission operators to review energy interchange transactions from the wide-area and local area reliability viewpoints respectively and, where their review indicates a potential detrimental reliability impact, communicate to the sink balancing authorities' necessary transaction modifications before implementation. • Consider the suggestions made by EEI and TVA and address questions raised by Entergy and Northern Indiana as part of the standard development process. Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Audit and Observation Team • Does confirmed action mean direct action needs to be taken or, does confirmed action mean that a process has been put in place that will take action and, the entity agrees with such since they have employed the program. NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA

Issues to be Considered by Drafting Team Project 2008-12 — Coordinate Interchange Standards		
Standard #	**Title**	
INT-007-1	Interchange Confirmation	
Issues	FERC Order 693 Disposition: Approved VRF comment • R1, 1.1, 1.3, 1.3.1, 1.3.2, 1.3.3, 1.3.4, 1.4 – administrative Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA	

Issues to be Considered by Drafting Team Project 2008-12 — Coordinate Interchange Standards		
Standard #	**Title**	
INT-008-2	Interchange Authority Distributes Status	
Issues	FERC Order 693 Disposition: Approved • Consider APPA's suggestion to clarify what reliability entity the standard applies as part of the standard development process. VRF comments • R1.1.1 & 1.1.2 – commercial and administrative Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA	

Issues to be Considered by Drafting Team Project 2008-12 — Coordinate Interchange Standards	
Standard #	**Title**
INT-009-1	Implementation of Interchange
Issues	FERC Order 693 • Consider APPA's suggestion to clarify what reliability entity the standard applies as part of the standard development process. Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA

Issues to be Considered by Drafting Team Project 2008-12 — Coordinate Interchange Standards	
Standard #	**Title**
INT-010-1	Interchange Coordination Exemptions
Issues	FERC Order 693 Disposition: Approved • Consider Northern Indiana's and ISO-NE's suggestions in the standards development process. VRF comments • R1 & 3 – administrative Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA

Project 2009-01 Disturbance and Sabotage Reporting

Standards Involved:

CIP-001-0 — Sabotage Reporting
EOP-004-1 — Disturbance Reporting

Research Needed:

None

Brief Description:

The existing requirements need to be revised to be more specific – and there needs to be more clarity in what sabotage looks like.

CIP-001 may be merged with EOP-004 to eliminate redundancies. Acts of sabotage have to be reported to the DOE as part of EOP-004. Specific references to the DOE form need to be eliminated.

EOP-004 has some 'fill-in-the-blank' components to eliminate.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project has not started.

Project Schedule:

Project 2009-01 Project Schedule

Target Completion Date:

Fourth quarter of 2010

Related Links:

Project 2009-01 Roster

Issues to be Considered by Drafting Team Project 2009-01 — Disturbance and Sabotage Reporting	
Standard #	**Title**
CIP-001-0	Sabotage Reporting
Issues	FERC Order 693 Disposition: Approved with modifications • Consider the need for wider application of the standard. Consider whether separate, less burdensome requirements for smaller entities may be appropriate. • Define "sabotage" and provide guidance on triggering events that would cause an entity to report an event. • In the interim, provide advice to entities about the reporting of particular circumstances as they arise. • Consider FirstEnergy's suggestions to differentiate between cyber and physical security sabotage and develop a threshold of materiality. • Incorporate a periodic review or updating of the sabotage reporting procedures and for their periodic testing. Consider a staggered schedule of annual testing and formal review every two to three years. • Include a requirement to report a sabotage event to the proper government authorities. Develop the language to specifically implement this directive. • Explore ways to reduce redundant reporting, including central coordination of sabotage reports and a uniform reporting format. V0 Industry Comments • Object to multi-site requirement • Definition of sabotage required VRF comments • Adequate procedures will insure it is unlikely to lead to bulk electric system instability, separation, or cascading failures. Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Audit and Observation Team • Applicability — How does this standard pertain to Load Serving Entities, LSE's? • Registered Entities have sabotage reporting processes and procedures in place but not all personnel has been trained. • Question: How do you "and make the operator aware" • R4 — "What is meant by: "establish contact with the FBI". Is a phone number adequate? Many entities which call the FBI are referred back to the local authority. The AOT noted that on the FBI website it states to contact the local authorities. Is this a question for Homeland Security to deal with for us?" • R4 — Establish communications contacts, as applicable with local FBI and RAMP officials. Some entities are very remote and the sheriff is the only local authority does the FBI still need to be contacted?

	FERC's December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000 • In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be applied. Each drafting team responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf) and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Issues to be Considered by Drafting Team Project 2009-01 — Disturbance and Sabotage Reporting	
Standard #	**Title**
EOP-004-1	Disturbance Reporting
Issues	FERC Order 693 Disposition: Approved with modification • Include any requirements for users, owners, and operators of the bulk power system to provide data that will assist NERC in the investigation of a blackout or disturbance. • Change NERC's Rules of Procedure to assure the Commission receives these reports in the same frame as the DOE. • Consider APPA's concern about generator operators and LSEs analyzing performance of their equipment and provide data and information on the equipment to assist others with analysis. • Consider all comments offered in a future modification of the reliability standard. Fill-in-the-Blank Team Comments • Consider changes to R1 and R3.4 to standardize the disturbance reporting requirements (requirements for disturbance reporting need to be added to this standard) • Regions currently have procedures, but not in the form of a standard. The drafting team will need to review regional requirements to determine reporting requirements for the North American standard. V0 Industry Comments • R3 – too many reports, narrow requirement to RC • How does this apply to generator operator? Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Audit and Observation Team • R3.1 — Can there be a violation without an event? Event Analysis Team • Reliability Issue: Coordination and follow up on lessons learned from event analyses Consider adding to EOP-004 – Disturbance Reporting. Proposed requirement: Regional Entities (REs) shall work together with Reliability Coordinators, Transmission Owners, and Generation Owners to develop an Event Analysis Process to prevent similar events from happening and follow up with the recommendations. This process shall be defined within the appropriate NERC Standard. FERC's December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000 • In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The

		distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be applied. Each drafting team responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf) and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Project 2009-02 Real-time Tools

Standards Involved:

BAL-002 — Disturbance Control Performance
BAL-005 — Automatic Generation Control
COM-001 — Telecommunications
EOP-003 — Load Shedding Plans
EOP-005 — System Restoration Plans
IRO-002 — Reliability Coordination – Facilities
IRO-003 — Reliability Coordination – Wide-area View
IRO-004 — Reliability Coordination – Operations Planning
IRO-005 — Reliability Coordination – Current-Day Operations
PRC-001 — System Protection Coordination
TOP-001 — Reliability Responsibilities and Authorities
TOP-002 — Normal Operations Planning
TOP-003 — Planned Outage Coordination
TOP-004 — Transmission Operations
TOP-005 — Operational Reliability Information
TOP-006 — Monitoring System Conditions
VAR-001 — Voltage and Reactive Control

Research Needed:

No additional research needed. The NERC Real-Time Tools Best Practices Task Force (RTBPTF) performed an extensive, three-year process of fact finding and analysis supported by the results of their Real-Time Tools Survey, the most comprehensive survey ever conducted of current electric industry practices.

The RTBPTF summarized their findings in a report titled *Real-Time Tools Survey Analysis and Recommendations* dated March 13, 2008. The report includes the RTBPTF's recommendations for minimum acceptable capabilities and best practices for real-time tools necessary to ensure reliable electric system operation and reliability coordination.

Brief Description:

The drafting team will implement certain recommendations of the RTBPTF's identified in their report titled *Real-Time Tools Survey Analysis and Recommendations* dated March 13, 2008. As the NERC reliability standards have continued to evolve since the work of the RTBPTF was initiated, the drafting team appointed for this project will need to review the recommendations of the RTBPTF relative to the current set of approved standards and propose modifications to the specific standards as appropriate.

This project will be responsive to the U.S.-Canada Power System Outage Task Force blackout recommendation 10: Establish Guidelines for Real-Time Operating Tools.

The RTBPTF makes major recommendations in three key areas to establish requirements that apply to reliability coordinators (RCs), transmission operators (TOPs), and other entities with similar responsibility:

1. ***Reliability Toolbox*** — Require five real-time tools as well as performance and availability metrics and maintenance practices for each. The required tools are:
    - Telemetry data systems
    - Alarm tools
    - Network topology processor
    - State estimator
    - Contingency analysis

2. ***Enhanced Operator Situational Awareness*** — Require standards and guidelines for situational awareness practices, including:
    - Power-flow simulations
    - Conservative operations plans
    - Load-shed capability awareness
    - Critical applications and facilities monitoring
    - Visualization techniques

3. ***Issues*** to enhance the effectiveness of real-time tools.

Standards Development Status:

Not yet started; scheduled to begin in 2009.

Project Schedule:

TBD

Target Completion Date:

TBD

Related Links:

TBD

Project 2009-03 Emergency Operations

Standards Involved:

EOP-001-0 — Emergency Operations Planning
EOP-002-2 — Capacity and Energy Emergencies
EOP-003-1 — Load Shedding Plans
IRO-001-1 — Reliability Coordination – Responsibilities and Authorities

Research Needed:

None

Brief Description:

The first three standards in the list above may be merged into a single standard. There are some requirements in IRO-001 that may be improved and merged into the new EOP standard

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:

The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2008 Annual plan):
Annual Plan Item 1

Justification for NAESB consideration:
WEQ SRS analysis
Industry recommendations

SRS recommendation:
Refer to Project 2007-18 Reliability Based Control

Standards Development Status:

Project has not started.

Project Schedule:

Project 2009-03 Project Schedule

Target Completion Date:

TBD

Related Links:

Project 2009-03 Roster

Issues to be Considered by Drafting Team Project 2009-03 — Emergency Operations	
Standard #	**Title**
EOP-001-0	Emergency Operations Planning
Issues	FERC Order 693 Disposition: Approved with modification • Include reliability coordinators as an applicable entity. • Consider Southern California Edison's and Xcel's suggestions in the standard development process. • Includes definitions of system states (e.g. normal, alert, emergency), criteria for entering into these states. And the authority that will declare them. • Consider a pilot program (field test) for the system states proposal. • Clarifies that the actual emergency plan elements, and not the "for consideration" elements of Attachment 1, should be the basis for compliance. V1 Industry Comments • Combine R4 & R5 • Revise R5 • Measures are really data retention requirements VRF comment • R1 – primarily administrative Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Audit and Observation Team • R1 — BA shall have operating agreements with adjacent BA's that shall, at a minimum, contain provisions for emergency assistance, including provision to obtain emergency assistance from remote BA's. What is "emergency assistance"? Does a reserve sharing group constitute emergency assistance, or is it more then that?

Issues to be Considered by Drafting Team Project 2009-03 — Emergency Operations	
Standard #	**Title**
EOP-002-2	Capacity and Energy Emergencies
Issues	V0 Industry Comments • R3 should be applied to RC's • Re-wording in R7 • Measures aren't really measures but requirements • L4 non-compliance needs definition of time frame • Several wording changes to Attachment • Compliance not mapped to requirements VRF comments • R10 - This is a commercial and administrative ordering of curtailments. Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. FERC's December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000 • In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be applied. Each drafting team responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf) and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Issues to be Considered by Drafting Team Project 2009-03 — Emergency Operations	
Standard #	**Title**
EOP-003-1	Load Shedding Plans
Issues	FERC Order 693 Disposition: Approved with modification • Develop specific minimum load shedding capability that should be provided and the maximum amount of delay before load shedding can be implemented based on overarching nationwide criteria that take into account system characteristics. • Require periodic drills of simulated load shedding. • Suggest a review of industry best practices in determining nationwide criteria. • Consider comments from APPA and ISO-NE in the standards development process. V0 Industry Comments • Move implementation requirements • Re-state purpose • Move to Policy 5 & 9 • Add UVLS VRF comments • R4 – Needs clarification • R6 - Failure to shed load in this condition can inhibit restoration. Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Audit and Observation Team • The purpose of the standard states that the BA and TOP must have the capability and authority to shed load. What do we mean by capability? Is directing someone to take action to open breakers the same thing as capability?

Issues to be Considered by Drafting Team Project 2009-03 — Emergency Operations	
Standard #	**Title**
IRO-001-1	Reliability Coordination – Responsibilities and Authorities

Issues

Fill-in-the-Blank Team Comments

- Remove ", sub-region, or interregional coordinating group" from R1
- Consider removing "Standards of conduct are necessary to ensure the Reliability Coordinator does not act in a manner that favors one market participant over another." from the Purpose section of the standard.

V0 Industry Comments

- Inability to perform needs to be communicated
- What is meant by 'interest of other entity'?

VRF comments

- R6 - Since the RC must be NERC certified, it stands to reason that anyone performing RC tasks should be certified. However, since the RC still retains the accountability for actions, and requirement 4 handles the agreements, this requirement is a medium risk.

Other

- Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

FERC's December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000

- In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be applied. Each drafting team responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see:
  - FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf)
  - NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf),
  - FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf) and
  - NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Project 2009-04 Phasor Measurement Units

Standards Involved:

New

Research Needed:

Analysis of existing research needs to be conducted.

Brief Description:

This is a new project that was identified in 2006 in support of a blackout recommendation. Several industry studies were recently issued and these studies need to be analyzed to determine appropriate requirements for a NERC standard.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project has not started.

Project Schedule:

Project 2009-04 Project Schedule

Target Completion Date:

Third quarter of 2011

Related Links:

Project 2009-04 Roster

Issues to be Considered by Drafting Team Project 2009-4 Phasor Measurement Units
This is a new standard — no history exists.

Project 2009-05 Resource Adequacy Assessments

Standards Involved:

New

Research Needed:

None

Brief Description:

This is a continuation of a project from 2006 that was delayed for higher priority projects. The purpose of this standard is to implement some of the recommendations from the Resource and Transmission Adequacy Task Force Report and the Gas/Electricity Interdependency Task Force Report approved by the NERC BOT in 2004 related to resource adequacy.

As envisioned, the standard will require entities to create metrics to assess resource adequacy that takes into account various factors such as fuel deliverability, performing resource adequacy assessments, sharing the results of those assessments. The standard would also require that resource adequacy assessments be conducted according to those metrics.

Standard Development Steps Completed:

The SAR has been posted for two comment periods but has not been finalized due to other conflicting higher priority projects. The SAR will be finalized and then work will be delayed on drafting the standard until 2008.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project has not started.

Project Schedule:

Project 2009-05 Project Schedule

Target Completion Date:

Third quarter of 2011

Related Links:

Project 2009-05 Roster

Issues to be Considered by Drafting Team Project 2009-05 — Resource Adequacy
Comment from draft SAR on Planning Authority • Provide clarity where the Planning Authority is mentioned

Project 2010-01 Support Personnel Training

Standards Involved:

New

Research Needed:

None

Brief Description:

This is a new project that was identified in support of a blackout recommendation. Stakeholders indicated a preference for completing work on a standard for real-time system operators before beginning work on this standard, due to resource limitations. The standard will require the use of a systematic approach to determining training needs of generator operators and operations planning and support staff with a direct impact on the reliable operations of the bulk power system.

The standard will require that entities have evidence that this systematic approach is used and require that each responsible entity have evidence that each of applicable personnel is competent to perform each assigned task that is on its company-specific list of reliability-related tasks.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project has not started.

Project Schedule:

Project 2010-01 Project Schedule

Target Completion Date:

Fourth quarter of 2011

Related Links:

Project 2010-01 Roster

Issues to be Considered by Drafting Team Project 2010-01 — Support Personnel Training
FERC NOPR • Identify the expectations of the training for each job function; • Develop training programs tailored to each job function with consideration of the individual training needs of the personnel; • Expand the Applicability to include reliability coordinators, generator operators, and operations planning and operations support staff with a direct impact on the reliable operation of the Bulk-Power System; • Use the SAT methodology in its development of new training programs; and • (5) Include performance metrics associated with the effectiveness of the training program.

Project 2010-02 Connecting New Facilities to the Grid

Standards Involved:

FAC-001-0 — Facility Connection Requirements
FAC-002-0 — Coordination of Plans for New Facilities

Research Needed:

None

Brief Description:

A broad review needs to take place to ensure that all of the elements that should be addressed when a new facility is connected to the grid are included in the revised standard. New requirements are needed to require that the facility connection requirements are followed.

FAC-001 and FAC-002 have some 'fill-in-the-blank' components to eliminate.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:

The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2008 Annual plan):
Annual Plan Item 1

Justification for NAESB consideration:
Industry recommendations

SRS Recommendation:
The WEQ SRS will add this project to its watch list.

Standards Development Status:

Project has not started.

Project Schedule:

Project 2010-02 Project Schedule

Target Completion Date:

First quarter of 2011

Related Links:

Project 2010-02 Roster

Issues to be Considered by Drafting Team Project 2010-02 — Connecting New Facilities to the Grid		
Standard #	**Title**	
FAC-001-0	Facility Connection Requirements	
Issues	FERC Order 693 Disposition: Approved Fill-in-the-Blank Team Comments • Remove the phrase "to ensure compliance with NERC Reliability Standards and applicable Regional Reliability Organization, sub regional, Power Pool, and individual Transmission Owner planning criteria and facility connection requirements". • Document explicit definition of ride through capability for generators V0 Industry Comments • Not a NERC issue • Need to consider FERC, states, end-users • Should not degrade system on interconnection • Merge R1.1 & 1.2 • R1.3 – 5 days not enough • When is assessment required? • Wording on Level 4 Phase III/IV comments • There is no requirement that facility connection requirements be used. • There is no set criteria that must be included in the connection requirements – just a list of topics that must be addressed. • Consider revising this so that the RRO has some requirements for facility connections in addition to those of the transmission owner. • In a market environment it is very possible that not every generator will provide Frequency Response (FRR) services. Thus, the governor and governor deadband should be a requirement to interconnect to a power system. Generators that provide FRR shall have responsive governor and prime mover Industry Work Plan Comment • Exercise care that the new standard focuses on reliability issues and does not replace interconnection agreements that are tariff-related Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.	

Issues to be Considered by Drafting Team Project 2010-02 — Connecting New Facilities to the Grid	
Standard #	**Title**
FAC-002-0	Coordination of Plans for New Generation, Transmission, and End-User Facilities
Issues	FERC Order 693 Disposition: Approved with modifications • Consider FirstEnergy's suggestion to include a reference to TPL-004-0. • Amend requirement R1.4 to require evaluation of system performance under both normal and contingency conditions by referencing TPL-001 through TPL-003. • Address other commenter's concerns in future revisions to the standard. Fill-in-the-Blank Team Comments • Remove "and applicable Regional, sub regional, Power Pool, and individual system planning criteria and facility connection requirements" from R1.2. • Consider removing/ modifying R1.4, as it is redundant with the TPL standard, • Coordinate with FAC-001, and • Review FERC rule on interconnecting generators and see what parts impact this standard. V0 Industry Comments • Add TO, RRO • Use 30 days throughout • What is Measure? • Shouldn't impact TTC Phase III/IV comments • This standard requires facility owners to work together with the Planning Authority and Transmission Planner to do an assessment to verify there is no adverse impact on reliability before a new facility can be connected to the grid. There is no obvious connection to FAC-001. • The standard does not involve the RRO in the coordination effort – if the FM is revised, the requirements should probably involve the RRO. • The assessment is done by the PA and/or TP VRF comment • R1.2 – Ambiguous • Comment from draft SAR on Planning Authority • Provide clarity where the Planning Authority is mentioned Industry Work Plan Comment • Exercise care that the new standard focuses on reliability issues and does not replace interconnection agreements that are tariff-related Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. FERC's December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000

	• In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be applied. Each drafting team responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf) and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Project 2010-03 Modeling Data

Standards Involved:

MOD-010-0 — Steady-State Data for Transmission System Modeling and Simulation
MOD-011-0 — Regional Steady-State Data Requirements and Reporting Procedures
MOD-012-0 — Dynamics Data for Transmission System Modeling and Simulation
MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures
MOD-014-0 — Development of Interconnection-Specific Steady State System Models
MOD-015-0 — Development of Interconnection-Specific Dynamics System Models
PRC-013-0 — Special Protection System Database
PRC-015-0 — Special Protection System Data and Documentation
PRC-020-1 — Under-Voltage Load Shedding Program Database
PRC-021-1 — Under-Voltage Load Shedding Program Data

Research Needed:

18 months study for dynamics modeling of load in simulations and analyses

Brief Description:

This is one of two projects aimed at identifying all the 'data provision' requirements and consolidating the requirements into fewer standards. Research is needed to clearly identify what data is needed to accurately model load in simulations and analyses. The requirements need to be more specific to clearly identify the format, etc., for providing data.

As envisioned, this project will result in the elimination of most if not all region-specific requirements and the revised requirements would include much more specificity. MOD-010 through MOD-015 has some 'fill-in-the-blank' components to eliminate.

Many of the requirements need to be realigned so that the data that is needed is provided to the entity that needs the data. In several of the existing standards, the data is provided to the RRO who then provides the data to the Planning Authority or other entities.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project has not started.

Project Schedule:

Project 2010-03 Project Schedule

Target Completion Date:

First quarter of 2011

Related Links:

Project 2010-03 Roster

Issues to be Considered by Drafting Team Project 2010-03 — Modeling Data	
Standard #	**Title**
MOD-010-0	Steady-State Data for Modeling and Simulation of the Interconnected Transmission System
Issues	FERC Order 890 • 290. The Commission directs public utilities, working through NERC, to modify the reliability standards MOD-010 through MOD-025 to incorporate a requirement for the periodic review and modification of models for (1) load flow base cases with contingency, subsystem, and monitoring files, (2) short circuit data, and (3) transient and dynamic stability simulation data, in order to ensure that they are up to date. This means that the models should be updated and benchmarked to actual events. We find that this requirement is essential in order to have an accurate simulation of the performance of the grid and from which to comparably calculate ATC, therefore increasing transparency and decreasing the potential for undue discrimination by transmission providers. FERC Order 693 Disposition: Approve with modifications • Require users, owners, and operators to submit data to the regional entities as needed for modeling studies and assessments. • Require transmission planners to provide the contingency lists they use in performing system operation and planning studies. • Address critical energy infrastructure confidentiality issues as part of the standard development process. • Expand the applicability to include transmission operators and the planning authority. Fill-in-the-Blank Team Comments • Review MOD-010, MOD-011, MOD-012, and MOD-013 concurrently for modeling requirements and reporting. • Coordinate the revision of this standard with the revision to MOD-011. MOD-011 needs to be written as a North American standard with requirements for each interconnection. Once MOD-011 is modified, the only changes needed to MOD-010 are the references to the appropriate requirements in MOD-011. • This standard is directly related to MOD-011. V0 Industry Comments • Not a standalone standard • Don't need schedules for transactions within RTO • Confidentiality needs not cited • Non-compliance does not have time elements • Don't provide data to NERC Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Issues to be Considered by Drafting Team Project 2010-03 — Modeling Data		
Standard #		**Title**
MOD-011-0		Maintenance and Distribution of Steady-State Data Requirements and Reporting Procedures
Issues	FERC Order 693 Disposition: Not Approved or Remanded. • Expand the applicability to include the planning authority. • Develop a work plan and submit a compliance filing that will facilitate the ongoing collection of the steady-state modeling and simulation data specified in this standard. Fill-in-the-Blank Team Comments • Review MOD-010, MOD-011, MOD-012, and MOD-013 concurrently for modeling requirements and reporting. • Coordinate the revision of this standard with the revision to MOD-010. MOD-011 needs to be written as a North American standard with requirements for each interconnection. • This should be a North American Standard containing requirements which are interconnection-wide. • MOD-010 and 011 are related. This is the MMWG work for the eastern interconnection. • Revise NERC MOD-011 to clarify that the data reporting requirements must be uniform across each interconnection. V0 Industry Comments • Not a standalone standard • Add equipment types and variables • Confidentiality of data • Consistency across standards for non-compliance • Time element not cited in non-compliance • Locations of substations should be deleted • Several semantics issues Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.	

Issues to be Considered by Drafting Team Project 2010-03 — Modeling Data	
Standard #	**Title**
MOD-012-0	Dynamics Data for Modeling and Simulation of the Interconnected Transmission System
Issues	FERC Order 693 Disposition: Approve with modifications • Require users, owners, and operators to submit data to the regional entities as needed for modeling studies and assessments. • Provide a list of faults and disturbances used in performing dynamics system studies for operation and planning. • Address critical energy infrastructure confidentiality issues as part of the standard development process. • Expand the applicability to include transmission operators, planning authorities, and transmission planners. Fill-in-the-Blank Team Comments • Review MOD-010, MOD-011, MOD-012, and MOD-013 concurrently for modeling requirements and reporting. • Coordinate the revision of this standard with the revision to MOD-013. MOD-013 needs to be written as a North American standard with requirements for each interconnection. Once MOD-013 is modified, the only changes needed to MOD-012 are the references to the appropriate requirements in MOD-013. • This standard is directly related to MOD-013. V0 Industry Comments • Not a standalone standard • Consistency of non-compliance • Confidentiality of data • Time element missing in non-compliance Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Issues to be Considered by Drafting Team Project 2010-03 — Modeling Data	
Standard #	**Title**
MOD-013-1	Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures
Issues	FERC Order 693 Disposition: Not Approved or Remanded. • Permit entities to estimate dynamics stat if they are unable to obtain unit specific information. • Require verification of the dynamic models with actual disturbance data. • Expand the applicability to include transmission operators, planning authorities, and transmission planners. • Develop a work plan and submit a compliance filing that will facilitate the ongoing collection of the dynamics modeling and simulation data specified in this standard. Fill-in-the-Blank Team Comments • Review MOD-010, MOD-011, MOD-012 and MOD-013 concurrently for modeling requirements and reporting. • Revise MOD-013 to clarify that the data reporting requirements must be uniform across each interconnection. • This should be a North American Standard containing requirements which are interconnection-wide. • MOD-012 and MOD-013 are related. This is the MMWG work for the Eastern Interconnection. V0 Industry Comments • Not a standalone standard • Confidentiality of data • Timing element not mentioned in non-compliance • 5 business days not sufficient • Consistency in non-compliance • Several semantics issues Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Issues to be Considered by Drafting Team Project 2010-03 — Modeling Data	
Standard #	**Title**
MOD-014-0	Development of Steady-State System Models
Issues	FERC Order 693 Disposition: Not Approved or Remanded. • Require models to be validated against actual system response. • If model output is not within the accuracy required, the model shall be modified to achieve the necessary accuracy. • Require users, owners, and operators to provide the validated models to regional reliability organizations. • Develop a work plan that will facilitate ongoing validation of steady-state models and submit a compliance filing to the Commission. V0 Industry Comments • Solved cases should not have violations • Define near-term vs. long-term • Consistency of non-compliance • Timing element missing in non-compliance Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Issues to be Considered by Drafting Team Project 2010-03 — Modeling Data	
Standard #	**Title**
MOD-015-0	Development of Dynamics System Models
Issues	FERC Order 693 Disposition: Not Approved or Remanded. • Require actual system events be simulated and dynamics system model output be validated against actual system response. • Require users, owners, and operators to provide the validated models to regional entity. • Develop a work plan that will facilitate ongoing validation of dynamics models and submit a compliance filing to the Commission. V0 Industry Comments • Confidentiality of data • Timing element of non-compliance • Consistency of non-compliance Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Issues to be Considered by Drafting Team Project 2010-03 — Modeling Data	
Standard #	**Title**
PRC-013-0	Special Protection System Database
Issues	FERC Order 693 Disposition: Not Approved or Remanded. • Consider APPA's suggestions for interconnection-wide consistency in the standards development process. Fill-in-the-Blank Team Comments • Review PRC-013 and PRC-015 together to properly reference regional standards (see notes of PRC-015 for options). • Related to PRC-015. V0 Industry Comments • Not a standalone standard • Define evidence Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Issues to be Considered by Drafting Team Project 2010-03 — Modeling Data	
Standard #	**Title**
PRC-015-0	Special Protection System Data and Documentation
Issues	FERC Order 693 Disposition: Approved Fill-in-the-Blank Team Comments • Review PRC-013 and PRC-015 together to properly reference regional standards (see notes of PRC-015 for options). • Tied to PRC-013. • Consider impact of removing R1.2 from PRC-012-0 and revision of PRC-013-0, R1.1, 1.2, & 1.3 to include a specific list of items to be included in the RRO SPS database. The same list could be added to PRC-015, R1.1. However, it may be cleaner to move PRC-015-0, R1.1 and the data portion of R1.3 to PRC-013. (Note: revisions to PRC-012 are identified for a separate drafting team and are expected to take place after revisions to PRC-013 and PRC-015 are completed.) V0 Industry Comments • Already covered elsewhere • Define evidence Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Issues to be Considered by Drafting Team Project 2010-03 — Modeling Data	
Standard #	**Title**
PRC-020-1	Under-Voltage Load Shedding Program Database
Issues	FERC Order 693 Disposition: Not Approved or Remanded. Phase III/IV comments • The reliability-related need for the RRO to have the data isn't clear Comment from draft SAR on Planning Authority • Provide clarity where the Planning Authority is mentioned Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Issues to be Considered by Drafting Team Project 2010-03 — Modeling Data	
Standard #	**Title**
PRC-021-1	Under-Voltage Load Shedding Program Data
Issues	FERC Order 693 Disposition: Approved. Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Project 2010-04 Demand Data

Standards Involved:

MOD-016-1 — Actual and Forecast Demands, Net Energy for Load, Controllable DSM
MOD-017-0 — Aggregated Actual and Forecast Demands and Net Energy for Load
MOD-018-0 — Reports of Actual and Forecast Demand Data
MOD-019-0 — Forecasts of Interruptible Demands and DCLM Data
MOD-020-0 — Providing Interruptible Demands and DCLM Data
MOD-021-0 — Accounting Methodology for Effects of Controllable DSM in Forecasts

Research Needed:

None

Brief Description:

This is one of two projects aimed at identifying all the 'data provision' requirements and consolidating the requirements into fewer standards. As envisioned, this project will result in two standards – with MOD-016 through MOD-020 in a single standard, and MOD-021 in a separate standard. The requirements need to be more specific to clearly identify the format, etc., for providing data.

MOD-016, MOD-017, and MOD-019 have some 'fill-in-the-blank' components to eliminate.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project has not started.

Project Schedule:

Project 2010-04 Project Schedule

Target Completion Date:

Second quarter of 2011

Related Links:

Project 2010-04 Roster

Issues to be Considered by Drafting Team Project 2010-04 — Demand Data	
Standard #	**Title**
MOD-016-1	Documentation of Data Reporting Requirements for Actual and Forecast Demands, net Energy for Load, and Controllable Demand-Side Management

Issues

FERC Order 693
Disposition: Approve with modifications

- Modify the definition of DSM to include any other entities that undertake activities or programs to influence the amount or timing of electricity they use without violating other reliability standards requirements.
- Expand the applicability to include transmission planners.

Fill-in-the-Blank Team Comments

- Review MOD-016, MOD-017, and MOD-019 concurrently to develop uniform North American Standards for reporting of actual and forecast demand and NEL data to be reported to RRO for system modeling and analysis.
- Standard should address quality and accuracy of the forecast; need to avoid double-counting, etc.
- MOD-016 is the NERC requirement on region; MOD-017 and MOD-019 are the entity requirements to comply with the region. Includes MOD-016 through MOD-021.

V0 Industry Comments

- Weather data needed
- Consistency in non-compliance

Phase III/IV comments

- Purpose – revise to add 'best available' where noted. Ensure that accurate, actual demand data is available to support assessments and validation of past events and databases. Forecast demand data is needed to perform future system assessments to identify the need for system reinforcements for continued reliability. In addition, to assist in proper real-time operating, best available load information related to controllable demand-side management (DSM) programs is needed. A clear definition of forecast demand is needed.
- R1 - Transmission providers who serve customers who have retail access may have difficulty obtaining documentation identifying the scope and details of actual and forecast data. These transmission providers' can provide the actual and forecast data using their own data sets, but they may not have access to an individual retail choice customer's documentation for historical and forecast data. Often concerns about loss of competitive advantage or confidentiality issues are expressed about providing the data to the transmission provider.
- R1.2 – needs to identify the type of forecast
- R1.2 - revise to recognize that service territories may host multiple LSEs
- R2 and R3 – clarify what entity is providing the approval
- Add specificity to identify what must be considered in identifying the demand load forecast– is this expected to be the 'peak' demand and should it include such factors as economic, demographic, and customer trends; conservation, improvements in the efficiency of electrical energy use, and other changes in the end uses of electricity; and weather effects? Should the peak demand load forecast have a 50% probability of not being exceeded (expected peak demand)? This load forecast is commonly referred to as the 1-in-2 peak load

	forecast. • There is a disconnect between LSE load forecasting and planning and the control area reporting as a major issue in the reporting of quality load and resources data to WECC. Confidentiality issues and other communication issues have contributed to making this an issue of concern therefore the following are action needs: o Expand the applicability to include Load Serving Entities and Purchasing/Selling entities o Explicitly state that LSEs are required to provide the documentation for actual and load forecast data for the loads they serve to the PAs and RROs. o Where Purchasing/ Selling entities are retail access customers who perform load forecasts, specify that these entities also need to provide similar documentation to PAs and RROS Comment from draft SAR on Planning Authority • Provide clarity where the Planning Authority is mentioned Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Issues to be Considered by Drafting Team Project 2010-04 — Demand Data	
Standard #	**Title**
MOD-017-0	Aggregated Actual and Forecast Demands and Net Energy for Load

Issues

FERC Order 693
Disposition: Approve with modifications

- Include requirements for reporting of temperature and humidity along with the peak loads.
- Reporting of accuracy, error and bias of load forecasts compared to actual loads taking temperature and humidity conditions into account.
- Address methods to correct forecasts to minimize prior inaccuracies, errors, and bias.
- Expand the applicability to include transmission planners.

Fill-in-the-Blank Team Comments

- Review MOD-016, MOD-017, and MOD-019 concurrently to develop uniform North American Standards for reporting of actual and forecast demand and NEL data to be reported to RRO for system modeling and analysis.
- Correct reference to MOD-016 when MOD-016 is revised (MOD-016-1)

Comment from draft SAR on Planning Authority

- Provide clarity where the Planning Authority is mentioned

Other

- Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

FERC's December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000

- In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be applied. Each drafting team responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see:
  - FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf)
  - NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf),
  - FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf) and
  - NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Issues to be Considered by Drafting Team Project 2010-04 — Demand Data	
Standard #	**Title**
MOD-018-0	Treatment of Nonmember Demand Data and How Uncertainties are Addressed in the Forecasts of Demand and Net Energy for Load

Issues

FERC Order 693
Disposition: Approved

- Provide a work plan and compliance filing regarding the collection of information specified for standards that are deferred.

V0 Industry Comments

- Need to define uncertainty
- Confidentiality of data

Comment from draft SAR on Planning Authority

- Provide clarity where the Planning Authority is mentioned

Other

- Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

FERC's December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000

- In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be applied. Each drafting team responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see:
  - FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf)
  - NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf),
  - FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf) and
  - NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Issues to be Considered by Drafting Team Project 2010-04 — Demand Data	
Standard #	**Title**
MOD-019-0	Reporting of Interruptible Demands and Direct Control Load Management

Issues

FERC Order 693
Disposition: Approve with modifications

- Require users, owners, and operators to provide to the regional entity information related to forecasts of interruptible demands and direct control load management.
- Require reporting of the accuracy, error, bias of controllable load forecasts.
- Analyze differences between actual and forecasted demands for five years of actual controllable load and identify what corrective actions should be taken to approve controllable load forecasting for the 10-year planning horizon.

Fill-in-the-Blank Team Comments

- Review MOD-016, MOD-017, and MOD-019 concurrently to develop uniform North American Standards for reporting of actual and forecast demand and NEL data to be reported to RRO for system modeling and analysis.
- Correct reference to MOD-016 when MOD-016 is revised (MOD-016-1)

V0 Industry Comments

- Level 4 non-compliance is harsh
- Confidentiality of data

Comment from draft SAR on Planning Authority

- Provide clarity where the Planning Authority is mentioned

Other

- Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

FERC's December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000

- In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be applied. Each drafting team responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see:
  - FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf)
  - NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf),
  - FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf) and
  - NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Issues to be Considered by Drafting Team Project 2010-04 — Demand Data	
Standard #	**Title**
MOD-020-0	Providing Interruptible Demands and Direct Control Load Management Data to System Operators and Reliability Coordinators

Issues

FERC Order 693
Disposition: Not Approved or Remanded.

- Require reporting of the accuracy, error, and bias of controllable load forecasts.

Other

- Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

FERC's December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000

- In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be applied. Each drafting team responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see:
  - FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf)
  - NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf),
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  - NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Issues to be Considered by Drafting Team Project 2010-04 — Demand Data	
Standard #	**Title**
MOD-021-0	Documentation of the Accounting Methodology for the Effects of Controllable Demand-Side Management in Demand and Energy Forecasts

Issues

FERC Order 693

Disposition: Approve with modifications

- Require users, owners, and operators to provide to the regional entity information related to this standard.
- Standardize principles on reporting and validation of DSM program information.
- Allow resource planners to analyze the causes of differences between actual and forecasted demands, and identify any corrective actions that should be taken to improve forecasted demand responses for future forecasts.
- Modify the title and purpose statement to remove the word “controllable”.

Comment from draft SAR on Planning Authority

- Provide clarity where the Planning Authority is mentioned

Other

- Modify standard to conform to the latest version of NERC’s Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

FERC’s December 20, 2007 and April 4, 2008 Orders in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000

- In FERC’s December 20, 2007 Order, the Commission reversed NERC’s Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none owned physical assets. Both NERC and RFC assert that there will be a “reliability gap” if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be applied. Each drafting team responsible for reliability standards applicable to LSEs is to review and change as necessary, requirements in the applicable reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see:
  - FERC’s December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf)
  - NERC’s March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf),
  - FERC’s April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf) and
  - NERC’s July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Project 2010-05 Protection Systems

Standards Involved:

PRC-003-1 — Regional Requirements for Transmission and Generation Protection System Misoperations
PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations
PRC-012-0 — Special Protection System Review Procedure
PRC-014-0 — Special Protection System Assessment
PRC-016-0 — Special Protection System Misoperations

Research Needed:

None

Brief Description:

Consideration should be given to merging some of the standards to eliminate the need for cross-referencing.

PRC-003, PRC-004, PRC-014, and PRC-016 have some 'fill-in-the-blank' components to eliminate.

PRC-012 is one of the few 'fill-in-the-blank' standards that was identified by the Regional Reliability Standards Working Group as a standard that has some requirements that need to remain in regional standards.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project has not started.

Project Schedule:

Project 2010-05 Project Schedule

Target Completion Date:

Second quarter of 2011

Related Links:

Project 2010-05 Roster

Issues to be Considered by Drafting Team Project 2010-05 — Protection Systems	
Standard #	**Title**
PRC-003-1	Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
Issues	FERC Order 693 Disposition: Not Approved or Remanded. • Consider if greater consistency can be achieved in the standard as suggested by APPA. Fill-in-the-Blank Team Comments • Review PRC-003 and PRC-004 together to identify the specific requirements of the functional entities (include specific requirements for each functional entity). • This is a North American Standard as written which places requirements on the regions to develop a procedure. However, PRC-004 requires functional entities to comply with the procedures the RROs develop. Craft a new PRC-003 as a North American standard containing the specific requirements for each functional entity. • Modify PRC-003 to include specific requirements for each functional entity. Each of the regional plans needs to be reviewed to determine what should be included in the North American standard. The current PRC-003 defines requirements for RROs. The drafting team should revise PRC-004 to include proper references to the new PRC-003. V0 Industry Comments • Need to define evidence • Change wording to reporting instead of monitoring Phase III/IV comments • Enhance the applicability section to clarify that the systems addressed by the requirements are limited to: o All transmission circuits 200 kV and above o All transmission circuits 100 kV to 200 kV operationally significant circuits, as defined by the RROs o Generator protection systems, whose misoperations impact the bulk electric system • The RRO should be required to demonstrate that the requirements developed in accordance with R1 produce the desired result. • In R1.2 change format to content Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Issues to be Considered by Drafting Team Project 2010-05 — Protection Systems	
Standard #	**Title**
PRC-004-1	Analysis and Mitigation of Transmission and Generation Protection Misoperations
Issues	FERC Order 693 Disposition: Approve • Consider ISO-NE's suggestion that LSEs and transmission operators should be listed as applicable entities. • The regional entity should develop procedures for corrective action plans. Fill-in-the-Blank Team Comments • Review PRC-003 and PRC-004 together to identify the specific requirements of the functional entities. • See notes for PRC-003-1. • Coordinate the revision of this standard with the revision to standard PRC-003. PRC-003 needs to be written as a North American standard with requirements for each functional entity as appropriate. Once PRC-003 is modified, the only changes needed to PRC-004 are the references to the appropriate requirements in PRC-003. V0 Industry Comments • Levels of non-compliance need to be redefined Phase III/IV comments • This standard should apply to all protection systems on the Bulk Electric System (BES) not just those that 'impact' the BES Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure. NERC Audit Observation Team • "Document the process" • R2 — The Generator Owner shall analyze its generator protection system misoperations and implement corrective action plans to avoid future misoperations.

Issues to be Considered by Drafting Team Project 2010-05 — Protection Systems	
Standard #	**Title**
PRC-012-0	Special Protection System Review Procedure
Issues	FERC Order 693 Disposition: Not Approved or Remanded. • Consider APPA's suggestions for interconnection-wide consistency in the standards development process. Fill-in-the-Blank Team Comments • Review PRC-012 and PRC-016 together to properly reference regional standards. • Modify R1 to require each Region to have a regional standard, and • Identify what elements (if any) of SPS schemes should be included in the North American standard and what elements should be included in the regional standards. • Development of regional standards needs to be coordinated with Regional entities. Regional entities should begin process for developing regional standards once the drafting team for the North American standard has determined what elements of SPS schemes should be included in the continent-wide standard and what elements should be included in the regional standards. • PRC-012 will be a continent-wide standard supported by Regional Reliability Standards. • PRC-012 is related to PRC- 016. Justified as regional standard; network specific. • Consider removing R1.6 and capitalize "Misoperation" in the current R1.7 as "misoperation" has been added to the glossary of the standards manual. • Also consider: R1 needs to be changed to state Regional Standard instead of Regional criteria (once they become standards). • Consider removing R1.2 from PRC-012-0 (see notes for PRC-015 for additional details. Make sure data requirements have been addressed adequately in PRC-013 and PRC-015 such that R1.2 of PRC-012 can be removed). V0 Industry Comments • Should be RA and not RRO • Levels of compliance need to differentiate severity of different items within requirements Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Issues to be Considered by Drafting Team Project 2010-05— Protection Systems	
Standard #	**Title**
PRC-014-0	Special Protection System Assessment
Issues	FERC Order 693 Disposition: Not Approved or Remanded. • Consider APPA's suggestions for interconnection-wide consistency in the standards development process. V0 Industry Comments • Already covered elsewhere • Assessment should be by TO or TP, not RRO Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Issues to be Considered by Drafting Team Project 2010-05 — Protection Systems	
Standard #	**Title**
PRC-016-0	Special Protection System Misoperations
Issues	FERC Order 693 Disposition: Approved Fill-in-the-Blank Team Comments • Review PRC-012 and PRC-016 together to properly reference regional standards (see notes of PRC-015 for options). • Tied to PRC-012. V0 Industry Comments • Not really a standalone standard • Define evidence • Define what makes up an SPS • Only need evidence that action was taken Other • Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Project 2011-01 Equipment Monitoring and Diagnostic Devices

Standards Involved:

New

Research Needed:

None

Brief Description:

This project was proposed Mr. R. W. Kenyon, J.D., P.E. during the 2008 revision of the Reliability Standards Development Plan.

The drafting team will propose Reliability Standard(s) covering the application of major equipment monitoring and diagnostic devices and procedures. As proposed by Mr. Kenyon, the Reliability Standard(s) will address dissolved gas and moisture sampling processes and the application on on-line monitoring devices to detect incipient faults within BES major components, such as EHV transformers. These processes and devices enable the equipment owner to detect evolving internal faults, allowing corrective action under controlled conditions. In some instances, early warning of evolving faults can permit field repair of the unit, avoiding a system fault and destruction of a major piece of equipment. In other circumstances, the warning obtained permits the equipment owner to monitor the situation and to schedule unit replacement in a deliberate, controlled manner. Again, occurrence of a major system fault and unscheduled loss of a major unit can be avoided. Obviously, such measures can contribute significantly to reliability of the Bulk Electric System.

Ideally, the proposed Reliability Standard(s) would make the application of this technology mandatory for classes of critical equipment, with EHV transformers and shunt reactors an obvious example. Similar diagnostic approaches could be taken on critical EHV and/or major generator Gas Insulated Switchgear. The general approach could follow PRC-005, where the owner must have a system, but particulars are left to the equipment owner. The proposed Reliability Standard(s) could extend to other equipment condition monitoring such as Doble testing.

In many instances, equipment owners already recognize the value of major equipment monitoring and have equipment and/or procedures in place addressing this technology. However, there is far less assurance that monitoring equipment is properly maintained, that scheduled routine sampling is being fully performed, and that full use is being made of data obtained. Again, as with the Protective Relay Standard PRC-005, the proposed Reliability Standard(s) would contribute to insuring that equipment owners have a program addressing this technology and are indeed following their program. In other instances, equipment owners without such equipment might be obligated to establish a monitoring program.

Standards Development Status:

Not yet started.

Project Schedule:

TBD

Target Completion Date:

TBD

Related Links:

TBD

NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Reliability Standards Development Plan: 2009–2011

Volume III
Regional Reliability Standards Projects

September 22, 2008

to ensure the reliability of the bulk power system

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Introduction

NERC's Rules of Procedure Section 300 allow for a regional entity to develop regional reliability standards. A regional entity developing regional reliability standards must adhere to a NERC-approved regional reliability standards development procedure when developing its regional reliability standards. Each regional entity's regional standards development procedure is in Exhibit C of its regional delegation agreement with NERC.

NERC shall rebuttably presume that a regional reliability standard developed by a regional entity organized on an interconnection-wide basis in accordance with a regional reliability standards development process approved by NERC is just, reasonable, and not unduly discriminatory or preferential, and in the public interest, and consistent with such other applicable standards of governmental authorities. Regional reliability standards that are not proposed to be applied on an interconnection-wide basis are not presumed to be valid but may be demonstrated by the proponent to be valid. NERC's process for reviewing and approving proposed regional standards is delineated in its rules of procedure.

No regional reliability standard shall be effective within a region unless approved and filed by NERC with the Commission and the applicable authorities in Canada and Mexico and approved by such regulatory authorities. Regional reliability standards, when approved by FERC and the applicable authorities in Canada and Mexico, shall be made part of the body of NERC reliability standards and shall be enforced upon all applicable bulk-power system owners, operators, and users within the applicable regional entity's region, regardless of membership in the region.

Regional reliability standards shall provide for as much uniformity as possible with reliability standards across the interconnected bulk power system of the North American continent. A regional reliability standard shall be:

- more stringent than a continent-wide reliability standard, including regional standards that address matters that continent-wide reliability standards do not; or
- necessitated by a physical difference in the bulk power system.

This Volume III of NERC's Reliability Standards Development Plan identifies the standards anticipated to be developed by the individual regions over the next three years. With the exception of regional standards developed in support of continent-wide standards, the regional entities may independently initiate regional standards development and forward such standards to NERC for review and approval. NERC has identified 19 regional standards that are currently under development as listed in the index that follows this discussion. Additionally, four continent-wide standards projects identified in Volume II may require each regional entity to develop a companion regional standard. The NERC continent-wide projects that may require each regional entity to develop companion regional standards are:

Project 2007-01 — Underfrequency Load Shedding
Project 2007-05 — Balancing Authority Controls
Project 2007-11 — Disturbance Monitoring
Project 2008-04 — Protection Systems

NERC has identified a total of 51 proposed regional standards it expects to receive over the course of the timeframe contemplated by this work plan.

Regional Projects Possibly Requiring Coordination with NERC Continent-wide Projects

In this section, four regional reliability standards development projects are described. These four regional projects are:

Project 2007-01-RE — Underfrequency Load Shedding
Project 2007-05-RE — Balancing Authority Controls
Project 2007-11-RE — Disturbance Monitoring
Project 2008-04-RE — Protection Systems

These projects are being coordinated with NERC's continent-wide standards projects as described in Volume II of this three-year development plan. In general, the standard drafting team of the NERC continent-wide project working with industry stakeholders shall propose which requirements should be continent-wide and which should be included in regional standards. Further, the timing of these regional projects is driven to large degree by the timeline of the corresponding continent-wide project.

Additional information is found in the individual projects that follow.

2007-01-RE — Underfrequency Load Shedding — Regional Standards Development

Standards Involved:

Eight regional reliability standards (one for each of the eight regions) identifying regional requirements in support of the following continent-wide standards:

- PRC-006 — Development and Documentation of Regional Reliability Organizations' Underfrequency Load Shedding Programs
- PRC-007 — Assuring Consistency with Regional UFLS Programs
- PRC-009 — UFLS Performance Following an Underfrequency Event

Research Needed:

None

Brief Description:

This is a continuation of the corresponding project in Volume II of this work plan. Depending on the findings and determinations of the NERC standard draft team for Project 2007-01 Underfrequency Load Shedding (NERC UFLS SDT), it is anticipated that each region may be required to develop a regional standard that supports the continent-wide standard(s) developed for underfrequency load shedding.

PRC-006 is one of the few reliability standards identified by the Regional Reliability Standards Working Group as a standard that has some requirements that may need to be defined by each regional entity in a regional standard.

The NERC UFLS SDT will work with stakeholders to review PRC-006 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the UFLS program documentation. The NERC UFLS SDT working with industry stakeholders shall propose which requirements should be continent-wide requirements and which requirements should be included in regional standards.

PRC-007 and PRC-009 have some 'fill-in-the-blank' characteristics, as identified in the Regional Reliability Standards Working Group work plan, which need to be removed. These standards shall be included with PRC-006 for consideration as one or more revised standards as necessary for consistency and clarity of overall program requirements and any other associated programs and/or requirements that affect or impact the UFLS program.

Standard Development Status:

See NERC Project 2007-01 UFLS

Milestone Timeline:

See NERC UFLS SDT schedule

Related Links:

NERC Regional Reliability Standards Under Development
Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool, Inc. (SPP)
Texas Regional Entity (TRE)
Western Electricity Coordinating Council (WECC)

2007-05-RE — Balancing Authority Controls — Regional Standards Development

Standards Involved:

Eight regional reliability standards (one for each of the eight regions) identifying regional requirements in support of the following continent-wide standard:

- BAL-002 — Disturbance Control Performance

Research Needed:

None

Brief Description:

This is a continuation of the corresponding project in Volume II of this work plan. Depending on the findings and determinations of the NERC standard draft team for Project 2007-05 Balancing Authority Controls (NERC BAC SDT), it is anticipated that each region may be required to develop a regional standard that supports the continent-wide standard(s) developed for disturbance control performance.

BAL-002 is one of the few reliability standards identified by the Regional Reliability Standards Working Group (RRSWG) as a standard that has some requirements that may need to be defined by each regional entity in a regional standard. In particular, its October 2006 report, the RRSWG suggested the following related to BAL-002:

- In the long-term, regional reliability standards should be developed in support of North American standard BAL-002.
- Each regional entity should create a regional standard specifying its Contingency Reserve policy.
- The continent-wide BAL-002 should be modified to:
  - address FERC's May 11 comments and
  - revise R2 to remove reference to "sub-Regional Reliability Organization or Reserve Sharing Group".

The NERC BAC SDT will work with stakeholders to review BAL-002 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the BAC program documentation. The NERC BAC SDT shall determine which requirements should be continent-wide requirements and which requirements should be included in regional standards.

Standards Development Status:

See NERC Project 2007-05 Balancing Authority Controls

Milestone Timeline:

See NERC BAC SDT schedule

Related Links:

NERC Regional Reliability Standards Under Development
Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool, Inc. (SPP)
Texas Regional Entity (TRE)
Western Electricity Coordinating Council (WECC)

2007-11-RE — Disturbance Monitoring — Regional Standards Development

Standards Involved:

Eight regional reliability standards (one for each of the eight regions) identifying regional requirements in support of the following continent-wide standard:

- PRC-002 — Define and Document Disturbance Monitoring Equipment Requirements

Research Needed:

None

Brief Description:

This is a continuation of the corresponding project in Volume II of this work plan. Depending on the findings and determinations of the NERC standard draft team for Project 2007-11 Disturbance Monitoring (NERC DM SDT), it is anticipated that each region may be required to develop a regional standard that supports the continent-wide standard(s) developed for disturbance monitoring.

PRC-002 is one of the few reliability standards identified by the Regional Reliability Standards Working Group (RRSWG) as a standard that has some requirements that may need to be defined by each regional entity in a regional standard. In particular, in its October 2006 report the RRSWG suggested the following related to PRC-002:

- In the long-term, this should be a Regional Reliability Standard.
- As written, it is a requirement for each RRO to develop a comprehensive set of requirements for DME and can be enforced that way.
- PRC-002 is directly related to PRC-018. PRC-018 requires the functional entities to comply with the requirements developed by each RRO. Any references to each other embedded in the requirements of the two standards need verified.
- Need regions to develop and submit regional standards.

The NERC DM SDT will work with stakeholders to review PRC-002 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the DM program documentation. The NERC DM SDT working with industry stakeholders shall propose which requirements should be continent-wide requirements and which requirements should be included in regional standards.

Standards Development Status:

See NERC Project 2007-11 Disturbance Monitoring.

Milestone Timeline:

See NERC DM SDT schedule.

Related Links:

NERC Regional Reliability Standards Under Development
Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool, Inc. (SPP)
Texas Regional Entity (TRE)
Western Electricity Coordinating Council (WECC)

2008-04-RE — Protection Systems — Regional Standards Development

Standards Involved:

Eight regional reliability standards (one for each of the eight regions) identifying regional requirements in support of the following continent-wide standard:

- PRC-012 — Special Protection System Review Procedure

Research Needed:

None

Brief Description:

This is a continuation of the corresponding project in Volume II of this work plan. Depending on the findings and determinations of the NERC standard draft team for Project 2008-04 Protection Systems (NERC PS SDT), it is anticipated that each region may be required to develop a regional standard that supports the continent-wide standard(s) developed for special protection systems/schemes.

PRC-012 is one of the few reliability standards identified by the Regional Reliability Standards Working Group (RRSWG) as a standard that has some requirements that may need to be defined by each regional entity in a regional standard.

The NERC PS SDT will work with stakeholders to review PRC-012 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the special protection system program documentation. The NERC PS SDT working with industry stakeholders shall propose which requirements should be continent-wide requirements and which requirements should be included in regional standards.

Standards Development Status:

This project has not yet started.

Milestone Timeline:

The timeline for this project has not yet been established.

Related Links:

NERC Regional Reliability Standards Under Development
Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool, Inc. (SPP)
Texas Regional Entity (TRE)
Western Electricity Coordinating Council (WECC)

Florida Reliability Coordinating Council (FRCC) Regional Reliability Standards Development Projects

PRC-002-FRCC-01 — Definition of FRCC Regional Disturbance Monitoring and Reporting Requirements — FRCC

Standards Involved:

PRC-002-FRCC-01 — Definition of FRCC Regional Disturbance Monitoring and Reporting Requirements — FRCC

Research Needed:

None

Brief Description:

FRCC plans to convert the existing handbook document, "FRCC Requirements for Disturbance Monitoring Equipment", revision dated June, 2006 into a new regional reliability standard, that complies with the requirements of NERC Reliability Standard, PRC-002-1 — "Define Regional Disturbance Monitoring and Reporting Requirements".

Standards Development Status:

See FRCC Definition of FRCC Regional Disturbance Monitoring and Reporting Requirements

Related Links:

See Florida Reliability Coordinating Council (FRCC) Standards Under Development page.

PRC-003-FRCC-01 — Misoperation of Protection Systems — FRCC

Standards Involved:

PRC-003 — FRCC-01 — Analysis of Misoperations of Transmission and Generation Protection Systems — FRCC

Research Needed:

None

Brief Description:

FRCC plans to convert the existing handbook document, "FRCC Requirements for Analysis of Protection Mis-operations & Corrective Actions Reporting", revision dated October 2003 into a new regional reliability standard, that complies with the requirements of NERC Reliability Standard, PRC-003-1 — "Regional Procedure for Analysis of Mis-operations of Transmission and Generation Protection Systems".

Standards Development Status:

See FRCC Regional Procedure for Analysis of Mis-operations of Transmission and Generation Protection Systems.

Related Links:

See Florida Reliability Coordinating Council (FRCC) Standards Under Development page.

PRC-006-FRCC-01 — FRCC Automatic Underfrequency Load Shedding Program

Standards Involved:

PRC-006-FRCC-01 — FRCC Automatic Underfrequency Load Shedding Program

Research Needed:

None

Brief Description:

FRCC plans to develop a regional standard to provide last resort system preservation measures by implementing an Underfrequency Load Shedding (UFLS) program.

In accordance with NERC Reliability Standard, PRC-006-0, "Development and Documentation of Regional Reliability Organizations' Underfrequency Load Shedding Programs", the FRCC plans to develop, coordinate, and document an UFLS program. These procedures are to be provided to the Load Serving Entities within the Region that are affected by the procedures.

Standards Development Status:

See FRCC Automatic Underfrequency Load Shedding Program

Related Links:

See Florida Reliability Coordinating Council (FRCC) Standards Under Development page.

PRC-024-FRCC-01 — Gen Performance During Frequency and Voltage Excursions — FRCC

Standards Involved:

PRC-024 — FRCC-01 — Generator Performance during Frequency and Voltage Excursions — FRCC

Research Needed:

None

Brief Description:

FRCC is developing a standard to establish “ride through” requirements for generators in the FRCC Region with respect to temporary grid voltage or frequency deviations from their normal range.

Standards Development Status:

See FRCC Regional Generator Performance During Frequency and Voltage Excursions.

Related Links:

See Florida Reliability Coordinating Council (FRCC) Standards Under Development page.

Midwest Reliability Organization (MRO) Regional Reliability Standards Development Projects

TPL-503-MRO-01 — System Performance Requirement — MRO

Standards Involved:

TPL-503-MRO-01 — System Performance Requirement — MRO

Research Needed:

None

Brief Description:

The MRO is developing a regional standard to ensure adequate interconnected transmission system performance in the MRO.

Standards Development Status:

See MRO System Performance Requirement.

Related Links:

See Midwest Reliability Organization (MRO) Standards Under Development page.

TPL-504-MRO-01 — Sub synchronous Resonance Requirement — MRO

Standards Involved:

TPL-504-MRO-01 — Subsynchronous Resonance Requirement — MRO

Research Needed:

None

Brief Description:

The MRO is developing a regional standard to ensure subsynchronous resonance with series compensated lines, torsional interaction with power system controls and generator shaft damage or excessive torsional fatigue due to network switching does not occur in the Midwest Reliability Organization ("MRO").

Standards Development Status:

See MRO Subsynchronous Resonance Requirement.

Related Links:

See Midwest Reliability Organization (MRO) Standards Under Development page.

PRC-502-MRO-01 — Power System Stabilizer Requirement — MRO

Standards Involved:

PRC-502-MRO-01 — Power System Stabilizer Requirement — MRO

Research Needed:

None

Brief Description:

The MRO is developing a regional standard to ensure that power system stabilizers are designed, installed and tuned as required to dampen power system oscillations in the Midwest Reliability Organization ("MRO"). To ensure small signal stability assessments are performed. To ensure testing programs are developed and poorly damped oscillations are analyzed and corrected.

Standards Development Status:

See MRO Power System Stabilizer Requirement.

Related Links:

See Midwest Reliability Organization (MRO) Standards Under Development page.

RES-501-MRO-01 — Generation Planning Reserve Requirements — MRO

Standards Involved:

RES-501-MRO-01 — Generation Planning Reserve Requirements — MRO

Research Needed:

None

Brief Description:

The MRO is developing a regional standard to establish common criteria by which to assess Resource Adequacy in the MRO for the short term and long term planning horizon.

Standards Development Status:

See MRO Generation Planning Reserve Requirements.

Related Links:

See Midwest Reliability Organization (MRO) Standards Under Development page.

PRC-006-MRO-01 — Development and Documentation of Regional UFLS Programs — MRO

Standards Involved:

PRC-006-MRO-01 — Development and Documentation of Regional UFLS Programs — MRO

Research Needed:

None

Brief Description:

The MRO will develop a regional reliability standard (Standard) with requirements for automatic Underfrequency Load Shedding (UFLS) programs. The regional Standards will require that UFLS programs arrest declining frequency and assist recovery of frequency following a frequency excursion. This standard will address the UFLS Regional Reliability Standard Characteristics developed by the NERC UFLS standard draft team.

Standards Development Status:

See MRO Development and Documentation of Regional UFLS Programs.

Related Links:

See Midwest Reliability Organization (MRO) Standards Under Development page.

BAL-002-MRO-01 — Disturbance Control Performance — MRO

Standards Involved:

BAL-002-MRO-01 — Disturbance Control Performance — MRO

Research Needed:

None

Brief Description:

The MRO will update the current regional standard that supports the continent-wide standard(s) developed for disturbance control performance. The regional Standards will specify regional Contingency Reserve policy.

Standards Development Status:

See MRO Disturbance Control Performance.

Related Links:

See Midwest Reliability Organization (MRO) Standards Under Development page.

PRC-012-MRO-01 — Special Protection System Review Procedure — MRO

Standards Involved:

PRC-012-MRO-01 — Special Protection System Review Procedure — MRO

Research Needed:

None

Brief Description:

The MRO will develop the requirements for the design, performance, coordination, maintenance and testing of Special Protection Systems; to ensure misoperations are properly analyzed and corrected. The MRO will develop the technical criteria required to support its implementation.

Standards Development Status:

See MRO Special Protection System Review Procedure.

Related Links:

See Midwest Reliability Organization (MRO) Standards Under Development page.

PRC-018-MRO-01 — Disturbance Monitoring — MRO

Standards Involved:

PRC-018-MRO-01 — Disturbance Monitoring — MRO

Research Needed:

None

Brief Description:

The MRO will develop requirements for recording and reporting sequence of events (SOE) data, fault recording (FR) data, and dynamic disturbance recording (DDR) data to facilitate analysis of Disturbances including:

• how to determine / select a preferred location of this equipment,
• installation and equipment minimum technical requirements,
• data communication requirements,

Standards Development Status:

See MRO Disturbance Monitoring.

Related Links:

See Midwest Reliability Organization (MRO) Standards Under Development page.

Northeast Power Coordinating Council (NPCC) Regional Reliability Standards Development Projects

NPCC will be developing at least one regional standard beyond the four regional standards projects required to support their associated continent-wide NERC reliability standards identified in the first part of this volume. NPCC will develop the initial five regional standards in conjunction with, and as set forth by the schedules associated with, the continent-wide standards, schedules set forth by FERC and our members.

BES-501-NPCC-01 — Classification of Bulk Power Systems Elements — NPCC

Standards Involved:

BES-501-NPCC-01 — Classification of Bulk Power System Elements — NPCC

Research Needed:

None

Brief Description:

NPCC has begun the development of a standard that outlines the methodology of how the BPS in the NPCC region is determined through analytical studies. The Standard will be based on the NPCC A-10 Classification of Bulk Power System Elements, criteria.

Standards Development Status:

The NPCC Regional Standards Committee has approved the Regional Standards Authorization Request, RSAR, drafting will begin shortly and in accordance with NPCC's, FERC filed and approved Regional Standards Development Procedure.

Related Links:

See Northeast Power Coordinating Council's NPCC "Standards Under Development" page.

PRC-006-NPCC-01 — Underfrequency Load Shedding Program — NPCC

Standards Involved:

PRC-006-NPCC-01 — Underfrequency Load Shedding Program — NPCC

Research Needed:

None

Brief Description:

This Standard will provide the measures to automatically provide system preservation by implementing an automatic underfrequency load shedding program to respond to system underfrequency events. The Standard will also emphasize the need for coordination amongst the NPCC region's members, and those areas outside the NPCC footprint, and provide direction for refinements of underfrequency systems already in place.

The Standard will ensure that all requirements will be identified to ensure compliance with relevant NERC standards.

The NPCC regional UFLS standard shall apply to Control Areas that are both synchronous and asynchronous to the eastern interconnection. Control areas that are asynchronous (e.g. Quebec) may develop UFLS parameters with a different technical basis if required.

Standards Development Status:

The NPCC Regional Standards Committee has approved the Regional Standards Authorization Request, RSAR, drafting will begin shortly and in accordance with NPCC's, FERC filed and approved Regional Standards Development Procedure.

Related Links:

See Northeast Power Coordinating Council's NPCC "Standards Under Development" page.

PRC-012-NPCC-01 — Special Protection Systems — NPCC

Standards Involved:

PRC-012-NPCC-01 — Special Protection Systems — NPCC

Research Needed:

None

Brief Description:

The proposed Standard will describe the requirements for the design of Special Protection Systems, and the technical criteria required to support its implementation. The Standard will also identify the need for close coordination among various parties to ensure that the Special Protection Systems are implemented correctly, and triggers and resulting actions are made known and communicated in an on-line database.

Standards Development Status:

The NPCC Regional Standards Committee has approved the Regional Standards Authorization Request, RSAR, drafting will begin shortly and in accordance with NPCC's, FERC filed and approved Regional Standards Development Procedure.

Related Links:

See Northeast Power Coordinating Council's NPCC "Standards Under Development" page.

PRC-002-NPCC-01 — Disturbance Monitoring — NPCC

Standards Involved:

PRC-002-NPCC-01 — Disturbance Monitoring— NPCC

Research Needed:

None

Brief Description:

The Standard will establish the technical requirements for disturbance monitoring equipment, including:

- system operating parameters that are to be measured and recorded,
- how to determine / select a preferred location of this equipment,
- installation and equipment minimum technical requirements,
- data communication requirements,
- analysis tools.

Criteria for facility owner requirements for reporting disturbance data will also be defined.

Standards Development Status:

The NPCC Regional Standards Committee has approved the Regional Standards Authorization Request, RSAR, drafting will begin shortly and in accordance with NPCC's, FERC filed and approved Regional Standards Development Procedure.

Related Links:

See Northeast Power Coordinating Council's NPCC "Standards Under Development" page.

ReliabilityFirst Corporation (RFC) Regional Reliability Standards Development Projects

MOD-024-RFC-01 — Generator Real (MW) Power Capability — RFC

Standards Involved:

MOD-024-RFC-01 — Verification of Generator Real (MW) Power Capability — RFC

Research Needed:

None

Brief Description:

RFC plans to develop a regional standard to ensure accurate information on generator gross and net Real (MWs) Power capability is available for steady-state models used to assess Bulk Electric System reliability.

Standards Development Status:

See RFC Verification and Data Reporting of Generator Gross and Net Real Power Capability project.

Related Links:

See ReliabilityFirst Corporation (RFC) Standards Under Development page.

MOD-025-RFC-01 — Generator Reactive (MVAR) Power Capability — RFC

Standards Involved:

MOD-025-RFC-01 — Verification of Generator Reactive (MVAr) Power Capability — RFC

Research Needed:

None

Brief Description:

RFC plans to develop a regional standard to ensure accurate information on generator gross and net Reactive (MVAR) Power capability is available for steady-state models used to assess Bulk Electric System reliability.

Standards Development Status:

See RFC Verification and Data Reporting of Generator Gross and Net Reactive Power Capability project

Related Links:

See ReliabilityFirst Corporation (RFC) Standards Under Development page.

BAL-502-RFC-02 — Resource Planning Reserve Requirement Standard — RFC

Standards Involved:

BAL-502-RFC-02 — Resource Planning Reserve Requirement Standard — RFC

Research Needed:

None

Brief Description:

RFC is developing a regional standard to establish requirements for a minimum level of resource adequacy to reliably serve all load in the ReliabilityFirst (RFC) corporate region.

Standards Development Status:

See RFC Planning Resource Adequacy Analysis, Assessment and Documentation.

Related Links:

See ReliabilityFirst Corporation (RFC) Standards Under Development page.

PRC-006-RFC-01 — Automatic Underfrequency Load Shedding Requirements — RFC

Standards Involved:

PRC-006-RFC-01 — Automatic Underfrequency Load Shedding Requirements — RFC

Research Needed:

None

Brief Description:

RFC is developing a regional standard to establish requirements for automatic underfrequency load shedding (UFLS) to support NERC Reliability Standard PRC-006.

Standards Development Status:

See RFC Automatic Underfrequency Load Shedding Requirements.

Related Links:

See ReliabilityFirst Corporation (RFC) Standards Under Development page

PRC-002-RFC-01 — Disturbance Monitoring and Reporting Requirements — RFC

Standards Involved:

PRC-002-RFC-01 — Disturbance Monitoring and Reporting Requirements — RFC

Research Needed:

None

Brief Description:

RFC is developing a regional standard to establish requirements establish requirements for Disturbance monitoring and reporting to support NERC Reliability Standard PRC-002.

Standards Development Status:

See RFC Disturbance Monitoring and Reporting Requirements

Related Links:

See ReliabilityFirst Corporation (RFC) Standards Under Development page

PRC-012-RFC-01 — Special Protection System Requirements — RFC

Standards Involved:

PRC-012-RFC-01 — Special Protection System Requirements — RFC

Research Needed:

None

Brief Description:

RFC is developing a regional standard to establish requirements for the review, development and application of Special Protection Systems (SPS) in one RFC standard allowing the retirement of the associated legacy documents. The standard will ultimately be mandated by NERC in support of NERC PRC-012-1 as related to a review process as well as a unique RFC application criterion.

Standards Development Status:

See RFC Special Protection System Requirements Standard.

Related Links:

See ReliabilityFirst Corporation (RFC) Standards Under Development page

SERC Reliability Corporation (SERC) Regional Reliability Standards Development Projects

SERC has no additional regional standards planned at this time beyond the four regional standards projects required to support their associated continent-wide NERC reliability standards identified in first part of this volume. SERC will develop these four regional standards in conjunction with, and as set forth by the schedules associated with, the continent-wide standards.

PRC-006-SERC-01 — Underfrequency Load Shedding Program — SERC

Standards Involved:

PRC-006-SERC-01 — Underfrequency Load Shedding Program — SERC

Research Needed:

None

Brief Description:

This Standard will provide the measures to automatically provide system preservation by implementing an automatic underfrequency load shedding (UFLS) program to respond to system underfrequency events. The Standard will also emphasize the need for coordination amongst the entities within the SERC footprint, and with those areas outside the SERC footprint. The Standard will ensure that all requirements will be identified to ensure compliance with relevant NERC standards.

Standards Development Status:

The SERC Standards Committee accepted the SAR to develop a SERC UFLS Regional Reliability Standard on February 27, 2008 and assigned to the SERC Engineering Committee (EC). It was approved by the EC Executive Committee on April 25, 2008 and a standard draft team (or Responsible SERC Subgroup—RSS) was appointed on June 19, 2008. Currently in Step 6 (*Drafting of a SERC Regional Reliability Standard*) of the 13 step SERC Regional Standards Development Procedure.

Related Links:

See the SERC Reliability Corporation Standards page

Southwest Power Pool, Inc. (SPP) Regional Reliability Standards Development Projects

PRC-300-SPP-01 — Automatic Underfrequency Load Shedding Program — SPP

Standards Involved:

PRC-300-SPP-01 — Automatic Underfrequency Load Shedding Program — SPP

Research Needed:

None

Brief Description:

The SPP Standard Drafting Team is in a process developing first draft of SPP regional standard for Underfrequency Load Shedding Program. The regional Standards will require that UFLS programs arrest declining frequency and assist recovery of frequency following a frequency excursion. This standard will consider the UFLS Regional Reliability Standard Characteristics developed by the NERC UFLS standard draft team.

Standards Development Status:

See SPP Standard Development Page

Related Links:

See Southwest Power Pool's (SPP) Standards Under Development page

Texas Regional Entity (TRE) Regional Reliability Standards Development Projects

BAL-001-TRE-01 — Regional Variance for CPS2 — Texas RE

Standards Involved:

BAL-001 — TRE-01 Regional Variance for CPS2 — TRE

Research Needed:

None

Brief Description:

A TRE standard drafting team is drafting a regional variance to R2 of BAL-001-0 that still meets the purpose of the standard: Maintain Interconnection steady-state frequency within defined limits by balancing real power demand and supply in real-time. ERCOT currently has a NERC waiver for the CPS2 method (11/21/02) described in R2. This regional variance will provide what ERCOT employs instead of CPS2 to achieve the overall purpose of the BAL standard.

This variance will be the modification that was ordered by FERC in Order 693: As with other new regional differences, the commission expects that the ERCOT regional difference will include Requirements, Measures, and Levels of Non-Compliance sections. This regional variance will incorporate Section 5.9 of the ERCOT Protocols (and the applicable Nodal Protocol) to accomplish this objective. This variance will apply only to the Balancing Authority that is ERCOT.

Standards Development Status:

See Texas Regional Entity (TRE) Reliability Standards Tracking Status

Related Links:

SAR-003 Standard Drafting Team: Modification to ERCOT Waiver to R2 of BAL-001-0 CPS2

PRC-006-TRE-01 — Development and Documentation of Regional UFLS Program — Texas RE

Standards Involved:

PRC-006-TRE-01 — Development and Documentation of Regional UFLS Program — TRE

Research Needed:

None

Brief Description:

A TRE standard drafting team will develop a regional reliability standard with requirements for automatic UFLS programs that will require that UFLS programs arrest declining frequency and assist recovery of frequency following a frequency excursion. The standard will incorporate NERC UFLS standard characteristics that are under development. The team is currently following, reviewing, and commenting upon those characteristics.

Standards Development Status:

See Texas Regional Entity (TRE) Reliability Standards Tracking Status

Related Links:

SAR-002 Standard Drafting Team: Development and Documentation of Regional UFLS Programs

Western Electricity Coordinating Council (WECC) Regional Reliability Standards Development Projects

(Note: WECC is currently undergoing an extensive study of what regional standards need to be developed. The study should be completed by the end of 2007 at which time WECC may add to the list of WECC regional reliability standards to be developed.)

TOP-007-WECC-1 — Operating Transfer Capability — WECC

Standards Involved:

TOP-007-WECC-1 — Operating Transfer Capability — WECC

Research Needed:

None

Brief Description:

The purpose of this standard is to create a permanent replacement standard for TOP-STD-007-0. TOP-007-WECC-1 is designed to implement the directives of FERC and recommendations of NERC when TOP-STD-007-0 was approved as a NERC reliability standard.

This draft standard incorporates the following refinements to the first draft of TOP-007-WECC-1 in response to comments received during the first comment period that ended November 5, 2007 and the second comment period that ended January 2, 2008.

1. Refine R1 to remove the requirement to return a path to within its limit in 20 minute for SOLs based upon Transient Stability and Voltage Stability.
2. Refine R2 to limit the compliance period for the Net Scheduled Interchange to the real-time schedules for the next hour.
3. Refine R2 to permit 30 minutes to adjust Net Scheduled Interchange when SOLs reduce within 20 minutes of the start of the hour.
4. Change M2 based upon the refinements to R2.
5. Base the violation severity levels for R2 upon magnitude.

This version of the TOP-007-WECC-1 standard is for NERC Board of Trustee ballot. The WECC Board of Directors approved the standard April 16, 2008. WECC Operating Committee approved the standard March 6, 2008. The WECC Board of Directors and Operating Committee request that the NERC Board of Trustees approve the TOP-007-WECC-1 Standard as a permanent replacement standard for TOP-STD-007-0 and that the NERC Board of Trustees submits the standard to FERC for approval and replacement of TOP-STD-007-0.

Justification for a Regional Standard

The NERC standard (TOP-STD-007-0) has requirements for reducing actual flows to within System Operating Limits (SOL) on Major WECC Transfer Paths in the Bulk Electric System. The major paths listed in the Table titled “Major WECC Transfer Paths in the Bulk Electric System” are significant components for reliable delivery of power in the Western Interconnection. System Operating Limits for these paths are critical because they transfer energy from remotely located generation to population/load centers. The entities of the Western Interconnection through studies and operation see the need for optimizing the capacity of these paths. The lack of redundant transmission in these corridors raises the level of scrutiny for these paths; therefore, this standard is designed to add emphasis to reducing flows to within SOL to maintain reliable Western Interconnection operation.

NERC TOP-007-0 (R2) requires the Transmission Operator to return its transmission path flows to within Interconnection Reliability Operating Limits (IROL) as soon as possible, but no longer than 30 minutes following a contingency or event. This requirement applies only to those limits that are defined as IROL. Depending on the current system conditions, the limits for the paths identified in this TOP-007-WECC-1 standard are SOL that would not result in cascading outages. There is no NERC requirement to return the transmission system to within SOL limits, only a requirement to report to the Reliability Coordinator. TOP-007-WECC-1 specifically applies to the major paths in the Western Interconnection regardless of whether the limit is defined as an IROL or the less severe SOL.

In Order No. 693 and Docket No. RR07-11-000, the FERC expressed concern that TOP-007-0 could be interpreted as allowing a system operator to respect IROLs in one of two ways: (1) allowing IROL to be exceeded during normal operations, *i.e.*, prior to a contingency, provided that corrective actions are taken within 30 minutes; or (2) allowing IROL to be exceeded only after a contingency and subsequently returning the system to a secure condition as soon as possible, but no longer than 30 minutes. FERC explained that the system could be one contingency away from potential cascading failure if operated under the first interpretation and two contingencies away from cascading failure under the second interpretation. FERC directed NERC to conduct a survey on IROL practices and actual operating experiences of managing within IROL. The survey results will provide guidance on the frequency, duration, and magnitude of IROL violations and whether these IROL violations occur during normal or contingency conditions.

WECC and NERC responded to FERC's June 8, 2007 Order (Docket No. RR007-11-000) in its compliance filing of July 9, 2007. The compliance filing document is posted with this standard for reference. On November 2, 2007, FERC accepted NERC's and WECC's filing and indicated that the filling satisfactorily responds to the Commission's directive, *Order Approving Regional Reliability Standards for the Western Interconnection and Directing Modifications*, 119 FERC ¶ 61,260 (2007) at P 108.

Standards Development Status:

See WECC Development Status page

Related Links:

See WECC Approved Standards page

PRC-STD-001-1 — Certification of Protective Relay — WECC

Standards Involved:

PRC-STD-001-1 — Certification of Protective Relay — WECC

Research Needed:

None

Brief Description:

The PRC-STD-001 standard will be retired.

Standards Development Status:

Related Links:

PRC-004-WECC-1 — Protective Relay and RAS Misoperation — WECC

Standards Involved:

PRC-004-WECC-1 — Protective Relay and RAS Misoperation — WECC

Research Needed:

None

Brief Description:

The purpose of this standard is to create a permanent replacement standard for PRC-STD-001-1 and PRC-STD-003-1. PRC-004-WECC-1 is designed to implement the directives of FERC and recommendations of NERC when PRC-STD-001-1 and PRC-STD-003-1 were approved as NERC reliability standards. The new standard addresses the following areas:

1. Requirements for investigating operations to check for Misoperations.
2. Mitigation requirements after security-based Misoperations for redundant or non-redundant Protection Systems or Remedial Action Schemes.
3. Mitigation requirements after dependability-based Misoperations that do not adversely affect the reliability of the Bulk Electric System.

Several significant changes were made to PRC-STD-001 and PRC-STD-003 and they are itemized here:

1. PRC-STD-003 was renumbered to PRC-004-WECC-1. This makes both the PRC-004 and the Regional PRC-004-WECC-1 standards applicable to similar entities. PRC-003 is applicable to the RRO.
2. Standard PRC-STD-001 will be retracted because the requirements are covered by other standards per description below:
    a. PRC-STD-001 requirements B-WR1-a,b,c are covered under PRC-001
    b. PRC-STD-001 requirement B-WR1-d is covered in this standard PRC-004-WECC-1
    c. PRC-STD-001 requirement B-WR1-e is covered under TOP-005-1

The WECC Operating Committee approved the PRC-004-WECC-1 standard as a permanent replacement standard for PRC-STD-001-1 and PRC-STD-003-1 on March 6, 2008. The WECC Board of Directors approved this standard April 16, 2008. The WECC Board of Directors recommends that the NERC Board of Trustees approve the PRC-004-WECC-1 as a permanent replacement standard for PRC-STD-001-1 and PRC-STD-003-1. In addition, the WECC Board of Directors recommends that the NERC Board of Trustees submits the standard to FERC for approval.

Justification for a Regional Standard

The NERC standard PRC-003-1 has requirements for Regional Reliability Organizations to establish procedures for review, analysis, reporting, and mitigation of transmission and generation Protection System Misoperations but does not address the owners of the transmission

and generation facilities. The NERC standard PRC-004-1 has requirements for Protection System Misoperations but does not provide for the additional requirements as listed in PRC-004-WECC-1. The WECC Transmission Paths listed in the table titled "Major WECC Transfer Paths in the Bulk Electric System" and WECC RAS listed in table titled "Major WECC Remedial Action Schemes (RAS)" of PRC-004-WECC-1 are significant components for reliable delivery of power in the Western Interconnection. Protection System Misoperations and failures can cause reductions to the System Operating Limits (SOL) for those paths, and thus limit transfers between remotely located generation in the Western Interconnection and population/load centers. WECC identified the need for the timely mitigation of relaying problems and implemented such actions under the Reliability Management System (RMS). PRC-004-WECC-1 incorporates the RMS criteria and provides:

1. More robust requirements for review and analysis of all operations of those elements by operating and system protection personnel, and
2. Timely actions that must be taken to ensure that Misoperations of those elements are not repeated.

This standard is designed to minimize the SOL reductions required to maintain reliable Western Interconnection operation.

Standards Development Status:

See WECC Standards Development page

Related Links:

See WECC Approved Standards page

IRO-006-WECC-1 — Unscheduled Flow — WECC

Standards Involved:

IRO-006-WECC-1 — Unscheduled Flow — WECC

Research Needed:

None

Brief Description:

The WECC Regional Standards Task Force (RSTF) has identified the Qualified Path Unscheduled Flow (USF) Relief Criterion included in Reliability Management System (RMS) Reliability Criteria Agreement as a criterion that the RSTF desires to translate to the newly approved WECC Standards format for submittal to the ERO for approval for mandatory compliance. All requirements and compliance elements associated with the Qualified Path Unscheduled Flow Relief requirements are already identified in the existing RMS Agreement, so development of these components is not necessary. This is a translation effort to put the requirements in the approved format and seek WECC approval for submittal to the ERO for mandatory enforcement.

The purpose of this standard is to create a permanent replacement standard for IRO-STD-006-0 that implements key requirements from WECC's Unscheduled Flow Mitigation Plan (UFMP). The standard called IRO-006-WECC-1 is designed to implement the FERC directives and NERC recommendations when IRO-STD-006-0 was approved as a NERC reliability standard. In the UFMP the Qualified Path Unscheduled Flow Relief responsibilities do not conform to the current NERC functional model. This RMS Criterion and currently-approved standard assigns Load Serving Entities (LSEs) the responsibility of curtailing schedules to reduce unscheduled flow, a reliability function that the NERC functional model now assigns to Reliability Coordinators and Balancing Authorities. The existing RMS and IRO-STD-006 standards place the sole responsibility for providing relief upon the LSE without providing the ability for the LSE to ensure compliance (e.g. the Balancing Authority does not have to approve a curtailment request made by the LSE).

In the proposed IRO-006-WECC-1 standard, responsibility for initiating schedule curtailment is assigned to the Reliability Coordinators, and the responsibility for implementing the curtailments is assigned to Balancing Authorities. The proposed standard should improve the efficiency of the program including improved compliance, more certain Unscheduled Flow relief, and fewer complications associated with multiple entities taking partial responsibility for curtailment activity.

Standards Development Status:

See WECC Standards Development page

Related Links:

See WECC Approved Standards page

FAC-501-WECC-1 — Transmission Maintenance — WECC

Standards Involved:

FAC-501-WECC-1 — Transmission Maintenance — WECC

Research Needed:

None

Brief Description:

The purpose of this standard is to create a permanent replacement standard for PRC-STD-005-1. In response to comments, the drafting team changed the name of the standard from PRC-005-WECC-1 to FAC-501-WECC-1 to better align with the NERC numbering system. FAC-501-WECC-1 is designed to implement the directives of FERC and recommendations of NERC when PRC-STD-005-1 was approved as a NERC reliability standard. This version of the FAC-501-WECC-1standard is for NERC Board of Trustee ballot. The WECC Board of Directors approved the standard April 16, 2008. WECC Operating Committee approved the standard March 6, 2008. The WECC Board of Directors and Operating Committee request that the NERC Board of Trustees approve the FAC-501-WECC-1 Standard as a permanent replacement standard for PRC-STD-005-1 and that the NERC Board of Trustees submits the standard to FERC for approval and replacement of PRC-STD-005-1.

Standards Development Status:

See WECC Standards Development page

Related Links:

See WECC Approved Standards page

VAR-002-WECC-1 — Automatic Voltage Regulators — WECC

Standards Involved:

VAR-002-WECC-1 — Automatic Voltage Regulators — WECC

Research Needed:

None

Brief Description:

The purpose of this standard is to create a permanent replacement standard for VAR-STD-002a-1. VAR-002-WECC-1 is designed to implement the directives of FERC and recommendations of NERC when VAR-STD-002a-1 was approved as a NERC reliability standard.

In the Western Interconnection, System Operating Limits for transmission paths in the Bulk Electric System assume that Automatic Voltage Regulators are in service to control voltage to support the transfer capability. The requirements in VAR-002-WECC-1 are to ensure that the generator provides the proper voltage support when generation and transmission outages occur.

This version of the VAR-002-WECC-1 standard is for NERC Board of Trustee ballot. The WECC Board of Directors approved the standard April 16, 2008. WECC Operating Committee approved the standard March 6, 2008. The WECC Board of Directors and Operating Committee request that the NERC Board of Trustees approve the VAR-002-WECC-1 Standard as a permanent replacement standard for VAR-STD-002a-1 and that the NERC Board of Trustees submits the standard to FERC for approval and replacement of VAR-STD-002a-1.

VAR-002-WECC-1 is more stringent than a continent wide standard.

Standards Development Status:

See WECC Standards Development page

Related Links:

See WECC Approved Standards page

VAR-501-WECC-1 — Power System Stabilizers — WECC

Standards Involved:

VAR-501-WECC-1 — Power System Stabilizers — WECC

Research Needed:

None

Brief Description:

The WECC Regional Standards Task Force (RSTF) has identified the Power System Stabilizers (PSS) Criterion included in Reliability Management System (RMS) Reliability Criteria Agreement as a criterion that the RSTF desires to translate to the newly approved WECC Standards format for submittal to the ERO for approval for mandatory compliance. All requirements and compliance elements associated with the PSS requirements are already identified in the existing RMS Agreement, so development of these components is not necessary. This is a translation effort to put the requirements in the approved format and seek WECC approval for submittal to the ERO for mandatory enforcement.

The purpose of this standard is to create a permanent replacement standard for VAR-STD-002b-1. VAR-501-WECC-1 is designed to implement the directives of FERC and recommendations of NERC when VAR-STD-002b-1 was approved as a NERC reliability standard. NERC Standard VAR-002-1 only requires that Transmission operators know the status of Power System Stabilizers (PSS). WECC's proposed VAR-501-WECC-1 standard requires that PSS to be in service 98% of all operating hours for synchronous generators, unless very specific with restrictive repair and operational conditions exist. The permanent replacement standard VAR-STD-002b-1 addresses requirements for which there is no similar NERC Standard.

Standards Development Status:

Related Links:

See WECC Approved Standards page

BAL-004-WECC-01 — Automatic Time Error Correction Standard — WECC

Standards Involved:

BAL-004-WECC-01 — Automatic Time Error Correction Standard — WECC

Research Needed:

None

Brief Description:

WECC is developing a regional standard to maintain Interconnection frequency within a predefined frequency profile under all conditions (i.e. normal and abnormal), and to ensure that Time Error Corrections are effectively conducted in a manner that does not adversely affect the reliability of the Interconnection.

The Automatic Time Error Correction standard is designed to:

1. Ensure that Automatic Time Error Correction is an enforceable mandatory standard in the Western Interconnection
2. Ensure participation from all Balancing Authorities in the Western Interconnection
3. Ensure continuous and equitable payback of accumulated Inadvertent Interchange between Balancing Authorities in the Western Interconnection
4. Ensure continuous reduction in time error correction

Submitted to FERC for approval.

Standards Development Status:

Related Links:

See WECC Approved Standards page

BAL-002-WECC-1 — Contingency Reserves — WECC

Standards Involved:

BAL-002-WECC-01 Contingency Reserves Standard — WECC

Research Needed:

None

Brief Description:

The purpose of this standard is to create a permanent replacement standard for BAL-STD-002-0. BAL-002-WECC-1 is designed to implement the directives of FERC and recommendations of NERC when BAL-STD-002-0 was approved as a NERC reliability standard. The drafting team implemented in the standard additional refinements to address concerns as explained in the document titled, "WECC Standard BAL-002-WECC-1 Contingency Reserves." To assist in understanding the refinements made to the standard, the drafting team has developed a document that compares BAL-002-WECC-1, the permanent replacement standard, with the existing BAL-STD-002-0 (see BAL-002-WECC-1 Comparison).

This version of the BAL-002-WECC-1 standard is for NERC Board of Trustee ballot. The WECC Board of Directors approved the standard April 16, 2008. WECC Operating Committee approved the standard March 6, 2008. The WECC Board of Directors and Operating Committee request that the NERC Board of Trustees approve the BAL-002-WECC-1 Standard as a permanent replacement standard for BAL-STD-002-0 and that the NERC Board of Trustees submits the standard to FERC for approval and replacement of BAL-STD-002-0.

Standards Development Status:

See WECC Standards Development Status page:

Related Links:

See WECC Approved Standards page

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Standards Announcement:

Comment Period Open: Reliability Standards Development Plan

May 20–July 6, 2009

Comment Form Available at:
http://www.nerc.com/files/Standards_Input_Form_Final_2008June30.doc

As part of our annual project for revising the NERC Reliability Standards Development Plan (Plan), we are seeking comments on the current *Reliability Standards Development Plan: 2009-2011* to be used as the basis for drafting the *Reliability Standards Development Plan: 2010-2012*. Comments relative, but not limited, to the following issues are of particular interest to NERC:

- Perceived gaps in NERC Reliability Standards and recommendations for eliminating the perceived gaps
- Prioritization (as implied by the timing of the projects) of the projects included in the Plan and recommendations for adjusting the timing of individual projects
- Potential future projects for addressing changes in or development of new reliability standards

To submit comments about the Plan or NERC standards in general, please e-mail a completed copy of the Reliability Standards Suggestions and Comments form to sarcomm@nerc.net with the words "Standards Suggestions" in the subject line. While general comments are always welcome, the deadline for this comment period is **July 6, 2009.**

Contact: David Taylor, NERC, david.taylor@nerc.net.

Schedule:

After all comments are reviewed, a draft of the 2010-2012 Plan will be posted for industry comment in August 2009. Based on comments received in August, the Plan will be revised again and presented to the NERC Standards Committee for approval in October and to the NERC Board of Trustees for approval in November. The revised *Reliability Standards Development Plan: 2010-2012* will be filed with applicable regulatory authorities the end of 2009.

Background:

The overall objective of the Plan is to ensure the reliability of the Bulk Electric System through improved reliability standards. Each project listed in the Plan will be assigned a drafting team, who will be responsible for performing a thorough review and improvement of the standards associated with the project, including:

- Revising the reliability objective, title, and purpose statement of the standards for clarity
- Revising the applicability section of the standards to add specifications for entities, facilities, and responsibilities and integrate functional model changes

- Improving the wording of requirements and measures in the standards

Refining the compliance elements of the standards

Standards Development Process

The Reliability Standards Development Procedure contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate.

For more information or assistance,
please contact Shaun Streeter at shaun.streeter@nerc.net or at 609.452.8060.

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Reliability Standards Suggestions and Comments

Introduction

NERC welcomes suggestions and comments targeted at improving the reliability of the bulk power system through improved reliability standards. Please use this form to submit your suggestions and/or comments related to NERC's Reliability Standards or Reliability Standards Development Plan. NERC will consider all suggestions and comments received and will incorporate the ideas submitted into a future standards development project or a future revision of the Reliability Standards Develop Plan, as appropriate.

A link to the current version of the Reliability Standards Development Plan can be found on NERC's standards Web page.

Please return all completed forms via e-mail to sarcomm@nerc.net with the words "Standards Suggestions" in the subject line.

Submission Information

Date: 07/06/09

Submitted by (Name):	**Organization:**
Carol Gerou *If submitted for a group, please complete the table at the end of this form.	Midwest Reliability Organization
Phone:	**E-mail:**
651-855-1735	ca.gerou@midwestreliability.org
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
None	NERC Standards Review Subcommittee
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**
Standards	N/A

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Suggestion or Comment Detail
(Complete only those items applicable to your submittal)

Notes:

1. Please be as specific as possible.
2. To the extent possible, please identify the specific element(s) of the standard (e.g. Requirement R1.2 or Section D.1.1 or Measure M1, etc.) each suggestion or comment pertains to.
3. If practical, please provide an example to clearly describe the issue.
4. If possible please provide a suggestion for improving the specific language of a standard to mitigate the issue.

1. Does this suggestion or comment address an existing standard?

Yes ☒ No ☐ (If no, skip to the next question.)

Standard Number(s): All

Standard Title(s): All

Element(s) (i.e., Requirement R1.2., Measure M2., etc.): All

Suggestion or Comment: NERC should sponsor an industry triage of the standards to identify the core requirements and flag those that are minutia. This will allow all of industry (NERC, Regional Entities and Registered Entities) to focus resources on what will support reliability rather than push paper to demonstrate compliance with requirements that don't support realiability.

Example: A simple example is the DCS. The true core requirements are to recover from all reportable events in 15 minutes and replentish reserves in 90 minutes thereafter. The rest of the Rs are an explanation of what that means, how it's handled in a Reserve Sharing Group and also the procedural reporting items. However, we are now moving down a path to assign measures and sanctions to 20 different things in this standard.

Recommendation for improvement: A first step for any standards improvement effort would be the creation of a database companion to the standards. This would not only be a platform to capture the triage comments, the database could be used by registered entities to identify all the requirements that apply to them. Presently it is impossible to say with assurance you have found all applicable requirements. For example, there are several cases where an entity is mentioned in a requirement, but that entity is not identified in the "applicability" section of the standards.

Once you have the triage complete, format changes are just a matter of programming.

If you look at the present V0 and V1 standards, many things labled as requirements are actually criteria, procedures, administrative directions and explanitory text.

As an example of what can be done to improve the final format after the triage, refer to Europe's Policy 1 at: http://www.ucte.org/resources/publications/ophandbook/

The bullets in their policies are broken into a few categories:

- C for Criteria (goals and background of the standard)
- R for Requirements (generally attributes that are yes/no go/no-go)

- S for Standards (things measured on a scale)
- P for Procedures (administrative information)
- G for guides (while we have moved away from guides, the issue still remains what to do with the good practices that are being lost from institutional memory)

If there is information beyond this, it is likely reference information and should be moved to an appendix in the standard (using A for paragraph numbers).

The benefit in making such a format change is that the industry can focus on those things that are important for reliability. It also allows NERC and the Regions to focus on the important things.

Compliance elements would be applied to the requirements and standards. There still could be notification to regulatory bodies on procedural deficiencies.

This is not a suggestion for any change to content in the standards, just a reformatting.

2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan?

   Yes ☒ No ☐ (If no, skip to the next question.)

Project Number(s): 2007-09

Project Title(s): Generation Verification

Suggestion or Comment: In Volume 2, Reliability Standards Development Plan Overall Project Schedules, the Generation Verification project looks like it's mislabeled as Project 2007-08.

Recommendation for improvement: Update Overall Project Schdeules or connect hyperlink to current project summary calendar (called "Standards Under Development Anticipated Posting Calendar") provided on the NERC sStandards Under Deveopment webpage.

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)? Yes ☒ No ☐
Reliability Issue: List of projects
Suggestion or Comment: The plan lists several projects but it indicates that limited resources exist, it would seem partical to pick a set of projects which have a high priority and complete that set and then move on to less priority projects. Plus, in the plan Volume 1 mentions that some project have a higher proirity then other. The plan even expresses the objectives for determining the priority (Volume 1, page 5, and section titled "Objectives as Part of the Goal") but the actual projects are not priortized.
Example: A set of projects would be the fill-in-the-blank standards. If the industry could take an approach on this set alone, it would not be spinning it wheels so to speak. The technical expertise used to develop both regional and continental wide standards could be free to work on other standards.
Recommendation for improvement: Pick a set of projects which have a high priority and complete that set then work on less priority projects.
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment: The plan should be updated to show actual status of the projects. Only show last major milestone.
Example: Starting from the Reliability Standards Development Plan Overall Project Schedule housed in the plan (Volume 2) add a diamond symbol to show latest milestone in the project. Milestones would be last posting for ballots or comments.
Recommendation for improvement: See Suggestion or Comment.
Additional information:
Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Group Members (Names)	Group Member Organization	Region*	Segment*

* If more than one Region or Segment applies, please list all that apply.

Regional acronyms are:

Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool (SPP)
Texas Regional Entity (TRE)
Western Electricity Coordinating Council (WECC)

Segment numbers are:

1 — Transmission Owners
2 — RTOs and ISOs
3 — Load-serving Entities
4 — Transmission-dependent Utilities
5 — Electric Generators
6 — Electricity Brokers, Aggregators, and Marketers
7 — Large Electricity End Users
8 — Small Electricity End Users
9 — Federal, State, Provincial Regulatory or other Government Entities
10 — Regional Reliability Organizations and Regional Entities

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Reliability Standards Suggestions and Comments

Introduction

NERC welcomes suggestions and comments targeted at improving the reliability of the bulk power system through improved reliability standards. Please use this form to submit your suggestions and/or comments related to NERC's Reliability Standards or Reliability Standards Development Plan. NERC will consider all suggestions and comments received and will incorporate the ideas submitted into a future standards development project or a future revision of the Reliability Standards Develop Plan, as appropriate.

A link to the current version of the Reliability Standards Development Plan can be found on NERC's standards Web page.

Please return all completed forms via e-mail to sarcomm@nerc.net with the words "Standards Suggestions" in the subject line.

Submission Information

Date:	
Submitted by (Name): Denise Koehn *If submitted for a group, please complete the table at the end of this form.	**Organization:** Bonneville Power Administration
Phone: 360-418-2533	**E-mail:** dekoehn@bpa.gov
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**

Suggestion or Comment Detail (Complete only those items applicable to your submittal)
Notes: 1. Please be as specific as possible. 2. To the extent possible, please identify the specific element(s) of the standard (e.g. Requirement R1.2 or Section D.1.1 or Measure M1, etc.) each suggestion or comment pertains to. 3. If practical, please provide an example to clearly describe the issue. 4. If possible please provide a suggestion for improving the specific language of a standard to mitigate the issue.
1. Does this suggestion or comment address an existing standard? Yes ☐ No ☒ (If no, skip to the next question.)
Standard Number(s):
Standard Title(s):
Element(s) (i.e., Requirement R1.2., Measure M2., etc.):
Suggestion or Comment:
Example:
Recommendation for improvement:
2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan? Yes ☐ No ☒ (If no, skip to the next question.)
Project Number(s):
Project Title(s):
Suggestion or Comment:
Recommendation for improvement:

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)? Yes ☐ No ☒
Reliability Issue:
Suggestion or Comment:
Example:
Recommendation for improvement:
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment: BPA has no dispute regarding the revision needs; however, this is an aggressive schedule and will require considerable effort to accomplish as many items per year as scheduled. The schedule seems a little aggressive. Otherwise, plan looks good.
Example:
Recommendation for improvement:
Additional information:
Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Group Members (Names)	Group Member Organization	Region*	Segment*

* If more than one Region or Segment applies, please list all that apply.

Regional acronyms are:

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Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool (SPP)
Texas Regional Entity (TRE)
Western Electricity Coordinating Council (WECC)

Segment numbers are:

1 — Transmission Owners
2 — RTOs and ISOs
3 — Load-serving Entities
4 — Transmission-dependent Utilities
5 — Electric Generators
6 — Electricity Brokers, Aggregators, and Marketers
7 — Large Electricity End Users
8 — Small Electricity End Users
9 — Federal, State, Provincial Regulatory or other Government Entities
10 — Regional Reliability Organizations and Regional Entities

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Reliability Standards Suggestions and Comments

Introduction

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A link to the current version of the Reliability Standards Development Plan can be found on NERC's standards Web page.

Please return all completed forms via e-mail to sarcomm@nerc.net with the words "Standards Suggestions" in the subject line.

Submission Information

Date: July 6, 2009

Submitted by (Name):	**Organization:**
Dora Moreno *If submitted for a group, please complete the table at the end of this form.	Southern California Edison Company
Phone:	**E-mail:**
626-302-4808	dora.moreno@sce.com
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**

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Suggestion or Comment Detail
(Complete only those items applicable to your submittal)

Notes:

1. Please be as specific as possible.
2. To the extent possible, please identify the specific element(s) of the standard (e.g. Requirement R1.2 or Section D.1.1 or Measure M1, etc.) each suggestion or comment pertains to.
3. If practical, please provide an example to clearly describe the issue.
4. If possible please provide a suggestion for improving the specific language of a standard to mitigate the issue.

1. Does this suggestion or comment address an existing standard?

   Yes ☒ No ☐ (If no, skip to the next question.)

Standard Number(s): N/A

Standard Title(s): NERC Reliability Standards Development Plan 2009-2011

Element(s) (i.e., Requirement R1.2., Measure M2., etc.):

Suggestion or Comment: Southern California Edison Company ("SCE") hereby submits its comments on the North American Electric Reliability Corporation's ("NERC") annual revision to the NERC Reliability Standards Development Plan (Plan).

SCE greatly appreciates the work that went into developing the Plan, and commends NERC for the extensive overview and depth it provides with respect to the development of reliability standards. This being said, SCE is generally supportive of the document and goals NERC has set for the development of reliability standards. The timelines identified in the Plan, like the Plan itself, are too dynamic (non-static/ever changing) to be used as targets, and may need to be modified as projects are launched and the drafting teams proceed forward with them.

Example:

Recommendation for improvement:

2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan?

   Yes ☐ No ☐ (If no, skip to the next question.)

Project Number(s):

Project Title(s):

Suggestion or Comment:

Recommendation for improvement:

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)? Yes ☐ No ☐
Reliability Issue:
Suggestion or Comment:
Example:
Recommendation for improvement:
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment:
Example:
Recommendation for improvement:
Additional information:
Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Group Members (Names)	Group Member Organization	Region*	Segment*

* If more than one Region or Segment applies, please list all that apply.

Regional acronyms are:

Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool (SPP)
Texas Regional Entity (TRE)
Western Electricity Coordinating Council (WECC)

Segment numbers are:

1 — Transmission Owners
2 — RTOs and ISOs
3 — Load-serving Entities
4 — Transmission-dependent Utilities
5 — Electric Generators
6 — Electricity Brokers, Aggregators, and Marketers
7 — Large Electricity End Users
8 — Small Electricity End Users
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10 — Regional Reliability Organizations and Regional Entities

NERC
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Reliability Standards Suggestions and Comments

Introduction

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A link to the current version of the Reliability Standards Development Plan can be found on NERC's standards Web page.

Please return all completed forms via e-mail to sarcomm@nerc.net with the words "Standards Suggestions" in the subject line.

Submission Information

Date:	
Submitted by (Name): Doug Hohlbaugh *If submitted for a group, please complete the table at the end of this form.	**Organization:** FirstEnergy
Phone: 330-384-4698	**E-mail:** hohlbaughdg@firstenergycorp.com
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**

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Suggestion or Comment Detail
(Complete only those items applicable to your submittal)

Notes:

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3. If practical, please provide an example to clearly describe the issue.
4. If possible please provide a suggestion for improving the specific language of a standard to mitigate the issue.

1. Does this suggestion or comment address an existing standard?

   Yes ☐ No ☒ (If no, skip to the next question.)

Standard Number(s):

Standard Title(s):

Element(s) (i.e., Requirement R1.2., Measure M2., etc.):

Suggestion or Comment:

Example:

Recommendation for improvement:

2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan?

   Yes ☒ No ☐ (If no, skip to the next question.)

Project Number(s): 2009-03

Project Title(s): Emergency Operations (Covers standards EOP-001 "Emergency Operations Planning", EOP-002 "Capacity & Energy Emergencies", EOP-003 "Load Shedding Plans" and IRO-001 "Reliability Coordinator - Responsibilities and Authorities"

Suggestion or Comment: Consider advancing project 2009-03 and including it in a list of High Priority projects that need addressed within NERC 3-year Work Plan. See FE comment 4B below stating a need to establish a list of High Priority projects and suggestions on how such a list may be compiled.

Project 2009-03 is an example project that addresses core real-time operations requirements that should be considered for advancement in NERC's work plan. This project has yet to start and there are reliability and compliance ambiguities that require mitigation. For example, in EOP-003, R5 states the following "A Transmission Operator or Balancing Authority shall implement load shedding in steps established to minimize the risk of further uncontrolled separation, loss of generation, or system shutdown" This is a HIGH Violation Risk Factor requirement that should not lack clarity in compliance certainty related to who has the authority to shed load.

The purpose statement of the EOP-003 standard indicates that the BA and TOP must have the capability and authority to shed load. It is unclear what is meant by capability. Capability could range from ability to direct action to open breakers or an expectation to open breakers and drop load. However, the standard is not written clearly related to the expectations of the TOP and BA in regard to load shed. Within the EOP-003 standard, 50% of the requirements include a statement "A Transmission Operator or Balancing Authority shall …" and should be revised on a more expeditious schedule to improve reliability and compliance certainty.
Recommendation for improvement: Consider advancing project 2009-03 and including it in a list of High Priority projects that need addressed within NERC 3-year Work Plan. See FE comment 4B below stating a need to establish a list of High Priority projects and suggestions on how such a list may be compiled.

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)? Yes ☐ No ☒
Reliability Issue:
Suggestion or Comment:
Example:
Recommendation for improvement:
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment: A) The industry -BES users, owners and operators as well as regulatory enforcement staff - is overwhelmed with compliance enforcement actions based on little or no BES reliability gap related to violations that are largely documentation related. This inefficiency is wasting valuable resources with no measured improvement in NERC's vision of Adequate Level of Reliability which the standards collectively aim to achieve. Requirements that are largely administrative should not be subjected to the compliance Sanctions Matrix and should be partitioned within the standards. B) We are concerned with the large volume of work within the NERC work plan and the stress placed on its limited staff and industry resources. NERC needs to re-assess its projects and develop a short list of key High Priority projects that will drive the greatest reliability improvements within the industry. These select projects should receive detailed attention and priority by NERC staff, NERC SC and industry as they move through the standards development process. The key projects should be held to greater scrutiny from a project management view. It should be expected that team members on these teams are held to a higher level of accountability, committed to providing significant time and energy to advance the industry in the key areas that will raise the adequate level of reliability. One example where this has been used is the CIP project. c) Interpretation Request - NERC should allow sufficient bandwidth in their schedule to address interpretation requests which seem to be on the rise. It should be understood that the use of existing drafting teams to respond to interpretation requests causes delays in standard development work progress. D) The NERC Work plan should cast a clear picture of the ERO/industry vision that clearly articulates a future target for the reliability standards and the core BES reliability goals they aim to achieve.
Example:
Recommendation for improvement: A) The standards should be scrubbed to remove or re-classify administrative and documentation related requirements that do not serve a reliability related goal. To the extent retained, two levels of requirements should exist within the standard 1) Reliability Requirements and 2) Administrative Requirements. For example many requirements direct entities to provide some sort of documentation within X calendar days, upon a request to do so. These types of requirements, if violated, should not bog the industry down in paperwork moving through the normal compliance enforcement process and

should only be subject to a penalty for repeat offenders. When a penalty is warranted for Administrative Requirements, it should have a separate expedited process and the fine should escalate for repeat offenders with some consideration of the length of time between repeat violations.

B) We suggest a leadership team with representative members of each of the NERC Standing Committees (SC, PC, OC, CCC and CIPC) direct a working group aimed at developing a methodical review of the existing standards to develop the High Priority list of reliability standards that require sharp focus from industry. The prioritization should be based on a number of different aspects such as: 1) frequency of interpretation requests for a given standard - this could point to lack of clear requirement language; 2) the frequency of violations for a given standard - could point to a need to re-evaluate the metrics used to gauge compliance and determine if the proper industry expectations regarding a particular reliability target is being achieved. The standards should not expect perfection as their goal.; 3) requirement redundancy - this should remain a focus of the Work Plan to remove potential for multiple violations, the standards should remain clear and concise; 4) Clear expectations - many of the standards still lack measures. It's not clear why the industry is putting forth time and energy on developing both measures and Reliability Standards Audit Worksheets (RSAWs). It seems that clear written measures along with the requirements should suffice in providing a responsible entity the information needed to ensure compliance. The RSAWs should not be an on-going expecatation of the standards and the Work Plan should clearly cast this vision. Creating both RSAWs and measures creates unnecessary effort to maintain two sets of information serving the same function.

A presentation was made by the NERC Standards Process Subcommittee (a subcommittee of the SC) at the April 15-16, 2009 NERC Standards Committee meeting that describe a potential method for establishing a list of criteria for evaluating the standards, prioritizing the work needed with a focused effort of trimming down the requirements to core reliability requirements aimed at a particular reliability goal. It's suggested that the work of the NERC Process Subcommittee form the basis of establishing the High Priority list of standards which should ultimately rise to the top of NERC's Work Plan.

C) FE well understands the benefits of utilizing an already formed standards drafting team (SDT) to expedite a response to a standard interpretation request as the team already assembles the SMEs to address a particular subject matter. The SDT also benefits from the experience by being made acutely aware of confusion that exists within an existing standard it is addressing for improvement.

A potential downside to using SDT personnel is the distraction created by the interpretation request and a delay in the standards development work. NERC should closely monitor the workload placed on SDT's being asked to respond to interpretation requests and poll the SDT members to see if they believe there would be any benefit in an alternative approach for interpretation responses.

One potential alternative would be to form a separate sub-committee or work group under the CIPC, OC and PC that would address all interpretation requests related to various class of standards that each of these standing committees would be expected to address. This would allow the SDTs to remain focused on their work in developing new/revised reliability requirements.

D) The Work Plan should set the vision of what the ERO/industry will achieve as a 5-year target. This vision should foretell a 5-year plan of a strong, self supporting industrial model that will triage the standards to separate critical core reliability requirements from the lesser administrative tasks, a dedicated focus of reducing the reliability requirements to those that support NERC's Adequate Level of Reliability and clearly identify the High Priority projects being addressed on a expedited schedule. The 5-year target should seek to continuously improve and adjust as needed to raise the BES reliability where warranted by clear metrics and should not anticipate perfect reliability.

Additional information:

Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Group Members (Names)	Group Member Organization	Region*	Segment*

* If more than one Region or Segment applies, please list all that apply.

Regional acronyms are:

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Reliability Standards Suggestions and Comments

Introduction

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Please return all completed forms via e-mail to sarcomm@nerc.net with the words "Standards Suggestions" in the subject line.

Submission Information

Date: July 6, 2009

Submitted by (Name):	**Organization:**
Frank Gaffney *If submitted for a group, please complete the table at the end of this form.	Florida Municipal Power Agency
Phone:	**E-mail:**
407.355.7767	frank.gaffney@fmpa.com
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
None	
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**
Standards	

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Suggestion or Comment Detail (Complete only those items applicable to your submittal)

Notes:

1. Please be as specific as possible.
2. To the extent possible, please identify the specific element(s) of the standard (e.g. Requirement R1.2 or Section D.1.1 or Measure M1, etc.) each suggestion or comment pertains to.
3. If practical, please provide an example to clearly describe the issue.
4. If possible please provide a suggestion for improving the specific language of a standard to mitigate the issue.

1. Does this suggestion or comment address an existing standard?

Yes ☒ No ☐ (If no, skip to the next question.)

Standard Number(s): EOP-001-1, EOP-003-1, IRO-008-1, IRO-009-1, IRO-010-1, PRC-006-0, PRC-007-0, TOP-001-1, TOP-002-2a, TOP-003-1, TOP-006-2, VAR-001-1a

Standard Title(s): Emergency Operations Planning, Load Shedding Plans, Reliability Coordinator Operational Analyses and Real-Time Assessments, Reliability Coordinator Actions to Operate Within IROLs, Reliability Coordinator Data Specifications and Collection, Development and Documentation of Regional UFLS Programs, Assuring Consistency with Regional UFLS Programs, Reliability Responsibilities and Authorities, Monitoring System Conditions, Voltage and Reactive Control

Element(s) (i.e., Requirement R1.2., Measure M2., etc.): See "Examples" below

Suggestion or Comment: The current standards are inconsistent with each other in certain areas and confuse the roles of a Balancing Authority (BA), Transmission Operator (TOP), Reliability Coordinator (RC), Regional Entity (RE), Generation Operator (GOP) and Transmission Planner (TP). The confusion manifests in a few ways. First, it causes the BA to be responsible for requirements that ought to be only applicable to the TOP (such as managing transmission line outages), and visa versa (such as managing fuel supply), probably thinking that most BAs are also TOPs. However, there are BAs that are not TOPs and visa versa. Secondly, it causes redundancy in roles and confusion in leadership in causing certain activities to happen. For instance, both the TOP and RC are responsible for managing IROLs without clear leadership between the two. Also, if a Load Serving Entity (LSE) or GOP receives directives from both the RC and the TOP that conflict with each other, what should the LSE or GOP do?

Example: The NERC Glossary of terms defines a BA as: "The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time." In other words, responsible for supply and demand balance in the operating horizon. With this definition in mind, why is the BA responsible for EOP-001-1 R2.2 "Develop, maintain, and implement a set of plans to mitigate operating emergencies on the transmission system"? Similarly, the TOP is defined as: "(t)he entity responsible for the reliability of its 'local' transmission system, and that operates or directs the operations of the transmission facilities." With this definition in mind, why is the TOP made responsible for EOP-001-1 R2.1: "(d)evelop, maintain, and implement a set of plans to mitigate operating emergencies for insufficient generating capacity"? There are more examples of this, and other inconsistencies between the BA, TOP, RC, RE, GOP and TP, as summarized below:

In EOP-001-1 R4, Appendix A includes items that are not applicable to the TOP and are only applicable to the BA, e.g., why is a TOP responsible for fuel supply? Why is a TOP responsible for R6.2 concerning

emergency energy? Why is a TOP responsible for fuel supply in R6.4, and why is the TOP responsible for arranging energy delivery?

In EOP-003-1 R2, why is the BA responsible for Under Frequency Load Shedding (UFLS) when PRC-006-0 and PRC-007-0 make it the responsibility of the Regional Entities, the TOPs, the Distribution Providers and the LSEs? Why is the BA responsible for Under Voltage Load Shedding (UVLS) when the responsibility should probably be just the TOP's? Isn't this requirement redundant with PRC-006-0 and PRC-007-0?

IRO-008-1 and IRO-009-1 requires RCs to operationally plan for and operate within IROLs. TOP-004-2 and VAR-001-1a R10 requires the TOPs to do the same, yet there is no discussion in the standards of coordination between the RC and TOPs in the standards. Note that VAR-001-1a R10 and R12 are dedundant with TOP standards such as TOP-004-2.

TOP-001-1 R8, the requirement ought to clearly delineate that the BA is responsible for restoring real power balance, and the TOP reactive power balance.

TOP-002-2a, the standard is for Transmission Operations Planning yet there are numerous requirements for the BA that should probably be set apart as separate requirements under a new BAL standard for operational planning for supply and demand balance, contingency reserves, and regulation service, which are not related to Transmission Operations Planning.

TOP-002-2a R8, why is it the BA's responsibility to meet voltage or reactive reserves, isn't that the role of the TOP, as spelled out in the VAR standards? If the issue is to ensure enough generation is on-line in specific areas that might need reactive support, isn't that still the TOP's responsibility to coordinate with the BA and issue direction if necessary?

TOP-003-1 R1.2, why is the TOP responsible for providing generator outage information? Isn't that the BA's or GOP's responsibility and isn't this redundant with IRO-010-1?

TOP-006-2 R1, R1.2, why are BAs responsible for information regarding transmission resources available for use? Isn't that the role of the TOP?

TOP-006-2 R2, why is the BA responsible for monitoring transmission line status, voltage, load tap changer settings, and reactive power in general? Monitoring and managing reactive resources, voltage and tap settings is clearly made the responsibility of the TOP in VAR-001-1a.

TOP-006-2 R3 why does the BA need to understand protective relaying? Isn't that the role of the TOP and GOP?

VAR-001-1a R2 requires the TOP to acquire sufficient reactive resources. The statement probably ought to clearly delineate that this requirement is applicable to the operating horizon only and that the TP is responsible for adequate reactive resources in the planning horizon.

Recommendation for improvement: Revise the standards to clearly delineate the responsibilities of the various entities and clear up the redundancy and inconsistencies between the standards. The examples provided include some suggestions for changes to help make roles and responsibilities more clear.

2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan?

   Yes ☐ No ☒ (If no, skip to the next question.)

Project Number(s):

Project Title(s):

Suggestion or Comment:

Recommendation for improvement:

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)? Yes ☐ No ☒
Reliability Issue:
Suggestion or Comment:
Example:
Recommendation for improvement:
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment:
Example:
Recommendation for improvement:
Additional information:
Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Group Members (Names)	Group Member Organization	Region*	Segment*

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Submission Information

Date: July 6, 2009

Submitted by (Name):	**Organization:**
Guy Zito *If submitted for a group, please complete the table at the end of this form.	Northeast Power Coordinating Council
Phone:	**E-mail:**
212-840-1070	gzito@npcc.org
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**

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Suggestion or Comment Detail (Complete only those items applicable to your submittal)
Notes: 1. Please be as specific as possible. 2. To the extent possible, please identify the specific element(s) of the standard (e.g. Requirement R1.2 or Section D.1.1 or Measure M1, etc.) each suggestion or comment pertains to. 3. If practical, please provide an example to clearly describe the issue. 4. If possible please provide a suggestion for improving the specific language of a standard to mitigate the issue.
1. Does this suggestion or comment address an existing standard? Yes ☐ No ☒ (If no, skip to the next question.)
Standard Number(s):
Standard Title(s):
Element(s) (i.e., Requirement R1.2., Measure M2., etc.):
Suggestion or Comment:
Example:
Recommendation for improvement:
2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan? Yes ☐ No ☒ (If no, skip to the next question.)
Project Number(s):
Project Title(s):
Suggestion or Comment:
Recommendation for improvement:

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)? Yes ☒ No ☐
Reliability Issue:
Suggestion or Comment: Suggestions and comments on the Reliability Standards Development Plan. See Question 4 below.
Example:
Recommendation for improvement:
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment: The initial draft of the intended "final" version of the document should be posted for comment. "Fill in the blank" projects versus blackout recommendation projects should be appropriately prioritzed.
Example:
Recommendation for improvement: The Reliability Standards Development Plan: 2010-2012 version should be the version that is posted for comments. Having the 2009-2011 version posted is contributing to industry confusion over what information to submit for comments.
Additional information:
Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

Group Comments (Complete this page if comments are from a group.)

Group Name: Northeast Power Coordinating Council

Lead Contact: Guy Zito

Contact Organization: Northeast Power Coordinating Council

Contact Segment: 10

Contact Telephone: 212-840-1070

Contact E-mail: gzito@npcc.org

Group Members (Names)	Group Member Organization	Region*	Segment*
Ralph Rufrano	New York Power Authority	NPCC	5
Al Adamson	New York State Reliability Council	NPCC	9
Gregory Campoli	New York Independent System Operator	NPCC	2
Roger Champagne	Hydro-Quebec TransEnergie	NPCC	2
Kurtis Chong	Independent Electricity System Operator	NPCC	2
Sylvain Clermont	Hydro-Quebec TransEnergie	NPCC	1
Manuel Couto	National Grid	NPCC	1
Chris de Graffenried	Consolidated Edison Co. of New York, Inc.	NPCC	1
Brian Evans-Mongeon	Utility Services	NPCC	8
Mike Garton	Dominion Resources Services, Inc.	NPCC	5
Brian L. Gooder	Ontario Power Generation Incorporated	NPCC	5
Kathleen Goodman	ISO - New England	NPCC	2
David Kiguel	Hydro One Networks Inc.	NPCC	1
Michael R. Lombardi	Northeast Utilities	NPCC	1
Randy MacDonald	New Brunswick System Operator	NPCC	2
Bruce Metruck	New York Power Authority	NPCC	6
Chris Orzel	FPL Energy/Nextera Energy	NPCC	5
Robert Pellegrini	The United Illuminating Company	NPCC	1
Michael Schiavone	National Grid	NPCC	1
Peter Yost	Consolidated Edison Com. of New York, Inc.	NPCC	3
Gerry Dunbar	Northeast Power Coordinating Council	NPCC	10
Lee Pedowicz	Northeast Power Coordinating Council	NPCC	10

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Submission Information

Date: June 30, 2009

Submitted by (Name):	**Organization:**
Hugh Francis *If submitted for a group, please complete the table at the end of this form.	Southern Company
Phone:	**E-mail:**
205-257-6027	hafranci@southernco.com
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**

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Suggestion or Comment Detail (Complete only those items applicable to your submittal)
Notes: 1. Please be as specific as possible. 2. To the extent possible, please identify the specific element(s) of the standard (e.g. Requirement R1.2 or Section D.1.1 or Measure M1, etc.) each suggestion or comment pertains to. 3. If practical, please provide an example to clearly describe the issue. 4. If possible please provide a suggestion for improving the specific language of a standard to mitigate the issue.
1. Does this suggestion or comment address an existing standard? Yes ☐ No ☐ (If no, skip to the next question.)
Standard Number(s):
Standard Title(s):
Element(s) (i.e., Requirement R1.2., Measure M2., etc.):
Suggestion or Comment:
Example:
Recommendation for improvement:
2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan? Yes ☒ No ☐ (If no, skip to the next question.)
Project Number(s):
Project Title(s):
Suggestion or Comment:
Recommendation for improvement:

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)? Yes ☐ No ☐
Reliability Issue:
Suggestion or Comment:
Example:
Recommendation for improvement:
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment: Page 9 of Appendix A has a list of projects that will be initiated each year. At the bottom of page 10 there is a strategy for project resources that addresses the resources needed to complete the standards projects in the project list. There are about the same number of projects in each year. What is not addressed is how these new projects are going to be started/completed without additional resources. This plan does not address the resources needed to keep the earlier projects revised and current. At this time there are 95 nation-wide standards and only 35 or less than 37% have not been revised.
Example:
Recommendation for improvement: The new Standards Development Plan needs to address current manpower requirements as well as future needs for manpower. Adjust the project list in the future years to levelize manpower needed to initiate new standards as well as keep the current standards up to date and revised as needed.
Additional information:
Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

Group Comments (Complete this page if comments are from a group.)

Group Name: Southern Company

Lead Contact: Hugh Francis

Contact Organization: Southern Company Services, Inc.

Contact Segment: 1,3

Contact Telephone: 205-257-6027

Contact E-mail: hafranci@southernco.com

Group Members (Names)	Group Member Organization	Region*	Segment*
Marc Butts	Southern Company-Trans	SERC	1,3

* If more than one Region or Segment applies, please list all that apply.
Regional acronyms are:

Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool (SPP)
Texas Regional Entity (TRE)
Western Electricity Coordinating Council (WECC)

Segment numbers are:
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NERC
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Reliability Standards Suggestions and Comments

Introduction

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A link to the current version of the Reliability Standards Development Plan can be found on NERC's standards Web page.

Please return all completed forms via e-mail to sarcomm@nerc.net with the words "Standards Suggestions" in the subject line.

Submission Information

Date: July 6, 2009

Submitted by (Name):	**Organization:**
Jalal Babik *If submitted for a group, please complete the table at the end of this form.	Dominion Resources INc.
Phone:	**E-mail:**
804-273-4109	Jalal.Babik@dom.com
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**

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Suggestion or Comment Detail
(Complete only those items applicable to your submittal)

Notes:

1. Please be as specific as possible.
2. To the extent possible, please identify the specific element(s) of the standard (e.g. Requirement R1.2 or Section D.1.1 or Measure M1, etc.) each suggestion or comment pertains to.
3. If practical, please provide an example to clearly describe the issue.
4. If possible please provide a suggestion for improving the specific language of a standard to mitigate the issue.

1. Does this suggestion or comment address an existing standard?

   Yes ☐ No ☐ (If no, skip to the next question.)

Standard Number(s):

Standard Title(s):

Element(s) (i.e., Requirement R1.2., Measure M2., etc.):

Suggestion or Comment:

Example:

Recommendation for improvement:

2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan?

   Yes ☒ No ☐ (If no, skip to the next question.)

Project Number(s): 2007-01-RE, 2007-05-RE, 2007-11-RE, 2008-04-RE.

Project Title(s): Underfrequency Load Shedding, Balancing Authority Contols, Disturbance Monitoring, Protection System

Suggestion or Comment: NERC must place more priority on fill-in the blank standards in its Reliability Standards Development Plan. Since several of these standards, have not gotten priority attention, Regional Councils are moving ahead with Regional Standards development on these standards, while a national standard would be more appropriate and prevent the development of unnecesary regional differences in standards that ultimately make standards compliance more difficult for registered entities operating in more then one Region. Further, a national standard on these important compliance topics would set the threshold and hence, regional differences or variences could be minimized. Without this prioritization, registered entities could face very different compliance requirements on simliar equipment in their fleet, based soley on what Region the equipment resides; making compliance management more difficult, yet for little to no benefit to the bulk power system and compliance costs. Additionally, given several of these projects were started in 2007, that reason alone should move these projects into the highest priority on NERC Development Plan.

Recommendation for improvement: These fill-in-the-blank standards should review top priority from

NERC staff until they are balloted. Regional Standards that address then same compliance subjects should be put on hold until the national standard on the same compliance objective is addressed by ballot body. It is after that national balloting that Regions will know what regional differences are truly needed based on unique characteristics of their regional bulk electric system.

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)? Yes ☐ No ☒
Reliability Issue:
Suggestion or Comment:
Example:
Recommendation for improvement:
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment:
Example:
Recommendation for improvement:
Additional information:
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Group Comments (Complete this page if comments are from a group.)

Group Name: Electric Market Policy

Lead Contact: Jalal Babik

Contact Organization: Dominion Resources Inc

Contact Segment: IOU

Contact Telephone: 8042734109

Contact E-mail: jalal.babik@dom.com

Group Members (Names)	Group Member Organization	Region*	Segment*
Michael Gildea	Dominion Resources Inc	RFC	5
Louis Slade	Dominion Resources Inc	SERC	6
Mike Garton	Dominion Resources Inc	NPCC	5

* If more than one Region or Segment applies, please list all that apply.

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Please return all completed forms via e-mail to sarcomm@nerc.net with the words "Standards Suggestions" in the subject line.

Submission Information

Date: 6/29/2009

Submitted by (Name):	**Organization:**
Jason Marshall *If submitted for a group, please complete the table at the end of this form.	Midwest ISO
Phone:	**E-mail:**
317-249-5494	jmarshall@midwestiso.org
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**

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Suggestion or Comment Detail (Complete only those items applicable to your submittal)

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3. If practical, please provide an example to clearly describe the issue.
4. If possible please provide a suggestion for improving the specific language of a standard to mitigate the issue.

1. Does this suggestion or comment address an existing standard?

Yes ☒ No ☐ (If no, skip to the next question.)

Standard Number(s): All

Standard Title(s): All

Element(s) (i.e., Requirement R1.2., Measure M2., etc.): All

Suggestion or Comment: NERC should sponsor an industry triage of the standards to identify the core requirements and flag those that are minutia. This will allow all of industry (NERC, Regional Entities and Registered Entities) to focus resources on what will support reliability rather than push paper to demonstrate compliance with requirements that don't support reliability.

Example: A simple example is the DCS. The true core requirements are to recover from all reportable events in 15 minutes and replenish reserves in 90 minutes thereafter. The rest of the Requirements are an explanation of what that means, how it's handled in a Reserve Sharing Group and also the procedural reporting items. However, we are now moving down a path to assign measures and sanctions to 20 different things in this standard.

Recommendation for improvement: A first step for any standards improvement effort would be the creation of a database companion to the standards. This would not only be a platform to capture the triage comments, the database could be used by registered entities to identify all the requirements that apply to them. Presently, it is impossible to say with assurance you have found all applicable requirements. For example, there are several cases where an entity is mentioned in a requirement, but that entity is not identified in the "applicability" section of the standards. In addition, the database would help to identify where there are redundant requirements in multiple standards and help to eliminate these redundancies and streamline the standards.

Once you have the triage complete, format changes are just a matter of programming.

If you look at the present V0 and V1 standards, many things labeled as requirements are actually criteria, procedures, administrative directions and explanatory text.

As an example of what can be done to improve the final format after the triage, refer to Europe's Policy 1 at: http://www.ucte.org/resources/publications/ophandbook/

The bullets in their policies are broken into a few categories:

- C for Criteria (goals and background of the standard)
- R for Requirements (generally attributes that are yes/no go/no-go)
- S for Standards (things measured on a scale)
- P for Procedures (administrative information)
- G for guides (while we have moved away from guides, the issue still remains what to do with the good practices that are being lost from institutional memory)

If there is information beyond this, it is likely reference information and should be moved to an appendix in the standard (using A for paragraph numbers).

The benefit in making such a format change is that the industry can focus on those things that are important for reliability. It also allows NERC and the Regions to focus on the important things.

Compliance elements would be applied to the requirements and standards. There still could be notification to regulatory bodies on procedural deficiencies.

This is not a suggestion for any change to content in the standards, just a reformatting.

2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan?

   Yes ☒ No ☐ (If no, skip to the next question.)

Project Number(s): Project 2009-04, Project 2011-01

Project Title(s): Phasor Measurement Units, Equipment Monitoring and Diagnostic Services

Suggestion or Comment: Project 2009-04 Phasor Measurement Units - While Midwest ISO supports continued and expanded use of PMUs, we believe that any standard developed should be a technical standard that facilitates a common implementation.

Project 2011-01 Equipment Monitoring and Diagnostic Services - While this project has some merit, it needs to be prioritized among all of the existing on-going standards work. There does not appear to be an overwhelming industry need to implement this standard to prevent the next system disturbance. One could even argue this standard is not about improving BES reliability because the BES must already be operated to withstand the next contingency.

Recommendation for improvement: Ensure the SAR for Project 2009-04 proposes to develop a technical standard only. Delay Project 2011-01 indefinitely until all version 0 standards have been approved by FERC with no additional revisions required. Then evaluate to determine if it is needed for reliability.

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)? Yes ☐ No ☐
Reliability Issue:
Suggestion or Comment:
Example:
Recommendation for improvement:
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment:
Example:
Recommendation for improvement:
Additional information:
Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

Group Comments (Complete this page if comments are from a group.)

Group Name: Midwest ISO Standards Collaborators

Lead Contact: Jason L. Marshall

Contact Organization: Midwest ISO

Contact Segment: 2

Contact Telephone: 317-249-5494

Contact E-mail: jmarshall@midwestiso.org

Group Members (Names)	Group Member Organization	Region*	Segment*
Joe Knight	GRE	MRO	1,3,5,6
Joe DePoorter	MGE	MRO	4
Terry Harbour	Midamerican Energy	MRO	1
Larry Larson	Otter Tail Power	MRO	1
Jianmei Chai	Consumers Energy	RFC	3,4,5
Jim Cyrulewski	JDRJC Associates	RFC	8

* If more than one Region or Segment applies, please list all that apply.

Regional acronyms are:

Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool (SPP)
Texas Regional Entity (TRE)
Western Electricity Coordinating Council (WECC)

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Reliability Standards Suggestions and Comments

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Submission Information

Date: 7/2/09

Submitted by (Name):	**Organization:**
Jianmei Chai *If submitted for a group, please complete the table at the end of this form.	Consumers Energy Company
Phone:	**E-mail:**
(517)788-1310	jchai@cmsenergy.com
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**

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Suggestion or Comment Detail (Complete only those items applicable to your submittal)

Notes:

1. Please be as specific as possible.
2. To the extent possible, please identify the specific element(s) of the standard (e.g. Requirement R1.2 or Section D.1.1 or Measure M1, etc.) each suggestion or comment pertains to.
3. If practical, please provide an example to clearly describe the issue.
4. If possible please provide a suggestion for improving the specific language of a standard to mitigate the issue.

1. Does this suggestion or comment address an existing standard?

Yes ☒ No ☐ (If no, skip to the next question.)

Standard Number(s): All

Standard Title(s): All

Element(s) (i.e., Requirement R1.2., Measure M2., etc.): All

Suggestion or Comment: When there are revisions to the NERC Glossary of Terms (Glossary), NERC should notify stakeholders of the change. New or revised terms are not added to the Glossary until they are approved by the NERC Board of Trustees. However, due to the volume of standards that go through the Standard Development Process, providing notice to stakeholders when the Glossary is revised provides the opportunity to validate that stakeholders are, in fact, adhering to the appropriate definitions. This is especially important with regard to revised terms. Currently, NERC provides notice to stakeholders for ballot results and when Standard Authorization Requests (SARs) and proposed Standards have been posted for comment. However, to our knowledge, no notice is provided when the Glossary is revised.

With regard to the Glossary itself, we offer the following suggestions:

1) Glossary terms should reference the Standards to which they apply. Not only would this be helpful in identifying how stakeholders should revise their compliance process, it would assist the Standards Drafting Teams, because they are required to determine if any existing Standards would be affected by a revision.

2) Clean and redline versions of the Glossary should be posted to allow stakeholders to more accurately track revisions.

3) Regional terms should state the region(s) to which they apply. This is especially important with respect to terms that subsequently may be incorporated into another region's Standards or into national Standards, particularly since stakeholders outside the region associated with the specific term(s) generally would not have had an opportunity to comment, except when the Regional Standard is posted for ballot at NERC.

4) Each Glossary term should appear in at least one Standard. We have identified terms that are not associate with any Standard.

5) When a term is revised, an effective date should be noted, as well as a termination date for the old definition.

6) Historical versions of the Glossary should be readily available on the NERC web site. ********** In addition, we suggest that Requirements NOT include reporting data for compliance monitoring (this should be in Measures), but only include data reporting where the data is used by the recipient for other reliability purposes. In other words, providing data to the RE periodically to demonstrate compliance should be a measure, but providing data to the RE periodically for RE model development should be a requirement.
Example:
Recommendation for improvement:
2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan? Yes ☐ No ☐ (If no, skip to the next question.)
Project Number(s):
Project Title(s):
Suggestion or Comment:
Recommendation for improvement:

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)? Yes ☐ No ☐
Reliability Issue:
Suggestion or Comment:
Example:
Recommendation for improvement:
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment:
Example:
Recommendation for improvement:
Additional information:
Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Group Members (Names)	Group Member Organization	Region*	Segment*

* If more than one Region or Segment applies, please list all that apply.

Regional acronyms are:

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Please return all completed forms via e-mail to sarcomm@nerc.net with the words "Standards Suggestions" in the subject line.

Submission Information

Date: July 6, 2009

Submitted by (Name):	**Organization:**
James H. Sorrels, Jr. *If submitted for a group, please complete the table at the end of this form.	American Electric Power
Phone:	**E-mail:**
(614) 716-2370	jhsorrels@aep.com
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
Standards Committee	
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**
Standards	

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Suggestion or Comment Detail (Complete only those items applicable to your submittal)
Notes: 1. Please be as specific as possible. 2. To the extent possible, please identify the specific element(s) of the standard (e.g. Requirement R1.2 or Section D.1.1 or Measure M1, etc.) each suggestion or comment pertains to. 3. If practical, please provide an example to clearly describe the issue. 4. If possible please provide a suggestion for improving the specific language of a standard to mitigate the issue.
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Standard Number(s):
Standard Title(s):
Element(s) (i.e., Requirement R1.2., Measure M2., etc.):
Suggestion or Comment:
Example:
Recommendation for improvement:
2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan? Yes ☐ No ☐ (If no, skip to the next question.)
Project Number(s):
Project Title(s):
Suggestion or Comment:
Recommendation for improvement:

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)? Yes ☒ No ☐
Reliability Issue: With the addition of increasing volumes of new generation types and the current use of fossil fuel generation characteristicsfor such units, the accuracy of state estimator models are being adversely impacted.
Suggestion or Comment: Establish a Standards Drafting Team to address this reliability concern.
Example: Wind generators do not follow the typical reactive curves attributed to fossil fuel generator units. In fact, some types of wind units do not produce reactive support, while the state estimator model is reflecting that it does produce reactive support. Fossil fuel units produce dynamic reactor capability, while wind generators can be a combination of dynamic and static capability.
Recommendation for improvement: The developed standard, when effective, will improve the accuracy of state estimator models.
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment:
Example:
Recommendation for improvement:
Additional information:
Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

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Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

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Submission Information

Date:	
Submitted by (Name): Laura Lee *If submitted for a group, please complete the table at the end of this form.	**Organization:** Duke Energy
Phone: 704-382-3625	**E-mail:** Laura.Lee@duke-energy.com
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**

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Suggestion or Comment Detail (Complete only those items applicable to your submittal)
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Element(s) (i.e., Requirement R1.2., Measure M2., etc.):
Suggestion or Comment:
Example:
Recommendation for improvement:
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Project Title(s):
Suggestion or Comment:
Recommendation for improvement:

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)? Yes ☐ No ☐
Reliability Issue:
Suggestion or Comment:
Example:
Recommendation for improvement:
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment: #1 There are requirements in standards, and standards themselves, that do not clearly ensure the reliability of the bulk power system. Unnecessary requirements are detrimental to the reliability of the BES because they divert entities' resources from focusing on the core actions that are truly essential to maintaining reliability. In addition, there are so many standards development projects currently active that entities are devoting resources to, the industry has little time to reflect and identify what gaps may exist in the reliability standards or formulate recommendations for eliminating those gaps. The Reliability Standards Development Plan: 2009-2011 does not clearly identify the top few priorities and how the projects in the plan support those priorities. #2 Development of regional standards in parallel with development of a continent wide standard on the same subject results in inefficency. #3 There appear to have been more interpretation requests than were anticipated in the past year, and it is reasonable to expect this trend to continue.There is currently not a process to control the amount of resources that are devoted to developing reliability standards interpretations.
Example:
Recommendation for improvement: #1 Duke advocates pausing non-essential standard development activity in order for NERC to engage the industry in an effort to identify the standards and requirements that are truly essential for maintaining an adequate level of reliability of the BES. This could take the form of a "clean slate" approach, similar to the effort underway prior to development of the version 0 standards to define about 13 core standards, or a stop/start/continue review of the current slate of standards and requirements. The Standards Committee would be a logical lead for this effort, providing directional definition in addition to their process leadership. The result should be a clearly articulated vision of where the reliability standards development efforts need to be applied, a plan to achieve that vision and an explanation of how each project in the plan supports that vision. #2 Regional standard development needs to be more closely coordinated with continent wide standard development. #3 Either more allawance needs to be given in the subsequent Reliability Standards Development Plan for the actual and anticipated increase in reliability standards interpretation requests by defering the commencement of projects that have not been started or the process needs to be streamlined while still

including industry input. A prioritization/classification effort as proposed in recommendation #1 above that resulted in fewer and more focused requirements would have the added benefit of reducing the volume of interpretation requests.
Additional information:

Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Group Members (Names)	Group Member Organization	Region*	Segment*

* If more than one Region or Segment applies, please list all that apply.

Regional acronyms are:

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Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool (SPP)
Texas Regional Entity (TRE)
Western Electricity Coordinating Council (WECC)

Segment numbers are:

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2 — RTOs and ISOs
3 — Load-serving Entities
4 — Transmission-dependent Utilities
5 — Electric Generators
6 — Electricity Brokers, Aggregators, and Marketers
7 — Large Electricity End Users
8 — Small Electricity End Users
9 — Federal, State, Provincial Regulatory or other Government Entities
10 — Regional Reliability Organizations and Regional Entities

July 6, 2009

Submitted by: Michelle Rheault

Phone: 204-487-5445

Email: mdrheault@hydro.mb.ca

Organization: Manitoba Hydro

Over the past few years, there has been a modest improvement in the quality of some reliability standards. Manitoba Hydro would like to encourage NERC to continue its efforts at improving existing standards.

Manitoba Hydro is not satisfied with the Standards Under Development (SUD) 2009-2011 Plan. Many of our comments below mirror those previously provided to NERC from industry participants (Appendix A of the 2009-2011 plan). The fact that comments from previous years have not been addressed seems to indicate that the commenting process is a formality that consumes scarce entity resources with little reward for the effort. Nevertheless, we feel it is important to continue voicing our concerns.

We believe that the three issues outlined below are key to improving the SUD plan.

1. Standard Quality

   Manitoba Hydro feels that standard quality is vital to the reliability of the BES. More standards do not lead to better reliability; rather, this is achieved by fewer high-quality standards that focus on essentials for reliability.

   As per the Standard Development Plan (Volume I, page 8), "Order No. 672 provides guidance on the factors the Commission will consider when determining whether proposed reliability standards meet the statutory criteria." It states that standards must be "clear and unambiguous." We recommend that this guidance be used to develop a method to measure the quality attributes of a standard. This would allow industry and NERC to determine when they are satisfied with a standard and can move on to allocating resources to create new standards. The number of Requests for Interpretation put forth by industry is an indication that there are many standards which are neither clear nor unambiguous.

2. Project Prioritization

   Manitoba Hydro believes that in order to best improve the reliability of the BES, NERC needs to change the way it prioritizes projects.

   New projects are questionable given the greater need to improve the clarity of existing standards that are already auditable. Some proposed projects may be a good idea, but are not an immediate necessity for BES reliability and dilute the resources available to more critical projects. Some examples from the 2009-2011 plan include:

   - Project 2009-04 Phasor Measurement Units
   - Project 2010-01 Support Personnel Training
   - Project 2011-01 Equipment Monitoring and Diagnostic Devices
   - Project 2009-02: Real-time Tools

   Prioritization can be improved by developing a priority ranking tool. The Blackout report is getting stale as a source of priority in a changing environment. In developing the

ranking tool, Manitoba Hydro has several suggestions to improve the prioritization of projects:

- Survey the industry to obtain an indication of the greatest need for the reliability standards. Focus on value added projects where deficiencies clearly exist today.
- Focus on cleaning up existing standards, rather than merging multiple standards, which requires significantly more effort to achieve a "clear and unambiguous" result.
- Limit the number of standards involved in the standards under development process: This type of limit would prevent the plan from using too many resources. Unless there is a high priority for it, new projects should not be added to the plan or started until old projects are finished. As an example, there are still nine projects initiated in 2006 which have not been completed, while limited NERC and industry resources are assigned to the start of 2009 projects.
- Do not create new standards which duplicate what is already found in other standards and only serve to prescribe the method to meet the original requirement. If requirements are clear and unambiguous, any method used by entities to comply with the standards will be appropriate and mitigate risk to the BES.
- Low-priority projects should not be scheduled for future years, but rather put on a to-do list which can be reviewed when resources are available.
- Develop a risk profile for the entirety of NERC Standards. NERC needs a more holistic approach to risk management. While VRFs identify risk for each requirement and are used for enforcement purposes, they do not lend themselves to a "big picture" assessment of risk and comparison of standards on a risk basis. Selecting projects for the current work plan based on the associated risk to the BES is very difficult using the VRFs. The Standards Committee should develop a risk profile that effectively compares standards on a risk basis and facilitates the targeting of activities on those key standards that mitigate the greatest risk to the reliability of the BES.

3. Management of the Plan

Like any project, the Standard Under Development plan must be properly managed. This includes three components as outlined below:

- Resourcing

  There are currently too many projects drawing on limited industry resources for both participation on drafting teams as well as commenting and voting on standards under development. An excessive number of projects may result in industry fatigue in the standards development process. If fewer requests for comments were sent out, the quality of the feedback received would be higher, which would lead to better quality standards.

  The SUD Plan must reflect the need for resources to focus on interpretation requests which come up during the year. The number of interpretations will not decrease until existing standards are updated to improve clarity and measures of compliance. Hence, this should be the focus of activities in the short term.

- Cost

  NERC should publish the cost of the SUD program implementation, so that industry can weigh the benefits of new projects versus the cost of implementing them.

- Metrics

  There is a need for metrics to evaluate the standards development process in order to understand how long it takes to complete a project and how many can be completed per year in order to better plan future work. Past performance is an indication of future performance; therefore, plans should not encompass more work than has been shown to be completed in the past. For example, only one project identified in the 2008-2010 plan has been completed, but four projects have been added. The concern is that as more projects are added than completed, the plan will become unachievable and projects that actually improve reliability will not be completed.

  These metrics should be published in the Standards Development Plan in an easy to understand format (tables, graphs, etc) to demonstrate what is achieved from year to year and predict what is achievable for future years. Possible metrics include:

  - Number of projects completed each year
  - Number of projects added each year
  - Number of projects failed/withdrawn each year
  - Number of projects rescheduled to future years
  - Average time to complete a project
  - Number of new requests for interpretations each year
  - Summary of what phase the projects are at (i.e. percent started, percent voted on, percent waiting for BOT approval, etc)

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A link to the current version of the Reliability Standards Development Plan can be found on NERC's standards Web page.

Please return all completed forms via e-mail to sarcomm@nerc.net with the words "Standards Suggestions" in the subject line.

Submission Information

Date: July 2, 2009

Submitted by (Name):	**Organization:**
Standards Review Subcommittee *If submitted for a group, please complete the table at the end of this form.	North American Energy Standards Board
Phone:	**E-mail:**
713-356-0060	naesb@naesb.org
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**

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Suggestion or Comment Detail
(Complete only those items applicable to your submittal)

Notes:

1. Please be as specific as possible.
2. To the extent possible, please identify the specific element(s) of the standard (e.g. Requirement R1.2 or Section D.1.1 or Measure M1, etc.) each suggestion or comment pertains to.
3. If practical, please provide an example to clearly describe the issue.
4. If possible please provide a suggestion for improving the specific language of a standard to mitigate the issue.

1. Does this suggestion or comment address an existing standard?

   Yes ☐ No ☐ (If no, skip to the next question.)

Standard Number(s):

Standard Title(s):

Element(s) (i.e., Requirement R1.2., Measure M2., etc.):

Suggestion or Comment:

Example:

Recommendation for improvement:

2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan?

   Yes ☒ No ☐ (If no, skip to the next question.)

Project Number(s): See Below

Project Title(s): See Below

Suggestion or Comment:

2006-07 Transfer Capabilities - (ATC, TTC, CBM, TRM)

Comment - NAESB completed its original work under FERC Order 890 for ATC, TTC, CBM, and TRM, which was coordinated with NERC. In the NERC NOPR related to this project there was the identification of potential for additional work. NAESB requests that NERC continue to coordinate and notify NAESB if there are any addition changes to the NERC standards affected under this project which could have an impact on the NAESB Business Practice Standards.

A potential area of additional coordination between the NERC drafting team and NAESB's WEQ ESS/ITS may arise in the handling of designation and undesignation of network resources under NAESB WEQ 2009 Annual Plan item 3.a.i "Group 3: Network Service On OASIS." The ESS/ITS is developing business practice standards for Network Service on OASIS, that include OASIS formats and

requirements for capturing information on designation and undesignation of network resources. The information captured in the NAESB standards may provide useful data for inter-BA communication of resource allocations.

2006-08 Transmission Loading Relief

Comment - This project has ongoing coordination with NAESB since it directly impact the NAESB Business Practice Standard WEQ-008 (Transmission Loading Relief - Eastern Interconnection). NAESB expects this coordination will continue as the project moves forward.

2007- 05 Balancing Authority Control

This project is currently being coordindated with the NAESB Time and Inadvertent Management Task Force. Changes to the NERC standards may have an impact on the NAESB Business Practice Standards WEQ-006 (Time Error Correction) and WEQ-007 (Inadvertent Interchange Payback). We request that the Reliability Standards Development Plan continue to reflect that the project be coordinated with NAESB and reference the NAESB WEQ 2009 Annual Plan Items:

1.d Time Error and Indavertent (BAL-004 and BAL-006) Coordination with NERC

1.e DCS and AGC (BAL-002 and BAL-005) Coordination with NERC

2007-18 Reliability Based Controls

Comment - The Joint Interchange Scheduling Working Group in first quarter 2009 reviewed EOP-002 and determined that there should be some level of coordination between NERC and NAESB. As a result of this review the NAESB WEQ 2009 Annual Plan item (3.a.viii) "Review and correct WEQ-004 Coordinate Interchange Business Practice Standard as needed based on activities in NERC Project 2008-12, Coordinate Interchange Standards Revisions and supporting EOP-002-2 R4 and R6" was added. We request that this project reference that coordination between NERC and NAESB needs to occur and the cross reference to the NAESB WEQ 2009 Annual Plan item be added in the 2010-2012 Reliability Standards Development Plan.

2008-12 Coordinate Interchange

Comment - The Joint Interchange Scheduling Working Group in first quarter 2009 reviewed EOP-002 and determined that there should be some level of coordination between NERC and NAESB. As a result of this review the NAESB WEQ 2009 Annual Plan item (3.a.viii) "Review and correct WEQ-004 Coordinate Interchange Business Practice Standard as needed based on activities in NERC Project 2008-12, Coordinate Interchange Standards Revisions and supporting EOP-002-2 R4 and R6" was added. We request that this project reference that coordination between NERC and NAESB needs to occur and the cross reference to the NAESB WEQ 2009 Annual Plan item be included in the 2010-2012 Reliability Standards Development Plan.

2009-03 Emergency Operations

Comment - This project indicates that it will affect EOP-002-2. As a result of the Joint Interchange Scheduling Working Group's review of EOP-002-2 R4 and R6 and the issues noted in the project could affect R6 this project should be coordinated with NAESB and reference the NAESB WEQ 2009 Annual Plan item (3.a.viii) "Review and correct WEQ-004 Coordinate Interchange Business Practice Standard as needed based on activities in NERC Project 2008-12, Coordinate Interchange Standards Revisions and

supporting EOP-002-2 R4 and R6."

2009-05 Resource Adequacy

Comment - NAESB created Provisional Item 1 "Develop and or modify business practices related to support of NERC effort on the NERC Resources and Transmission Adequacy (Project 2009-05 Resource Adequacy Assessment)" in its NAESB WEQ 2009 Annual Plan. We are requesting that this project be noted as one which may require coordination with NAESB.

Recommendation for improvement:

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)? Yes ☒ No ☐
Reliability Issue: Gas/Electric Coordination
Suggestion or Comment: Coordinate with NAESB to determine if some or all of the requirements contained in the NAESB Business Practice Standards WEQ-011 (Gas/Electric Coordination) should be transitioned to NERC.
Example: Refer to WEQ-011-1.3 through WEQ-011-1.6
Recommendation for improvement: The WEQ-011 was developed so that entities received critical notices from gas Transportation Service Providers, such that the Power Plant Operators were notified of material changes in circumstances that may impact hourly flow rates. The ISO/RTOS and/or BAs, and/or Power Plant Operators are to develop procedures when extreme conditions occur. These NAESB standards appear to be of a reliability nature rather than commercial. NERC and NAESB should review the standards to determine if all or part of WEQ-011 should be transitioned to NERC.
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment:
Example:
Recommendation for improvement:
Additional information:
Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

Group Comments (Complete this page if comments are from a group.)

Group Name: NAESB Standards Review Subcommittee

Lead Contact: Ed Skiba

Contact Organization: Midwest ISO

Contact Segment: ISOs/RTOs

Contact Telephone: 317-249-5377

Contact E-mail: Eskiba@midwestiso.org

Group Members (Names)	Group Member Organization	Region*	Segment*
Ed Skiba	Midwest ISO		
Narinder Saini	Entergy		

* If more than one Region or Segment applies, please list all that apply.
Regional acronyms are:

Florida Reliability Coordinating Council (FRCC)
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Please return all completed forms via e-mail to sarcomm@nerc.net with the words "Standards Suggestions" in the subject line.

Submission Information

Date:	
Submitted by (Name): Regional Reliability Standards Working Group (RRSWG) *If submitted for a group, please complete the table at the end of this form.	**Organization:** NERC, RFC, MRO, WECC, NPCC, SPP, TRE, SERC, FRCC
Phone: 610.608.8084	**E-mail:** stephanie.monzon@nerc.net
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**

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Suggestion or Comment Detail (Complete only those items applicable to your submittal)
Notes: 1. Please be as specific as possible. 2. To the extent possible, please identify the specific element(s) of the standard (e.g. Requirement R1.2 or Section D.1.1 or Measure M1, etc.) each suggestion or comment pertains to. 3. If practical, please provide an example to clearly describe the issue. 4. If possible please provide a suggestion for improving the specific language of a standard to mitigate the issue.
1. Does this suggestion or comment address an existing standard? Yes ☐ No ☒ (If no, skip to the next question.)
Standard Number(s):
Standard Title(s):
Element(s) (i.e., Requirement R1.2., Measure M2., etc.):
Suggestion or Comment:
Example:
Recommendation for improvement:
2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan? Yes ☐ No ☒ (If no, skip to the next question.)
Project Number(s):
Project Title(s):
Suggestion or Comment:
Recommendation for improvement:

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)? Yes ☒ No ☐
Reliability Issue:
Suggestion or Comment: - The process for updating the NERC Workplan should begin with industry input prior to posting the workplan. The current process posts the existing, approved version of the work plan to solicit industry input. Instead, NERC staff should conduct an industry webinar to collect initial thoughts followed by a posting of the revised version of the workplan. - A status of the existing approved projects in the workplan should be provided as reference material to the industry either during the webinar or before the posting to faciliate the commenting process. The status of the existing projects will provide the industry with an understanding of how many projects are still open, nearing completion, or completed. - In 2006 the RRSWG assisted in the development of the original Work Plan by performing a sweeping assessment of the "fill in the blank" standards. It provided as input to the Plan recommendations on how the "fill in the blank" characteristics could be eliminated by modifying then existing standards and set forth the possibility of the need for stand-alone regional standards or regional standards in support of continent wide standards. Since that time the UFLS and DM SDTs have been formed and posted at least one draft of the respective standards. Both drafting teams are proposing continent wide requirements/ standards in these subject areas. Given the evolution of standards development the original RRSWG recommendations should be deleted from the Work Plan. Regarding the remaining fill in the blank standards (SPS and BAL) the NERC standards projects are either in the infancy stages of development or have not commenced. The RRSWG recommendations to create regional standards in these areas should be considered "on hold" until the drafting efforts have matured and a technical determination can be made for the need of regional standards that includes consideration by the Regions and NERC.
Example:
Recommendation for improvement: - Conduct a webinar or other similar activity to get initial suggestions for the next version of the workplan instead of posting the existing version of the workplan. This should be followed by the first posting of a revised workplan. - Provide the industry with a status of the existing projects in the work plan - Remove the RRSWG recommendations for the UFLS and DME standards and place "on hold" the recommendations for SPS and BAL fill in the blank standards.
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment:
Example:
Recommendation for improvement:

Additional information:

Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

Group Comments (Complete this page if comments are from a group.)	
Group Name:	Regional Reliability Standards Working Group
Lead Contact:	Stephanie Monzon
Contact Organization:	NERC
Contact Segment:	
Contact Telephone:	
Contact E-mail:	stephanie.monzon@nerc.net

Group Members (Names)	Group Member Organization	Region*	Segment*
Stephanie Monzon	NERC		
Bob Millard	RFC		
Peter Heidrich	FRCC		
Judith James	TRE		
Guy Zito	NPCC		
Pat Huntley	SERC		
Ken Wilson	WECC		
Charles Yeung	SPP		
Carol Gerou	MRO		

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Submission Information

Date: 7/6/09

Submitted by (Name):	**Organization:**
Wayne Pourciau *If submitted for a group, please complete the table at the end of this form.	Georgia System Operations Corp.
Phone:	**E-mail:**
770-270-7118	wayne.pourciau@gasoc.com
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**

Suggestion or Comment Detail (Complete only those items applicable to your submittal)
Notes: 1. Please be as specific as possible. 2. To the extent possible, please identify the specific element(s) of the standard (e.g. Requirement R1.2 or Section D.1.1 or Measure M1, etc.) each suggestion or comment pertains to. 3. If practical, please provide an example to clearly describe the issue. 4. If possible please provide a suggestion for improving the specific language of a standard to mitigate the issue.
1. Does this suggestion or comment address an existing standard? Yes ☐ No ☐ (If no, skip to the next question.)
Standard Number(s):
Standard Title(s):
Element(s) (i.e., Requirement R1.2., Measure M2., etc.):
Suggestion or Comment:
Example:
Recommendation for improvement:
2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan? Yes ☐ No ☐ (If no, skip to the next question.)
Project Number(s):
Project Title(s):
Suggestion or Comment:
Recommendation for improvement:

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)?

Yes ☒ No ☐

Reliability Issue: Interfering with compliance and enforcement of requirements essential for reliability

Suggestion or Comment: There are a number of requirements that are not essential to the reliability of the bulk power system (e.g., needed to prevent cascading outages). These requirements interfer with compliance by reliability entities with requirements essential to reliability and interfer with compliance enforcement by regional entities of those essential requirements. There is a need to place primary focus on the essential requirements. Reporting and other lesser requirements should be a secondary focus and only as long as they do not take away the focus on the essential requirements.

Example: BAL-006-1, R5: "Adjacent Balancing Authorities that cannot mutually agree upon their respective Net Actual Interchange or Net Scheduled Interchange quantities by the 15th calendar day of the following month shall, for the purposes of dispute resolution, submit a REPORT to their respective Regional Reliability Organization Survey Contact. The REPORT shall describe the nature and the cause of the dispute as well as a process for correcting the discrepancy."

This reporting is not a reliability requirement. A reliability requirement is one that focuses on operating the elements of the BES within system thermal, voltage, and stability limits so that instability, uncontrolled separation, or cascading failures of such system will not occur as a result of a sudden disturbance or unanticipated failure of system elements. A reliability requirement deals with the operation and maintenance of BES facilities and the design of planned additions or modifications to such facilities to the extent necessary to provide for reliable operation of the BES. The example above is an administrative requirement. It does not deal with current or future operation of the BES.

The reporting requirements of EOP-004, other than those relating to physical and cyber threats and attacks, are some more examples. These deal with information on past events (water under the bridge) and do not deal with operating the BES. This reporting is needed by NERC to investigate incidents, collect statistics on incidents, and other purposes relating to overseeing reliability (but such reporting is not needed for operating the BES).

Another example is TOP-005-1.1, R2 "As a condition of receiving data from the Interregional Security Network (ISN), each ISN data recipient shall sign the NERC Confidentiality Agreement for “Electric System Reliability Data.” " This is not a reliability requirement.

Recommendation for improvement: Review all existing FERC approved Reliability Standards to eliminate Reliability Standards that are not essential to the reliability of the bulk power system (e.g., needed to prevent cascading outages). Reduce less significant Reliability Standards to a lesser category, such as operating guides, policies or criteria and remove documentation related requirements from the requirements of Reliability Standards. Move documentation related requirements to compliance measures or some other component of the Reliability Standards. This is a high priority along with eliminating duplicative requirements, making existing requirements more clear, and securing the nation's electric system from attacks.

Although the reliability of the electric system in the United States and Canada is one of the most (if not THE most) reliable system in the world, it is always good to keep improving. However, NERC projects aimed at adding requirements to try to improve the reliability of the system are a lower priority at this time than the high priorities listed above. Fixing the existing standards is the best way to improve reliability and improve the monitoring and enforcement of the essential requirements. Adding more

requirements to try to improve reliability should be pursued only as time and available resources allow.
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment:
Example:
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Additional information:
Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

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9 — Federal, State, Provincial Regulatory or other Government Entities
10 — Regional Reliability Organizations and Regional Entities

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Reliability Standards Suggestions and Comments

Introduction

NERC welcomes suggestions and comments targeted at improving the reliability of the bulk power system through improved reliability standards. Please use this form to submit your suggestions and/or comments related to NERC's Reliability Standards or Reliability Standards Development Plan. NERC will consider all suggestions and comments received and will incorporate the ideas submitted into a future standards development project or a future revision of the Reliability Standards Develop Plan, as appropriate.

A link to the current version of the Reliability Standards Development Plan can be found on NERC's standards Web page.

Please return all completed forms via e-mail to sarcomm@nerc.net with the words "Standards Suggestions" in the subject line.

Submission Information

Date: March 17, 2009

Submitted by (Name):	**Organization:**
Pat Huntley for SERC EC PSS *If submitted for a group, please complete the table at the end of this form.	SERC Reliability Corp.
Phone:	**E-mail:**
(704) 940-8228	phuntley@serc1.org
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**

Suggestion or Comment Detail (Complete only those items applicable to your submittal)
Notes: 1. Please be as specific as possible. 2. To the extent possible, please identify the specific element(s) of the standard (e.g. Requirement R1.2 or Section D.1.1 or Measure M1, etc.) each suggestion or comment pertains to. 3. If practical, please provide an example to clearly describe the issue. 4. If possible please provide a suggestion for improving the specific language of a standard to mitigate the issue.
1. Does this suggestion or comment address an existing standard? Yes ☒ No ☐ (If no, skip to the next question.)
Standard Number(s): FAC-001-0
Standard Title(s): Facility Connection Requirements
Element(s) (i.e., Requirement R1.2., Measure M2., etc.): R1.3. End-user facilities
Suggestion or Comment: add a definition of “end user” to the NERC Glossary
Example:
Recommendation for improvement:
2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan? Yes ☒ No ☐ (If no, skip to the next question.)
Project Number(s): 2010-02
Project Title(s): Connecting New Facilities to the Grid
Suggestion or Comment: see above
Recommendation for improvement:

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)? Yes ☐ No ☒
Reliability Issue:
Suggestion or Comment: see above
Example:
Recommendation for improvement:
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment: see above
Example:
Recommendation for improvement:
Additional information: The recommendation was received as part of the comments on Question 3 of the comments form for the "Draft Revision 6 of the SERC Facility Connection Requirements (FCR) Guideline".
Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

Group Comments (Complete this page if comments are from a group.)

Group Name:	SERC EC Planning Standards Subcommittee (PSS)
Lead Contact:	Phillip R. Kleckley
Contact Organization:	South Carolina Electric & Gas
Contact Segment:	3
Contact Telephone:	(803) 217-2045
Contact E-mail:	pkleckley@scana.com

Group Members (Names)	Group Member Organization	Region*	Segment*
John Sullivan	Ameren	SERC	1
Charles Long	Entergy	SERC	1
Scott Goodwin	Midwest ISO	SERC	2
Pat Huntley	SERC Reliability Corp	SERC	10
Bob Jones	Southern Co. Services	SERC	1
David Marler	TVA	SERC	1

* If more than one Region or Segment applies, please list all that apply.
Regional acronyms are:

Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool (SPP)
Texas Regional Entity (TRE)
Western Electricity Coordinating Council (WECC)

Segment numbers are:
1 — Transmission Owners
2 — RTOs and ISOs
3 — Load-serving Entities
4 — Transmission-dependent Utilities
5 — Electric Generators
6 — Electricity Brokers, Aggregators, and Marketers
7 — Large Electricity End Users
8 — Small Electricity End Users
9 — Federal, State, Provincial Regulatory or other Government Entities
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Reliability Standards Suggestions and Comments

Introduction

NERC welcomes suggestions and comments targeted at improving the reliability of the bulk power system through improved reliability standards. Please use this form to submit your suggestions and/or comments related to NERC's Reliability Standards or Reliability Standards Development Plan. NERC will consider all suggestions and comments received and will incorporate the ideas submitted into a future standards development project or a future revision of the Reliability Standards Develop Plan, as appropriate.

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Please return all completed forms via e-mail to sarcomm@nerc.net with the words "Standards Suggestions" in the subject line.

Submission Information

Date: January 23, 2009

Submitted by (Name):	**Organization:**
Wayne E. Guthrie *If submitted for a group, please complete the table at the end of this form.	Construction Specialty Services, Inc. & Critical Systems, LLC
Phone:	**E-mail:**
502-231-2402 or cell 502-523-2731	wguthrie@cssi.win.net
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
None	N/A
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**
None	N/A

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Suggestion or Comment Detail (Complete only those items applicable to your submittal)
Notes: 1. Please be as specific as possible. 2. To the extent possible, please identify the specific element(s) of the standard (e.g. Requirement R1.2 or Section D.1.1 or Measure M1, etc.) each suggestion or comment pertains to. 3. If practical, please provide an example to clearly describe the issue. 4. If possible please provide a suggestion for improving the specific language of a standard to mitigate the issue.
1. Does this suggestion or comment address an existing standard? Yes ☐ No ☒ (If no, skip to the next question.)
Standard Number(s): NFPA-850
Standard Title(s): "Recommended Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations"
Element(s) (i.e., Requirement R1.2., Measure M2., etc.):
Suggestion or Comment: My comments refer to an existing group of recommendations that have not been adopted by NERC
Example: One Example is NFPA-850
Recommendation for improvement: NOTE: the above does not refer to a specific existing standard already adopted by NERC. It refers to a recommendation published by NFPA as a guidance to a utility entity.
2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan? Yes ☐ No ☒ (If no, skip to the next question.)
Project Number(s):
Project Title(s):
Suggestion or Comment:
Recommendation for improvement:

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)? Yes ☒ No ☐
Reliability Issue: Physical fire and blast protection of electrical transformers and other essential equipment, buildings and people located in power generation, transmission or distribution system locations.
Suggestion or Comment: Adopt a NFPA-850, which is a recommended fire protection practice for the power generation industry.
Example: If there is a catasthrophic failure of a transformer it can shut down a site for an indefinite period of time for repairs or replacement of equipment and facility. In the US there exists an aging fleet of transformers that are becoming more unreliable everyday because of age and lack of maintenance. In addition, many power companies build new facilities without thought to protection of their assets. As an example, it requires between 24 and 48 months to receive a new replacement transformer, if it fails beyond repair. In addition, placing fire & blast rated barriers between transformers and also have in place a functioning transformer oil collection and containment system in accordance with FM Global recommendations can mean the difference between a single transformer failure incident and a catasthrophic incident. There are also issues with where the generation transformers sit relative to the turbine building, that if a fire and or fire and blast event initiated could potentially preclude population of the building and control room in order to shut down the unit (s).
Recommendation for improvement: Consider adopting existing standards of performance so that a committee would not have to be formed to write something that already exists.
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment: NERC may want to consider inviting professionals involved in the fire and blast protection engineering and assessments fields to assist in development of standards of performance or protection in accordance with readily obtainable existing recommendations, standards and codes.
Example: Go to NFPA and ask for assistance or I could put NERC in contact with individuals that could place NERC in contact.
Recommendation for improvement: As I understand the only reference to physical protection is that NERC states that utility entities are obligated to physically protect critical equipment and is not specific in reference to the measures that should be considered to improve or provide protection. Unfortunately in the utility industry many companies have eliminated or otherwise do not possess within their ranks individuals educated in the realm of physical fire and blast protection methodologies that exist, or even have the knowledge base to self assess and identify the potential need for protection.
Additional information: If further information or discussion is required, please contact the writer
Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

Group Comments (Complete this page if comments are from a group.)	
Group Name:	Construction Specialty Services, Inc. & Critical Systems, LLC
Lead Contact:	Wayne E. Guthrie
Contact Organization:	See above
Contact Segment:	Industry Provider
Contact Telephone:	502-231-2402
Contact E-mail:	wguthrie@cssi.win.net

Group Members (Names)	Group Member Organization	Region*	Segment*

* If more than one Region or Segment applies, please list all that apply.
Regional acronyms are:

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NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Standards Announcement:

Comment Period Open: Reliability Standards Development Plan 2010-2012

August 28–September 28, 2009

Reliability Standards Development Plan 2010-2012 Available at:
http://www.nerc.com/page.php?cid=2|247|290

Comment Form Available at:
http://www.nerc.com/files/Standards_Input_Form_Final_2008June30.doc

NERC is seeking comments on the current draft of the *Reliability Standards Development Plan: 2010-2012*. Comments relative, but not limited, to the following issues are of particular interest to NERC:

- Perceived gaps in NERC Reliability Standards and recommendations for eliminating the perceived gaps
- Prioritization (as implied by the timing of the projects) of the projects included in the plan and recommendations for adjusting the timing of individual projects
- Potential future projects for addressing changes in or development of new reliability standards

To submit comments about the plan or NERC standards in general, please e-mail a completed copy of the Reliability Standards Suggestions and Comments form to sarcomm@nerc.net with the words "**Development Plan**" in the subject line. The deadline for this comment period is **September 28, 2009.**

Contact: David Taylor, NERC, david.taylor@nerc.net.

Schedule:

A Webinar to present the information contained in the posted plan will be held on or about September 17 (watch for a future announcement for the Webinar). Based on the comments received during this comment period, the plan will be revised and presented to the NERC Standards Committee for approval in October and to the NERC Board of Trustees for approval in November. The revised *Reliability Standards Development Plan: 2010-2012* will be filed with applicable regulatory authorities by the end of 2009.

Background:

The overall objective of the plan is to ensure the reliability of the Bulk Electric System through improved reliability standards. Each project listed in the plan will be assigned a drafting team, which will be responsible for performing a thorough review and improvement of the standards associated with the project, including:

- Revising the reliability objective, title, and purpose statement of the standards for clarity
- Revising the applicability section of the standards to add specifications for entities, facilities, and responsibilities and integrate functional model changes
- Improving the wording of requirements and measures in the standards
- Refining the compliance elements of the standards

Standards Development Process

The Reliability Standards Development Procedure contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate.

For more information or assistance,
please contact Shaun Streeter at shaun.streeter@nerc.net or at 609.452.8060.

NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Reliability Standards Development Plan: 2010–2012

Volume I — Overview

to ensure the reliability of the bulk power system

August 28, 2009

116-390 Village Blvd., Princeton, NJ 08540
609.452.8060 | 609.452.9550 fax
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Acknowledgement

The NERC Reliability Standards Program would like to thank all the individuals who invest their time and expertise in the development of NERC Reliability Standards and in the annual revision of this *Reliability Standards Development Plan*. The plan reflects comments and input from stakeholders, staff, the NERC technical community, and government agencies with oversight for electric reliability. Through collaboration and industry consensus, we expect to develop NERC Reliability Standards that are technically accurate, clear, enforceable, and provide an adequate level of reliability for the North American bulk power system.

Table of Contents

Volume I: Overview

Volume II: Project Descriptions (provided separately)

Volume III: Regional Reliability Standards Projects (provided separately)

Introduction

Purpose

The North American Electric Reliability Corporation (NERC) is committed to developing reliability standards that deliver an Adequate Level of Reliability for the bulk power system. The NERC *Reliability Standards Development Plan* serves as the foundation for reliability standards development efforts. The plan serves as the management tool that guides, prioritizes, and coordinates revision or retirement of existing reliability standards and the development of new reliability standards for the immediate 3-year time horizon.

The initial 3-year plan was developed in 2006 and has been updated annually. The initial plan focused primarily on modifications to NERC's initial set of Version 0 Reliability Standards. Beginning in 2007, the plan's focus was expanded to proactively identify projects needed to address reliability gaps. While the initial plan was developed by the NERC Standards Program staff, beginning in 2007 Standards made a concerted effort to seek input from the other program areas within NERC, as well as from NERC's technical committees and industry groups, on the need for and prioritization of new or revised reliability standards.

The objectives of the plan include:

- Addressing remaining recommendations for new or revised reliability standards resulting from the investigation of the August 14, 2003 blackout.
- Addressing comments from industry, the Federal Energy Regulatory Commission (FERC), and others suggesting improvements to each reliability standard, including those comments received from industry stakeholders during public comment periods.
- Addressing quality issues to ensure each reliability standard has a clear statement of purpose, and has outcome-focused requirements that are clear and measurable.
- Ensuring measures and compliance elements are aligned to support the requirements within the reliability standards and follow definitions outlined in the reliability standards template.
- Reorganizing the reliability standards based on topic.
- Eliminating requirements that do not have an impact on bulk power system reliability; retiring redundant requirements; retiring or converting (into guidelines) lower-level "facilitating" requirements that are already measured through compliance with higher-level requirements; and moving basic "capability" requirements that are routinely used for the certification processes.
- Addressing other proposals for new reliability standards.
- Improving reliability standard requirements by incorporating approved interpretations.
- Incorporating feedback from other NERC program areas such as compliance monitoring and enforcement, reliability assessments, and event analysis.
- Identifying other issues and variables that may require additional reliability standard development activities in the Reliability Standards Development Plan timeframe.
- Satisfying the requirement for a five-year review of all reliability standards.

- Addressing the "fill-in-the-blank" reliability standards.

Developing excellent reliability standards is a long-term effort. This plan best supports the effort in that it is flexible and can be continuously adapted to circumstances and changing priorities, as demonstrated in this revision of the plan. The plan will be reviewed and maintained by the NERC Standards Committee and NERC standards program staff, and will be updated on an annual basis, or more frequently if necessary.

Summary

This revised *Reliability Standards Development Plan: 2010-2012* identifies a total of 36 continent-wide standards development projects. These projects are:

Projects initiated in 2006:
2006-02 Assess Transmission Future Needs
2006-04 Backup Facilities
2006-06 Reliability Coordination
2006-08 Transmission Loading Relief

Projects initiated in 2007:
2007-01 Underfrequency Load Shedding
2007-02 Operating Personnel Communications Protocols
2007-03 Real-time Operations
2007-04 Certifying System Operators
2007-05 Balancing Authority Controls
2007-06 System Protection Coordination
2007-07 Vegetation Management
2007-09 Generator Verification
2007-11 Disturbance Monitoring
2007-12 Frequency Response
2007-17 Protection System Maintenance and Testing
2007-18 Reliability-based Control

Projects initiated in 2008:
2008-01 Voltage and Reactive Control
2008-02 Undervoltage Load Shedding
2008-06 Cyber Security — Order 706
2008-12 Coordinate Interchange Standards

Projects initiated in 2009:
2009-01 Disturbance and Sabotage Reporting
2009-02 Real-time Tools
2009-03 Emergency Operations
2009-04 Phasor Measurements Units
2009-05 Resource Adequacy Assessments
2009-06 Facility Ratings
2009-07 Reliability of Protection Systems
2009-18 Withdraw Three Midwest ISO Waivers

Projects anticipated commencing in 2010:
2010-01 Support Personnel Training
2010-02 Connecting New Facilities to the Grid
2010-03 Modeling Data
2010-04 Demand Data
2010-05 Protection Systems
2010-06 Performance-based Reliability Standards

Projects anticipated commencing in 2011:
- None -

Projects anticipated commencing in 2012:
2012-01 Equipment Monitoring and Diagnostic Devices
2012-02 Physical Protection

Projects within this Plan:

The number of projects proposed in this plan decreased to 36 from the 39 listed in the 2009-2011 version of the plan. The following seven projects identified in the 2009-2011 plan have been completed and removed from this revised plan:

Projects initiated in 2006:
2006-01 System Personnel Training
2006-03 System Restoration and Blackstart
2006-07 Transfer Capabilities: ATC, TTC, CBM, and TRM
2006-09 Facility Ratings

Projects initiated in 2007:
2007-14 Permanent Changes to CI Timing Table
2007-23 Violation Severity Levels

Projects initiated in 2008:
2008-08 EOP Violation Severity Levels Revisions

Project 2008-05 Credible Multiple Element Contingencies which was identified in the 2009-2011 plan was removed from this revised plan as the requester of the Standard Authorization Request (SAR) for the project withdrew the SAR from further development and consideration by the industry.

The following five projects are new to the Reliability Standards Development Plan:

Projects initiated in 2009:
2009-06 Facility Ratings
2009-07 Reliability of Protection Systems
2009-18 Withdraw Three Midwest ISO Waivers

Projects anticipated commencing in 2010:
2010-06 Performance-based Reliability Standards

Projects anticipated commencing in 2012:
2012-02 Physical Protection

To summarize, the *Reliability Standards Development Plan: 2009-2011* identified a total of 39 continent-wide standards development projects. Seven of those 39 projects have been completed and one was withdrawn leaving 31 currently active projects from the 2009-2011 plan. Five new projects have been added to the 2010-2012 plan bringing to a total of 36 continent-wide standards development projects in this Reliability Standards Development Plan: 2010-2012.

Focus on Impact to Reliability

As part of the process employed in 2009 for revising the *Reliability Standards Development Plan*, NERC staff reached out to all stakeholders and asked for input on the plan. Similar to the last two years, several stakeholders indicated a concern that too many projects were under development concurrently which is stretching the industry resources available to work on standards development to their limits. They recommended that the work plan focus industry resources on the projects having the greatest impact on reliability in the near-term, while deferring those of less immediate reliability benefit.

In addition, during the development of NERC's Three-year Assessment several stakeholders recommended that the industry should focus existing reliability standards and reliability standards development on areas that will lead to the greatest improvement in bulk power system reliability. Suggestions included: (1) focus the development of new reliability standards on those that will lead to the greatest improvement in reliability; i.e., address the greatest risks of wide-area cascading outages; (2) reduce the number of existing reliability standards to just those that have a critical impact on reliability of the bulk power system and convert the remaining reliability standards to guidelines; and (3) develop a more systematic process for prioritizing new reliability standards development projects based on risks to the bulk power system.

Accordingly, this version of the plan establishes a new project (Project 2010-06 Performance-based Reliability Standards) for improving the set of NERC reliability standards to be more focused on reliability performance. This version of the plan also realigns one project from 2011

to 2012 (Project 2011-01 Equipment Monitoring and Diagnostic Devices was moved to 2012 as 2012-01 Equipment Monitoring and Diagnostic Devices thus removing the proposed initiation of any project in 2011) in order to ensure NERC and industry resources are available to devote the needed level of expertise to Project 2010-06 Performance-based Reliability Standards.

Fill-in-the-blank Standards

The phrase "fill-in-the-blank" standards have been coined to refer to those standards that require a bulk power system user, owner, or operator to follow regional criteria that are not part of a NERC Reliability Standard. The practice of using "fill-in-the-blank" standards was acceptable historically when standards were voluntary, but not with standards that are mandatory and enforceable under statutory authority.

NERC recognized this issue early in the process of developing its application to become the ERO. NERC formed and staffed a program to coordinate the development of regional standards and to address the "fill-in-the-blank" issue. A team with representation from each region was formed and reviewed these particular standards to prepare recommendations for a course of action. The action plans and schedules to resolve each "fill-in-the-blank" standard were provided in Volume III of the original 2007-2009 plan and has been wholly incorporated into the projects identified in Volume II of each of the succeeding work plans.

The previously identified 24 fill-in-the-blank standards are currently in various stages of development. Eight of the 24 have already been filed with the Commission for approval: MOD-001-0, MOD-002-0, MOD-003-0, MOD-004-0, MOD-005-0, MOD-008-0, MOD-009-0, and FAC-012-1.Two standards, EOP-007-0 and PRC-002-1, are expected to be completed by year end or shortly thereafter. Four standards, MOD-024-1, MOD-025-1, TPL-005-0, TPL-006-0, are expected to be completed within the first quarter of 2010. The remaining ten standards, MOD-011-0, MOD-013-1, MOD-014-0, MOD-015-0, PRC-002-1, PRC-003-1, PRC-012-0, PRC-013-0, PRC-014-0 and PRC-020-1, are expected to be revised in projects to either begin in 2010 or be completed after 2010.

With regard to the remaining ten standards, the issues remain that certain requirements require the regional reliability organizations to develop criteria for use by users, owners, or operators within the region. The FERC staff preliminary assessment recognized that the fill-in-the-blank standards raise two principal concerns: (i) some are not enforceable against users, owners, and operators of the Bulk-Power System, but rather only provide broad direction to regional reliability organizations, and (ii) the specific implementing standards adopted by the regional reliability organizations have not undergone an approval process under section 215 and, thus cannot be enforced by the Commission or the ERO.

While the *Reliability Standards Development Plan* includes a plan to address the remaining ten fill-in-the-blank standards in various standards projects as stated above, these projects will be addressed sometime in the future and in some cases the projects to do so will not be initiated until 2010. As a result, NERC staff is working with staff representing each of the Regional Entities to developing a plan to address the issues with the fill-in-the-blank standards with the ten remaining standards in the interim prior to the completion of the continent-wide revision of the standards. The interim plan will not replace the projects already identified in Volume II of this

plans but rather will propose a solution to address the shortcomings of the existing fill in the blank standards until the continent-wide revision of the standards can take place. It is anticipated that the interim plan will involve the use the standards development process in order that industry stakeholders will be able to participate in the process as it evolves.

Priority of Projects

All currently active projects have already been deemed to be a high priority project as a prerequisite for initiation. Once initiated it is the role of the industry-based standard drafting team working with the assigned NERC Standards Development Coordinator to ensure the project is completed in a timely fashion.

With respect to the priority for initiating the future standards development projects identified in the *Reliability Standards Development Plan*, the NERC Standards Committee, comprised of industry representatives, assists NERC staff in prioritizing the initiation of these projects. Among other things, the Standards Committee ensures that each standard drafting team has the technical resources and capabilities required to develop technically sound standards that will gain industry support and whether SARs submitted by interested persons and entities should be pursued for development.

With respect to the specific projects identified in this plan, the projects anticipated to be started in 2010 are the next highest priority set of projects. Each will be initiated in 2010 as determined by the NERC Standards Committee in coordination with NERC staff:

- 2010-01 Support Personnel Training is a priority project as it was proposed in support of a blackout recommendation.
- The following projects all involve the first set of revisions to the associated standards. All of the associated standards were initially approved as part of the "Version 0" standards and all are required to be reviewed in 2010 pursuant to NERC's ERO Rules of Procedure which state in part "each reliability standard shall be reviewed at least once every five years from the effective date of the standard or the latest revision to the standard, whichever is later."
    - 2010-04 Demand Data involves revisions to MOD-018, MOD-020, and MOD-021
    - 2010-05 Protection Systems involves revisions to PRC-012 and PRC-014
- 2010-06 Performance-based Reliability Standards is a priority project as discussed in the "Focus on Impact to Reliability" section above and provides for improving the set of NERC reliability standards to be more focused on reliability performance.

Each of the six projects anticipated to be initiated in 2010 will be initiated as appropriate NERC staff and industry resources are freed up from other projects. NERC staff will work with the Standards Committee to formalize the initiation of each of these projects.

As noted earlier, the single project anticipated to commence in 2011 pursuant to the 2009-2011 plan has been moved to 2012 in this revised plan to ensure industry and NERC staff resources are available to devote to Project 2010-06 Performance-based Reliability Standards. Thus the

two projects identified in this plan anticipated to commence in 2012 are inherently identified as lower priority projects as compared to those projects anticipated to be initiated in 2010.

Other modifications

As part of the process employed in 2009 for revising the *Reliability Standards Development Plan*, NERC staff reached out to the stakeholder community asking for input on how to improve the plan. In so doing, NERC received a number of comments that led to various modifications and improvements to the plan. Appendix A to this Volume I summarizes the comments received and NERC's response to the comments.

In conjunction with this year's project to revise the plan NERC staff took the opportunity to review all the items in what is termed the "NERC Standards Issues Database (Issues Database)." The Issues Database is used to track the issues and concerns identified with any particular standard. These 'issues" are then used to populate the "Issues to be Considered by the Standard Drafting Team" tables included for each project in Volume II of this plan. As such, the vast majority of Volume II was written to capture the essence of all "issues" identified to date.

Another improvement implemented as part of the update to this year's plan is a set of much more detailed the project schedules that includes both major and minor tasks needed to be undertaken as part of a standards development cycle based on "lessons learned" From the work completed on prior projects. In the end, the granularity of the tasks included as part of each of the project schedules was increased. Each of the project schedules (for the projects currently under development) posted on-line has been revised to account for all major and minor tasks. In doing so the timeline for the majority of projects has been extended, but at the same time provides a better estimate for the completion of each of the projects.

NERC has also developed specific initiatives related to compliance monitoring and enforcement, reliability assessment and performance analysis, and event analysis to identify possible "high impact" reliability standard development projects that may have significant impact on the reliability of the bulk power system. For example, NERC has developed a broad-based reliability initiative that addresses lessons learned from event analysis activities in the area of system protection and control which is the basis for Project 2010-05 System Protection. This initiative identifies a compendium of system protection and control issues that have contributed to many system events. The analysis of these events is providing the technical foundation for new reliability standards development activities. These initiatives focus efforts on issues that have been known to cause bulk power system events and are therefore directly related to the improvement of reliability. Further, information from these initiatives will be used to evaluate which reliability standards and standards requirements are most critical to bulk power system reliability. The end result of these initiatives will be used to identify specific changes to reliability standards to ensure an adequate level of reliability of the North American bulk power system.

Organization of the Plan

The *Reliability Standards Development Plan: 2010-2012* is organized into three volumes:

- Volume I provides an overview of the plan, including the history of the current status of standards development activities related to the development and approval of standards.
- Volume II provides the details of each standards development project.
- Volume III summarizes the regional reliability standards development activity anticipated over the three year period covered by the plan.

A significant portion of Volume II of the *Reliability Standards Development Plan* is dedicated to projects for revising the existing reliability standards to incorporate improvements. The plan groups the existing standards into projects based on content. Standards with related content are grouped together into a single project to allow a team of experts to consolidate the requirements, to eliminate redundancies, and to ensure consistency of all the requirements in all the standards. This approach makes the most efficient use of industry resources used in the standards development process.

Background

Authority

Through the enactment of the Energy Policy Act of 2005, Congress created Section 215 of the Federal Power Act (FPA). Section 215 assigns to the Commission the responsibility and authority for overseeing the reliability of the bulk power systems in the United States, including the setting and enforcing of mandatory reliability standards. In February 2006, the Commission issued Order No. 672 establishing its requirements for certifying an industry, self-regulating ERO, as envisioned in the legislation. On the basis of that order, NERC filed its application to become the ERO in the United States on April 4, 2006. NERC concurrently filed for similar recognition with the federal and provincial governments in Canada.

On July 20, 2006, the Commission issued its *Order Certifying the North American Electric Reliability Corporation as the Electric Reliability Organization and Ordering Compliance Filing*, finding that NERC met the requirements of Order No. 672. Since then, NERC has provided the requisite compliance filings and the Commission has issued several orders as a result to address the remaining issues with NERC's application and certification. NERC's filings with FERC[1] and the Commission's orders[2] can be found on the NERC Web site.[3]

On September 15, 2006, the National Energy Board of Canada announced a Memorandum of Understanding (MOU) recognizing NERC as the ERO in Canada. NERC also signed MOUs with Ontario, Quebec, and Nova Scotia in 2006. An interim MOU has been signed with Manitoba pending possible changes in its legislative regime for reliability. MOUs have been drafted and are expected to be concluded shortly with New Brunswick and Saskatchewan. NERC is working with the remaining Canadian provinces to accomplish the same understanding.

Standards Filings and Approvals

NERC has filed with the regulatory authorities in the U.S. and Canada petitions to approve numerous reliability standards that were proposed as new, modified, or retired reliability standards, as well as several interpretations; in the U.S., the Commission has taken action on a majority of these standards and interpretations. NERC has filed petitions for approval of 120 standards as mandatory and enforceable in the United States. The following summarizes the status of reliability standards filings in the U.S.:

- In March, 2007, the Commission issued Order No. 693, *Mandatory Reliability Standards for the Bulk Power System*. In this final rule, the Commission approved 83 reliability standards and directed improvements to 56 of these standards. The work plan addresses these improvements as well as the 24 standards that the Commission neither approved nor remanded, which are referred to as the "fill-in-the-blank" regional standards.

[1] NERC filings to FERC, http://www.nerc.com/page.php?cid=1|8|170
[2] Commission orders, http://www.nerc.com/page.php?cid=1|8|170
[3] NERC Web site, http://www.nerc.com/

- In December 2007, the Commission issued its final rule in Order No. 705 approving Facilities Design, Connections, and Maintenance (FAC-010-1, FAC-011-1, and FAC-014-1) reliability standards.
- In January 2008, the Commission issued Order No. 706 that approved cyber security standards, CIP-002-1 through CIP-009-1.
- In July 2008, the Commission approved modifications to five reliability standards (INT-001, INT-004, INT-005-2, INT-006-2, and INT-008-2) from the Interchange family of NERC standards.
- NERC filed the following proposed reliability standards for regulatory authority approval but has yet to receive disposition of the requests for approval: PRC-023-1 — Transmission Relay Loadability; IRO-006-4 — Transmission Loading Relief; NUC-001-1 — Nuclear Plant Interface Coordination; MOD-001-1 — Available Transmission System Capability; MOD-008-1 — Transmission Reliability Margin Calculation Methodology; MOD-028-1 — Area Interchange Methodology; MOD-029-1 — Rated System Path Methodology; and MOD-030-1 — Flowgate Methodology.

At the regional level, the Commission also approved eight regional standards submitted by the Western Electricity Coordinating Council and approved by NERC for filing with the Commission and the Canadian regulatory authorities.

Detail on these and all filings and orders are found as links on the home page of NERC's Web site.

Standards Development Process

NERC uses a process for refining, developing, and approving reliability standards that has received national, formal accreditation and approval by federal regulators. A key element of the work plan is to review and upgrade all the existing standards based on the directives in the Commission's final rule, previous industry comments, and actual experience gathered from using the standards. Additionally, NERC's rules and a condition of accreditation by the American National Standards Institute (ANSI)[4] require that each standard be reviewed at least every five years. NERC received ANSI accreditation on March 24, 2003. NERC anticipates completing its review and upgrade of standards identified in this work plan over several years in support of these accreditation requirements.

The *Reliability Standards Development Procedure*[5] provides a systematic approach to improve the standards and to document the basis for those improvements, and it will serve as the mechanism for achieving the improvements detailed in this plan. The standards development process includes active involvement of industry experts and stakeholders tasked with developing excellent standards.

In its April 2006 application to be certified as the ERO, NERC proposed to develop reliability standards in accordance with Section 300 (Reliability Standards Development) of its Rules of

[4] ANSI accreditation, http://www.nerc.com/filez/ansi.html
[5] Reliability Standards Development Procedure, http://www.nerc.com/fileUploads/File/Standards/RSDP_V6_1_12Mar07.pdf

Procedure[6] and the *Reliability Standards Development Procedure*[7], which was incorporated into the Rules of Procedure as Appendix A. In its June 2006 ERO Certification Order, the Commission found that NERC's proposed rules provide for reasonable notice and opportunity for public comment, due process, openness, and a balance of interests in developing reliability standards. The Commission noted that NERC's procedure calls for notifying and involving the public in developing a reliability standard. The development process is open to any person or entity with a legitimate interest in the reliability of the bulk power system. NERC considers the comments of all stakeholders, and a vote of stakeholders is required to approve a reliability standard before it is submitted for regulatory approval.

Furthermore, NERC also coordinates its reliability standards development activities with the business practices developed by the North American Energy Standards Board[8] (NAESB).

Background on Standards Development

The initial stage in the establishment of mandatory reliability standards began with the translation of the historical operating policies, planning standards, and compliance templates into a baseline set of working standards, referred to as Version 0 reliability standards.

This iteration of the work plan continues to focus attention on improving the baseline set of Version 0 reliability standards. Since the inaugural installation of the work plan was published, the Commission approved 94 reliability standards as mandatory and enforceable in the United States, although it directed modifications to 56 of those standards. The Commission held an additional 24 reliability standards as pending and NERC has proposed six additional standards for approval.

In Orders No. 693 and 693-A, *Mandatory Reliability Standards for the Bulk Power System*, and Order No. 890, *Preventing Undue Discrimination and Preference in Transmission Service*, the Commission built upon the information it provided in May 11, 2006 *Federal Energy Regulatory Commission Staff Preliminary Assessment of Proposed Reliability Standards* and the October 20, 2006 *Notice of Proposed Rulemaking — Mandatory Reliability Standards for the Bulk Power System*. In that Staff report, and then in the Commission's proposed rule, the FERC Staff initially, and then the Commission, stated that certain proposed standards are (1) ambiguous; (2) insufficient to ensure an adequate level of reliability; (3) fail to contain adequate "measures and compliance;" (4) may have an undue impact on competition; and (5) are "fill-in-the-blank" standards. The report and notice of proposed rulemaking (NOPR) also pointed out that NERC has not completed standards addressing all recommendations made following the August 2003 Northeast blackout. The work plan enclosed here is intended to address these issues, as well as previous comments and issues noted by industry in the initial development of the standards.

Order No. 672[9] provides guidance on the factors the Commission will consider when determining whether proposed reliability standards meet the statutory criteria. For example, the

[6] NERC Rules of Procedure, http://www.nerc.com/files/NERC_Rules_of_Procedure_EFFECTIVE_20080321.pdf
[7] Reliability Standards Development Procedure, http://www.nerc.com/fileUploads/File/Standards/RSDP_V6_1_12Mar07.pdf
[8] NAESB http://www.nerc.com/page.php?cid=2|247|248
[9] Order 672, http://www.nerc.com/files/final_rule_reliability_Order_672.pdf

Commission states that a proposed reliability standard must be designed to achieve a specified reliability goal and be clear and unambiguous regarding what is required and who is required to comply. In addition, while a proposed reliability standard does not have to reflect the "best practice," it cannot be based on the "lowest common denominator," if such a standard would not efficiently and effectively achieve its reliability goal.

Strategy for Project Resources

Reliability Standards Development Plan: 2009–2012 has been designed to recognize there are limits to available staff and industry resources to complete the projects immediately and concurrently. While the volume of work and schedules are aggressive, they are manageable because the work is being extended over several years, and because much of the work is revising and improving existing standards for which the issues are already well-defined. However, the development of regional standards, the influx of formal interpretation requests, and the progress of the existing projects has impacted the deliverables noted in the plan and has been reflected in the proposed projects for 2010, 2011, and 2012.

The NERC Standards Program staff has grown since 2006 from a staff of seven to a complement of fourteen. There are sufficient standards development coordinators to manage the number of projects included in the three-year Reliability Standards Development Plan on a forward-looking basis, although in its revised budget for 2009, NERC has provided for additional consulting resources to support expedited completion of certain standards projects, including projects involving revisions to Critical Infrastructure Protection Standards. Two additional standards development coordinators are required to manage, in a timely manner, the significant number of interpretation requests NERC has received and expects to continue to receive for the foreseeable future. These two positions, as well as an additional standards process manager, are tentatively included in the 2010 NERC Business Plan and Budget. Additionally, one vacant position was transformed into a regulatory filing support position to ensure more timely filings of new or revised reliability standards.

The sequence of projects has been adjusted to spread the use of industry expertise over several years in the project. For example, system protection experts are a limited resource, as such each project requiring that expertise was spread out from the other for that reason. This same approach was used in sequencing most of the projects.

Global Improvements

The standard drafting team for each of the projects identified in this plan is expected to review the assigned standards and modify the standards to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure as described in this "Global Improvements" section.

Statutory Criteria

In accordance with Section 215 of the Federal Power Act, FERC may approve, by rule or order, a proposed reliability standard or modification to a reliability standard if it determines that "the standard is just, reasonable, not unduly discriminatory or preferential, and in the public interest."

The first three of these criteria can be addressed in large part by the diligent adherence to NERC's *Reliability Standards Development Procedure*, which has been certified by the ANSI as being open, inclusive, balanced, and fair. Users, owners, and operators of the bulk power system that must comply with the standards, as well as the end-users who benefit from a reliable supply of electricity and the public in general, gain some assurance that standards are just, reasonable, and not unduly discriminatory or preferential because the standards are developed through an ANSI-accredited procedure.

The remaining portion of the statutory test is whether the standard is "in the public interest." Implicit in the public-interest test is that a standard is technically sound and ensures a level of reliability that should be reasonably expected by end-users of electricity. Additionally, each standard must be clearly written, so that bulk power system users, owners, and operators are put on notice of the expected behavior. Ultimately, the standards should be defensible in the event of a governmental authority review or court action that may result from enforcing the standard and applying a financial penalty.

The standards must collectively provide a comprehensive and complete set of technically sound requirements that establish an acceptable threshold of performance necessary to ensure the reliability of the bulk power system. "An adequate level of reliability" would argue for both a complete set of standards addressing all aspects of bulk power system design, planning, and operation that materially affect reliability, and for the technical efficacy of each standard. The Commission directed NERC to define the term, "adequate level of reliability" as part of its January 18, 2007 Order on Compliance Filing. Accordingly, NERC's Operating and Planning Committees prepared the definition and the NERC Board approved it at its February 2008 meeting for filing with regulatory authorities. The NERC Standards Committee was then tasked to integrate the definition into the development of future reliability standards.

Quality Objectives

To achieve the goals outlined above, NERC has developed 10 quality objectives for the development of reliability standards. Drafting teams working on assigned projects are charged to ensure their work adheres to the following quality objectives:

1. **Applicability** — Each reliability standard shall clearly identify the functional classes of entities responsible for complying with the reliability standard, with any specific additions or exceptions noted. Such functional classes[10] include: ERO, Regional Entities, reliability coordinators, balancing authorities, transmission operators, transmission owners, generator operators, generator owners, interchange authorities, transmission

[10] These functional classes of entities are derived from NERC's Reliability Functional Model. When a standard identifies a class of entities to which it applies, that class must be defined in the Glossary of Terms Used in Reliability Standards.

service providers, market operators, planning coordinators, transmission planners, resource planners, load-serving entities, purchasing-selling entities, and distribution providers. Each reliability standard that does not apply to the entire North American bulk power system shall also identify the geographic applicability of the standard, such as an interconnection, or within a regional entity area. The applicability section of the standard should also include any limitations on the applicability of the standard based on electric facility characteristics, such as a requirement that applies only to the subset of distribution providers that own or operate underfrequency load shedding systems.

2. **Purpose** — Each reliability standard shall have a clear statement of purpose that shall describe how the standard contributes to the reliability of the bulk power system.
3. **Performance Requirements** — Each reliability standard shall state one or more performance requirements, which if achieved by the applicable entities, will provide for a reliable bulk power system, consistent with good utility practices and the public interest. Each requirement is not a "lowest common denominator" compromise, but instead achieves an objective that is the best approach for bulk power system reliability, taking account of the costs and benefits of implementing the proposal.
4. **Measurability** — Each performance requirement shall be stated so as to be objectively measurable by a third party with knowledge or expertise in the area addressed by that requirement. Each performance requirement shall have one or more associated measures used to objectively evaluate compliance with the requirement. If performance results can be practically measured quantitatively, metrics shall be provided within the requirement to indicate satisfactory performance.
5. **Technical Basis in Engineering and Operations** — Each reliability standard shall be based upon sound engineering and operating judgment, analysis, or experience, as determined by expert practitioners in that particular field.
6. **Completeness** — Each reliability standard shall be complete and self-contained. The standards shall not depend on external information to determine the required level of performance.
7. **Consequences for Noncompliance** — Each reliability standard shall make clearly known to the responsible entities the consequences of violating a standard, in combination with guidelines for penalties and sanctions, as well as other ERO and Regional Entity compliance documents.
8. **Clear Language** — Each reliability standard shall be stated using clear and unambiguous language. Responsible entities, using reasonable judgment and in keeping with good utility practices, are able to arrive at a consistent interpretation of the required performance.
9. **Practicality** — Each reliability standard shall establish requirements that can be practically implemented by the assigned responsible entities within the specified effective date and thereafter.
10. **Consistent Terminology** — Each reliability standard, to the extent possible, shall use a set of standard terms and definitions that are approved through the NERC Reliability Standards Development Process.

In addition to these factors, standard drafting teams also contemplate the following factors the Commission uses to approve a proposed reliability standard as outlined in Order No. 672. A standard proposed to be approved:

1. **Must be designed to achieve a specified reliability goal**
   "321. The proposed Reliability Standard must address a reliability concern that falls within the requirements of section 215 of the FPA. That is, it must provide for the reliable operation of bulk power system facilities. It may not extend beyond reliable operation of such facilities or apply to other facilities. Such facilities include all those necessary for operating an interconnected electric energy transmission network, or any portion of that network, including control systems. The proposed Reliability Standard may apply to any design of planned additions or modifications of such facilities that is necessary to provide for reliable operation. It may also apply to cyber security protection."

   "324. The proposed Reliability Standard must be designed to achieve a specified reliability goal and must contain a technically sound means to achieve this goal. Although any person may propose a topic for a Reliability Standard to the ERO, in the ERO's process, the specific proposed Reliability Standard should be developed initially by persons within the electric power industry and community with a high level of technical expertise and be based on sound technical and engineering criteria. It should be based on actual data and lessons learned from past operating incidents, where appropriate. The process for ERO approval of a proposed Reliability Standard should be fair and open to all interested persons."

2. **Must contain a technically sound method to achieve the goal**
   "324. The proposed Reliability Standard must be designed to achieve a specified reliability goal and must contain a technically sound means to achieve this goal.

   Although any person may propose a topic for a Reliability Standard to the ERO, in the ERO's process, the specific proposed Reliability Standard should be developed initially by persons within the electric power industry and community with a high level of technical expertise and be based on sound technical and engineering criteria. It should be based on actual data and lessons learned from past operating incidents, where appropriate. The process for ERO approval of a proposed Reliability Standard should be fair and open to all interested persons."

3. **Must be applicable to users, owners, and operators of the bulk power system, and not others**
   "322. The proposed Reliability Standard may impose a requirement on any user, owner, or operator of such facilities, but not on others."

4. **Must be clear and unambiguous as to what is required and who is required to comply**
   "325. The proposed Reliability Standard should be clear and unambiguous regarding what is required and who is required to comply. Users, owners, and operators of the Bulk-Power System must know what they are required to do to maintain reliability."

5. **Must include clear and understandable consequences and a range of penalties (monetary and/or non-monetary) for a violation**
   "326. The possible consequences, including range of possible penalties, for violating a proposed Reliability Standard should be clear and understandable by those who must comply."

6. **Must identify clear and objective criterion or measure for compliance, so that it can be enforced in a consistent and non-preferential manner**
   "327. There should be a clear criterion or measure of whether an entity is in compliance with a proposed Reliability Standard. It should contain or be accompanied by an objective measure of compliance so that it can be enforced and so that enforcement can be applied in a consistent and non-preferential manner."

7. **Should achieve a reliability goal effectively and efficiently - but does not necessarily have to reflect "best practices" without regard to implementation cost**
   "328. The proposed Reliability Standard does not necessarily have to reflect the optimal method, or "best practice," for achieving its reliability goal without regard to implementation cost or historical regional infrastructure design. It should however achieve its reliability goal effectively and efficiently."

8. **Cannot be "lowest common denominator," i.e., cannot reflect a compromise that does not adequately protect bulk power system reliability**
   "329. The proposed Reliability Standard must not simply reflect a compromise in the ERO's Reliability Standard development process based on the least effective North American practice — the so-called "lowest common denominator"—if such practice does not adequately protect Bulk-Power System reliability. Although the Commission will give due weight to the technical expertise of the ERO, we will not hesitate to remand a proposed Reliability Standard if we are convinced it is not adequate to protect reliability."

9. **Costs to be considered for smaller entities but not at consequence of less than excellence in operating system reliability**
   "330. A proposed Reliability Standard may take into account the size of the entity that must comply with the Reliability Standard and the cost to those entities of implementing the proposed Reliability Standard. However, the ERO should not propose a "lowest common denominator" Reliability Standard that would achieve less than excellence in operating system reliability solely to protect against reasonable expenses for supporting this vital national infrastructure. For example, a small owner or operator of the Bulk-Power System must bear the cost of complying with each Reliability Standard that applies to it."

10. **Must be designed to apply throughout North American to the maximum extent achievable with a single reliability standard while not favoring one area or approach**
    "331. A proposed Reliability Standard should be designed to apply throughout the interconnected North American Bulk-Power System, to the maximum extent this is achievable with a single Reliability Standard. The proposed Reliability Standard should

not be based on a single geographic or regional model but should take into account geographic variations in grid characteristics, terrain, weather, and other such factors; it should also take into account regional variations in the organizational and corporate structures of transmission owners and operators, variations in generation fuel type and ownership patterns, and regional variations in market design if these affect the proposed Reliability Standard."

11. No undue negative effect on competition or restriction of the grid

"332. As directed by section 215 of the FPA, the Commission itself will give special attention to the effect of a proposed Reliability Standard on competition. The ERO should attempt to develop a proposed Reliability Standard that has no undue negative effect on competition. Among other possible considerations, a proposed Reliability Standard should not unreasonably restrict available transmission capability on the Bulk-Power System beyond any restriction necessary for reliability and should not limit use of the Bulk-Power System in an unduly preferential manner. It should not create an undue advantage for one competitor over another."

12. Implementation time

"333. In considering whether a proposed Reliability Standard is just and reasonable, the Commission will consider also the timetable for implementation of the new requirements, including how the proposal balances any urgency in the need to implement it against the reasonableness of the time allowed for those who must comply to develop the necessary procedures, software, facilities, staffing or other relevant capability."

13. Whether the reliability standard process was open and fair

"334. Further, in considering whether a proposed Reliability Standard meets the legal standard of review, we will entertain comments about whether the ERO implemented its Commission-approved Reliability Standard development process for the development of the particular proposed Reliability Standard in a proper manner, especially whether the process was open and fair. However, we caution that we will not be sympathetic to arguments by interested parties that choose, for whatever reason, not to participate in the ERO's Reliability Standard development process if it is conducted in good faith in accordance with the procedures approved by the Commission."

14. Balance with other vital public interests

"335. Finally, we understand that at times development of a proposed Reliability Standard may require that a particular reliability goal must be balanced against other vital public interests, such as environmental, social and other goals. We expect the ERO to explain any such balancing in its application for approval of a proposed Reliability Standard."

15. Any other relevant factors

"323. In considering whether a proposed Reliability Standard is just and reasonable, we will consider the following general factors, as well as other factors that are appropriate for the particular Reliability Standard proposed."

"337. In applying the legal standard to review of a proposed Reliability Standard, the Commission will consider the general factors above. The ERO should explain in its application for approval of a proposed Reliability Standard how well the proposal meets these factors and explain how the Reliability Standard balances conflicting factors, if any. The Commission may consider any other factors it deems appropriate for determining if the proposed Reliability Standard is just and reasonable, not unduly discriminatory or preferential, and in the public interest. The ERO applicant may, if it chooses, propose other such general factors in its ERO application and may propose additional specific factors for consideration with a particular proposed reliability standard."

Issues Related to the Applicability of a Standard

In Order No. 672, the Commission states that a proposed reliability standard should be clear and unambiguous regarding what is required and who is required to comply. Users, owners, and operators of the bulk power system must know what they are required to do to maintain reliability. Section 215(b) of the FPA requires all "users, owners and operators of the bulk power system" to comply with Commission-approved reliability standards.

The term "users, owners, and operators of the bulk power system" defines the statutory applicability of the reliability standards. NERC's Reliability Functional Model (Functional Model) further refines the set of users, owners, and operators by identifying categories of functions that entities perform so the applicability of each standard can be more clearly defined. Applicability is clear if a standard precisely states the applicability using the functions an entity performs. For example, "Each generator operator shall verify the reactive power output capability of each of its generating units" states clear applicability compared with a standard that states "a bulk power system user shall verify the reactive power output capability of each generating unit." The use of the Functional Model in the standards narrows the applicability of the standard to a particular class or classes of bulk power system users, owners, and operators. A standard is more clearly enforceable when it narrows the applicability to a specific class of entities than if the standard simply references a wide range of entities, e.g., all bulk power system users, owners, and operators.

In determining the applicability of each standard and the requirements within a standard, the drafting team should follow the definitions provided in the NERC Glossary of Terms Used in Reliability Standards and should also be guided by the Functional Model.

In addition to applying definitions from the Functional Model, the revised standards must address more specific applicability criteria that identify only those entities and facilities that are material to bulk power system reliability with regard to the particular standard.

The drafting team should review the registration criteria provided in the NERC Statement of Compliance Registry Criteria, which is the criteria for applicability. The registration criteria identify the criteria NERC uses to identify those entities responsible for compliance to the reliability standards. Any deviations from the criteria used in the Statement of Compliance Registry Criteria must be identified in the applicability section of the. It is also important to note that standard drafting teams cannot set the applicability of reliability standards to extend to

entities beyond the scope established by the criteria for inclusion on NERC's Compliance Registry. This is expressly prohibited by Commission Order No. 693-A.

The goal is to place obligations on the entities whose performance will impact the reliability of the bulk power system, but to avoid painting the applicability with such a broad brush that entities are obligated even when meeting a requirement will make no material contribution to bulk power system reliability.

Every entity class described in the Functional Model performs functions that are essential to the reliability of the bulk power system. This point is best highlighted with the example that might be the most difficult to understand, the inclusion of distribution providers. Section 215 of the FPA specifically excludes facilities used in the local distribution of electric energy. Nonetheless, some of the NERC standards apply to a class of entities called distribution providers. Distribution providers are covered because, although they own and operate facilities in the local distribution of electric energy, they also perform functions affecting and essential to the reliability of the bulk power system. With regard to these facilities and functions that are material to the reliability of the bulk power system, a distribution provider is a bulk power system user. For example, requirements for distribution providers in the reliability standards apply to the underfrequency load shedding relays that are maintained and operated within the distribution system to protect the reliability of the bulk power system. There are also requirements for distribution providers to provide demand forecast information for the planning of reliable operations of the bulk power system.

A similar line of thinking can apply to every other entity in the Functional Model, including load-serving entities and purchasing-selling entities, which are users of the bulk power system to the extent they transact business for the use of transmission service or to transfer power across the bulk power system. NERC has specific requirements for these entities based on how these uses may impact the reliability of the bulk power systems. Other functional entities are more obviously bulk power system owners and operators, such as reliability coordinators, transmission owners and operators, generator owners and operators, planning coordinators, transmission planners, and resource planners. It is the extent to which these entities provide for a reliable bulk power system or perform functions that materially affect the reliability of the bulk power system that these entities fall under the jurisdiction of Section 215 of the FPA and the reliability standards. The use of the Functional Model simply groups these entities into logical functional areas to enable the standards to more clearly define the applicability.

Issues Related to Regional Entities and Reliability Organizations

Because of the transition from voluntary reliability standards to mandatory reliability standards, confusion has occurred over the distinction between Regional Entities and Regional Reliability Organizations. The regional councils have traditionally been the owners and members of NERC. They have been referred to as Regional Reliability Organizations in the Functional Model and in the reliability standards. In an era of voluntary standards and guides, it was acceptable that a number of the standards included requirements for Regional Reliability Organizations to develop regional criteria, procedures, and plans, and included requirements for entities within the region to follow those requirements. Section 215 of the FPA introduced a new term, called "Regional

Entity." Regional Entities have specific delegated authorities, under agreements with NERC, to propose and enforce reliability standards within the region, and to perform other functions in support of the electric reliability organization. The former Regional Reliability Organizations have entered into delegation agreements with NERC to become Regional Entities for this purpose.

With regard to distinguishing between the terms Regional Reliability Organizations and Regional Entities, the following guidance should be used. The corporations that provide regional reliability services on behalf of their members are Regional Reliability Organizations. NERC may delegate to these entities a set of regional entity functions. The Regional Reliability Organizations perform delegated regional entity functions much like NERC is the organization that performs the ERO function. Regional Reliability Organizations may do things other than their statutory or delegated regional entity functions.

With the regions having responsibility for enforcement, it is no longer appropriate for the regions to be named as responsible entities within the standards. The work plan calls for removing requirements from the standards that refer to Regional Reliability Organizations, either by deleting the requirements or redirecting the responsibilities to the most applicable functions in the Functional Model, such as planning coordinators, reliability coordinators, or resource planners. In instances where a regional standard or criteria are needed, the ERO may direct the Regional Entities to propose a regional standard in accordance with ERO Rule 312.2, which states NERC, may "direct regional entities to develop regional reliability standards." There is no need to have a NERC standard that directs the regions to develop a regional standard. NERC standards should only include requirements for Regional Entities in those rare instances where the regions have a specific operational, planning, or security responsibility. In this case, Regional Entities (or NERC) may be noted as the applicable entity. However, these Regional Entities (or NERC) are held accountable for compliance to these requirements through NERC's rules of procedure that, by delegation agreement, extend to the Regional Entities. The Regional Entities are not users, owners, or operators of the bulk power system and cannot be held responsible for compliance through the compliance monitoring and enforcement program. However, NERC and the Regional Entities can be held by the Commission to be in violation of its rules of procedure for failing to comply with the standards requirements to which it is assigned.

Issues Related to Ambiguity

Drafting teams should strive to remove all potential ambiguities in the language of each standard, particularly in the performance requirements. Redundancies should also be eliminated.

Specifically, each performance requirement must be written to include four elements:

- **Who** — defines which functional entity or entities are responsible for the requirements, including any narrowing or qualifying limits on the applicability to or of an entity, based on material impact to reliability.
- **Shall do what —** describes an action the responsible entity must perform.
- **To what outcome** — describes the expected, measurable outcome from the action.

- **Under what conditions** — describes specific conditions under which the action must be performed. If blank, the action is assumed to be required at all times and under all conditions.

Each requirement should identify a product or activity that makes a definite contribution to reliability.

Drafting teams should focus on defining measurable outcomes for each requirement, and not on prescribing *how* a requirement is to be met. While being more prescriptive may provide a sense of being more measurable, it does not add reliability benefits and may be inefficient and restrict innovation.

Issues Related to Technical Adequacy

In May 2006, the Commission Staff issued an assessment on the then proposed reliability standards. The Staff noted under a "technical adequacy" section that requirements specified in some standards may not be sufficient to ensure an adequate level of reliability. While Order No. 672 notes that "best practice" may be an inappropriately high standard, it also warns that a "lowest common denominator" approach will not be acceptable if it is not sufficient to ensure system reliability.

Each standard should clearly meet the statutory test of providing an adequate level of reliability to the bulk power system. Each requirement should be evaluated and the bar raised as needed, consistent with good practice and as supported by consensus.

Issues Related to Compliance Elements

Each reliability standard includes a section to address measures and a section to address compliance. Most of the major changes made to the template for reliability standards over the past year have been focused on re-aligning the content of standards to include the various elements needed to support mandatory compliance. The Uniform Compliance Enforcement Guidelines, ERO Sanctions Guidelines, and Compliance Registry Criteria have been modified and have been approved by the Commission. As each standard is revised, or as new standards are developed, drafting teams need to familiarize themselves with these documents to ensure that each standard proposed for ballot is in a format that includes all the elements needed to support reliability and to ensure that the standard can be enforced for compliance.

The compliance-related elements of standards that may need to be modified to meet the latest approved versions of the various compliance documents noted above include the following:

- Each requirement must have an associated Violation Risk Factor.
- Each requirement must have an associated Time Horizon.
- The term, "Compliance Monitor" has been replaced with the term, "Compliance Enforcement Authority." Either the Regional Entity or the ERO may serve as the compliance enforcement authority. For most standards, the Regional Entity will serve as

the compliance enforcement authority. In the situation where a Regional Entity has authority over a reliability coordinator, for example, the ERO will serve as the compliance enforcement authority to eliminate any conflict of interest.

- The eight processes used to monitor and enforce compliance have been assigned new names.
    - Compliance Audits
    - Self-Certifications
    - Spot Checking
    - Compliance Violation Investigations
    - Self-Reporting
    - Periodic Data Submittals
    - Exception Reporting
    - Complaints
- The audit cycles for various entities have been standardized so that the Reliability Coordinator, Transmission Operator, and Balancing Authority will undergo a routine audit to assess compliance with each applicable requirement once every three years while all other responsible entities will undergo a routine audit once every six years.
- Levels of Non-compliance have been replaced with "Violation Severity Levels."

All requirements are subject to compliance audits, self-certification, spot checking, compliance violation investigations, self-reporting and complaints. Only a subset of requirements is subject to monitoring through periodic data submittals and exception reporting.

Measures: While a measure can be used for more than one requirement, there must be at least one measure for each requirement. A measure states what a responsible entity must have or do to demonstrate compliance to a third party, i.e., the compliance enforcement authority. Measures are "yardsticks" used to evaluate whether required performance or outcomes have been achieved. Measures do not add new requirements or expand the details of the requirements. Each measure shall be tangible, practical, and objective. A measure should be written so that achieving full compliance with the measure provides the compliance monitor with the necessary and sufficient information to demonstrate that the associated requirement was met by the responsible entity. Each measure should clearly refer to the requirement(s) to which it applies.

Violation Severity Levels: The Violation Severity Levels (formerly known as Levels of Non-Compliance) indicate how severely an entity violated a requirement. For example, in the Commission-approved standard on vegetation management (FAC-003-1 Vegetation Management Program), there are three Levels of Non-Compliance. The levels range from whether or not a respective program has all necessary documentation to meet the requirements to the number of transmission outages due to tree contacts. Historically, there has been confusion about Levels of Non-Compliance. Some of the existing Levels of Non-Compliance incorporate reliability-related risk impacts or consequences. Going forward, the risk or consequences component should be addressed only by the Violation Risk Factor, while the Violation Severity Levels should only be used to categorize how badly the requirement was violated.

The Commission directed NERC to submit Violation Severity Levels for each of these 83 standards by March 1, 2008. Project 2007-23 in this updated work plan is the project team tasked with this effort. The drafting team should indicate a set of Violation Severity Levels that can be applied for the requirements within a standard. Violation Severity Levels replace the existing Levels of Non-Compliance. Each requirement must have at least one VSL.

Criteria for determining which VSL to use:
It is preferable to have four VSLs, but where that doesn't work, the VSLs should be defensible in supporting the criteria in the table below.

Lower VSL	Moderate VSL	High VSL	Severe VSL
The performance or product measured almost meets the full intent of the requirement.	The performance or product measured meets the majority of the intent of the requirement.	The performance or product measured does not meet the majority of the intent of the requirement, but does meet some of the intent.	The performance or product measured does not substantively meet the intent of the requirement.

Violation Risk Factors: Each drafting team is also instructed to develop a Violation Risk Factor for each requirement in a standard in accordance with the following definitions:

- **High Risk Requirement** — A requirement that, if violated, could directly cause or contribute to bulk power system instability, separation, or a cascading sequence of failures, or could place the bulk power system at an unacceptable risk of instability, separation, or cascading failures; or a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly cause or contribute to bulk power system instability, separation, or a cascading sequence of failures, or could place the bulk power system at an unacceptable risk of instability, separation, or cascading failures, or could hinder restoration to a normal condition.
- **Medium Risk Requirement** — A requirement that, if violated, could directly affect the electrical state or the capability of the bulk power system, or the ability to effectively monitor and control the bulk power system. However, violation of a medium risk requirement is unlikely to lead to bulk electric system instability, separation, or cascading failures; or a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly and adversely affect the electrical state or capability of the bulk power system, or the ability to effectively monitor, control, or restore the bulk power system. However, violation of a medium risk requirement is unlikely, under emergency, abnormal, or restoration conditions anticipated by the preparations, to lead to bulk power system instability, separation, or cascading failures, nor to hinder restoration to a normal condition.
- **Lower Risk Requirement** — A requirement that is administrative in nature and, a requirement that, if violated, would not be expected to affect the electrical state or

capability of the bulk power system, or the ability to effectively monitor and control the bulk power system. A requirement that is administrative in nature; or a requirement in a planning time frame that, if violated, would not, under the emergency, abnormal, or restorative conditions anticipated by the preparations, be expected to affect the electrical state or capability of the bulk power system, or the ability to effectively monitor, control, or restore the bulk power system.

Time Horizons: The drafting team must also indicate the time horizon available for mitigating a violation to the requirement:

- **Long-term planning** — a planning horizon of one year or longer.
- **Operations planning** — operating and resource plans from day ahead up to and including seasonal.
- **Same-day operations** — routine actions required within the timeframe of a day, but not real time.
- **Real-time operations** — actions required within one hour or less to preserve the reliability of the bulk electric system.
- **Operations assessment** — follow-up evaluations and reporting of real time operations.

Note that some requirements occur in multiple time horizons, and it is acceptable to have more than one time horizon for a single requirement.

The drafting team should seek input and review of all measures and compliance information from the compliance elements drafting team members assigned to support each standard drafting team or from the NERC compliance staff.

Coordination with NAESB

Many of the existing NERC standards are related to business practices, although their primary purpose is to support reliability. Reliability standards, business practices, and commercial interests are inextricably linked. An example of an existing standard that is both a reliability standard and a business practice is the Transmission Loading Relief (TLR) Procedure currently used as an interconnection-wide congestion management method in the Eastern Interconnection.

It would be safe to conclude that every reliability standard has some degree of commercial impact and therefore impacts competition. The statutory test to be applied by the Commission is whether the reliability standard has an "undue adverse effect" on competition.

NERC has taken several steps to ensure its reliability standards do not have any undue, adverse impact on business practices or competition. First, NERC coordinates the development of all standards with the North American Energy Standards Board (NAESB). In addition to this formal process, drafting teams work with NAESB groups to ensure effective coordination of wholesale electric business practice standards and reliability standards. NERC and NAESB follow their procedure for the joint development of standards in areas that have both reliability

and business practice elements. This procedure is being implemented for all standards in which the reliability and business practice elements are closely related, thereby making joint development a more efficient approach.

This work plan includes several projects that require close coordination and joint development with NAESB:

- Project 2006-08 — Transmission Loading Relief
- Project 2007-05 — Balancing Authority Controls
- Project 2007-18 — Reliability Based Control
- Project 2008-01 — Voltage and Reactive Control
- Project 2008-12 — Coordinate Interchange Standards
- Project 2009-03 — Emergency Operations
- Project 2010-02 — Connecting New Facilities to the Grid

To ensure each reliability standard does not have an undue adverse effect on competition, NERC requires that each standard meet the following criteria:

- Competition — A reliability standard shall not give any market participant an unfair competitive advantage.
- Market Structures — A reliability standard shall neither mandate nor prohibit any specific market structure.
- Market Solutions — A reliability standard shall not preclude market solutions to achieve compliance with that standard.
- Commercially Sensitive Information — A reliability standard shall not require the public disclosure of commercially sensitive information. All market participants shall have equal opportunity to access commercially non-sensitive information that is required for compliance with reliability standards.

During the standards development process, each Standards Authorization Request (SAR) drafting team asks the following question to determine if there is a need to develop a business practice associated with the proposed standard:

- Are you aware of any associated business practices that we should consider with this SAR?

Each standard drafting team also asks the following question to determine if there is a potential conflict between a reliability standard and business practice:

- Are you aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement? If yes, please identify the conflict.

Additional Considerations

Drafting teams should consider the following in reviewing and revising their assigned standards:

- **Title**: In general, the title should be concise and to the point. Care should be taken not to try to fully describe a standard through its title. The title should fit a single line in both the header and in the body of the standard.
- **Purpose**: Current purpose statements are inconsistent. The purpose should clearly state a benefit to the industry (value proposition) in fulfilling the requirements. The purpose should not simply state "the purpose is to develop a standard to…" The purpose should be tied to one or more of the reliability principles.
- **References**: Section (F) provides a place to list associated references that support implementation of the standard. Drafting teams may develop or reference supporting documents with approval of the Standards Committee.
- **Version histories**: Version histories should be expanded to include complete listings of what has been changed from version to version so that end-users can easily keep track of changes to standards. This will also serve as a type of audit trail for changes.

Resource Documents Used

NERC used several references when preparing this plan. These references provide detailed descriptions of the issues and comments that need to be considered by the drafting teams, which are included in the second volume of the work plan, as they work on the standards projects defined in the plan. The references include:

- FERC NOPR on Reliability Standards, October 20, 2006.
- FERC Staff Preliminary Assessment of Proposed Reliability Standards, May 11, 2006.
- FERC Order No. 693 Mandatory Reliability standards for the Bulk Power System, March 16, 2007.
- FERC Order No. 693-A Mandatory Reliability Standards for the Bulk Power System, July 19, 2007.
- FERC Order No. 890 Preventing Undue Discrimination and Preference in Transmission Service, February 16, 2007.
- Comments of the North American Electric Reliability Council and North American Electric Reliability Corporation on Staff Preliminary Assessment of Reliability Standards, June 26, 2006.
- Comments of the North American Electric Reliability Corporation on Staff Preliminary Assessment of NERC Standards CIP-002 through CIP-009, February 12, 2007.
- Comments of the North American Electric Reliability Corporation on the Notice of Proposed Rulemaking for Facilities Design, Connections and Maintenance Reliability standards, September 19, 2007.
- Comments received during the development of Version 0 reliability standards.
- Consideration of comments of the Missing Compliance Elements drafting team.
- Consideration of comments of the Violation Risk Factors drafting team.

- Consideration of comments in the Phase III–IV standards.
- Comments received during industry comment period on work plan.
- Q&A for Standards and Compliance.

Appendix A — Summary of Industry Comments

Reliability Standards Development Plan 2010-2012
As of July 30, 2009

Comment 1
Name: Carol Gerou
Organization: Midwest Reliability Organization

Suggestion or Comment: NERC should sponsor an industry triage of the standards to identify the core requirements and flag those that are minutia. This will allow all of industry (NERC, Regional Entities and Registered Entities) to focus resources on what will support reliability rather than push paper to demonstrate compliance with requirements that don't support realiability.

Example: A simple example is the DCS. The true core requirements are to recover from all reportable events in 15 minutes and replentish reserves in 90 minutes thereafter. The rest of the Rs are an explanation of what that means, how it's handled in a Reserve Sharing Group and also the procedural reporting items. However, we are now moving down a path to assign measures and sanctions to 20 different things in this standard.

Recommendation for improvement: A first step for any standards improvement effort would be the creation of a database companion to the standards. This would not only be a platform to capture the triage comments, the database could be used by registered entities to identify all the requirements that apply to them. Presently it is impossible to say with assurance you have found all applicable requirements. For example, there are several cases where an entity is mentioned in a requirement, but that entity is not identified in the "applicability" section of the standards.

Once you have the triage complete, format changes are just a matter of programming.

If you look at the present V0 and V1 standards, many things labled as requirements are actually criteria, procedures, administrative directions and explanitory text.

As an example of what can be done to improve the final format after the triage, refer to Europe's Policy 1 at: http://www.ucte.org/resources/publications/ophandbook/

The bullets in their policies are broken into a few categories:

- C for Criteria (goals and background of the standard)
- R for Requirements (generally attributes that are yes/no go/no-go)
- S for Standards (things measured on a scale)
- P for Procedures (administrative information)
- G for guides (while we have moved away from guides, the issue still remains what to do with the good practices that are being lost from institutional memory)

If there is information beyond this, it is likely reference information and should be moved to an appendix in the standard (using A for paragraph numbers).

The benefit in making such a format change is that the industry can focus on those things that are important for reliability. It also allows NERC and the Regions to focus on the important things.

Compliance elements would be applied to the requirements and standards. There still could be notification to regulatory bodies on procedural deficiencies.

This is not a suggestion for any change to content in the standards, just a reformatting.

NERC Response:

In response to your recommendation (as well as similar recommendations from others) we have added Project 2010-06 Performance-based Reliability Standards to the *Reliability Standards Development Plan: 2010-2012* for a project focused on:

- triaging the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all,
- developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis,
- promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and

revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability.

Note that the "applicability" section of each standard doesn't identify all functional entities mentioned in a standard – the "applicability" section of the standard identifies just those functional entities with responsibility for compliance with one or more requirements in the standard.

There is an effort underway to put the standards into a relational database, until this is ready for stakeholder use, we have published a list of all requirements in all standards that have been approved by FERC that can be sorted by functional entity. This excel spreadsheet is posted at the following site:

http://www.nerc.com/docs/standards/rs/VRF_Standards_Applicability_Matrix_2009June25.xls

Project Number(s): 2007-09

Project Title(s): Generation Verification

Suggestion or Comment: In Volume 2, Reliability Standards Development Plan Overall Project Schedules, the Generation Verification project looks like it's mislabeled as Project 2007-08.

Recommendation for improvement: Update Overall Project Schdeules or connect hyperlink to current project summary calendar (called "Standards Under Development Anticipated Posting Calendar") provided on the NERC sStandards Under Deveopment webpage.

NERC Response:

The label for Project 2007-09 Generator Verification in the Overall Project Schedules in Volume II of the Reliability Standards Development Plan: 2010-2012 has been corrected.

Reliability Issue: List of projects

Suggestion or Comment: The plan lists several projects but it indicates that limited resources exist, it would seem partical to pick a set of projects which have a high priority and complete that set and then move on to less priority projects. Plus, in the plan Volume 1 mentions that some project have a higher proirity then other. The plan even expresses the objectives for determining the priority (Volume 1, page 5, and section titled "Objectives as Part of the Goal") but the actual projects are not priortized.

Example: A set of projects would be the fill-in-the-blank standards. If the industry could take an approach on this set alone, it would not be spinning it wheels so to speak. The technical expertise used to develop both regional and continental wide standards could be free to work on other standards.

Recommendation for improvement: Pick a set of projects which have a high priority and complete

that set then work on less priority projects.

NERC Response:

You touch upon two distinct concepts in your comments above. The first being the need to work on high priority projects before moving on to lower priority projects. With respect to this issue, what might be a high priority project in the eyes of one entity might not be in the eyes of another entity. NERC staff coordinates all standards development activities through the NERC Standards Committee. In compliance with the *NERC Reliability Standards Development Procedure*, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. NERC staff works with the NERC Standards Committee to identify the projects of highest overall industry importance before working on lower priority projects. In some cases a high priority project is delayed while waiting for research or analysis needed to develop a set of technically-based requirements. This was the case with the Voltage and VAR Control project, the Real-time Tools project, and others. As we move forward, we are trying to have the technical foundation for each standard clearly identified before the SAR is initiated.

The second concept you touch upon in your comments above is the statement that actual projects are not prioritized. It might not obviously appear that projects in the *Reliability Standards Development Plan*: 2009-2011 are prioritized but in actuality the structure of the *Reliability Standards Development Plan: 2009-2011* as well as this revised plan is such that the projects are positioned in the plan so that the "higher priority" projects are designated to be initiated in the immediate year and the "lower priority" projects are designated to be initiated in the later years of the plan.

Suggestion or Comment: The plan should be updated to show actual status of the projects. Only show last major milestone.

Example: Starting from the Reliability Standards Development Plan Overall Project Schedule housed in the plan (Volume 2) add a diamond symbol to show latest milestone in the project. Milestones would be last posting for ballots or comments.

NERC Response:

Links to the current project schedule for each of the active projects are provided at the end of each project description in Volume II of the Reliability Standards Development Plan. The on-line project schedules are updated monthly and should provide the level of detail you suggest in your comment above.

Comment 2
Name: Denise Koehn
Organization: Bonneville Power Administration

Suggestion or Comment: BPA has no dispute regarding the revision needs; however, this is an aggressive schedule and will require considerable effort to accomplish as many items per year as scheduled. The schedule seems a little aggressive. Otherwise, plan looks good.

NERC Response:

We appreciate your comment relative to the "aggressiveness" of the schedules indicated in the *Reliability Standards Development Plan*. The standards development process continues to evolve as does the establishment of realistic project schedules to complement the process. With the publication of this *Reliability Standards Development Plan: 2010-2012* NERC staff, working in conjunction with the individual drafting teams, has attempted to publish more realistic schedules for each project. One of the

requirements of the Reliability Standards Development Process is to review each standard at least once every five years, and we are facing the “five-year” anniversary of the initial effective date for the “Version 0” standards.

Comment 3
Name: Dora Moreno
Organization: Southern California Edison Company

Standard Title(s): NERC Reliability Standards Development Plan 2009-2011

Suggestion or Comment: Southern California Edison Company (“SCE”) hereby submits its comments on the North American Electric Reliability Corporation’s (“NERC”) annual revision to the NERC Reliability Standards Development Plan (Plan).

SCE greatly appreciates the work that went into developing the Plan, and commends NERC for the extensive overview and depth it provides with respect to the development of reliability standards. This being said, SCE is generally supportive of the document and goals NERC has set for the development of reliability standards. The timelines identified in the Plan, like the Plan itself, are too dynamic (non-static/ever changing) to be used as targets, and may need to be modified as projects are launched and the drafting teams proceed forward with them.

NERC Response:

NERC staff appreciates you comments and concurs with your specific comment that the timelines identified in the plan, like the plan itself, is dynamic. NERC staff will continue to coordinate all standards development activities through the NERC Standards Committee and be responsive to industry needs.

Comment 4

Name: Doug Hohlbaugh

Organization: FirstEnergy

Project Number(s): 2009-03

Project Title(s): Emergency Operations (Covers standards EOP-001 "Emergency Operations Planning", EOP-002 "Capacity & Energy Emergencies", EOP-003 "Load Shedding Plans" and IRO-001 "Reliability Coordinator - Responsibilities and Authorities"

Suggestion or Comment Consider advancing project 2009-03 and including it in a list of High Priority projects that need addressed within NERC 3-year Work Plan. See FE comment 4B below stating a need to establish a list of High Priority projects and suggestions on how such a list may be compiled.

Project 2009-03 is an example project that addresses core real-time operations requirements that should be considered for advancement in NERC's work plan. This project has yet to start and there are reliability and compliance ambiguities that require mitigation. For example, in EOP-003, R5 states the following "A Transmission Operator or Balancing Authority shall implement load shedding in steps established to minimize the risk of further uncontrolled separation, loss of generation, or system shutdown” This is a HIGH Violation Risk Factor requirement that should not lack clarity in compliance certainty related to who has the authority to shed load.

The purpose statement of the EOP-003 standard indicates that the BA and TOP must have the capability

and authority to shed load. It is unclear what is meant by capability. Capability could range from ability to direct action to open breakers or an expectation to open breakers and drop load. However, the standard is not written clearly related to the expectations of the TOP and BA in regard to load shed. Within the EOP-003 standard, 50% of the requirements include a statement "A Transmission Operator or Balancing Authority shall …" and should be revised on a more expeditious schedule to improve reliability and compliance certainty.

Recommendation for improvement: Consider advancing project 2009-03 and including it in a list of High Priority projects that need addressed within NERC 3-year Work Plan. See FE comment 4B below stating a need to establish a list of High Priority projects and suggestions on how such a list may be compiled.

NERC Response:

NERC staff agrees with FirstEnergy's suggestion of the importance of Project 2009-03 Emergency Operations. As of this writing Project 2009-03 has not been initiated; however, it is one of the next projects waiting to be initiated once one of the currently active projects has completed and the appropriate resources are made available.

Suggestion or Comment:

A) The industry -BES users, owners and operators as well as regulatory enforcement staff - is overwhelmed with compliance enforcement actions based on little or no BES reliability gap related to violations that are largely documentation related. This inefficiency is wasting valuable resources with no measured improvement in NERC's vision of Adequate Level of Reliability which the standards collectively aim to achieve. Requirements that are largely administrative should not be subjected to the compliance Sanctions Matrix and should be partitioned within the standards.

B) We are concerned with the large volume of work within the NERC work plan and the stress placed on its limited staff and industry resources. NERC needs to re-assess its projects and develop a short list of key High Priority projects that will drive the greatest reliability improvements within the industry. These select projects should receive detailed attention and priority by NERC staff, NERC SC and industry as they move through the standards development process.

The key projects should be held to greater scrutiny from a project management view. It should be expected that team members on these teams are held to a higher level of accountability, committed to providing significant time and energy to advance the industry in the key areas that will raise the adequate level of reliability. One example where this has been used is the CIP project.

c) Interpretation Request - NERC should allow sufficient bandwidth in their schedule to address interpretation requests which seem to be on the rise. It should be understood that the use of existing drafting teams to respond to interpretation requests causes delays in standard development work progress.

D) The NERC Work plan should cast a clear picture of the ERO/industry vision that clearly articulates a future target for the reliability standards and the core BES reliability goals they aim to achieve.

Recommendation for improvement:

A) The standards should be scrubbed to remove or re-classify administrative and documentation related requirements that do not serve a reliability related goal. To the extent retained, two levels of requirements should exist within the standard 1) Reliability Requirements and 2) Administrative Requirements. For example many requirements direct entities to provide some sort of documentation within X calendar days, upon a request to do so. These types of requirements, if violated, should not bog the industry down in paperwork moving through the normal compliance enforcement process and should only be subject to a penalty for repeat offenders. When a penalty is warranted for

Administrative Requirements, it should have a separate expedited process and the fine should escalate for repeat offenders with some consideration of the length of time between repeat violations.

B) We suggest a leadership team with representative members of each of the NERC Standing Committees (SC, PC, OC, CCC and CIPC) direct a working group aimed at developing a methodical review of the existing standards to develop the High Priority list of reliability standards that require sharp focus from industry. The prioritization should be based on a number of different aspects such as: 1) frequency of interpretation requests for a given standard - this could point to lack of clear requirement language; 2) the frequency of violations for a given standard - could point to a need to re-evaluate the metrics used to gauge compliance and determine if the proper industry expectations regarding a particular reliability target is being achieved. The standards should not expect perfection as their goal.; 3) requirement redundancy - this should remain a focus of the Work Plan to remove potential for multiple violations, the standards should remain clear and concise; 4) Clear expectations - many of the standards still lack measures. It's not clear why the industry is putting forth time and energy on developing both measures and Reliability Standards Audit Worksheets (RSAWs). It seems that clear written measures along with the requirements should suffice in providing a responsible entity the information needed to ensure compliance. The RSAWs should not be an on-going expecatation of the standards and the Work Plan should clearly cast this vision. Creating both RSAWs and measures creates unnecessary effort to maintain two sets of information serving the same function.

A presentation was made by the NERC Standards Process Subcommittee (a subcommittee of the SC) at the April 15-16, 2009 NERC Standards Committee meeting that describe a potential method for establishing a list of criteria for evaluating the standards, prioritizing the work needed with a focused effort of trimming down the requirements to core reliability requirements aimed at a particular reliability goal. It's suggested that the work of the NERC Process Subcommittee form the basis of establishing the High Priority list of standards which should ultimately rise to the top of NERC's Work Plan.

C) FE well understands the benefits of utilizing an already formed standards drafting team (SDT) to expedite a response to a standard interpretation request as the team already assembles the SMEs to address a particular subject matter. The SDT also benefits from the experience by being made acutely aware of confusion that exists within an existing standard it is addressing for improvement.

A potential downside to using SDT personnel is the distraction created by the interpretation request and a delay in the standards development work. NERC should closely monitor the workload placed on SDT's being asked to respond to interpretation requests and poll the SDT members to see if they believe there would be any benefit in an alternative approach for interpretation responses.

One potential alternative would be to form a separate sub-committee or work group under the CIPC, OC and PC that would address all interpretation requests related to various class of standards that each of these standing committees would be expected to address. This would allow the SDTs to remain focused on their work in developing new/revised reliability requirements.

D) The Work Plan should set the vision of what the ERO/industry will achieve as a 5-year target. This vision should foretell a 5-year plan of a strong, self supporting industrial model that will triage the standards to separate critical core reliability requirements from the lesser administrative tasks, a dedicated focus of reducing the reliability requirements to those that support NERC's Adequate Level of Reliability and clearly identify the High Priority projects being addressed on a expedited schedule. The 5-year target should seek to continuously improve and adjust as needed to raise the BES reliability where warranted by clear metrics and should not anticipate perfect reliability.

NERC Response:

A and B) In response to your recommendation (as well as similar recommendations from others) we have added Project 2010-06 Performance-based Reliability Standards to the *Reliability Standards Development Plan: 2010-2012* for a project focused on:

- triaging the existing standards to identify those requirements that directly impact reliability,

those that are of secondary importance, and those that shouldn't be requirements at all,

- developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis,
- promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and
- revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability.

C) We appreciate your concern related to the process of developing interpretations. This topic is one of many topics currently being vetted by the members of the NERC Standards Committee and your concerns are more appropriately addressed in that venue.

D) The Reliability Standards Development Plan is a forward looking three year plan for reliability standard development and not necessarily a master plan that sets the long-term vision of the standards program. NERC staff coordinates all standards development activities through the NERC Standards Committee whose membership consists of industry representatives. In compliance with the NERC Reliability Standards Development Procedure, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. The Standards Committee protects the integrity and credibility of the standards development process. NERC staff facilitation of the standards development process in coordination with the Standards Committee takes into consideration the potential impact on industry resources when planning standards related projects and activities.

Comment 5
Name: Frank Gaffney
Organization: Florida Municipal Power Agency

Standard Number(s): EOP-001-1, EOP-003-1, IRO-008-1, IRO-009-1, IRO-010-1, PRC-006-0, PRC-007-0, TOP-001-1, TOP-002-2a, TOP-003-1, TOP-006-2, VAR-001-1a

Standard Title(s): Emergency Operations Planning, Load Shedding Plans, Reliability Coordinator Operational Analyses and Real-Time Assessments, Reliability Coordinator Actions to Operate Within IROLs, Reliability Coordinator Data Specifications and Collection, Development and Documentation of Regional UFLS Programs, Assuring Consistency with Regional UFLS Programs, Reliability Responsibilities and Authorities, Monitoring System Conditions, Voltage and Reactive Control

Suggestion or Comment: The current standards are inconsistent with each other in certain areas and confuse the roles of a Balancing Authority (BA), Transmission Operator (TOP), Reliability Coordinator (RC), Regional Entity (RE), Generation Operator (GOP) and Transmission Planner (TP). The confusion manifests in a few ways. First, it causes the BA to be responsible for requirements that ought to be only applicable to the TOP (such as managing transmission line outages), and visa versa (such as managing fuel supply), probably thinking that most BAs are also TOPs. However, there are BAs that are not TOPs and visa versa. Secondly, it causes redundancy in roles and confusion in leadership in causing certain activities to happen. For instance, both the TOP and RC are responsible for managing IROLs without clear leadership between the two. Also, if a Load Serving Entity (LSE) or GOP receives directives from both the RC and the TOP that conflict with each other, what should the LSE or GOP do?

Example: The NERC Glossary of terms defines a BA as: "The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time." In other words, responsible for supply and demand balance in the operating horizon. With this definition in mind, why is the BA responsible for EOP-001-1 R2.2 "Develop, maintain, and implement a set of plans to mitigate operating emergencies on the transmission system"? Similarly, the TOP is defined as: "(t)he entity responsible for the reliability of its 'local' transmission system, and that operates or directs the operations of the transmission facilities." With this definition in mind, why is the TOP made responsible for EOP-001-1 R2.1: "(d)evelop, maintain, and implement a set of plans to mitigate operating emergencies for insufficient generating capacity"? There are more examples of this, and other inconsistencies between the BA, TOP, RC, RE, GOP and TP, as summarized below:

In EOP-001-1 R4, Appendix A includes items that are not applicable to the TOP and are only applicable to the BA, e.g., why is a TOP responsible for fuel supply? Why is a TOP responsible for R6.2 concerning emergency energy? Why is a TOP responsible for fuel supply in R6.4, and why is the TOP responsible for arranging energy delivery?

In EOP-003-1 R2, why is the BA responsible for Under Frequency Load Shedding (UFLS) when PRC-006-0 and PRC-007-0 make it the responsibility of the Regional Entities, the TOPs, the Distribution Providers and the LSEs? Why is the BA responsible for Under Voltage Load Shedding (UVLS) when the responsibility should probably be just the TOP's? Isn't this requirement redundant with PRC-006-0 and PRC-007-0?

IRO-008-1 and IRO-009-1 requires RCs to operationally plan for and operate within IROLs. TOP-004-2 and VAR-001-1a R10 requires the TOPs to do the same, yet there is no discussion in the standards of coordination between the RC and TOPs in the standards. Note that VAR-001-1a R10 and R12 are dedundant with TOP standards such as TOP-004-2.

TOP-001-1 R8, the requirement ought to clearly delineate that the BA is responsible for restoring real power balance, and the TOP reactive power balance.

TOP-002-2a, the standard is for Transmission Operations Planning yet there are numerous requirements for the BA that should probably be set apart as separate requirements under a new BAL standard for operational planning for supply and demand balance, contingency reserves, and regulation service, which are not related to Transmission Operations Planning.

TOP-002-2a R8, why is it the BA's responsibility to meet voltage or reactive reserves, isn't that the role of the TOP, as spelled out in the VAR standards? If the issue is to ensure enough generation is on-line in specific areas that might need reactive support, isn't that still the TOP's responsibility to coordinate with the BA and issue direction if necessary?

TOP-003-1 R1.2, why is the TOP responsible for providing generator outage information? Isn't that the BA's or GOP's responsibility and isn't this redundant with IRO-010-1?

TOP-006-2 R1, R1.2, why are BAs responsible for information regarding transmission resources available for use? Isn't that the role of the TOP?

TOP-006-2 R2, why is the BA responsible for monitoring transmission line status, voltage, load tap changer settings, and reactive power in general? Monitoring and managing reactive resources, voltage and tap settings is clearly made the responsibility of the TOP in VAR-001-1a.

TOP-006-2 R3 why does the BA need to understand protective relaying? Isn't that the role of the TOP and GOP?

VAR-001-1a R2 requires the TOP to acquire sufficient reactive resources. The statement probably ought to clearly delineate that this requirement is applicable to the operating horizon only and that the TP is responsible for adequate reactive resources in the planning horizon.

Recommendation for improvement: Revise the standards to clearly delineate the responsibilities of the various entities and clear up the redundancy and inconsistencies between the standards. The examples provided include some suggestions for changes to help make roles and responsibilities more clear.

NERC Response:

There are some inconsistencies in identifying the responsible entity – during the development of the Version 0 standards, the drafting team sometimes converting the term, "control area" to "Balancing Authority and Transmission Operator" when the conversion should have clearly assigned the requirement to either the Transmission Operator or the Balancing Authority, but not to both. We are trying to correct these applicability errors as we modify the standards.

Several of the recommended modifications have already been addressed, including deletion of TOP-001-1, Requirement R8; removal of BA requirements from TOP-002; deletion of TOP-003 Requirement R1.2;removal of BA from TOP-006; IRO-008 and IRO-009 require the RC to develop action plans for preventing and mitigating instances of exceeding IROLs and require sharing this information with the entities that need to take these actions – so there is coordination between the IRO standards and the TOP standards.

The following items have been added to the Issues Database to be addressed by the standard drafting team responsible for revising the standard:

Source: Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan:2010-2012

EOP-001-1	Project 2009-03	The NERC Glossary of terms defines a BA as: "The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time." In other words, responsible for supply and demand balance in the operating

		horizon. With this definition in mind, why is the BA responsible for EOP-001-1 R2.2 "Develop, maintain, and implement a set of plans to mitigate operating emergencies on the transmission system"?
EOP-001-1	Project 2009-03	The NERC Glossary of terms defines a TOP as: "(t)he entity responsible for the reliability of its 'local' transmission system, and that operates or directs the operations of the transmission facilities." With this definition in mind, why is the TOP made responsible for EOP-001-1 R2.1: "(d)evelop, maintain, and implement a set of plans to mitigate operating emergencies for insufficient generating capacity"?
EOP-001-1	Project 2009-03	Requirement R4 (and by reference Attachment 1-EOP-001-0) is applicable to both the Transmission Operator and Balancing Authority but includes items that are not applicable to the TOP and are only applicable to the BA, e.g., why is a TOP responsible for fuel supply? Why is a TOP responsible for R6.2 concerning emergency energy? Why is a TOP responsible for fuel supply in R6.4, and why is the TOP responsible for arranging energy delivery?
EOP-003-1	Project 2009-03	With regard to requirement R2, why is the BA responsible for Under Frequency Load Shedding (UFLS) when PRC-006-0 and PRC-007-0 make it the responsibility of the Regional Entities, the TOPs, the Distribution Providers and the LSEs? Why is the BA responsible for Under Voltage Load Shedding (UVLS) when the responsibility should probably be just the TOP's? Isn't this requirement redundant with PRC-006-0 and PRC-007-0?
EOP-003-1	Project 2007-01	Requirement R2 of EOP-003-1 states: “Each Transmission Operator and Balancing Authority shall establish plans for automatic load shedding for underfrequency or undervoltage conditions.” The standards drafting team for Project 2007-01 Underfequency Load Shedding should consider modifying this requirement as part of their project.
VAR-001-1a	Project 2008-01	Requirement R2 requires the TOP to acquire sufficient reactive resources. The statement probably ought to clearly delineate that this requirement is applicable to the operating horizon only and that the TP is responsible for adequate reactive resources in the planning horizon.
VAR-001-1a	Project 2008-01	VAR-001-1a R10 and R12 are redundant with TOP standards such as TOP-004-2.

Comment 6
Name: Guy Zito
Organization: Northeast Power Coordinating Council

Suggestion or Comment: The initial draft of the intended "final" version of the document should be posted for comment. "Fill in the blank" projects versus blackout recommendation projects should be appropriately prioritzed.

Recommendation for improvement: The Reliability Standards Development Plan: 2010-2012 version should be the version that is posted for comments. Having the 2009-2011 version posted is contributing to industry confusion over what information to submit for comments.

NERC Response:

Thank you for your comment. We will consider incorporating your suggestion into next year's project for revising the *Reliability Standards Development Plan.*

Comment 7
Name: Hugh Francis
Organization: Southern Company

Suggestion or Comment: Page 9 of Appendix A has a list of projects that will be initiated each year. At the bottom of page 10 there is a strategy for project resources that addresses the resources needed to complete the standards projects in the project list. There are about the same number of projects in each year. What is not addressed is how these new projects are going to be started/completed without additional resources. This plan does not address the resources needed to keep the earlier projects revised and current. At this time there are 95 nation-wide standards and only 35 or less than 37% have not been revised.

Recommendation for improvement: The new Standards Development Plan needs to address current manpower requirements as well as future needs for manpower. Adjust the project list in the future years to levelize manpower needed to initiate new standards as well as keep the current standards up to date and revised as needed.

NERC Response:

NERC understands the amount of resources required (both industry and NERC specific resources) for the development of quality standards and is cognizant of the fact that industry resources are not limitless. NERC staff coordinates all standards development activities through the NERC Standards Committee whose membership consists of industry representatives. In compliance with the NERC Reliability Standards Development Procedure, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. NERC staff facilitation of the standards development process in coordination with the Standards Committee takes into consideration the potential impact on industry resources when planning standards related projects and activities.

One of the requirements of the Reliability Standards Development Process is to review each standard at least once every five years, and we are facing the "five-year" anniversary of the initial effective date for the "Version 0" standards. The majority of projects slated to commence in 2010 in this revised plan will enable NERC to meet this requirement as it relates to the initial set of reliability standards.

Comment 8

Name: Jalal Babik

Organization: Dominion Resources Inc.

Project Number(s): 2007-01-RE, 2007-05-RE, 2007-11-RE, 2008-04-RE.

Project Title(s): Underfrequency Load Shedding, Balancing Authority Contols, Disturbance Monitoring,

Protection System
Suggestion or Comment: NERC must place more priority on fill-in the blank standards in its Reliability Standards Development Plan. Since several of these standards, have not gotten priority attention, Regional Councils are moving ahead with Regional Standards development on these standards, while a national standard would be more appropriate and prevent the development of unnecesary regional differences in standards that ultimately make standards compliance more difficult for registered entities operating in more then one Region. Further, a national standard on these important compliance topics would set the threshold and hence, regional differences or variences could be minimized. Without this prioritization, registered entities could face very different compliance requirements on simliar equipment in their fleet, based soley on what Region the equipment resides; making compliance management more difficult, yet for little to no benefit to the bulk power system and compliance costs. Additionally, given several of these projects were started in 2007, that reason alone should move these projects into the highest priority on NERC Development Plan.
Recommendation for improvement: These fill-in-the-blank standards should review top priority from NERC staff until they are balloted. Regional Standards that address then same compliance subjects should be put on hold until the national standard on the same compliance objective is addressed by ballot body. It is after that national balloting that Regions will know what regional differences are truly needed based on unique characteristics of their regional bulk electric system.
NERC Response: The projects in question relative to the above comments are: • Project 2007-01-RE — Underfrequency Load Shedding, • Project 2007-05-RE — Balancing Authority Controls, • Project 2007-11-RE — Disturbance Monitoring, and • Project 2008-04-RE — Protection Systems as described in Volume III of the *Reliability Standards Development Plan: 2009-2011* and the corresponding continent-wide projects currently underway or planned. Three of the four corresponding continent-wide projects are well underway (those being Project 2007-01 Underfrequency Load Shedding, Project 2007-05 Balancing Authority Controls, and Project 2007-11 Disturbance Monitoring) and are subject to the schedule established by the associated standard drafting team. The fourth continent-wide project was identified in Volume II of the Reliability Standards Development Plan: 2009-2011 as Project 2010-05 Protection Systems. The work being performed in parallel by any particular region is subject to the oversight of the regional standards organization for that region and is not controlled by NERC staff. NERC standards staff is in regular contact with the individuals at each of the Regional Entities responsible for developing regional reliability standards. Coordination of the four projects referenced above is ongoing. In many instances, the Regional Entity has decided to commence work on the four 'fill-in-the blank' standards in order to able to better coordinate the development of the regional standard with the development of the continent-wide standard. This actually is to the benefit of those entities in the region affected by the standard. Each Regional Entity has a FERC-approved regional standard development procedure. Embedded in the regional standard development process, a region seeking approval of a regional reliability standard must justify the need for the standard. It is incumbent on those that participate in the regional standards development process to determine the need to expend resources on developing a standard as they deem appropriate. Each of the regional standards development procedures mandates a fair and open process for the development of standards. As such any interested party in the region should have a voice in which standards development projects are pursued and which standards are not. NERC

cannot require a Regional Entity to justify a regional standard before it is developed.

Also, please see the "Fill-in-the-blank Standards" section of this Volume I for additional information related to fill-in-the-blank standards.

With respect to your comment regarding regional differences, we respectfully disagree with the assertion that only after national balloting will the need for a regional difference be known. It is optimal for all regional differences to be identified whether as part of the continent-wide standards development process or as part of a regional standards development effort prior to the continent-wide standard being balloted.

Comment 9

Name: Jason Marshall

Organization: Midwest ISO

Suggestion or Comment: NERC should sponsor an industry triage of the standards to identify the core requirements and flag those that are minutia. This will allow all of industry (NERC, Regional Entities and Registered Entities) to focus resources on what will support reliability rather than push paper to demonstrate compliance with requirements that don't support reliability.

Example: A simple example is the DCS. The true core requirements are to recover from all reportable events in 15 minutes and replenish reserves in 90 minutes thereafter. The rest of the Requirements are an explanation of what that means, how it's handled in a Reserve Sharing Group and also the procedural reporting items. However, we are now moving down a path to assign measures and sanctions to 20 different things in this standard.

Recommendation for improvement: A first step for any standards improvement effort would be the creation of a database companion to the standards. This would not only be a platform to capture the triage comments, the database could be used by registered entities to identify all the requirements that apply to them. Presently, it is impossible to say with assurance you have found all applicable requirements. For example, there are several cases where an entity is mentioned in a requirement, but that entity is not identified in the "applicability" section of the standards. In addition, the database would help to identify where there are redundant requirements in multiple standards and help to eliminate these redundancies and streamline the standards.

Once you have the triage complete, format changes are just a matter of programming.

If you look at the present V0 and V1 standards, many things labeled as requirements are actually criteria, procedures, administrative directions and explanatory text.

As an example of what can be done to improve the final format after the triage, refer to Europe's Policy 1 at: http://www.ucte.org/resources/publications/ophandbook/

The bullets in their policies are broken into a few categories:

- C for Criteria (goals and background of the standard)
- R for Requirements (generally attributes that are yes/no go/no-go)
- S for Standards (things measured on a scale)
- P for Procedures (administrative information)
- G for guides (while we have moved away from guides, the issue still remains what to do with the good practices that are being lost from institutional memory)

If there is information beyond this, it is likely reference information and should be moved to an appendix in the standard (using A for paragraph numbers).

The benefit in making such a format change is that the industry can focus on those things that are important for reliability. It also allows NERC and the Regions to focus on the important things.

Compliance elements would be applied to the requirements and standards. There still could be notification to regulatory bodies on procedural deficiencies.

This is not a suggestion for any change to content in the standards, just a reformatting.

NERC Response:

In response to your recommendation (as well as similar recommendations from others) we have added Project 2010-06 Performance-based Reliability Standards to the *Reliability Standards Development Plan: 2010-2012* for a project focused on:

- triaging the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all,
- developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis,
- promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and
- revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability.

Project Number(s): Project 2009-04, Project 2011-01

Project Title(s): Phasor Measurement Units, Equipment Monitoring and Diagnostic Services

Suggestion or Comment: Project 2009-04 Phasor Measurement Units - While Midwest ISO supports continued and expanded use of PMUs, we believe that any standard developed should be a technical standard that facilitates a common implementation.

Project 2011-01 Equipment Monitoring and Diagnostic Services - While this project has some merit, it needs to be prioritized among all of the existing on-going standards work. There does not appear to be an overwhelming industry need to implement this standard to prevent the next system disturbance. One could even argue this standard is not about improving BES reliability because the BES must already be operated to withstand the next contingency.

Recommendation for improvement: Ensure the SAR for Project 2009-04 proposes to develop a technical standard only. Delay Project 2011-01 indefinitely until all version 0 standards have been approved by FERC with no additional revisions required. Then evaluate to determine if it is needed for reliability.

NERC Response:

With respect to your comment regarding Project 2009-04 Phasor Measurement Units the following item has been added to the Issues Database to be addressed by the standard drafting team responsible for revising the standard:

Source: Jason Marshall (Midwest ISO) as input to the Reliability Standards Development Plan:2010-2012

Project No.: 2009-04 Phasor Measurement Units

Language: While Midwest ISO supports continued and expanded use of Phasor Measurement Units, we believe that any standard developed should be a technical standard that facilitates a common implementation. Ensure the SAR for Project 2009-04 proposes to develop a technical standard only.

With respect to your comment regarding Project 2011-01 Equipment Monitoring and Diagnostic Services, the priority of this particular project remains relatively low in the revised Reliability Standards Development Plan.

Comment 10

Name: Jianmei Chai

Organization: Consumers Energy Company

Suggestion or Comment: When there are revisions to the NERC Glossary of Terms (Glossary), NERC should notify stakeholders of the change. New or revised terms are not added to the Glossary until they are approved by the NERC Board of Trustees. However, due to the volume of standards that go through the Standard Development Process, providing notice to stakeholders when the Glossary is revised provides the opportunity to validate that stakeholders are, in fact, adhering to the appropriate definitions. This is especially important with regard to revised terms. Currently, NERC provides notice to stakeholders for ballot results and when Standard Authorization Requests (SARs) and proposed Standards have been posted for comment. However, to our knowledge, no notice is provided when the Glossary is revised.

With regard to the Glossary itself, we offer the following suggestions:

1) Glossary terms should reference the Standards to which they apply. Not only would this be helpful in identifying how stakeholders should revise their compliance process, it would assist the Standards Drafting Teams, because they are required to determine if any existing Standards would be affected by a revision.

2) Clean and redline versions of the Glossary should be posted to allow stakeholders to more accurately track revisions.

3) Regional terms should state the region(s) to which they apply. This is especially important with respect to terms that subsequently may be incorporated into another region's Standards or into national Standards, particularly since stakeholders outside the region associated with the specific term(s) generally would not have had an opportunity to comment, except when the Regional Standard is posted for ballot at NERC.

4) Each Glossary term should appear in at least one Standard. We have identified terms that are not associate with any Standard.

5) When a term is revised, an effective date should be noted, as well as a termination date for the old definition.

6) Historical versions of the Glossary should be readily available on the NERC web site.

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In addition, we suggest that Requirements NOT include reporting data for compliance monitoring (this should be in Measures), but only include data reporting where the data is used by the recipient for other reliability purposes. In other words, providing data to the RE periodically to demonstrate compliance should be a measure, but providing data to the RE periodically for RE model development should be a requirement.

NERC Response:

With regard to your first suggestion that NERC should notify the industry when a change is made to the NERC Glossary of Terms Used in Reliability Standards, NERC staff appreciates your concern and has begun revising our internal process by modifying our announcements to notify stakeholders when the NERC Board of Trustees approves a new/revised/retired definition.

With regard to your additional suggestions:

1. While this would be "nice" it is not "necessary." Each time a defined term is used in a reliability standard, the term is capitalized to indicate that the term uses the definition found in the glossary. If a drafting team proposes revising a standard, then the team must search all standards approved by the Board of Trustees and determine, with stakeholder feedback, if the modification to the term would adversely impact any of the already approved requirements. (You can see an example of this with the current posting for Project 2007-17 - Protection System Maintenance and Testing - the team is proposing to change the definition of Protection System and has provided a table with every instance where the term is used in an approved standard.)
2. While this would be "nice" it is not "necessary." The value of tracking past versions isn't clear.
3. We agree. The current version of the Glossary of Terms in Reliability Standards does not embed any regional definitions in the set of continent-wide definitions. In the future, additional sections may be added to the Glossary of Terms in Reliability Standards to provide a place to identify definitions that were developed and approved through a regional standards development process and approved by the NERC Board of Trustees.
4. We agree. We are unaware of any terms that aren't in any standards. Please forward the terms that you have discovered are no longer needed.
5. This is a good suggestion and can be adopted moving forward - however making this retroactive to provide the initial date for all terms would be labor intensive and isn't "necessary."
6. Because the glossary is updated after most Board of Trustee meetings, this would require retaining many versions of the glossary, and the benefit isn't clear.

Comment 11
Name: James H. Sorrels, Jr.
Organization: American Electric Power

Reliability Issue: With the addition of increasing volumes of new generation types and the current use of fossil fuel generation characteristics for such units, the accuracy of state estimator models are being adversely impacted.

Suggestion or Comment: Establish a Standards Drafting Team to address this reliability concern.

Example: Wind generators do not follow the typical reactive curves attributed to fossil fuel generator units. In fact, some types of wind units do not produce reactive support, while the state estimator model is reflecting that it does produce reactive support. Fossil fuel units produce dynamic reactor capability, while wind generators can be a combination of dynamic and static capability.

Recommendation for improvement: The developed standard, when effective, will improve the accuracy of state estimator models.

NERC Response:

Project 2009-02 Real-time Tools was initiated this year the Purpose of which states:

> "The new standard or standards will establish requirements for the functionality, performance, and management of Real-time tools for Reliability Coordinators, Transmission Operators, and Balancing Authorities for use by their System Operators in support of reliable System operations."

Please monitor and/or participate in this project to the extent possible with respect to the issue raised above. To encourage the drafting team to consider your concern we have added your issue to our Issues Database associated with the project.

Comment 12

Name: Laura Lee
Organization: Duke Energy

Suggestion or Comment:

#1 There are requirements in standards, and standards themselves, that do not clearly ensure the reliability of the bulk power system. Unnecessary requirements are detrimental to the reliability of the BES because they divert entities' resources from focusing on the core actions that are truly essential to maintaining reliability. In addition, there are so many standards development projects currently active that entities are devoting resources to, the industry has little time to reflect and identify what gaps may exist in the reliability standards or formulate recommendations for eliminating those gaps. The Reliability Standards Development Plan: 2009-2011 does not clearly identify the top few priorities and how the projects in the plan support those priorities.

#2 Development of regional standards in parallel with development of a continent wide standard on the same subject results in inefficency.

#3 There appear to have been more interpretation requests than were anticipated in the past year, and it is reasonable to expect this trend to continue.There is currently not a process to control the amount of resources that are devoted to developing reliability standards interpretations.

Recommendation for improvement:

#1 Duke advocates pausing non-essential standard development activity in order for NERC to engage the industry in an effort to identify the standards and requirements that are truly essential for maintaining an adequate level of reliability of the BES. This could take the form of a "clean slate" approach, similar to the effort underway prior to development of the version 0 standards to define about 13 core standards, or a stop/start/continue review of the current slate of standards and requirements. The Standards Committee would be a logical lead for this effort, providing directional definition in addition to their process leadership. The result should be a clearly articulated vision of where the reliability standards development efforts need to be applied, a plan to achieve that vision and an explanation of how each project in the plan supports that vision.

#2 Regional standard development needs to be more closely coordinated with continent wide standard development.

#3 Either more allawance needs to be given in the subsequent Reliability Standards Development Plan for the actual and anticipated increase in reliability standards interpretation requests by defering the commencement of projects that have not been started or the process needs to be streamlined while still including industry input. A prioritization/classification effort as proposed in recommendation #1 above that resulted in fewer and more focused requirements would have the added benefit of reducing the volume of interpretation requests.

NERC Response:

#1 In response to your recommendation (as well as similar recommendations from others) we have added Project 2010-06 Performance-based Reliability Standards to the Reliability Standards Development Plan: 2010-2012 for a project focused on:

- triaging the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all,
- developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis,
- promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and
- revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability.

#2 There are currently four continent-wide projects which may or may not require each regional entity to develop companion regional standards:

- Project 2007-01 Underfrequency Load Shedding
- Project 2007-05 Balancing Authority Controls
- Project 2007-11 Disturbance Monitoring
- Project 2010-05 Protection Systems (as identified in Volume II of *Reliability Standards Development Plan: 2009-2011*)

Three of the four corresponding continent-wide projects are well underway (those being Project 2007-01 Underfrequency Load Shedding, Project 2007-05 Balancing Authority Controls, and Project 2007-11 Disturbance Monitoring) and at this point in time may not even require regional standards. The fourth continent-wide project (Project 2010-05 Protection Systems) has yet to be initiated and it is unknown to what degree regional standards will need to be developed.

NERC standards staff is in regular contact with the individuals at each of the Regional Entities responsible for developing regional reliability standards. Coordination of the four projects referenced above is ongoing. In many instances, the Regional Entity has decided to commence work on the four 'fill-in-the blank' standards in order to able to better coordinate the development of the regional standard with the development of the continent-wide standard. This actually is to the benefit of those entities in the region affected by the standard.

Each Regional Entity has a FERC-approved regional standard development procedure. Embedded in the regional standard development process, a region seeking approval of a regional reliability standard must justify the need for the standard. It is incumbent on those that participate in the regional standards development process to determine the need to expend resources on developing a standard as they deem appropriate. Each of the regional standards development procedure mandates a fair and open process for the development of standards. As such any interested party in the region should have a voice in which standards development projects are pursued and which standards are not. NERC cannot require a Regional Entity to justify a regional standard before it is developed.

#3 We appreciate your concern related to the process of developing interpretations. This topic is one of many topics currently being vetted by the members of the NERC Standards Committee and your concerns are more appropriately addressed in that venue.

Comment 13

Name: Michelle Rheault

Organization: Manitoba Hydro

Suggestion or Comment:

Over the past few years, there has been a modest improvement in the quality of some reliability standards. Manitoba Hydro would like to encourage NERC to continue its efforts at improving existing standards.

Manitoba Hydro is not satisfied with the Standards Under Development (SUD) 2009-2011 Plan. Many of our comments below mirror those previously provided to NERC from industry participants (Appendix A of the 2009-2011 plan). The fact that comments from previous years have not been addressed seems to indicate that the commenting process is a formality that consumes scarce entity resources with little reward for the effort. Nevertheless, we feel it is important to continue voicing our concerns.

We believe that the three issues outlined below are key to improving the SUD plan.

1. Standard Quality

   Manitoba Hydro feels that standard quality is vital to the reliability of the BES. More standards do not lead to better reliability; rather, this is achieved by fewer high-quality standards that focus on essentials for reliability.

   As per the Standard Development Plan (Volume I, page 8), “Order No. 672 provides guidance on the factors the Commission will consider when determining whether proposed reliability standards meet the statutory criteria.” It states that standards must be “clear and unambiguous.” We recommend that this guidance be used to develop a method to measure the quality attributes of a standard. This would allow industry and NERC to determine when they are satisfied with a standard and can move on to allocating resources to create new standards. The number of Requests for Interpretation put forth by industry is an indication that there are many standards which are neither clear nor unambiguous.

2. Project Prioritization

   Manitoba Hydro believes that in order to best improve the reliability of the BES, NERC needs to

change the way it prioritizes projects.

New projects are questionable given the greater need to improve the clarity of existing standards that are already auditable. Some proposed projects may be a good idea, but are not an immediate necessity for BES reliability and dilute the resources available to more critical projects. Some examples from the 2009-2011 plan include:

- Project 2009-04 Phasor Measurement Units
- Project 2010-01 Support Personnel Training
- Project 2011-01 Equipment Monitoring and Diagnostic Devices
- Project 2009-02: Real-time Tools

Prioritization can be improved by developing a priority ranking tool. The Blackout report is getting stale as a source of priority in a changing environment. In developing the ranking tool, Manitoba Hydro has several suggestions to improve the prioritization of projects:

- Survey the industry to obtain an indication of the greatest need for the reliability standards. Focus on value added projects where deficiencies clearly exist today.
- Focus on cleaning up existing standards, rather than merging multiple standards, which requires significantly more effort to achieve a "clear and unambiguous" result.
- Limit the number of standards involved in the standards under development process: This type of limit would prevent the plan from using too many resources. Unless there is a high priority for it, new projects should not be added to the plan or started until old projects are finished. As an example, there are still nine projects initiated in 2006 which have not been completed, while limited NERC and industry resources are assigned to the start of 2009 projects.
- Do not create new standards which duplicate what is already found in other standards and only serve to prescribe the method to meet the original requirement. If requirements are clear and unambiguous, any method used by entities to comply with the standards will be appropriate and mitigate risk to the BES.
- Low-priority projects should not be scheduled for future years, but rather put on a to-do list which can be reviewed when resources are available.
- Develop a risk profile for the entirety of NERC Standards. NERC needs a more holistic approach to risk management. While VRFs identify risk for each requirement and are used for enforcement purposes, they do not lend themselves to a "big picture" assessment of risk and comparison of standards on a risk basis. Selecting projects for the current work plan based on the associated risk to the BES is very difficult using the VRFs. The Standards Committee should develop a risk profile that effectively compares standards on a risk basis and facilitates the targeting of activities on those key standards that mitigate the greatest risk to the reliability of the BES.

3. Management of the Plan

Like any project, the Standard Under Development plan must be properly managed. This includes three components as outlined below:

- Resourcing

  There are currently too many projects drawing on limited industry resources for both participation on drafting teams as well as commenting and voting on standards under development. An excessive number of projects may result in industry fatigue in the standards development process. If fewer requests for comments were sent out, the quality of the feedback

received would be higher, which would lead to better quality standards.

The SUD Plan must reflect the need for resources to focus on interpretation requests which come up during the year. The number of interpretations will not decrease until existing standards are updated to improve clarity and measures of compliance. Hence, this should be the focus of activities in the short term.

- Cost

  NERC should publish the cost of the SUD program implementation, so that industry can weigh the benefits of new projects versus the cost of implementing them.

- Metrics

  There is a need for metrics to evaluate the standards development process in order to understand how long it takes to complete a project and how many can be completed per year in order to better plan future work. Past performance is an indication of future performance; therefore, plans should not encompass more work than has been shown to be completed in the past. For example, only one project identified in the 2008-2010 plan has been completed, but four projects have been added. The concern is that as more projects are added than completed, the plan will become unachievable and projects that actually improve reliability will not be completed.

  These metrics should be published in the Standards Development Plan in an easy to understand format (tables, graphs, etc) to demonstrate what is achieved from year to year and predict what is achievable for future years. Possible metrics include:

  - Number of projects completed each year
  - Number of projects added each year
  - Number of projects failed/withdrawn each year
  - Number of projects rescheduled to future years
  - Average time to complete a project
  - Number of new requests for interpretations each year
  - Summary of what phase the projects are at (i.e. percent started, percent voted on, percent waiting for BOT approval, etc)

NERC Response:

1. Standard Quality

In response to your recommendation (as well as similar recommendations from others) we have added Project 2010-06 Performance-based Reliability Standards to the Reliability Standards Development Plan: 2010-2012 for a project focused on:

- triaging the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all,
- developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis,
- promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and
- revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability.

2. Project Prioritization

The concept of project prioritization is paramount to a successful reliability standards development plan. A high priority project in the eyes of one entity might not be in the eyes of another entity. NERC staff coordinates all standards development activities through the NERC Standards Committee. In compliance with the *NERC Reliability Standards Development Procedure*, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. NERC staff works with the NERC Standards Committee to identify the projects of highest overall industry importance before working on lower priority projects. In fact, the Standards Committee Process Subcommittee is currently discussing methodologies for prioritizing standards development projects. We encourage your company's participation on that subcommittee.

3. Management of the Plan

- Resourcing

  NERC appreciates the industry resources necessary for the development of quality standards and is cognizant of the fact that industry resources are not limitless. NERC staff coordinates all standards development activities through the NERC Standards Committee whose membership consists of industry representatives. In compliance with the NERC Reliability Standards Development Procedure, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. NERC staff facilitation of the standards development process in coordination with the Standards Committee takes into consideration the potential impact on industry resources when planning standards related projects and activities. Specific comments in how this Reliability Standards Development Plan could be modified to more effectively use industry resources are welcome.

- Costs

  The costs of the NERC Standards program are detailed in the NERC Business Plan and Budget.

- Metrics

  A revised set of metrics has been provided in Volume I of the *Reliability Standards Development Plan: 2010-2012*.

Comment 14

Name: Standards Review Subcommittee

Organization: North American Energy Standards Board

Suggestion or Comment:

2006-07 Transfer Capabilities - (ATC, TTC, CBM, TRM)

Comment - NAESB completed its original work under FERC Order 890 for ATC, TTC, CBM, and TRM, which was coordinated with NERC. In the NERC NOPR related to this project there was the identification of potential for additional work. NAESB requests that NERC continue to coordinate and notify NAESB if there are any addition changes to the NERC standards affected under this project which could have an impact on the NAESB Business Practice Standards.

A potential area of additional coordination between the NERC drafting team and NAESB's WEQ ESS/ITS may arise in the handling of designation and undesignation of network resources under NAESB WEQ 2009 Annual Plan item 3.a.i "Group 3: Network Service On OASIS." The ESS/ITS is developing business practice standards for Network Service on OASIS, that include OASIS formats and requirements for capturing information on designation and undesignation of network resources. The

information captured in the NAESB standards may provide useful data for inter-BA communication of resource allocations.

2006-08 Transmission Loading Relief

Comment - This project has ongoing coordination with NAESB since it directly impact the NAESB Business Practice Standard WEQ-008 (Transmission Loading Relief - Eastern Interconnection). NAESB expects this coordination will continue as the project moves forward.

2007- 05 Balancing Authority Control

This project is currently being coordindated with the NAESB Time and Inadvertent Management Task Force. Changes to the NERC standards may have an impact on the NAESB Business Practice Standards WEQ-006 (Time Error Correction) and WEQ-007 (Inadvertent Interchange Payback). We request that the Reliability Standards Development Plan continue to reflect that the project be coordinated with NAESB and reference the NAESB WEQ 2009 Annual Plan Items:

1.d Time Error and Indavertent (BAL-004 and BAL-006) Coordination with NERC

1.e DCS and AGC (BAL-002 and BAL-005) Coordination with NERC

2007-18 Reliability Based Controls

Comment - The Joint Interchange Scheduling Working Group in first quarter 2009 reviewed EOP-002 and determined that there should be some level of coordination between NERC and NAESB. As a result of this review the NAESB WEQ 2009 Annual Plan item (3.a.viii) "Review and correct WEQ-004 Coordinate Interchange Business Practice Standard as needed based on activities in NERC Project 2008-12, Coordinate Interchange Standards Revisions and supporting EOP-002-2 R4 and R6" was added. We request that this project reference that coordination between NERC and NAESB needs to occur and the cross reference to the NAESB WEQ 2009 Annual Plan item be added in the 2010-2012 Reliability Standards Development Plan.

2008-12 Coordinate Interchange

Comment - The Joint Interchange Scheduling Working Group in first quarter 2009 reviewed EOP-002 and determined that there should be some level of coordination between NERC and NAESB. As a result of this review the NAESB WEQ 2009 Annual Plan item (3.a.viii) "Review and correct WEQ-004 Coordinate Interchange Business Practice Standard as needed based on activities in NERC Project 2008-12, Coordinate Interchange Standards Revisions and supporting EOP-002-2 R4 and R6" was added. We request that this project reference that coordination between NERC and NAESB needs to occur and the cross reference to the NAESB WEQ 2009 Annual Plan item be included in the 2010-2012 Reliability Standards Development Plan.

2009-03 Emergency Operations

Comment - This project indicates that it will affect EOP-002-2. As a result of the Joint Interchange Scheduling Working Group's review of EOP-002-2 R4 and R6 and the issues noted in the project could affect R6 this project should be coordinated with NAESB and reference the NAESB WEQ 2009 Annual Plan item (3.a.viii) "Review and correct WEQ-004 Coordinate Interchange Business Practice Standard as needed based on activities in NERC Project 2008-12, Coordinate Interchange Standards Revisions and supporting EOP-002-2 R4 and R6."

2009-05 Resource Adequacy

Comment - NAESB created Provisional Item 1 "Develop and or modify business practices related to support of NERC effort on the NERC Resources and Transmission Adequacy (Project 2009-05 Resource Adequacy Assessment)" in its NAESB WEQ 2009 Annual Plan. We are requesting that this project be noted as one which may require coordination with NAESB.

Reliability Issue: Gas/Electric Coordination
Suggestion or Comment: Coordinate with NAESB to determine if some or all of the requirements contained in the NAESB Business Practice Standards WEQ-011 (Gas/Electric Coordination) should be transitioned to NERC.
Example: Refer to WEQ-011-1.3 through WEQ-011-1.6
Recommendation for improvement: The WEQ-011 was developed so that entities received critical notices from gas Transportation Service Providers, such that the Power Plant Operators were notified of material changes in circumstances that may impact hourly flow rates. The ISO/RTOS and/or BAs, and/or Power Plant Operators are to develop procedures when extreme conditions occur. These NAESB standards appear to be of a reliability nature rather than commercial. NERC and NAESB should review the standards to determine if all or part of WEQ-011 should be transitioned to NERC.
NERC Response: NERC believes that continued coordination with NAESB is an important component of bulk power operations, and remains committed to work with NAESB as needed. With regard to project 2006-07 Transfer Capabilities, NERC will work with NAESB to ensure that any changes to these standards, directed by the Commission in its final rule or otherwise, will be coordinated between the two organizations. NERC will add a statement to this effect in our Plan. With regard to projects 2006-08 Transmission Loading Relief, 2007-05 Balancing Authority Controls, and 2008-12 Coordinate Interchange, NERC will add statements to our Annual Work Plan about NERC/NAESB Coordination. Regarding Projects 2007-18 Reliability Based Controls, 2009-03 Emergency Operations, and 2009-05 Resource Adequacy, NERC agrees that continued coordination with NAESB is important and work with NAESB as needed to ensure our work products are complementary. Should any changes to standards occur related to these projects that have business practice implications, NERC will work to coordinate with NAESB. If the NAESB SRS is aware of proposed changes that they feel would impact business practices, please advise the NERC Manager of Business Practice Coordination. As far as Gas/Electric Coordination, NERC appreciates this suggestion, and welcomes further discussion related to this item. NERC suggests that one or more members of the NAESB SRS develop a NERC Standards Authorization Request that proposes this transfer, at which point NERC can establish a team of industry representatives to work with the requester(s) and discuss this item in depth.

Comment 15

Name: Stephanie Monzon - Regional Reliability Standards Working Group
Organization: NERC, RFC, MRO, WECC, NPCC, SPP, TRE, SERC, FRCC

Suggestion or Comment:

- The process for updating the NERC Workplan should begin with industry input prior to posting the workplan. The current process posts the existing, approved version of the work plan to solicit industry input. Instead, NERC staff should conduct an industry webinar to collect initial thoughts followed by a posting of the revised version of the workplan.

- A status of the existing approved projects in the workplan should be provided as reference material to the industry either during the webinar or before the posting to faciliate the commenting process. The status of the existing projects will provide the industry with an understanding of how many projects are still open, nearing completion, or completed.

- In 2006 the RRSWG assisted in the development of the original Work Plan by performing a sweeping assessment of the "fill in the blank" standards. It provided as input to the Plan recommendations on how the "fill in the blank" characteristics could be eliminated by modifying then existing standards and set forth the possibility of the need for stand-alone regional standards or regional standards in support of continent wide standards. Since that time the UFLS and DM SDTs have been formed and posted at least one draft of the respective standards. Both drafting teams are proposing continent wide requirements/ standards in these subject areas. Given the evolution of standards development the original RRSWG recommendations should be deleted from the Work Plan. Regarding the remaining fill in the blank standards (SPS and BAL) the NERC standards projects are either in the infancy stages of development or have not commenced. The RRSWG recommendations to create regional standards in these areas should be considered "on hold" until the drafting efforts have matured and a technical determination can be made for the need of regional standards that includes consideration by the Regions and NERC.

Recommendation for improvement: - Conduct a webinar or other similar activity to get initial suggestions for the next version of the workplan instead of posting the existing version of the workplan. This should be followed by the first posting of a revised workplan.

- Provide the industry with a status of the existing projects in the work plan

- Remove the RRSWG recommendations for the UFLS and DME standards and place "on hold" the recommendations for SPS and BAL fill in the blank standards.

NERC Response:

- Conduct a webinar…

Thank you for your comment. We will consider incorporating your suggestion into next year's project for revising the *Reliability Standards Development Plan.*

- Provide the industry with a status …

Links to the current project schedule for each of the active projects are provided at the end of each project description in Volume II of the Reliability Standards Development Plan. The on-line project schedules are updated monthly and should provide the level of detail you suggest in your comment above.

- Remove the RRSWG recommendations for the UFLS and DME standards and place "on hold" the recommendations for SPS and BAL fill in the blank standards.

The recommendations of the RRSWG are noted in the Issues Database and do not need to be removed

at this time. The recommendations will be treated as any other recommendation in the database in that the standard drafting team working on the applicable standard will consider the recommendation but is not obligated to implement the recommendation. Maintaining it in the Issues database ensures that the recommendation is tracked and not lost in the standards development process.

Comment: 16

Name: Wayne Pourciau

Organization: Georgia System Operations Corp.

Reliability Issue: Interfering with compliance and enforcement of requirements essential for reliability

Suggestion or Comment: There are a number of requirements that are not essential to the reliability of the bulk power system (e.g., needed to prevent cascading outages). These requirements interfer with compliance by reliability entities with requirements essential to reliability and interfer with compliance enforcement by regional entities of those essential requirements. There is a need to place primary focus on the essential requirements. Reporting and other lesser requirements should be a secondary focus and only as long as they do not take away the focus on the essential requirements.

Example: BAL-006-1, R5: "Adjacent Balancing Authorities that cannot mutually agree upon their respective Net Actual Interchange or Net Scheduled Interchange quantities by the 15th calendar day of the following month shall, for the purposes of dispute resolution, submit a REPORT to their respective Regional Reliability Organization Survey Contact. The REPORT shall describe the nature and the cause of the dispute as well as a process for correcting the discrepancy."

This reporting is not a reliability requirement. A reliability requirement is one that focuses on operating the elements of the BES within system thermal, voltage, and stability limits so that instability, uncontrolled separation, or cascading failures of such system will not occur as a result of a sudden disturbance or unanticipated failure of system elements. A reliability requirement deals with the operation and maintenance of BES facilities and the design of planned additions or modifications to such facilities to the extent necessary to provide for reliable operation of the BES. The example above is an administrative requirement. It does not deal with current or future operation of the BES.

The reporting requirements of EOP-004, other than those relating to physical and cyber threats and attacks, are some more examples. These deal with information on past events (water under the bridge) and do not deal with operating the BES. This reporting is needed by NERC to investigate incidents, collect statistics on incidents, and other purposes relating to overseeing reliability (but such reporting is not needed for operating the BES).

Another example is TOP-005-1.1, R2 "As a condition of receiving data from the Interregional Security Network (ISN), each ISN data recipient shall sign the NERC Confidentiality Agreement for “Electric System Reliability Data.” " This is not a reliability requirement.

Recommendation for improvement: Review all existing FERC approved Reliability Standards to eliminate Reliability Standards that are not essential to the reliability of the bulk power system (e.g., needed to prevent cascading outages). Reduce less significant Reliability Standards to a lesser category, such as operating guides, policies or criteria and remove documentation related requirements from the requirements of Reliability Standards. Move documentation related requirements to compliance measures or some other component of the Reliability Standards. This is a high priority along with eliminating duplicative requirements, making existing requirements more clear, and securing the nation's electric system from attacks.

Although the reliability of the electric system in the United States and Canada is one of the most (if not THE most) reliable system in the world, it is always good to keep improving. However, NERC projects aimed at adding requirements to try to improve the reliability of the system are a lower priority at this time than the high priorities listed above. Fixing the existing standards is the best way to improve reliability and improve the monitoring and enforcement of the essential requirements. Adding more requirements to try to improve reliability should be pursued only as time and available resources allow.

NERC Response:

You identify two important concepts in your comments above. The first being the perceived need of a focused project to triage the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all. In response to your recommendation (as well as the recommendation of many others) we have added a project to the *Reliability Standards Development Plan: 2010-2012* for such a project. The second concept you touch upon in your comments above goes beyond the project for "triaging" the current set of standards and focuses more on the overall content and structure of the full set of NERC reliability standards. This as well is an extremely important concept and one which the Standards Committee Process Subcommittee (SCPC) is considering. It is anticipated that the SCPS will make a recommendation for a long term project for transforming the standards to meet industry desires. If and when the NERC Standards Committee accepts the recommendation of the SCPS NERC staff will work with the SCPS in developing an appropriate project for inclusion in the *Reliability Standards Development Plan*.

Comment 17

Name: Phillip R. Kleckley

Organization: SERC EC Planning Standards Subcommittee (PSS)

Standard: FAC-001-0 - Facility Connection Requirements

Element(s) (i.e., Requirement R1.2., Measure M2., etc.): R1.3. End-user facilities

Suggestion or Comment: add a definition of "end user" to the NERC Glossary

Project: 2010-02 Facility Connection Requirements

Additional Information: The recommendation was received as part of the comments on Question 3 of the comments form for the "Draft Revision 6 of the SERC Facility Connection Requirements (FCR) Guideline".

NERC Response:

Due to your comment above the following item has been added to the Issues Database to be addressed by the standard drafting team responsible for revising the standard:

> Source: Phillip R. Kleckley (SERC EC Planning Standards Subcommittee (PSS)) as input to the Reliability Standards Development Plan:2010-2012
>
> Project No.: 2010-02 Facility Connection Requirements
>
> Language: Consider adding a definition of "end user" to the NERC Glossary. (Note: This recommendation was received as part of the comments on Question 3 of the comments form for the "Draft Revision 6 of the SERC Facility Connection Requirements (FCR) Guideline".)

Comment 18

Name: John Ciufo

Organization: NERC System Protection and Control Subcommittee (SPCS)

Standards:

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations
- PRC-012-0 — Special Protection System Review Procedure
- PRC-016-0.1 — Special Protection System Misoperations

Suggestion or Comment: The NERC System Protection and Control Subcommittee (SPCS) recommends creation of a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016

Consistent with the attached Standard Authorization Request (see Attachment 1) and Technical Review of Standards Prepared by the System Protection and Controls Subcommittee of the NERC Planning Committee dated May 2009 (see Attachment 2).

NERC Response:

In response to your comment we have modified Project 2010-05 Protection Systems in to the *Reliability Standards Development Plan: 2010-2012* to consider the recommendations of the NERC System Protection and Control Subcommittee as identified in the Technical Review of Standards Prepared by the System Protection and Controls Subcommittee of the NERC Planning Committee dated May 2009.

Comment 19

Name: Wayne E. Guthrie

Organization: Construction Specialty Services, Inc. & Critical Systems, LLC

Standard: ANSI NFPA 850: Recommended Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations

Reliability Issue: Physical fire and blast protection of electrical transformers and other essential equipment, buildings and people located in power generation, transmission or distribution system locations.

Suggestion or Comment: Adopt a NFPA-850, which is a recommended fire protection practice for the power generation industry.

Example: If there is a catasthrophic failure of a transformer it can shut down a site for an indefinite period of time for repairs or replacement of equipment and facility. In the US there exists an aging fleet of transformers that are becoming more unreliable everyday because of age and lack of maintenance.

In addition, many power companies build new facilities without thought to protection of their assets. As an example, it requires between 24 and 48 months to receive a new replacement transformer, if it fails beyond repair. In addition, placing fire & blast rated barriers between transformers and also have in place a functioning transformer oil collection and containment system in accordance with FM Global recommendations can mean the difference between a single transformer failure incident and a catasthrophic incident. There are also issues with where the generation transformers sit relative to the turbine building, that if a fire and or fire and blast event initiated could potentially preclude population of the building and control room in order to shut down the unit (s).

Recommendation for improvement: Consider adopting existing standards of performance so that a committee would not have to be formed to write something that already exists.

Suggestion or Comment: NERC may want to consider inviting professionals involved in the fire and blast protection engineering and assessments fields to assist in development of standards of performance or protection in accordance with readily obtainable existing recommendations, standards and codes.

Example: Go to NFPA and ask for assistance or I could put NERC in contact with individuals that could place NERC in contact.

Recommendation for improvement: As I understand the only reference to physical protection is that NERC states that utility entities are obligated to physically protect critical equipment and is not specific in reference to the measures that should be considered to improve or provide protection. Unfortunately in the utility industry many companies have eliminated or otherwise do not possess within their ranks individuals educated in the realm of physical fire and blast protection methodologies that exist, or even have the knowledge base to self assess and identify the potential need for protection.

Additional information: If further information or discussion is required, please contact the writer:

Wayne E. Guthrie

Construction Specialty Services, Inc. & Critical Systems, LLC

502-231-2402

wguthrie@cssi.win.net

NERC Response:

In response to your comment we have added Project 2012-02 Physical Protection to the *Reliability Standards Development Plan: 2010-2012* for a project to consider the development of a NERC Reliability Standard related to physical protection of essential equipment, buildings and people located in power generation, transmission or distribution system locations.

Attachment 1

Standard Authorization Request Form

Title of Proposed Standard: Protection Misoperations Revisions to PRC-003, PRC-004, PRC-012, and PRC-016
Request Date: June 10, 2009

SAR Requester Information	**SAR Type** (*Check a box for each one that applies.*)	
Name: System Protection and Control Subcommittee	☐	New Standard
Primary Contact: John Ciufo, Chairman	X	Revision to existing Standard
Telephone: (416) 345-5258 Fax: (416) 345-5406	X	Withdrawal of existing Standard (PRC-016)
E-mail: john.ciufo@HydroOne.com	☐	Urgent Action

Purpose (Describe what the standard action will achieve in support of bulk power system reliability.)

A key element of bulk power system reliability is the performance of the Protection Systems. To properly gage Protection System performance, is necessary to have a consistent set of metrics on Protection System Misoperations. Current PRC standards and definitions related to Protection System Misoperations are confusing and do not support a good metric for measurement of Protection System performance.

Industry Need (Provide a justification for the development or revision of the standard, including an assessment of the reliability and market interface impacts of implementing or not implementing the standard action.)

Current PRC standards and definitions related to Protection System Misoperations are confusing and do not support a good metric for measurement of Protection System performance.

Brief Description (Provide a paragraph that describes the scope of this standard action.)

SPCS recommends creation of a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012

- Retire PRC-016.

Detailed Description (Provide a description of the proposed project with sufficient details for the standard drafting team to execute the SAR.)

Standard PRC-003 is intended to ensure that all System Protection Misoperations are analyzed and mitigated according to guidelines established by the regions. The FERC, in Order 693, dated March 16, 2007, declared this standard as a "fill in the blank" type of standard that does not merit approval unless it is modified to make it more specific and consistent for all Regions. The SPCS concurs with the FERC order and provides recommendations on how the standard can be rewritten.

Because the procedures for analyzing and mitigating Misoperations were to be established by the regions, there is significant dissimilarity between the Misoperation data reported by each region, resulting in a virtually unusable misoperation metric for North America. SPCS recommends a change to the definition of Misoperation (Reportable Protection Misoperation) to provide uniformity to the misoperation data reported to the regions and NERC.

Protection System elements used for Special Protection Systems (SPS) or Remedial Action Schemes (RAS) are no different from those used for non Special Protection Systems. The revision to Standard PRC-003 should therefore apply to all Protection Systems, including SPS and RAS.

The SPCS also recommends that Standard PRC-016-0 – Special Protection System Misoperations, be requirements, merging its SPS/RAS Misoperation reporting, Corrective Action Plans, and tracking requirements into PRC-004 – Analysis and Mitigation of Transmission and Generation Protection System Misoperations.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and is coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should be modified to refer to that review process.

SPCS recommends creation of a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016.

See attached Technical Review document for additional details.

Reliability Functions

The Standard will Apply to the Following Functions *(Check box for each one that applies.)*		
☐	Reliability Coordinator	Responsible for the real-time operating reliability of its Reliability Coordinator Area in coordination with its neighboring Reliability Coordinator's wide area view.
☐	Balancing Authority	Integrates resource plans ahead of time, and maintains load-interchange-resource balance within a Balancing Authority Area and supports Interconnection frequency in real time.
☐	Interchange Authority	Ensures communication of interchange transactions for reliability evaluation purposes and coordinates implementation of valid and balanced interchange schedules between Balancing Authority Areas.
☐	Planning Coordinator	Assesses the longer-term reliability of its Planning Coordinator Area.
☐	Resource Planner	Develops a >one year plan for the resource adequacy of its specific loads within a Planning Coordinator area.
☐	Transmission Planner	Develops a >one year plan for the reliability of the interconnected Bulk Electric System within its portion of the Planning Coordinator area.
☐	Transmission Service Provider	Administers the transmission tariff and provides transmission services under applicable transmission service agreements (e.g., the pro forma tariff).
X	Transmission Owner	Owns and maintains transmission facilities.
☐	Transmission Operator	Ensures the real-time operating reliability of the transmission assets within a Transmission Operator Area.
X	Distribution Provider	Delivers electrical energy to the End-use customer.
X	Generator Owner	Owns and maintains generation facilities.
☐	Generator Operator	Operates generation unit(s) to provide real and reactive power.
☐	Purchasing-Selling Entity	Purchases or sells energy, capacity, and necessary reliability-related services as required.
☐	Market Operator	Interface point for reliability functions with commercial functions.
☐	Load-Serving Entity	Secures energy and transmission service (and reliability-related services) to serve the End-use Customer.

Reliability and Market Interface Principles

Applicable Reliability Principles *(Check box for all that apply.)*	
X	1. Interconnected bulk power systems shall be planned and operated in a coordinated manner to perform reliably under normal and abnormal conditions as defined in the NERC Standards.
☐	2. The frequency and voltage of interconnected bulk power systems shall be controlled within defined limits through the balancing of real and reactive power supply and demand.
☐	3. Information necessary for the planning and operation of interconnected bulk power systems shall be made available to those entities responsible for planning and operating the systems reliably.
☐	4. Plans for emergency operation and system restoration of interconnected bulk power systems shall be developed, coordinated, maintained and implemented.
☐	5. Facilities for communication, monitoring and control shall be provided, used and maintained for the reliability of interconnected bulk power systems.
☐	6. Personnel responsible for planning and operating interconnected bulk power systems shall be trained, qualified, and have the responsibility and authority to implement actions.
X	7. The security of the interconnected bulk power systems shall be assessed, monitored and maintained on a wide area basis.
☐	8. Bulk power systems shall be protected from malicious physical or cyber attacks.
Does the proposed Standard comply with all of the following Market Interface Principles? *(Select 'yes' or 'no' from the drop-down box.)*	
1. A reliability standard shall not give any market participant an unfair competitive advantage. Yes	
2. A reliability standard shall neither mandate nor prohibit any specific market structure. Yes	
3. A reliability standard shall not preclude market solutions to achieving compliance with that standard. Yes	
4. A reliability standard shall not require the public disclosure of commercially sensitive information. All market participants shall have equal opportunity to access commercially non-sensitive information that is required for compliance with reliability standards. Yes	

Related Standards

Standard No.	**Explanation**
PRC-003	Revise
PRC-004	Revise
PRC-012	Revise

PRC-016	Retire

Related SARs

SAR ID	Explanation

Regional Variances

Region	Explanation
ERCOT	
FRCC	
MRO	
NPCC	
SERC	
RFC	
SPP	
WECC	

NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

NERC SPCS Assessment of Standards:

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations
- PRC-016-1 — Special Protection System Misoperations

A Technical Review of Standards Prepared by the System Protection and Controls Subcommittee of the NERC Planning Committee

May 2009

to ensure the reliability of the bulk power system

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Table of Contents

This report was approved by the Planning Committee on June 10, 2009, for forwarding to the Standards Committee.

Introduction

When the original scope for the System Protection and Control Task Force (SPCTF, now the System Protection and Control Subcommittee – SPCS) was developed, one of the assigned items was to review all of the existing PRC-series of Reliability Standards, to advise the Planning Committee, and to develop Standards Authorization Requests, as appropriate, to address any perceived deficiencies.

This report presents the SPCS' assessment of three of the PRC standards pertaining to relay misoperations:

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations
- PRC-016-1 — Special Protection System Misoperations

This report serves as a precursor for a Standards Authorization Request (SAR) for modifications to PRC-003 that will be submitted by the SPCS.

Executive Summary

Standard PRC-003 is intended to ensure that all System Protection Misoperations are analyzed and mitigated according to guidelines established by the regions. The FERC, in Order 693, dated March 16, 2007, declared this standard as a "fill in the blank" type of standard that does not merit approval unless it is modified to make it more specific and consistent for all Regions. The SPCS concurs with the FERC order and provides recommendations on how the standard can be rewritten.

Because the procedures for analyzing and mitigating Misoperations were to be established by the regions, there is significant dissimilarity between the Misoperation data reported by each region, resulting in a virtually unusable misoperation metric for North America. SPCS recommends a change to the definition of Misoperation (Reportable Protection Misoperation) to provide uniformity to the misoperation data reported to the regions and NERC.

Protection System elements used for Special Protection Systems (SPS) or Remedial Action Schemes (RAS) are no different from those used for non Special Protection Systems. The revision to Standard PRC-003 should therefore apply to all Protection Systems, including SPS and RAS.

The SPCS also recommends that Standard PRC-016-0 — Special Protection System Misoperations, be requirements, merging its SPS/RAS Misoperation reporting, Corrective Action Plans, and tracking requirements into PRC-004 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and is coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should be modified to refer to that review process.

A Standards Authorization Request (SAR) will be submitted by the SPCS calling for a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016.

Assessment of PRC-003-1

PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems requires the regions to establish procedures for analysis of Misoperations. This has resulted in significant and substantive differences in regional procedures and this was noted in FERC's recommendation for "greater uniformity."

SPCS proposes updating the PRC-003-1 standard to be applicable to all regions based on following tenets:

1. **Applicability** — The existing standard says that the Protection Systems shall be reviewed but does not specify which systems apply to this standard.

   It is necessary for the new standard to define the protections systems to which the standard applies:

   - Transmission Protection Systems which trip:
     a. Transmission system elements 200-kV and above
     b. Operationally significant system elements 100-kV to 200-kV
     c. Transformers with 100-kV or higher on the low side
     d. GSU transformers with high side voltages of 100-kV or higher
   - Generation Protection Systems which trip:
     a. Transmission system elements 200-kV and above
     b. Operationally significant system elements 100-kV to 200-kV
     c. Transformers with 100-kV or higher on the low side
     d. GSU transformers with high side voltages of 100-kV or higher
     e. Generators connected through GSU transformers with high side voltages of 100-kV or higher
   - Protection Systems that trip aggregate generation of 75 MW or more (such as wind farms, geothermal, or solar) connected to the transmission system at 100-kV or higher.

2. **Definitions** — The NERC Glossary of Terms currently defines Misoperation as:

   Misoperation (current definition)

   - Any failure of a Protection System element to operate within the specified time when a fault or abnormal condition occurs within a zone of protection.
   - Any operation for a fault not within a zone of protection (other than operation as backup protection for a fault in an adjacent zone that is not cleared within a specified time for the protection for that zone).
   - Any unintentional Protection System operation when no fault or other abnormal condition has occurred unrelated to on-site maintenance and testing activity

   The existing definition does not address what are reportable and non-reportable misoperations. Reportable misoperations should be redefined in terms of both dependability and security, as a function of the impact of the Protection Systems on the electric system performance. SPCS recommends the following definition:

   Reportable Protection Misoperation (proposed definition)

Dependability (failure to operate):

- Failure of the composite Protection System to initiate the isolation of a faulted power system Element as designed or within its designed operating time.
- Failure of the composite Protection System to operate as intended for a non-fault condition, such as out-of-step, overload, etc., within its designed operating time.
- Failure of an SPS/RAS, UVLS system, or UFLS system to operate for an intended condition or within its designed operating time.

Security (false or undesirable operations):

- Improper operation of a Protection System in absence of a fault on the power system Element it is designed to protect.
- Improper operation of a Protection System during a fault on any other power system Element it is not designed to protect.
- Improper operation of an SPS/RAS, UVLS system, or UFLS system in absence of its designed trigger conditions.
- Over-response of an SPS/RAS, UVLS system, or UFLS system

Notes to the proposed definition:

A. The composite Protection System in the context of this standard is the total complement of protection for a system Element (line, bus, transformer, generator, etc). Primary and secondary protection of a given Element is considered as the composite Protection System, not two separate Protection Systems.

B. Delayed clearing, where a high-speed system is employed and is essential for transmission system performance, is considered a reportable misoperation of the high-speed system.

C. Lack of targeting of the high-speed system, such as when it is beat out by a high-speed zone, is not considered a reportable misoperation.

D. Multiple misoperations of a Protection System before it can be reasonably investigated and remedied should be considered as a single misoperation.

E. Failure to automatically reclose after a fault is not a reportable misoperation.

F. Human errors made in protection settings either as calculated or as installed, or wiring errors, which result in a misoperation are reportable.

G. Protection System operations related to on-site maintenance, testing, construction and or commissioning activities for that Protection System, when no fault or other abnormal condition has occurred, are not considered reportable Protection System misoperations.

H. Operations which are initiated by control systems (not by the Protection Systems), such as those associated with generator controls or turbine/boiler controls, SVCs, FACTS, HVDC, circuit breaker mechanism, or insulation media, or other facility control systems, are not reportable Protection System misoperations.

I. Protection System operations which occur with the protected element already out of service, that do not trip any in-service elements, are not reportable Protection System misoperations.

3. **Reporting of Misoperations** — Because the current PRC-003 calls for regional procedures and reporting requirements, there is a wide variation in those requirements from region to region, making comparison of misoperations metrics at the NERC level virtually impossible. Since any

assessment of the success or failure of the NERC protection-related standards to maintain or improve reliability depends on those metrics, it is important to provide for uniformity. The variations in definitions can be corrected by the adoption of the Reportable Protection Misoperation definition above. Uniform reporting can be addressed by following proposed reporting requirements:

- Transmission Owner or Generation Owners that own Protection Systems shall submit a quarterly report of the total number of events , the number of Protection System misoperations, and the number of events still under analysis, in a prescribed format (to be part of the revised PRC-003 standard) no later than two calendar months after each quarter.
- The regions shall, in turn, submit a quarterly report to NERC – consolidated data for the Region in a prescribed format (also part of the revised PRC-003 standard).
- The regions shall provide any additional information on misoperations to NERC as requested.

4. **Peer Review of Misoperations —** Peer review of misoperations and tracking of mitigation plans is an important part of improving Protection System performance. Logically, that function should be done by the Regional Entities. However, since standards requirements cannot be placed on the Regional Entities, the following suggestions are made but the mechanics are left open.

   - The regions, through their appropriate committees or subcommittee, shall review the misoperation reports. This review should determine whether further analysis, data, or other documentation is required, and it will confirm that appropriate mitigation is defined and scheduled.
   - The regions should maintain records of the quarterly reports and confirm the implementation of any proposed mitigation plan.
   - The regions should track the mitigation of reported misoperations to avoid further occurrences.

Assessment of PRC-004 and PRC-016-0

NERC standards PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations, and PRC-016 – Special Protection System Misoperations both require that Protection System misoperations are analyzed and reported, and that corrective actions are taken where necessary. However, PRC-016 exclusively applies to special protection systems (SPS) also know as remedial action schemes (RAS). Since analysis and reporting of protection system misoperations is the same regardless of whether or not a SPS/RAS is involved; there is no need for a separate standard. Standard PRC-004-1 should be revised to include SPS/RAS, and PRC-016 should be retired.

SPS Corrective Action Plan Review

PRC-012-0 — Special Protection System Review Procedure is intended to provide a review procedure to ensure that all SPS/RAS are properly designed, meet performance requirements, and are coordinated with other Protection Systems.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and are coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should refer to that review process.

Proposed PRC-004-1 Revisions

SPCS recommends the following revisions to PRC-004-1 requirements to encompass those of PRC-016:

R1. The Transmission Owner and any Distribution Provider that owns a transmission Protection System or SPS shall each analyze its transmission Protection System or SPS Misoperations and shall develop and implement a Corrective Action Plan to avoid future Misoperations of a similar nature in accordance with Standard PRC-003 (revised).

R2. The Generator Owner shall analyze its generator Protection System or SPS Misoperations, and shall develop and implement a Corrective Action Plan to avoid future Misoperations of a similar nature in accordance with Standard PRC-003 (revised).

R3. The Transmission Owner, Generator Owner, and Distribution Provider that owns a transmission Protection System or an SPS shall provide documentation of the misoperation analyses and the Corrective Action Plans to its Regional Reliability Organization and NERC upon request (within 90 calendar days).

R4. All Corrective Action Plans for SPS shall be subject to SPS Review Procedures in accordance with Standard PRC-012.

Appendix A — System Protection and Control Subcommittee

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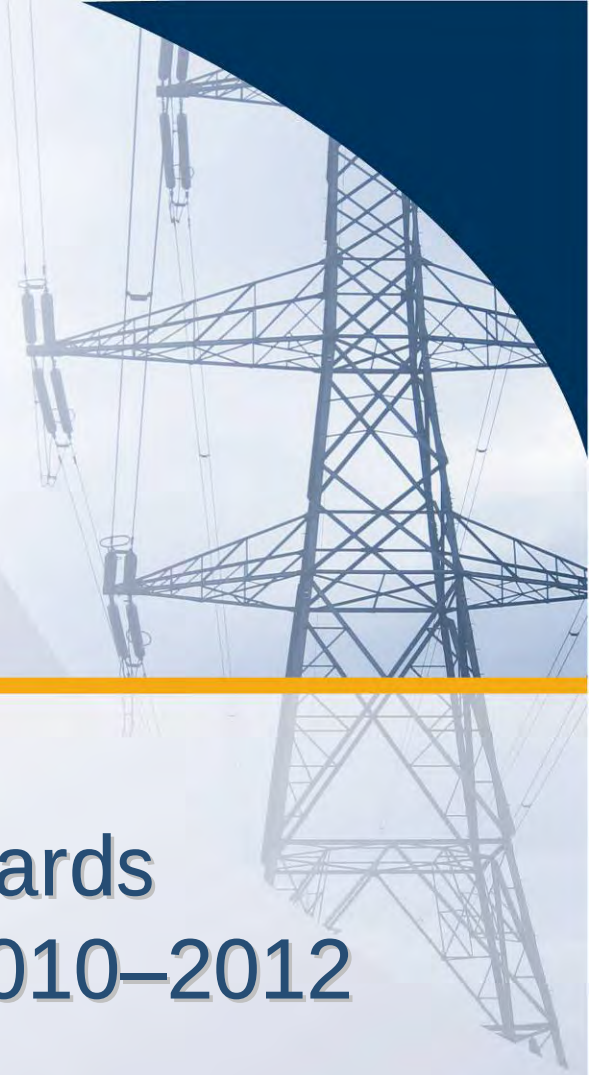

Reliability Standards Development Plan: 2010–2012

Volume II — List of Projects

to ensure the reliability of the bulk power system

August 28, 2009

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Table of Contents:

Introduction

There are 36 projects in this plan. For each project, a description is provided that outlines the general overview and scope of improvements to be considered in conjunction with the project.

Each project description includes a cover page that provides an overview of the project, including the project number, title, list of affected reliability standards, hyperlinks to associated portions of the NERC standards web pages, and a brief description of the project. The cover page is followed by a list of "Issues to be Considered by Drafting Team" for each reliability standard associated with the specific project.

The standard drafting team for each of these projects will be expected to review the assigned standards and modify the standards to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure as described in the "Global Improvements" section of Volume I of this *Reliability Standards Development Plan.*

Each list of "Issues to be Considered by Drafting Team" identifies the FERC directives from Orders 693, 890, and 706 and also includes comments provided by:

- The team working on identifying the "fill-in-the-blank" characteristics of the NERC reliability standards,
- Industry stakeholders,
- NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS),
- Version 0, Phase III & IV, Violation Risk Factors (VRFs), and Missing Measures and Compliance Elements drafting teams and others as noted.

The majority of comments provided by these entities can be found in the following references:

- FERC Order 693 Mandatory Reliability Standards for the Bulk-Power System
- FERC Order 693 — A, Order on Rehearing
- FERC Order 706 Mandatory Reliability Standards for Critical Infrastructure Protection
- FERC Order 706–A Mandatory Reliability Standards for Critical Infrastructure Protection
- FERC Order 890 Preventing Undue Discrimination and Preference in Transmission Service
- FERC NOPR Mandatory Reliability Standards for Critical Infrastructure Protection
- FERC NOPR — Mandatory Reliability Standards for the Bulk-Power System, dated October 20, 2006 — *Explanatory comments from NERC staff's discussion with FERC personnel on the NOPR are indicated in italic text contained within parenthesis*
- Summary of Comments for Addressing Fill-in-the-Blank Aspects of Reliability Standards, October 24, 2006
- Comments received during the development of Version 0 reliability standards
- Consideration of comments of the Missing Compliance Elements drafting team.
- Consideration of comments of the Violation Risk Factors drafting team
- Consideration of comments in the Phase III-IV standards

- SAR on Planning Authority (The requester agreed to not proceed with this SAR.) SAR on Applicability

Note that no value judgments have been made about the technical merits of any of the items included in each list of "Issues to be Considered by Drafting Team." Each standard drafting team for the specific project is expected to further investigate and properly address each of the issues listed.

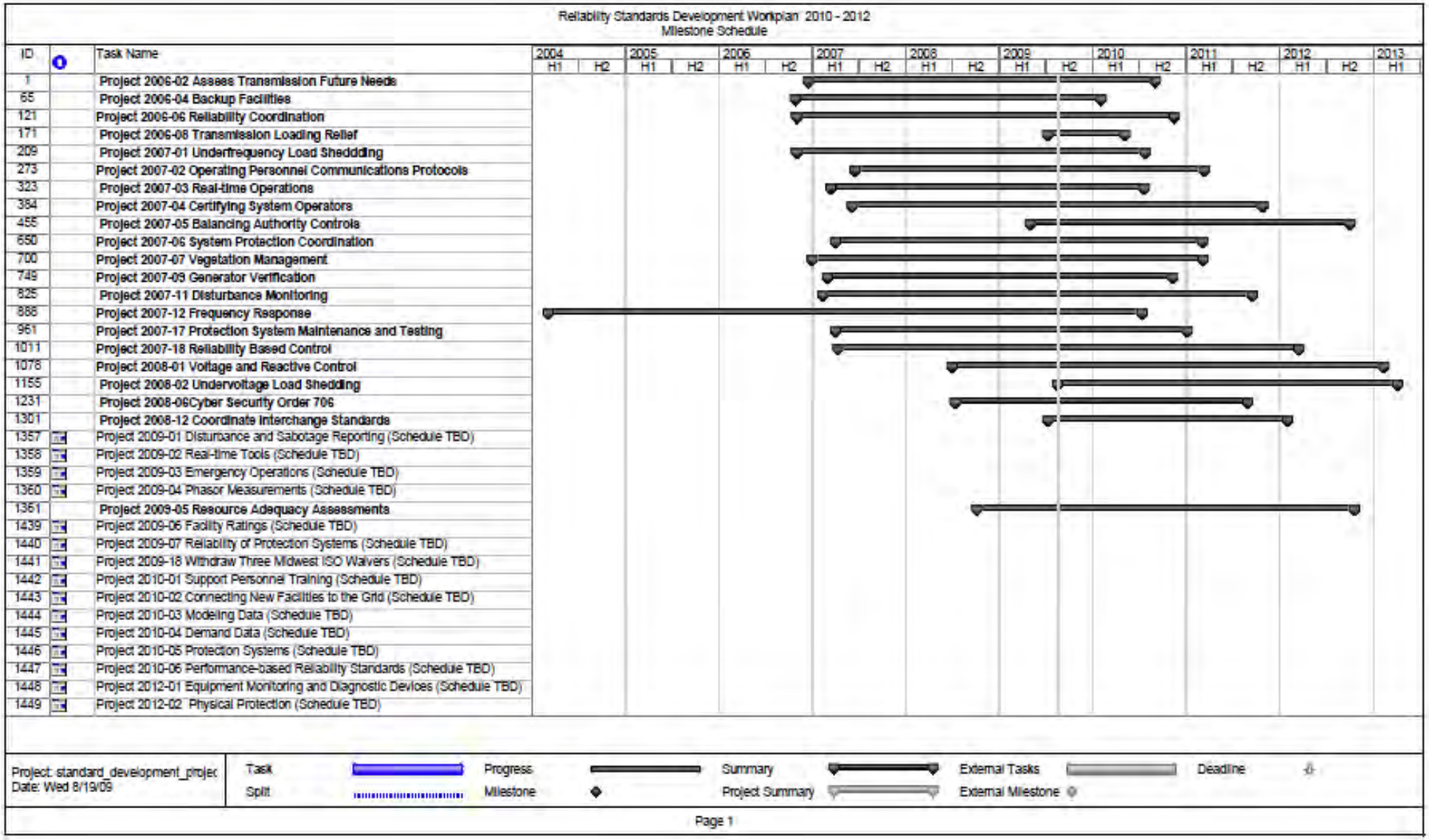
Also please note that the NERC Standards staff had previously met with FERC staff to discuss the October 20, 2006 FERC NOPR on Mandatory Reliability Standards for the Bulk-Power System in Docket No. RM06-16-000 — and drew the following conclusions from that discussion:

- The location of a requirement (which standard includes the recommended requirement) is not a concern — so if a requirement is recommended as an addition to one standard, but is actually added to another standard, that should be acceptable to FERC.
- When the term 'performance metrics' is used, it can mean a measure of bulk power system performance, functional entity performance, or performance of a person in a position or a combination of all of these metrics.
- FERC does not have a set of proposed definitions for terms such as 'emergency' or 'critical facilities' and is relying on the drafting teams to develop and refine these terms, where needed, through the stakeholder consensus process.
- Where testing periodicity is proposed, the intent is to have a requirement that includes a technically sound minimum testing interval.
- Where the intent of a proposed requirement can be accomplished by an alternate requirement, the alternate requirement should be acceptable to FERC. For example, proposals to add requirements for 'facilities,' can be met with requirements that specify that entities have the 'capabilities' of those facilities.

The three charts and tables on the pages which immediately follow have been provided as additional information for helping better understand each project:

- The first chart provided is an overall Gantt chart for all currently open projects. More detailed project schedules are posted on the "Related Files" of each project. The intent of this overall Gantt chart is top provide a quick reference of the overall project schedule for each project.
- The next table is provided as a quick reference identifying which project is associated with a particular standard and is sorted by standard number.
- The final table is provided as a quick reference identifying which standards are associated with each project and is sorted by project number.

Reliability Standards Development Plan Overall Project Schedules



Reference Identifying the Standard in each Project Sorted by Standard Number

Standard	Standard Name	Project Number
Resource and Demand Balancing (BAL) Standards		
BAL-001-0a	Real Power Balancing Control Performance	Project 2007-18
BAL-002-0	Disturbance Control Performance	Project 2007-05, Project 2009-02, and Project 2007-18
BAL-003-0a	Frequency Response and Bias	Project 2007-12
BAL-004-0	Time Error Correction	Project 2007-05
BAL-004-1	Time Error Correction	Project 2007-05
BAL-005-0b	Automatic Generation Control	Project 2007-05 and Project 2009-02
BAL-006-1	Inadvertent Interchange	Project 2007-05
Critical Infrastructure Protection (CIP) Standards		
CIP-001-1	Sabotage Reporting	Project 2009-01
CIP-002-2	Critical Cyber Asset Identification	Project 2008-06
CIP-003-2	Security Management Controls	Project 2008-06
CIP-004-2	Personnel and Training	Project 2008-06
CIP-005-2	Electronic Security Perimeter(s)	Project 2008-06
CIP-006-2	Physical Security	Project 2008-06
CIP-006-1a	Cyber Security — Physical Security	Project 2008-06
CIP-007-2	Systems Security Management	Project 2008-06
CIP-008-2	Incident Reporting and Response Planning	Project 2008-06
CIP-009-2	Recovery Plans for Critical Cyber Assets	Project 2008-06
Communications (COM) Standards		
COM-001-1	Telecommunications	Project 2006-06 and Project 2009-02
COM-002-2	Communications and Coordination	Project 2006-06 and Project 2007-02
Emergency Preparedness and Operations (EOP) Standards		
EOP-001-0	Emergency Operations Planning	Project 2006-04, Project 2008-08 (VSLs only), and Project 2009-03
EOP-002-2	Capacity and Energy Emergencies	Project 2007-18, Project 2008-08 (VSLs only) and Project 2009-03
EOP-003-1	Load Shedding Plans	Project 2008-08 (VSLs only), Project 2009-02, and Project 2009-03
EOP-004-1	Disturbance Reporting	Project 2008-08 (VSLs only) and Project 2009-01
Facilities Design, Connections, and Maintenance (FAC) Standards		
FAC-001-0	Facility Connection Requirements	Project 2010-02

Standard	Standard Name	Project Number
FAC-002-0	Coordination of Plans for New Facilities	Project 2010-02
FAC-003-1	Transmission Vegetation Management Program	Project 2007-07
FAC-008-1	Facility Ratings Methodology	Project 2009-06
FAC-009-1	Establish and Communicate Facility Ratings	Project 2009-06
FAC-010-2	System Operating Limits Methodology for the Planning Horizon	Project 2008-04
FAC-011-1	System Operating Limits Methodology for the Operations Horizon	Project 2008-05
FAC-011-2	System Operating Limits Methodology for the Operations Horizon	Project 2008-05 and Project 2008-04
FAC-012-1	Transfer Capability Methodology	Project 2006-07
FAC-013-1	Establish and Communicate Transfer Capabilities	Project 2006-07
FAC-014-2	Establish and Communicate System Operating Limits	Project 2008-04
Interchange Scheduling and Coordination (INT) Standards		
INT-001-3	Interchange Information	Project 2008-12
INT-003-2	Interchange Transaction Implementation	Project 2008-12
INT-004-1	Dynamic Interchange Transaction Modifications	Project 2008-12
INT-005-1	Interchange Authority Distributes Arranged Interchange	Project 2008-12 and Project 2010-03
INT-005-2	Interchange Authority Distributes Arranged Interchange	Project 2008-12
INT-006-2	Response to Interchange Authority	Project 2008-12
INT-007-1	Interchange Confirmation	Project 2008-12
INT-008-1	Interchange Authority Distributes Status	Project 2008-12
INT-008-2	Interchange Authority Distributes Status	Project 2008-12
INT-009-1	Implementation of Interchange	Project 2008-12
INT-010-1	Interchange Coordination Exemptions	Project 2008-12
Interconnection Reliability Operations and Coordination (IRO) Standards		
IRO-001-1	Reliability Coordination — Responsibilities and Authorities	Project 2006-06 and Project 2009-03
IRO-002-1	Reliability Coordination — Facilities	Project 2006-06 and Project 2009-02
IRO-003-2	Reliability Coordination — Wide-Area View	Project 2009-02
IRO-004-1	Reliability Coordination — Operations Planning	Project 2009-02
IRO-005-2	Reliability Coordination — Current-Day Operations	Project 2006-06, Project 2007-18, and Project 2009-02
IRO-006-4	Reliability Coordination — Transmission Loading Relief	Project 2006-08
IRO-014-1	Procedures, Processes, or Plans to Support Coordination Between Reliability Coordinators	Project 2006-06
IRO-015-1	Notifications and Information Exchange Between Reliability Coordinators	Project 2006-06
IRO-016-1	Coordination of Real-time Activities Between Reliability Coordinators	Project 2006-06
Modeling, Data, and Analysis (MOD) Standards		
MOD-010-0	Steady-State Data for Transmission System Modeling and Simulation	Project 2010-03
MOD-011-0	Regional Steady-State Data Requirements and Reporting Procedures	Project 2010-03

Standard	Standard Name	Project Number
MOD-012-0	Dynamics Data for Transmission System Modeling and Simulation	Project 2010-03
MOD-013-1	RRO Dynamics Data Requirements and Reporting Procedures	Project 2010-03
MOD-014-0	Development of Interconnection-Specific Steady State System Models	Project 2010-03
MOD-015-0	Development of Interconnection-Specific Dynamics System Models	Project 2010-03
MOD-016-1	Actual and Forecast Demands, Net Energy for Load, Controllable DSM	Project 2010-04
MOD-017-0	Aggregated Actual and Forecast Demands and Net Energy for Load	Project 2010-04
MOD-018-0	Reports of Actual and Forecast Demand Data	Project 2010-04
MOD 019-0	Forecasts of Interruptible Demands and DCLM Data	Project 2010-04
MOD-020-0	Providing Interruptible Demands and DCLM Data	Project 2010-04
MOD-021-0	Accounting Methodology for Effects of Controllable DSM in Forecasts	Project 2010-04
MOD-024-1	Verification of Generator Gross and Net Real Power Capability	Project 2007-09
MOD-025-1	Verification of Generator Gross and Net Reactive Power Capability	Project 2007-09
MOD-026-1	Verification of Models and Data for Generator Excitation System Functions	Project 2007-09
MOD-027-1	Verification of Generator Unit Frequency Response	Project 2007-09
Personnel Performance, Training, and Qualifications (PER) Standards		
PER-001-0	Operating Personnel Responsibility and Authority	Project 2007-03
PER-003-0	Operating Personnel Credentials	Project 2007-04
Protection and Control (PRC) Standards		
PRC-001-1	System Protection Coordination	Project 2007-06 and Project 2009-02
PRC-002-1	Define Regional Disturbance Monitoring and Reporting Requirements	Project 2007-11
PRC-003-1	Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems	Project 2010-05
PRC-004-1	Analysis and Mitigation of Transmission and Generation Protection System Misoperations	Project 2010-05
PRC-005-1	Transmission and Generation Protection System Maintenance and Testing	Project 2007-17
PRC-006-0	Development and Documentation of Regional UFLS Programs	Project 2007-01
PRC-007-0	Assuring Consistency with Regional UFLS Program Requirements	Project 2007-01
PRC-008-0	Underfrequency Load Shedding Equipment Maintenance Programs	Project 2007-17
PRC-009-0	UFLS Performance Following an Underfrequency Event	Project 2007-01
PRC-010-0	Assessment of the Design and Effectiveness of UVLS Program	Project 2008-02
PRC-011-0	UVLS System Maintenance and Testing	Project 2007-17
PRC-012-0	Special Protection System Review Procedure	Project 2010-05
PRC-013-0	Special Protection System Database	Project 2010-03
PRC-014-0	Special Protection System Assessment	Project 2010-05
PRC-015-0	Special Protection System Data and Documentation	Project 2010-03
PRC-016-0	Special Protection System Misoperations	Project 2010-05
PRC-017-0	Special Protection System Maintenance and Testing	Project 2007-17

Standard	Standard Name	Project Number
PRC-018-1	Disturbance Monitoring Equipment Installation and Data Reporting	Project 2007-11
PRC-019-1	Coordination of Generator Voltage Regulator Controls with Unit Capabilities and Protection	Project 2007-09
PRC-020-1	Under-Voltage Load Shedding Program Database	Project 2010-03
PRC-021-1	Under-Voltage Load Shedding Program Data	Project 2010-03
PRC-022-1	Under-Voltage Load Shedding Program Performance	Project 2008-02
PRC-024-1	Generator Performance During Frequency and Voltage Excursions	Project 2007-09
Transmission Operations (TOP) Standards		
TOP-001-1	Reliability Responsibilities and Authorities	Project 2007-03
TOP-002-2	Normal Operations Planning	Project 2007-03
TOP-003-0	Planned Outage Coordination	Project 2007-03
TOP-004-2	Transmission Operations	Project 2007-03
TOP-005-1	Operational Reliability Information	Project 2007-03
TOP-006-1	Monitoring System Conditions	Project 2007-03
TOP-007-0	Reporting SOL and IROL Violations	Project 2007-03
TOP-008-1	Response to Transmission Limit Violations	Project 2007-03
Transmission Planning (TPL) Standards		
TPL-001-0	System Performance Under Normal Conditions	Project 2006-02
TPL-002-0	System Performance Following Loss of a Single BES Element	Project 2006-02
TPL-003-0	System Performance Following Loss of Two or More BES Elements	Project 2006-02
TPL-004-0	System Performance Following Extreme BES Events	Project 2006-02
TPL-005-0	Regional and Interregional Self-Assessment Reliability Reports	Project 2006-02
TPL-006-0	Assessment Data from Regional Reliability Organizations	Project 2006-02
Voltage and Reactive (VAR) Standards		
VAR-001-1a	Voltage and Reactive Control	Project 2008-01 and Project 2009-02
VAR-002-1a	Generator Operation for Maintaining Network Voltage Schedules	Project 2008-01

Reference Identifying the Standard in each Project Sorted by Project Number

Project 2006-02 Assess Transmission Future Needs

- TPL-001-0 — System Performance Under Normal Conditions
- TPL-002-0 — System Performance Following Loss of a Single BES Element
- TPL-003-0 — System Performance Following Loss of Two or More BES Elements
- TPL-004-0 — System Performance Following Extreme BES Events
- TPL-005-0 — Regional and Interregional Self-Assessment Reliability Reports
- TPL-006-0 — Assessment Data from Regional Reliability Organizations

Project 2006-06 Reliability Coordination

- COM-001-1 — Telecommunications
- COM-002-2 — Communications and Coordination
- IRO-001-1 — Reliability Coordination — Responsibilities and Authorities
- IRO-002-1 — Reliability Coordination — Facilities
- IRO-005-2 — Reliability Coordination — Current-Day Operations
- IRO-014-1 — Procedures, Processes, or Plans to Support Coordination Between Reliability Coordinators
- IRO-015-1 — Notifications and Information Exchange Between Reliability Coordinators
- IRO-016-1 — Coordination of Real-time Activities Between Reliability Coordinators

Project 2006-08 Transmission Loading Relief

- IRO-006-3 — Reliability Coordination — Transmission Loading Relief
- IRO-006-4 — Reliability Coordination — Transmission Loading Relief

Project 2009-06 Facility Ratings

- FAC-008-1 — Facility Ratings Methodology
- FAC-009-1 — Establish and Communicate Facility Ratings

Project 2007-01 Underfrequency Load Shedding

- PRC-006-0 — Development and Documentation of Regional UFLS Programs
- PRC-007-0 — Assuring Consistency with Regional UFLS Program Requirements
- PRC-009-0 — UFLS Performance Following an Underfrequency Event

Project 2007-02 Operating Personnel Communications Protocols

- COM-003-1 — Operating Personnel Communications Protocols

Project 2007-03 Real-time Operations

- PER-001-0 — Operating Personnel Responsibility and Authority
- TOP-001-1 — Reliability Responsibilities and Authorities
- TOP-002-2 — Normal Operations Planning
- TOP-003-0 — Planned Outage Coordination
- TOP-004-1 — Transmission Operations
- TOP-004-2 — Transmission Operations
- TOP-005-1 — Operational Reliability Information
- TOP-006-1 — Monitoring System Conditions

- TOP-007-0 — Reporting SOL and IROL Violations
- TOP-008-1 — Response to Transmission Limit Violations

Project 2007-04 Certifying System Operators

- PER-003-0 — Operating Personnel Credentials

Project 2007-05 Balancing Authority Controls

- BAL-002-0 — Disturbance Control Performance
- BAL-004-0 — Time Error Correction
- BAL-004-1 — Time Error Correction
- BAL-005-0 — Automatic Generation Control
- BAL-005-0b — Automatic Generation Control
- BAL-006-1 — Inadvertent Interchange

Project 2007-06 System Protection Coordination

- PRC-001-1 — System Protection Coordination

Project 2007-07 Vegetation Management

- FAC-003-2 — Transmission Vegetation Management Program

Project 2007-09 Generator Verification

- MOD-024-1 — Verification of Generator Gross and Net Real Power Capability
- MOD-025-1 — Verification of Generator Gross and Net Reactive Power Capability
- MOD-026-1 — Verification of Models and Data for Generator Excitation System Functions
- MOD-027-1 — Verification of Generator Unit Frequency Response
- PRC-019-1 — Coordination of Generator Voltage Regulator Controls with Unit Capabilities and Protection
- PRC-024-1 — Generator Performance During Frequency and Voltage Excursions

Project 2007-11 Disturbance Monitoring

- PRC–002-1 — Define Regional Disturbance Monitoring and Reporting Requirements
- PRC–018-1 — Disturbance Monitoring Equipment Installation and Data Reporting

Project 2007-17 Protection System Maintenance and Testing

- PRC–005-1 — Transmission and Generation Protection System Maintenance and Testing
- PRC–008-0 — Underfrequency Load Shedding Equipment Maintenance Programs
- PRC–011-0 — UVLS System Maintenance and Testing
- PRC–017-0 — Special Protection System Maintenance and Testing

Project 2007-18 Reliability-based Control

- BAL–001-0 — Real Power Balancing Control Performance
- BAL–001-0a — Real Power Balancing Control Performance
- BAL–003-0a — Frequency Response and Bias
- EOP–002-2 — Capacity and Energy Emergencies
- IRO–005-2 — Reliability Coordination — Current-Day Operations

Project 2008-01 Voltage and Reactive Control

- VAR–001-1 — Voltage and Reactive Control
- VAR–001-1a — Voltage and Reactive Control
- VAR–002-1 — Generator Operation for Maintaining Network Voltage Schedules

- VAR–002-1a — Generator Operation for Maintaining Network Voltage Schedules

Project 2008-02 Undervoltage Load Shedding

- PRC–010-0 — Assessment of the Design and Effectiveness of UVLS Program
- PRC–022-1 — Under-Voltage Load Shedding Program Performance

Project 2008-06 Cyber Security — Order 706

- CIP–002–2 — Critical Cyber Asset Identification
- CIP–003–2 — Security Management Controls
- CIP–004–2 — Personnel and Training
- CIP–005–2 — Electronic Security Perimeter(s)
- CIP–006-2a — Cyber Security — Physical Security
- CIP–007–2 — Systems Security Management
- CIP–008–2 — Incident Reporting and Response Planning
- CIP–009–2 — Recovery Plans for Critical Cyber Assets

Project 2008-08 EOP VSL Revisions

- EOP-001-0 — Emergency Operations Planning
- EOP-002-2 — Capacity and Energy Emergencies
- EOP-003-1 — Load Shedding Plans

Project 2008-12 Coordinate Interchange Standards

- INT-001-3 — Interchange Information
- INT-003-2 — Interchange Transaction Implementation
- INT-004-1 — Dynamic Interchange Transaction Modifications
- INT-005-2 — Interchange Authority Distributes Arranged Interchange
- INT-006-2 — Response to Interchange Authority
- INT-007-1 — Interchange Confirmation
- INT-008-2 — Interchange Authority Distributes Status
- INT-009-1 — Implementation of Interchange
- INT-010-1 — Interchange Coordination Exemptions

Project 2009-01 Disturbance and Sabotage Reporting

- CIP-001-1 — Sabotage Reporting
- EOP-004-1 — Disturbance Reporting

Project 2009-02 Real-time Tools

- BAL-002-0 — Disturbance Control Performance
- BAL-005-0 — Automatic Generation Control
- BAL-005-0b — Automatic Generation Control
- COM-001-1 — Telecommunications
- EOP-003-1 — Load Shedding Plans
- EOP-005-1 — System Restoration Plans
- IRO-002-1 — Reliability Coordination — Facilities
- IRO-003-2 — Reliability Coordination — Wide-Area View
- IRO-004-1 — Reliability Coordination — Operations Planning
- IRO-005-2 — Reliability Coordination — Current-Day Operations
- PRC-001-1 — System Protection Coordination

- TOP-001-1 — Reliability Responsibilities and Authorities
- TOP-002-2 — Normal Operations Planning
- TOP-003-0 — Planned Outage Coordination
- TOP-004-1 — Transmission Operations
- TOP-004-2 — Transmission Operations
- TOP-005-1 — Operational Reliability Information
- TOP-006-1 — Monitoring System Conditions
- VAR-001-1 — Voltage and Reactive Control
- VAR-001-1a — Voltage and Reactive Control

Project 2009-05 Resource Adequacy Assessments

- MOD-011-0 — Regional Steady-State Data Requirements and Reporting Procedures
- MOD-014-0 — Development of Steady State System Models
- TPL-005-0 — Regional and Inter-Regional Self-Assessment Reliability Reports
- MOD-017-1 — Aggregated Actual and Forecast Demands, Net Energy for Load
- MOD-018-0 — Reports of Actual and Forecast Demand Data
- MOD-016-1 — Actual and Forecast Demands, Net Energy for Load, Controllable DSM

Project 2010-02 Connecting New Facilities to the Grid

- FAC-001-0 — Facility Connection Requirements
- FAC-002-0 — Coordination of Plans for New Facilities

Project 2010-03 Modeling Data

- MOD-010-0 — Steady-State Data for Transmission System Modeling and Simulation
- MOD-011-0 — Regional Steady-State Data Requirements and Reporting Procedures
- MOD-012-0 — Dynamics Data for Transmission System Modeling and Simulation
- MOD-013-1 — RRO Dynamics Data Requirements and Reporting Procedures
- MOD-014-0 — Development of Interconnection-Specific Steady State System Models
- MOD-015-0 — Development of Interconnection-Specific Dynamics System Models
- PRC-013-0 — Special Protection System Database
- PRC-015-0 — Special Protection System Data and Documentation

Project 2010-04 Demand Data

- MOD-016-1 — Actual and Forecast Demands, Net Energy for Load, Controllable DSM
- MOD-017-0 — Aggregated Actual and Forecast Demands and Net Energy for Load
- MOD-018-0 — Reports of Actual and Forecast Demand Data
- MOD-019-0 — Forecasts of Interruptible Demands and DCLM Data
- MOD-020-0 — Providing Interruptible Demands and DCLM Data
- MOD-021-0 — Accounting Methodology for Effects of Controllable DSM in Forecasts

Project 2010-05 Protection Systems

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations
- PRC-012-0 — Special Protection System Review Procedure
- PRC-014-0 — Special Protection System Assessment
- PRC-016-0 — Special Protection System Misoperations

Project 2006-02 Assess Transmission and Future Needs

Standards Involved:
TPL-001-0 — System Performance under Normal Conditions
TPL-002-0 — System Performance Following Loss of a Single BES Element
TPL-003-0 — System Performance Following Loss of Two or More BES Elements
TPL-004-0 — System Performance Following Extreme BES Events
TPL-005-0 — Regional and Interregional Self-Assessment Reliability Reports
TPL-006-0 — Assessment Data from Regional Reliability Organizations

Research Needed:
None

Brief Description:
The proposed work effort will establish requirements where requirements do not exist, and verify and clarify the existing standards for assessing and reporting the performance of planned bulk electric systems and the requirements for documenting plans to remedy any inadequacies identified in the process of conducting such assessments.

Consideration will be given to the many proposed improvements identified in the 'Issues' list for each of the above standards.

The drafting team will also work to incorporate the interpretation on TPL-002 Requirement R1.3.12 and Requirement R1.32 and the interpretation on TPL-003 Requirement R1.3.12 and Requirement R1.32.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2006-02 Assess Transmission and Future Needs Web Page

Project Schedule:
Project 2006-02 Schedule

Target Completion Date:
Second quarter of 2010

Standard Drafting Team Roster:

Chairman	John E. Odom, Jr.	Florida Reliability Coordinating Council
Vice Chairman	Douglas Hohlbaugh	FirstEnergy Corp.
	D. Darrin Church	Tennessee Valley Authority
	William Harm	PJM Interconnection, L.L.C.
	Julius Horvath	Lower Colorado River Authority
	Robert A. Jones	Southern Company Services, Inc.
	R. W. Mazur	Manitoba Hydro
	Thomas C. Mielnik	MidAmerican Energy Co.
	Bernie Pasternack, P.E.	American Electric Power
	Bob Pierce	Duke Energy
	Chifong L. Thomas	Pacific Gas and Electric Company
	James Useldinger	Kansas City Power & Light Co.
	Dana Walters	National Grid
NERC Staff	Edward J. Dobrowolski	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
TPL Family	
FERC Order 693	• 1692 — Consider integrating TPL-001 through TPL-004 into one standard. • 1694, 1704, & 1706 — Consider the full range of variables when determining critical system conditions but only those deemed to be significant need to be assessed and documentation provided that explain the rational for selection. • 1716 — System performance should be assessed based on contingencies that mimic what happens in real-time. • 1719 — Consider appropriate revisions to the reliability standards to deal with cyber security events.
TPL-001-0 — System Performance Under Normal (No Contingency) Conditions (Category A)	
FERC Order 693	• 1694, 1704, & 1706 — Determine critical system conditions and study years by conducting sensitivity analysis with due consideration of the factors outlined by the Commission. • 1751 — Require a peer review of planning assessments with neighboring entities • 1759 — Modify requirement R1.3 to substitute the reference to regional reliability organization with regional entity. • 1797 — Address concerns with footnote (a) of Table 1 with regard to applicability of emergency ratings and consistency of normal ratings and voltages with values obtained from other reliability standards and concerns raised by International Transmission with regard to the footnotes in Table 1 • 1786 — Require assessments of outages of critical long lead time equipment, consistent with an entity's spare equipment strategy • 1719 — Consider appropriate revisions to the reliability standards to deal with cyber security events. • Entities that have planned and designed their systems on the basis of a different approach to single contingencies should work with NERC in developing plans to transition to this new approach. • 1716 — System performance should be assessed based on contingencies that mimic what happens in real-time. • 1694, 1704, & 1706 — Consider the full range of variables when determining critical system conditions but only those deemed to be significant need to be assessed and documentation provided that explain the rational for selection. • 1693 — Submit an informational filing, in addition to regional criteria, all utility and RTO/ISO differences in transmission planning criteria that are more stringent than those specified by the TPL standards. • Consider integrating TPL-001 through TPL-004 into one standard.
Fill in the Blank Team	No action needed
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Phase III/IV Team	• Add a requirement to identify where UVLS should be installed • Add a requirement to verify that there are sufficient reactive resources

Source	Language
Team Comments	• Provide clarity where the Planning Authority is mentioned
Version 0 Team	• Table 1 — C.5 goes beyond double circuit outage criteria • Table 1, items 6, 7, 8 & 9 need footnote stating that they do not apply to generator breaker failure • What is a major load center? • Need to include multiple time frames • Does planned facilities include just those under construction? • Having all projected firm transfers modeled may not be practical to achieve in a single shapshot of a powerflow model. The requirement should allow engineering judgment to determine the appropriate level of system utilization to assess reliability considering all projected firm uses. • Define critical system conditions • Need to address deliverability to load • Clarify use of applicable ratings in Table 1, note 'a' • Clarify timing for submittal of corrective plan • Several semantic issues • Table 1, note 'b' — clarify when to curtail firm deliveries
VRFs Team	R1 — time horizon should be long-term planning
TPL-002-0 — System Performance Following Loss of a Single Bulk Electric System Element (Category B)	
FERC Order 693	• 1694, 1704, & 1706 — Determine critical system conditions in the same manner as proposed in TPL-001. • 1787 — Requires all generators to ride through the same set of category B and C contingencies as required by wind generators in Order No. 661, or to simulate without this capability as tripping. • 1786 — Requires assessment of planned outages of long lead time critical equipment consistent with the entity's spare equipment strategy. • 1789 — Document the load models used in system studies and the rationale for their use. • 1773 — Clarify the phrase "permit operating steps necessary to maintain system control" in the footnote (a) and the use of emergency ratings. • 1773 — Clarifies footnote (b) in regard to load loss following a single contingency specifying the amount and duration of consequential load loss and system adjustments permitted after the first contingency to return the system to a normal operating state. NERC should consider this through its standard development process. • 1773 — Footnote (b) should not allow for firm load shedding or curtailment of firm transfers as part of the system adjustments. • 1788 — Consider NRC's comments regarding clarifying the N-1 state as being always applicable to the current conditions as part of the standards development process. • 1794 — Standard should be clarified to not allow an entity to plan for the loss of non-consequential load in the event of a single contingency.

Source	Language
Phase III/IV Team	• Add a requirement to verify that there are sufficient reactive resources • Add a requirement to identify where UVLS should be installed
Team Comments	• Provide clarity where the Planning Authority is mentioned
Version 0 Team	• Don't include planning outage • Don't include generation runback or redispatch • Address deliverability of generation to load • Clarify timing for corrective plan • Define critical system conditions • Single terminals are not included • Must study all contingencies and multiple demand levels & time frames • Clarify applicable ratings in Table 1, note 'a'
VRFs Team	Time horizon should be long-term planning and R2.2 — redundant with R1.3.8
TPL-003-0 — System Performance Following loss of Two or More Bulk Electric System Elements (Category C)	
FERC Order 693	• 1769 — Address LPPA's concerns on changes to footnotes of Table 1 through the standard development process. • 1788 — Address NRC concerns as described in TPL-002 through the standards development process. • 1824 — Consider the comments on major load pockets as part of the standards development process. • 1821 — Tailor the purpose statement to reflect the specific goal of the standard. • 1820 — Applicable entities must define and document the proxies necessary to simulate cascading outages. • 1765 — Determine critical system conditions in the same manner as proposed in TPL-001. • 1806 — Clarify the term "controlled load interruption".
Fill in the Blank Team	No action required
Phase III/IV Team	• Add a requirement to identify where UVLS should be installed • Add a requirement to verify that there are sufficient reactive resources • Add a requirement to identify where UVLS should be installed
Team Comments	Provide clarity where the Planning Authority is mentioned
Version 0 Team	• Development of mitigation plans requires subsequent studies, and may actually be done by a different entity than the entity performing the assessment (the TO instead of the RTO who may have done the assessment) • Clearly identify outages • Use NERC Compliance Reporting Process • Don't base penalties on low probability, low consequence events • TO should provide plan of action • Same as TPL-001 & 002

Source	Language
VRFs Team	• R2.2 — lack of consistency with TPL-001 & TPL-007 • R2.1.3 — lack of consistency with TPL-001 & TPL-006 • R2.1.2 — lack of consistency with TPL-001 & TPL-005 • R2.1.1 — lack of consistency with TPL-001 & TPL-004 • R2.1 — lack of consistency with TPL-001 • R2 — lack of consistency with TPL-001 & TPL-002 • Time horizon should be long-term planning
TPL-004-0 — System Performance Following Extreme Events Resulting in the Loss of Two or More Bulk Electric System Elements (Category D)	
FERC Order 693	• 1835 — Tailor the purpose statement to reflect the specific goal of the standard. • 1765 — Determine critical system conditions in the same manner as proposed in TPL-001. • 1836 — Identify options for reducing the probability or impacts of extreme events that cause cascading. • 1836 — Expand the list of category D events to include recent actual events.
Fill in the Blank Team	No action required
Phase III/IV Team	• Add a requirement to identify where UVLS should be installed • Add a requirement to verify that there are sufficient reactive resources
Team Comments	Provide clarity where the Planning Authority is mentioned
Version 0 Team	• R1.3.9 — remove from extreme events • TO should determine which events to study • Perform analysis on credible contingency • Same as TPL-001
TPL-005-0 — Regional and Interregional Self-Assessment Reliability Reports	
FERC Order 693	1841 — Encourages NERC to utilize input from the Commission's technical conferences on regional planning as directed in Order No. 890 to improve this standard.
Fill in the Blank Team	New SAR needed
Version 0 Team	• An RRO can't make a mandatory request for another RRO to perform a study • Define fuel adequacy
TPL-006-0 — Assessment Data from Regional Reliability Organizations	
Fill in the Blank Team	No action required

Project 2006-04 Backup Facilities

Standards Involved:
EOP-008-0 — Plans for Loss of Control Center Functionality

Research Needed:
A study of backup capabilities needed to support reliable operations is required.

Brief Description:
The requirements in EOP-008 need additional specificity. The development revision to EOP-008 may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards. In addition, the efforts of the OC Backup Control Center Task Force will be used as one of the inputs to the revision of EOP-008. Also, there may be backup facility requirements in some other standards, and those requirements should be considered for movement into this standard.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2006-04 Backup Facilities Web page

Project Schedule:
Project 2006-04 Schedule

Target Completion Date:
Fourth quarter of 2010

Standard Drafting Team Roster:

Chairman	Samuel Brattini	KEMA Consulting
Vice Chairman	Michael Schiavone	Niagara Mohawk Power Corp.
	Tom Bowe	PJM Interconnection, L.L.C.
	Blaine R. Dinwiddie	Omaha Public Power District
	Charles W. Jenkins	Oncor Electric Delivery
	Glenn Kaht	ReliabilityFirst Corporation
	Barry R. Lawson	National Rural Electric Cooperative Association
	Sara McCoy	SRP
	Melinda K. Montgomery	Entergy Services, Inc.
	Keith Porterfield	Georgia Systems Operations Corporation
	John Procyk	Hydro One, Inc.
	James Vermillion	Associated Electric Cooperative, Inc.
NERC Staff	Edward J. Dobrowolski	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
EOP-008-0 — Plans for Loss of Control Center Functionality	
FERC Order 693	• 672 — Provide for backup capabilities that, at a minimum, must include a requirement that all reliability coordinators have full backup control centers; • Include a requirement that provides for backup capabilities that, at a minimum, must: • 672 — Provide for backup capabilities that, at a minimum, must provide that the extent of the backup capability be consistent with the impact of the loss of the entity's primary control center on the reliability of the bulk power system. • 651 — Provide for backup capabilities that, at a minimum, must provide for a minimum functionality to replicate the critical reliability functions of the primary control center. • Provide for backup capabilities that, at a minimum, must be independent of the primary control center • 672 — Provide for backup capabilities that, at a minimum, must require transmission operators and balancing authorities that have operational control over significant portions of generation and load to have minimum backup capabilities discussed above but may do • 651 — Provide for backup capabilities that, at a minimum, must be capable of operating for a prolonged period of time, generally defined by the time it takes to restore the primary control center.
Fill in the Blank Team	No comments
NERC Audit Observation Team	Compliance levels don't align with the measures or requirements
Version 0 Team	• Max. time to restore capabilities • How is backup control achieved? • How does staff know control center is lost? (Note — A system health monitor concept or equivalent functionality is what is desired here.)
VRFs Team	• R1.1 — Not having a written plan is unlikely, under emergency, abnormal, or restoration conditions anticipated by the preparations, to lead to bulk electric system instability, separation, or cascading failures, nor to hinder restoration to a normal condition. • R1 — Not having a written plan does not directly cause or contribute to bulk electric system instability, separation, or a cascading sequence of failures, or could place the bulk electric system at an unacceptable risk of instability, separation, or cascading

Project 2006-06 Reliability Coordination

Standards Involved:
COM-001-1 — Telecommunications
COM-002-2 — Communications and Coordination
IRO-001-1 — Reliability Coordination — Responsibilities and Authorities
IRO-002-1 — Reliability Coordination — Facilities
IRO-005-2 — Reliability Coordination — Current-Day Operations
IRO-014-1 — Procedures to Support Coordination between Reliability Coordinators
IRO-015-1 — Notifications and Information Exchange Between Reliability Coordinators
IRO-016-1 — Coordination of Real-time Activities between Reliability Coordinators

Research Needed:
None

Brief Description
Most of the requirements in this set of standards were translated from Operating Policies as part of the Version 0 process. There have been suggestions for improving these requirements, and the drafting team will consider comments submitted by stakeholders, drafting teams and FERC in determining what changes should be proposed to stakeholders.

The drafting team will review all of the requirements in this set of standards and make a determination, with stakeholders, on whether to:

- Modify the requirement to improve its clarity and measureability while removing abiguity Move the requirement (into another SAR or Standard or to the certification process or standards)
- Eliminate the requirement (either because it is redundant or because it doesn't support bulk power system reliability).

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2006-06 Reliability Coordination Web page

Project Schedule:
Project 2006-06 Schedule

Target Completion Date:
Third quarter of 2010

Standard Drafting Team Roster:

Chairman	Mike Hardy	Southern Company Services, Inc.
	Earl A. Barber	National Grid
	Timothy A. Beach	American Transmission Company, LLC
	Paul Bleuss	California/Mexico Reliability Coordinator (CMRC)
	James S. Case	Entergy Services, Inc.
	Albert DiCaprio	PJM Interconnection, L.L.C.
	Anthony Jankowski	We Energies
	Allan D. Miller	Independent Electricity System Operator
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Robert C. Rhodes, Jr.	Southwest Power Pool
NERC Staff	Stephen Crutchfield	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
COM-001-1 — Telecommunications	
FERC Order 693	"Include generator operators and distribution providers in the list of applicable entities and create appropriate requirements for them. Paragraph 487. The Commission reaffirms its position that generator operators and distribution providers should be included as applicable entities in COM-001-1 to ensure there is no reliability gap during normal and emergency operations. For example, during a blackstart when normal communications may be disrupted, it is essential that the transmission operator, balancing authority and reliability coordinator maintain communications with their distribution providers and generator operators. However, the current version of Reliability Standard COM-001-1 does not require this because it does not include generator operators and distribution providers as applicable entities. We clarify that the NOPR did not propose to require redundancy on generator operators' or distribution providers' telecommunication facilities or that generator operators or distribution providers be trained on anything not related to their functions during normal and emergency conditions. We expect the telecommunication requirements for all applicable entities will vary according to their roles and that these requirements will be developed under the Reliability Standards development process."
	"Specify requirements for using telecommunication facilities during normal and emergency conditions that reflect the roles of the applicable entities and their impact of reliable operation, and include adequate flexibility. Paragraph 490. In response to SDG&E, the Commission's intent is not to subject generator operators and distribution providers to the same requirements placed on transmission operators. As part of the modification of this Reliability Standard or development of a new Reliability Standard to include the appropriate telecommunications facility requirements for generator operators and distribution providers, the ERO should take into account what would be required of generator operators and distribution providers in terms of telecommunications for the Reliable Operation of the Bulk-Power System, instead of applying the same requirements as are placed on other reliability entities such as reliability coordinators, balancing authorities and transmission operators."
	Address TAPS, Entergy, Six Cities, and FirstEnergy concerns through the standard development process. TAPS Paragraph 483. TAPS states that Requirement R1.4 has an ambiguous requirement that, if applied to distribution providers and generator operators, would impose redundancy requirements well beyond what is reasonably necessary for Bulk-Power System reliability. Further it asserts that the NOPR provides no basis for expanding the Reliability Standard to small entities, such as a 2-MW distribution provider or generator, much less than one that has no connection to the bulk transmission system. Finally, TAPS contends that, in making this proposal, the Commission is "over-stepping its bounds" by not leaving it to the ERO's expert judgment whether COM-001-1 has sufficient coverage to protect Bulk-Power System reliability and states that, in any event, applicability should be limited through NERC's registry criteria and definition of bulk electric system.
	"Address TAPS, Entergy, Six Cities, and FirstEnergy concerns through the standard development process. Entergy Paragraph 499. Entergy states that it is unclear what cyber assets are covered by COM-001-0. Entergy believes that the Reliability Standard should focus on telecommunications that support the operation of critical assets. Entergy also believes that COM-001-0 should be expanded to include advances in communications technology. It states that NERC should consider addressing the following in a way that will facilitate an understanding of the Reliability

Source	Language
	Standards' requirements: (1) voice communications; (2) command and control data communications; (3) security coordination data communications; (4) digital messaging communications; (5) human linguistic convention and (6) other types of communications, including video conferencing and communications with remote security cameras. Entergy believes that this could be accomplished through an enhancement to the definition of communications in the NERC glossary and recasting COM-001-0 to improve the specificity of requirements for each form of communication. Finally, Entergy believes that Requirement R4 of COM-001-0, which requires reliability coordinators, transmission operators and balancing authorities to use English in all types of communications, should apply only to verbal and written communications."
	Address TAPS, Entergy, Six Cities, and FirstEnergy concerns through the standard development process. Six Cities Paragraph 501. Six Cities is concerned that the scope of improper conduct under the "NERCNet security policy" in Attachment 1 is virtually limitless. Six Cities recognizes that it would be difficult to provide a comprehensive and detailed list of all conduct that might be considered a misuse of NERCNet data, but that difficulty does not justify exposing NERCNet users to the risk of monetary penalties based on amorphous and unbounded descriptions of potentially violative conduct. Six Cities states that one solution would be to limit the imposition of monetary penalties for misuse of NERCNet data to instances where such misuse is intentional or grossly egligent. According to Six Cities, it would be appropriate to exact a monetary penalty where a NERCNet user deliberately uses NERCNet data for unauthorized or unreasonable purposes. Six Cities asks that it be modified to provide for a warning for the improper disclosure of NERCNet data where the disclosure was not intentional or grossly negligent.
	Address TAPS, Entergy, Six Cities, and FirstEnergy concerns through the standard development process. First Energy Paragraph 500. FirstEnergy asserts that the Requirement R2 is unclear because it does not specify whether the phrase "telecommunication facilities" covers both voice and data facilities in the context of alarms. It states that, although the word "telecommunications facilities" is generally understood to mean both voice and data facilities, the current practice is to display alarms only for data facilities. Requirement R2 could be misinterpreted to require alarms on voice facilities as well, which would be impractical.
NERC Standards DT Coordinators Meeting 20080520	COM-001-1 Telecommunications is being reviewed and revised under Project 2006-06 Reliability Coordination; however, it has been agreed that all requirements of COM-001-1 except R4 will be addressed by the SDT for Project 2006-06 and that requirement R4 will be addressed by the SDT for Project 2007-02 Operating Personnel Communications Protocols. If either part of this agreement is not maintained, COM-001-1 will need revisited.
Version 0 Team	• Apply R1 to all but smallest entities • Many players missing • Redundant with Policy 5A, R1
VRFs Team	R6 — administrative requirement
COM-002-2 — Communications and Coordination	
NERC Standards DT Coordinators Meeting 20080520	COM-002-2 Communication and Coordination is being reviewed and revised under both Project 2006-06 Reliability Coordination and Project 2007-02 Operating Personnel Communications Protocols; however, it has been agreed that: •Requirement R1will be addressed by the SDT for Project 2006-06 and •Requirement R2 will be

Source	Language
	addressed by the SDT for Project 2007-02 Operating Personnel Communications Protocols. If either part of this agreement is not maintained, COM-002-2 will need revisited.
IRO-001-1 — Reliability Coordination — Responsibilities and Authorities	
FERC Order 693	Consider commenter's' suggestions as part of the standards development process. 895. California Cogeneration comments that the Reliability Standard fails to address the operational limitations of QFs because they have contractual obligations to provide thermal energy to their industrial hosts. It contends that a QF can be directed to change operations only in the case of a system emergency, pursuant to 18 CFR § 292.307.
	Consider adding measures and levels of non-compliance. Paragraph 897. While APPA, FirstEnergy and California Cogeneration suggest possible changes to IRO-001-1, they do not suggest that the proposed Reliability Standard should not be approved. The ERO should consider the commenter's' suggestions when modifying the Reliability Standard pursuant to its Reliability Standards development process. Further, the Commission directs the ERO to consider adding Measures and Levels of Non-Compliance in the Reliability Standard as requested by APPA.
	Consider commenter's' suggestions as part of the standards development process. Paragraph 892. APPA supports the approval of the Reliability Standard but expresses concern that the Version 1 standard does not include Measures that correspond to Requirements R2 and R9. APPA emphasizes the need for Measures corresponding to Requirement R9, which requires the reliability coordinator to act in the interests of reliability for the overall reliability coordinator area and the Interconnection before the interests of any other entity. APPA supports Requirement R8 with the extended applicability, provided that applicability is determined by reference to the NERC compliance registry. APPA agrees that the regional reliability organization should be eliminated as an applicable entity and suggests it be replaced with Regional Entities.
	Eliminate the references to the regional reliability organization as an applicable entity. Paragraph 896. In the NOPR, the Commission proposed to approve the Reliability Standard as mandatory and enforceable. In addition, as a separate action under section 215(d)(5), the NOPR proposed to direct the ERO to develop modifications to Requirement R1291 to substitute "Regional Entity" for "regional reliability organization" and reflect NERC's Rules of Procedure for registering, certifying and verifying entities, including reliability coordinators. Commenter's do not raise any concerns regarding the proposed action. Accordingly, for the reasons stated in the NOPR, the Commission approves IRO-001-1 as mandatory and enforceable. In addition, for the reasons discussed in the NOPR, the Commission directs the ERO to develop modifications to the Reliability Standard through the Reliability Standards development process that reflect the process set forth in the NERC Rules of Procedures and eliminate the regional reliability organization as an applicable entity.
	Consider commenter's' suggestions as part of the standards development process. 893. FirstEnergy suggests that NERC clarify whether Requirement R8, which requires entities to comply with a reliability coordinator directive "unless such actions would violate safety, equipment or regulatory or statutory requirements," refers to personnel safety, equipment safety or both. In addition, it suggests the establishment of a chain of command so that, for example, if a generator receives conflicting instructions from a balancing authority and a transmission operator, it can determine which instruction governs.
	Consider commenter's' suggestions as part of the standards development process.

Source	Language
	894. Requirement R3 provides that a reliability coordinator "shall have clear decision making authority to act and direct actions to be taken" by applicable entities to "preserve the integrity and reliability of the Bulk Electric System and these actions shall be taken without delay but no longer than 30 minutes." Santa Clara contends that some actions would require driving to a remote site and therefore, mandating completion of the required action within 30 minutes would be unreasonable. Thus, it recommends that NERC modify Requirement R3 to provide that "actions shall commence without delay, but in any event shall commence within 30 minutes."
Fill in the Blank Team	• Remove ", sub-region, or interregional coordinating group" from R1 • Consider removing "Standards of conduct are necessary to ensure the Reliability Coordinator does not act in a manner that favors one market participant over another." from the Purpose section of the standard.
NERC Audit Observation Team	All applicable registered functions shall comply with RC directives unless such actions would violate safety, equipment or regulatory or statutory requirements. Inform the RC immediately of the inability to perform such directives. For audit purposes, what is acceptable evidence?
Version 0 Team	• Inability to perform needs to be communicated • What is meant by 'interest of other entity'? • What is meant by 'interest of other entity'?
VRFs Team	• R6 - Since the RC must be NERC certified, it stands to reason that anyone performing RC tasks should be certified. However, since the RC still retains the accountability for actions, and requirement 4 handles the agreements, this requirement is a medium risk. • R6 - Since the RC must be NERC certified, it stands to reason that anyone performing RC tasks should be certified. However, since the RC still retains the accountability for actions, and requirement 4 handles the agreements, this requirement is a medium risk.
IRO-002-1 — Reliability Coordination — Facilities	
FERC Order 693	"Require a minimum set of tools that must be made available to the reliability coordinator. Paragraph 905. Further, consistent with the NOPR, the Commission directs the ERO to modify IRO-002-1 to require a minimum set of tools that must be made available to the reliability coordinator. We believe that this requirement will ensure that a reliability coordinator has the tools it needs to perform its functions. Further, as noted by Dominion, such a requirement promotes a more proactive approach to maintaining reliability."
Version 0 Team	• Words such as 'easily understood' and 'particular emphasis' need to be tightened • R7 — define 'adequate' tools and 'wide-area' • R5 — define synchronized information system
IRO-005-1 — Reliability Coordination — Current-Day Operations	
FERC Order 693	Include measures and levels of non-compliance.
	"Conduct a survey on IROL practices and actual operating experiences by requiring reliability coordinators to report any violations of IROLS, their causes, the date and time, the durations and magnitudes in which actual operations exceeds IROLs to

Source	Language
	NERC. Paragraph 951. Accordingly, the Commission approves Reliability Standard IRO-005-1 as mandatory and enforceable. Further, because IRO-005-1 has no Measures or Levels of Non-Compliance, pursuant to section 215(d)(5) of the FPA and § 39.5(f) of our regulations, the Commission directs the ERO to develop a modification to IRO-005-1 through the Reliability Standards development process that includes Measures and Levels of Non-Compliance. The Commission further directs that the Measures and Levels of Non-Compliance specific to IROL violations must be commensurate with the magnitude, duration, frequency and causes of the violations and whether these occur during normal or contingency conditions. Finally, the Commission directs the ERO to conduct a survey on IROL practices and actual operating experiences by requiring reliability coordinators to report any violations of IROL, their causes, the date and time, the durations and magnitudes in which actual operations exceeds IROLs to the ERO on a monthly basis for one year beginning two months after the effective date of the Final Rule. We may propose further modifications to IRO-005-1 based on the survey results."
	"Measures and levels of non-compliance specific to IROL violations must be commensurate with the magnitude, duration, frequency, and causes of the violations and whether these occur during normal or contingency conditions. Paragraph 951. Accordingly, the Commission approves Reliability Standard IRO-005-1 as mandatory and enforceable. Further, because IRO-005-1 has no Measures or Levels of Non-Compliance, pursuant to section 215(d)(5) of the FPA and § 39.5(f) of our regulations, the Commission directs the ERO to develop a modification to IRO-005-1 through the Reliability Standards development process that includes Measures and Levels of Non-Compliance. The Commission further directs that the Measures and Levels of Non-Compliance specific to IROL violations must be commensurate with the magnitude, duration, frequency and causes of the violations and whether these occur during normal or contingency conditions. Finally, the Commission directs the ERO to conduct a survey on IROL practices and actual operating experiences by requiring reliability coordinators to report any violations of IROL, their causes, the date and time, the durations and magnitudes in which actual operations exceeds IROLs to the ERO on a monthly basis for one year beginning two months after the effective date of the Final Rule. We may propose further modifications to IRO-005-1 based on the survey results."
	"Provide further clarification that reliability coordinators and transmission operators direct control actions, not LSEs as part of the standard development process. Paragraph 950. We do not share TAPS' concern regarding LSEs initiating load shedding as their own control action to respect IROLs or SOLs. The appropriate control actions to respect IROLs and SOLs are the responsibilities of a reliability coordinator and transmission operator. If load shedding is required, it is the responsibility of a reliability coordinator or a transmission operator to direct the appropriate entities including LSEs to carry it out. However, we urge the ERO to provide further clarification in this regard and include TAPS' concern in developing the modification of this Reliability Standard."
Fill in the Blank Team	R14 has regional reference
Version 0 Team	R10, 11 & 12 — RA not empowered to do this
IRO-016-1 — Coordination of Real-Time Activities Between Reliability Coordinators	
VRFs Team	R1.2.1 & R2 — ambiguous

Project 2006-08 Transmission Loading Relief

Standards Involved:
IRO-006-4 — Reliability Coordination — Transmission Loading Relief

Research Needed:
None

Brief Description:
This is a project that is carried over from 2006. This project involves a coordinated effort with NAESB to clarify and refine the requirements in the standard and identify which requirements are needed to support reliability and which requirements are needed to support a business practice. A part of this project is to modify the requirements so that the Interchange Distribution Calculator will accept market data, thus eliminating the need for the existing regional differences and to make other necessary modifications as identified by stakeholders.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2008 Annual plan):
- Annual Plan Item 1.a.ii
- Annual Plan Item 1.d
- Annual Plan Item 2.b.vi

Justification for NAESB consideration:
- FERC Order 890

SRS Recommendation:
- This project is already covered by current NAESB WEQ projects. NERC should take into consideration WEQ Annual Plan Item 1.d in the development of the NERC Standard. Coordination between NERC and NAESB is in progress.

Standard Development Status:
Project 2006-08 Transmission Loading Relief Web page

Project Schedule:
Project 2006-08 Schedule

Target Completion Date:
Phase 2: first quarter of 2010
Phase 3: first quarter of 2010

Standard Drafting Team Roster:

Chairman	P.S. (Ben) Li	Ben Li Associates, Inc.
	Daryn Barker	E.ON-US Energy Services Inc.
	Bill Blevins	Electric Reliability Council of Texas, Inc.
Vice Chair	James Busbin	Southern Company Services, Inc.
	James Eckelkamp	Progress Energy
	Robert Paul Humberson	Western Area Power Administration - Rocky Mountain Region
	Frank J. Koza	PJM Interconnection, L.L.C.
	David F. Lemmons	Xcel Energy, Inc.
	Thomas J Mallinger, P.E.	Midwest ISO, Inc.
	Dave Marton	FirstEnergy Solutions
	Narinder K. Saini	Entergy Services, Inc.
	Don Shipley	Southwest Power Pool
NERC Staff	Andrew J. Rodriquez	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
NAESB Standards Review Subcommittee	NAESB Standards Review Subcommittee as input to the Reliability Standards Development Plan: 2010-2012: NAESB requests that NERC continue its coordination with NAESB on this project.
IRO-006-3 — Reliability Coordination — Transmission Loading Relief	
FERC Order 693	Regional Difference to IRO-006: PJM/MISO/SPP Enhanced Congestion Management: Allow the NERC Operating Committee to address the technical merits of netting flow impacts in the interchange distribution calculator.
	Regional Difference to IRO-006: PJM/MISO/SPP Enhanced Congestion Management: Instructs the RTOs to continue working with the non-market regions to develop revised seams agreements that allow for equitable and feasible treatment of market flows in the NERC TLR/redispatch process.
	Regional Difference to IRO-006: PJM/MISO/SPP Enhanced Congestion Management: Commission will allow the twelve-month PJM/MISO/SPP field test to conclude before taking further action on the variance.
	Include a clear warning that TLR procedures are not appropriate and not effective to mitigate an actual IROL violation.
	Modify the WECC and ERCOT load relief procedures to ensure consistency with the standard form of the reliability standard including requirements, measures, and levels of non-compliance.
	Identifies the available alternatives to mitigate an IROL violation other than the use of the TLR procedure. Consider the suggestions of MidAmerican and Xcel when developing the modification.
FERC Order 890	659 This is consistent with our determination that conditional firm service when it is conditional is curtailable only to maintain reliable operation of the transmission system.
	660 We are cognizant that daily and hourly operations to change the tags for conditional firm customers likely involve the need for control room coordination and development of an appropriate tracking process. As the Commission described in the NOPR, new tracking and tagging business practices for this service must be developed by each transmission provider. Thus, we are allowing a sufficient period for the development of these business practices, i.e., 180 days from the date of publication of this Final Rule in the Federal Register. As directed above, transmission providers must coordinate with other transmission providers in their regions to develop these tracking and tagging business practices.
	1076. We reject EEI's argument that the curtailment priority for conditional firm service is inconsistent with Commission precedent regarding priority non-firm service only for network customers. EEI's argument is inapposite. Long-term firm point-to-point customers taking fully firm service without the conditional firm option do not need access to priority non-firm service as EEI suggests. They have assurance that their service will not be interrupted for economic reasons and will only be curtailed on a comparable basis with network service. This would not be the case for conditional firm customers. We also find that EEI has failed to explain the connection between the conditional firm transmission service and the availability of reliability redispatch options ,i.e., generators on its system that can ramp up or down in response to a curtailment. We reject Powerex's request that transmission

Source	Language
	providers be required to show that existing long-term rights are protected. Each addition of a new long-term firm transaction impacts the rights of existing firm customers to some extent.
	1075. The secondary network curtailment priority is appropriate because the customer is paying the long-term firm point-to-point rate and thus should receive the highest non-firm curtailment priority during the conditional curtailment hours or during specified system conditions. Adoption of this curtailment priority overcomes what could otherwise be significant implementation hurdles. It allows for implementation of the service without changes to existing NERC TLR practices. NERC and members of the industry need not undertake the time-consuming and expensive process of establishing a new curtailment priority that is between firm and non-firm service as some commenter's requested. Use of this curtailment priority also avoids attendant decisions relating to the method of curtailment that should apply, i.e., pro rata or transactional curtailment, for a quasi-firm curtailment priority. It is also consistent with existing interruption provisions of the pro forma OATT which provide that secondary service cannot be interrupted for economic reasons.
	1074. We adopt a secondary network curtailment priority to apply for the hours or specific system conditions when conditional firm service is conditional. During non-conditional periods, conditional firm service is subject to pro rata curtailment consistent with curtailment of other long-term firm service. Thus, secondary network service and conditional firm service when it is conditional will share the same curtailment priority. Also, there is no conflict with reliability standards because conditional firm service will be subject to pro rata curtailment with all other firm uses of the system once conditional curtailment hours, if that is the option selected, are exhausted.
	1077. We disagree with commenter's' suggestion that the NERC IDC must be changed to accommodate conditional firm service. We reiterate that we are not creating a new curtailment priority in this Final Rule. We also disagree that new tags that combine a firm and non-firm priority must be developed in order to implement the conditional firm option. The curtailment priority in a tag can be changed ahead of the operating hour based on a near-term forecast of system conditions.660 We are cognizant that daily and hourly operations to change the tags for conditional firm customers likely involve the need for control room coordination and development of an appropriate tracking process. As the Commission described in the NOPR, new tracking and tagging business practices for this service must be developed by each transmission provider. Thus, we are allowing a sufficient period for the development of these business practices, i.e., 180 days from the date of publication of this Final Rule in the Federal Register. As directed above, transmission providers must coordinate with other transmission providers in their regions to develop these tracking and tagging business practices.
	1077. We disagree with commenter's' suggestion that the NERC IDC must be changed to accommodate conditional firm service. We reiterate that we are not creating a new curtailment priority in this Final Rule. We also disagree that new tags that combine a firm and non-firm priority must be developed in order to implement the conditional firm option. The curtailment priority in a tag can be changed ahead of the operating hour based on a near-term forecast of system conditions.
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT should review the definition of the following term and coordinate with NAESB so that the definition is consistent between NERC and NAESB: Reallocation
Version 0 Team	• Usage of TLR log questioned • Some inconsistencies with current usage

Source	Language
VRFs Team	• R2.1, .2 & .3 — not a requirement, just a suggested instruction • R6 — redundant
MOD-010-0 — Steady-State Data for Modeling and Simulation of the Interconnected Transmission System	
ATFNSDT	The ATFNSDT identified several issues with regard to modeling data during their deliberations on revising the TPL standards. At one time, they talked about incorporating the gaps they found in TPL but after some deliberation and multiple comments, it was decided to pass them over to the eventual MOD SDT for inclusion in their SAR and the ultimate revisions to MOD-010. These items need to be entered in the issues database so that they are accurately passed on to that SDT: Each Distribution Provider shall provide its respective Planning Coordinator with modeling information for real and reactive Load forecast data for each year of the Transmission planning horizon at Transmission nodes based on expected or historical System performance including the expected mix of industrial, commercial, and residential Loads, within ninety days of a request for such information. Each Transmission Planner shall provide its respective Planning Coordinator with modeling information for Firm Transmission Service data, Interchange Schedules, and resources required to supply Load for each of its Balancing Authorities for each year of the Transmission planning horizon, within ninety days of a request for such information. Each Transmission Owner shall provide its respective Planning Coordinator with modeling information for known planned outages and long-term outages for Transmission equipment for each year of the Transmission planning horizon with consideration given to spare equipment strategy, within ninety days of a request for such information. Each Generator Owner shall provide its respective Planning Coordinator with modeling information for known planned outages and long-term outages for generation equipment for each year of the Transmission planning horizon, within ninety days of a request for such information. Each Resource Planner shall provide its respective Planning Coordinator with the modeling information for new planned Facilities for each year of the Transmission planning horizon including but not limited to generators, Reactive Power devices, and new technologies, within ninety days of a request for such information. Each Transmission Planner shall provide its respective Planning Coordinator with modeling information for new planned Facilities for each year of the Transmission planning horizon including but not limited to Transmission Lines, circuit breakers, Reactive Power devices, Protection System equipment and control devices, and new technologies, within ninety days of a request for such information. These items are seen as gaps in the supply of modeling data that need to be filled. The revised TPL standards will require that a TP/PC use this data and place the onus on acquiring it on the TP/PC. FERC staff is concerned that this approach is lacking in that it doesn't have a corresponding requirement for the applicable entities to supply said data and want to make certain that this 'gap' is eventually closed in MOD.
TLR Family	
Other	Gerry, Hey, I was looking something up in the standards and I couldn't find a definition for "TLR." I ended up downloading the whole set of standards and doing a search. I finally found it. Should TLR be included in the glossary? Kevin J. Conway NERC Reliability Readiness Evaluator North American Electric Reliability Corporation 116-390 Village Blvd. Princeton, NJ 08540-5721 Cellular Phone: 509-750-5441 kevin.conway@nerc.net

Project 2007-01 Underfrequency Load Shedding

Standards Involved:
PRC-006-0 — Development and Documentation of Regional ULS Program Requirements
PRC-007-0 — Assuring Consistency with Regional UFLS Programs
PRC-009-0 — UFLS Performance Following an Underfrequency Event

Research Needed:
None

Brief Description:
PRC-006 is one of the few reliability standards identified by the Regional Reliability Standards Working Group as a standard that has some requirements that need to be defined by each regional entity in a regional standard.

The standard drafting team (SDT) will work with stakeholders to review PRC-006 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the UFLS program documentation. The SDT shall determine which requirements should be continent-wide requirements and which requirements should be included in regional standards.

PRC-007 and PRC-009 have some 'fill-in-the-blank' characteristics, as identified in the Regional Reliability Standards Working Group work plan, which need to be removed. These standards shall be included with PRC-006 for consideration as one or more revised standards as necessary for consistency and clarity of overall program requirements and any other associated programs and/or requirements that affect or impact the UFLS program.

The standard drafting team may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standard Development Status:
Project 2007-01 Underfrequency Load Shedding Web page

Project Schedule:
Project 2007-01 Schedule

Target Completion Date:
First Quarter of 2009

Standard Drafting Team Roster:

Chairman	Philip J. Tatro, P.E.	National Grid USA
	Paul Attaway	Georgia Transmission Corporation
	Brian D. Bartos	Bandera Electric Cooperative
	Scott Berry	Indiana Municipal Power Agency
	Brian Evans-Mongeon	Utility Services LLC
	Frank Gaffney	Florida Municipal Power Agency
	Jonathan Glidewell	Southern Company Transmission Company
	Gerald Keenan	Northwest Power Pool Corporation
	Robert W. Millard	ReliabilityFirst Corporation
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Mak Nagle	Southwest Power Pool
	Robert J. O'Keefe	American Electric Power
	Si Truc Phan	Hydro-Québec TransEnergie
	Tony Rodrigues, P.E.	PacifiCorp
NERC Staff	Robert W Cummings	North American Electric Reliability Corporation
NERC Staff	Stephanie Monzon	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
PRC-006-0 — Development and Documentation of Regional ULS Program Requirements	
FERC Order 693	Transfer responsibility from the regional reliability organization to the regional entity.
Fill in the Blank Team	• Modify R1 to require each Region to develop a regional standard, and • Development of regional standards needs to be coordinated with Regional entities. Regional entities should begin process for developing regional standards once the drafting team for the North American standard has determined what elements of UFLS should be included in the continent-wide standard and what elements should be included in the regional standards. • Determine what elements (if any) of UFLS should be included in the North American standard and what elements should be included in the regional standards. • Related PRC-007, PRC-008, and 009. • PRC-006 will be a continent-wide standard supported by Regional Reliability Standards.
Version 0 Team	• Not a standalone standard • Who do you submit compliance material to? • Need to define evidence
PRC-007-0 — Assuring Consistency with Regional UFLS Programs	
Fill in the Blank Team	• The regional procedures need to be converted to a standard to implement this. • Change "program" to "standard" in R1. • Coordinated with PRC-006.
Version 0 Team	• Need to refine levels of non-compliance • Need to include RA
PRC-009-0 — UFLS Performance Following an Underfrequency Event	
Fill in the Blank Team	• See notes for PRC-007. • Change "program" to "standard'.
Version 0 Team	• Exemptions for those with shunt reactors who don't shed load • 90 days vs. 30 days • Define evidence

Project 2007-02 Operating Personnel Communications Protocols

Standards Involved:
COM-002-2 — Communications and Coordination

Research Needed:
None

Brief Description:
This is a new project that was identified in support of a blackout recommendation #26. This standard will require the use of specific communication protocols, especially for communications during alerts and emergencies. The standard will be applicable to transmission operators, balancing authorities, reliability coordinators, generator operators and distribution providers.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standard Development Status:
Project 2007-02 Operating Personnel Communications Protocols Web page

Project Schedule:
Project 2007-02 Schedule

Target Completion Date:
Fourth quarter of 2011

Standard Drafting Team Roster:

Chairman	Lloyd S. Snyder	Georgia Systems Operations Corporation
	Alan N. Allgower	Electric Reliability Council of Texas, Inc.
	Harvie D. Beavers	Colmac Clarion/Piney Creek LP
	Mark L. Bradley	ITC Transmission
	Mike Brost	JEA
	William D Ellard	California ISO
	Ronald Goins	Midwest ISO, Inc.
	Leanne Harrison	PJM Interconnection, L.L.C.
	Tom Irvine	Hydro One Networks, Inc.
	James McGovern	ISO New England, Inc.
	Wayne Mitchell	Entergy Corporation
	John Stephens	City Utilities of Springfield
	Fred Waites	Southern Company
NERC Staff	Larry J. Kezele	North American Electric Reliability Corporation
NERC Staff	Harry Tom	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
COM-001-1 — Telecommunications	
NERC Standards DT Coordinators Meeting 20080520	COM-001-1 Telecommunications is being reviewed and revised under Project 2006-06 Reliability Coordination; however, it has been agreed that all requirements of COM-001-1 except R4 will be addressed by the SDT for Project 2006-06 and that requirement R4 will be addressed by the SDT for Project 2007-02 Operating Personnel Communications Protocols. If either part of this agreement is not maintained, COM-001-1 will need revisited.
COM-002-2 — Communications and Coordination	
FERC Order 693	• Address APPA's concern through the standard development process. • Address Santa Clara, FirstEnergy, and Six Cities concerns in the reliability standards development process. • Consider Xcel's suggestion that the entity taking operating actions should not be held responsible for the delays caused by the reliability coordinator's assessment and approval. • Establish tightened communication protocols, especially for communications during alerts and emergencies. Establish uniformity to the extent practical on a continent-wide basis. • Include a requirement for the reliability coordinator to assess and approve only those actions that have impacts beyond the area views of the transmission operators and balancing authorities. Include how to determine whether an action needs to be assessed by the reliability coordinator. • Include APPA's suggestions to complete the measures and levels of non-compliance. • Include distribution providers in the list of applicable entities.
NERC Standards DT Coordinators Meeting 20080520	• "COM-002-2 Communication and Coordination is being reviewed and revised under both Project 2006-06 Reliability Coordination and Project 2007-02 Operating Personnel Communications Protocols; however, it has been agreed that: •Requirement R1will be addressed by Project 2006-06" • Requirements R1, R3, R4, and R5 (for coordination in planning time frame) of PRC-001-1 System Protection Coordination are better addressed in COM-002 Communications and Coordination. (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.)
Version 0 Team	• R1 — include reliability authority • R2 — include sabotage and security • R2 — include sabotage and security • R4 — clarify repeat back requirement with regard to emergency • R4 — clarify repeat back requirement with regard to emergency • Voice with generators not required

Source	Language
Version 1 Team	• R1 — include reliability authority • R2 — include sabotage and security • R4 — clarify repeat back requirement with regard to emergency • Voice with generators not required

Project 2007-03 Real-time Operations

Standards Involved:
TOP-001-1 — Reliability Responsibilities and Authorities
TOP-002-2 — Normal Operations Planning
TOP-003-0 — Planned Outage Coordination
TOP-004-1 — Transmission Operations
TOP-005-1 — Operational Reliability Information
TOP-006-1 — Monitoring System Conditions
TOP-007-0 — Reporting SOL and IROL Violations
TOP-008-1 — Response to Transmission Limit Violations
PER-001-0 — Operating Personnel Responsibility and Authority

Research Needed:
Operating Committee study of situational awareness tools

Brief Description:
Most of the requirements in this set of standards were translated from Operating Policies as part of the Version 0 process. There have been suggestions for improving these requirements, and the drafting team will consider comments submitted by stakeholders, drafting teams and FERC in determining what changes should be proposed to stakeholders.

The drafting team will review all of the requirements in this set of standards and make a determination, with stakeholders, on whether to:

- Move the requirement (into another SAR or Standard or to the certification process or standards)
- Eliminate the requirement (either because it is redundant or because it does not support bulk power system reliability).
- Improve clarity of, improve measurability of, and remove ambiguity from the remaining requirements
- Bring the set of standards into conformance with the latest version of the Reliability Standards Development Procedure and the ERO Sanctions Guidelines.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standard Development Status:
Project 2007-03 Real-time Operations Web page

Project Schedule:
Project 2007-03 Schedule

Target Completion Date:
Second quarter of 2010

Standard Drafting Team Roster:

Chairman	James S. Case	Entergy Services, Inc.
	Paul Bleuss	California/Mexico Reliability Coordinator
	Albert DiCaprio	PJM Interconnection, L.L.C.
	Ryan Johnson	NRG Energy Power Marketing, Inc.
	Phillip Lavallee	National Grid USA
	Jason L. Marshall, P.E.	Midwest ISO, Inc.
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Paul Olson	Sacramento Municipal Utility District
	Gregory Van Pelt	California ISO
	Jim Useldinger	KCP&L
NERC Staff	Edward J. Dobrowolski	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
PER-001-0 — Operating Personnel Responsibility and Authority	
Version 0 Team	Data retention should be 1 year
TOP-001-1 — Reliability Responsibilities and Authorities	
FERC Order 693	• Consider adding other measures and levels of non-compliance. • 1589 — Includes measures and levels of non-compliance for requirement R8 • 1588 — Consider Santa Clara's comments on requirements R7.2 and R7.3 on transmission operator notification requirements as part of the standards development process. • 1585 — Clarify the definition of "emergency" and define the criteria for entering into the various states. Also define the authority for declaring these states.
NERC Audit Observation Team	Does this imply that a GOP can call another GOP and request an output change without going through the RC, BA or TOP?
Version 0 Team	• Define emergency • Need to expand included entities • What is 'clear decision making authority'? • Need to define single, central communications point during emergencies • Some emergencies will require follow up notification as opposed to immediate
TOP-002-1 — Normal Operations Planning	
Fill in the Blank Team	Remove "in accordance with NERC, Regional Reliability Organization, sub regional, and local reliability requirements" from R6 and "in accordance with filed tariffs and/or regional Total Transfer Capability and Available Transfer Capability calculation processes" from R12 .
Version 0 Team	• Limit of 2 tests per year • Coordination of planning required • Define N-1 • Define 'without intentional delay' • Reliability should 'trump' confidentiality
VRFs Team	• R2 — administrative in nature, not a real requirement • R9 — related to INT-003 • R14 & 14.1 — ambiguous
TOP-002-2 — Normal Operations Planning	

Source	Language
FERC Order 693	• 1607 — Consider the comments of ISO-NE and the NRC with respect to requirement R12 and measure M7 as part of the standard development process. • 1608 — Requires simulation contingencies to match what will actually happen in the field. • 1608 — Requires next-day analysis of minimum voltages at nuclear power plants auxiliary power buses. • 1608 — Next-day analysis for all IROLs must identify and communicate control actions to system operators that can be implemented within 30 minutes following a contingency. • 1608 — Delete references to confidentiality in requirements R3 and R4. • 1608 — Address critical energy infrastructure confidentiality as part of the routine standard development process. • 1603 — Inform the nuclear plant operator in real-time if the auxiliary power bus voltages cannot be maintained.
NERC Standards DT Coordinators Meeting 20080520	Requirements R2, R5, and R6 (for coordination in real-time) of PRC-001-1 System Protection Coordination are better addressed in the TOP family of standards: Consider putting R5 of PRC-001-1 in: TOP-002 R1, R3, R4, or R5 or TOP-003 — R1, R3, R4 (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.)
TOP-003-0 — Planned Outage Coordination	
FERC Order 693	• 1622 — Consider TVA's suggestion for including breaker outages within the meaning of facilities that are subject to advance notice for planned outages. • 1624 — Require any facility, that in the opinion of the reliability coordinator, balancing authority, or transmission operator, will have a direct impact on the reliability of the bulk power system be subject to the requirement R1 for planned outage coordination • 1626 — Incorporate an appropriate lead time for planned outages using suggestions from the various commenter's. • 1626 — Communicate scheduled outages to all affected entities well in advance to ensure reliability and accuracy of ATC calculations.
Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan: 2010-2012	With respect to requirement R1.2, why is the TOP responsible for providing generator outage information? Isn't that the BA's or GOP's responsibility and isn't this redundant with IRO-010-1?
NERC Standards DT Coordinators Meeting 20080520	Requirements R2, R5, and R6 (for coordination in real-time) of PRC-001-1 System Protection Coordination are better addressed in the TOP family of standards: •Consider putting R5 of PRC-001-1 in: TOP-002 R1, R3, R4, or R5 or TOP-003 — R1, R3, R4 •Consider putting R6 of PRC-001-1 in: TOP-003 R5 or TOP-006 (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.)

Source	Language
Version 0 Team	• Submit outage data ASAP but no later than noon day ahead • RA can't request outage cancellation • Outage information needed sooner than 1 day prior
VRFs Team	R4 — poorly written
TOP-004-1 — Transmission Operations	
FERC Order 693	• 1630 - Modify requirement R4 to state that the system should be restored to respect proven limits as soon as possible taking no more than 30 minutes. • 1628 - NERC should report the results of the survey to the Commission within 18 months of the effective date of this rule. • 1641 - Reliability coordinators should report any IROL violations to NERC on a monthly basis for one year beginning August 2, 2007. • 1628 - Perform a survey of the prevailing operating practices and actual operating experiences surrounding IROL limits. • 1640 - Defines high risk conditions under which the system must be operated to respect multiple outages in requirement R3. • 1634 - Consider Santa Clara's comments regarding changes to requirement R2 in the standards development process.
Fill in the Blank Team	No action required
NERC Audit Observation Team	Transmission operator enters an unknown state. What does this mean?
Version 0 Team	• Define (or remove) practical • Define SOL & IROL • Specify disconnection as acceptable in R5 • Clarify roles • Vagueness in application of IROL limits • Operations should conform to planning standards
TOP-005-1 — Operational Reliability Information	
FERC Order 693	• 1644 & 1646 — Consider FirstEnergy's modifications to Attachment 1 and ISO-NE's recommended revision to requirement R4 in the standards development process. • 1649 — Delete references to confidentiality agreements but ensure critical energy infrastructure confidentiality is addressed in the standards development process. • 1651 — Include information about the operational status of special protection systems and power system stabilizers in Attachment 1.
NERC Standards DT Coordinators Meeting 20080520	Requirements R2, R5, and R6 (for coordination in real-time) of PRC-001-1 System Protection Coordination are better addressed in the TOP family of standards: •Consider putting R2 of PRC-001-1 in TOP-005 (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.)

Source	Language
Version 0 Team	• Generator data should include voltage control & stabilizers • Data update is too slow • Need to include GO & LSE • GO needs to supply data to BA & TO
TOP-006-1 — Monitoring System Conditions	
FERC Order 693	• 1653 — Add requirement related to the provision of minimum capabilities that are necessary to enable operators to deal with real-time situations and to ensure reliable operation of the bulk power system. • 1653 — Clarify the meaning of “appropriate technical information” concerning protective relays. • 1658 — Consider APPA’s comments regarding missing measures in the standards development process.
Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan: 2010-2012	• With respect to requirements R1 and R1.2, why are BAs responsible for information regarding transmission resources available for use? Isn't that the role of the TOP? • With respect to requirement R2, why is the BA responsible for monitoring transmission line status, voltage, load tap changer settings, and reactive power in general? Monitoring and managing reactive resources, voltage and tap settings is clearly made the responsibility of the TOP in VAR-001-1a. • With respect to requirement R3 why does the BA need to understand protective relaying? Isn’t that the role of the TOP and GOP?
NERC Standards DT Coordinators Meeting 20080520	Requirements R2, R5, and R6 (for coordination in real-time) of PRC-001-1 System Protection Coordination are better addressed in the TOP family of standards: •Consider putting R6 of PRC-001-1 in: TOP-003 R5 or TOP-006 (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.)
Version 0 Team	• Monitor frequency at multiple points • GO needs to provide normal & emergency data • Load forecasting data required • Need to match roles with FM
VRFs Team	• R3 — define appropriate • R1, 1.1, 1.2 — ‘available in emergency situation’ may be needed • R4 — What information is required and what is a load pattern?
TOP-007-0 — Reporting System Operating Limit (SOL) and Interconnection Reliability Operating Limit (IROL) Violations	
FERC Order 693	• 1671 — Consider the NRC’s comments on voltage requirements as part of the standards development process. • 1668 — Eliminate overlapping matters in TOP-007 and TOP-008.

Source	Language
Version 0 Team	• Not enforceable with current criteria • Need to tighten the non-compliance terms • Need to define evidence of evaluation • More of a compliance issue than an true standard • RA should be included
TOP-008-1 — Response to Transmission Limit Violations	
FERC Order 693	1678 — Consider APPA's comments regarding missing measures in the standards development process.

Project 2007-04 Certifying System Operators

Standards Involved:
PER-003-0 — Operating Personnel Credentials

Research Needed:
None

Brief Description:
This Version 0 Standard requires the Reliability Coordinator, Balancing Authority and Transmission Operator to staff its real-time operating positions with personnel that have a NERC certification credential.

The standard will be revised to address the directives from FERC Order 693 and industry comments from Version 0.

The standard will also be revised to conform to the latest version of the Reliability Standards Development Procedure and the ERO Sanctions Guidelines. The standard drafting team will apply the Reliability Standard Review Guidelines when modifying the standard.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2007-04 Certifying System Operators Web page

Project Schedule:
Project 2007-04 Schedule

Target Completion Date:
Third quarter of 2011

Standard Drafting Team Roster:

Chairman	David J. Carlson	Commonwealth Edison Co.
	Brad E. Calhoun	CenterPoint Energy
	William D Ellard	California ISO
	David L. Folk	FirstEnergy Corp.
	Jeff Gooding	Florida Power & Light Co.
	Mike Gough	Western Area Power Administration
	Raymond C. Gross	PJM Interconnection, L.L.C.
	Mark A. Heimbach	Pennsylvania Power & Light Company
	Lauri Jones	Pacific Gas and Electric Company
	Rob MacDonald	Hydro One, Inc.
	Tom McKenrick	Midwest ISO, Inc.
	Patricia E. Metro	National Rural Electric Cooperative Association
	Ed Seddon	Orlando Utilities Commission
	Fred Waites	Southern Company
NERC Staff	Darrel Richardson	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
PER-003-0 — Operating Personnel Credentials	
FERC Order 693	• Consider grandfathering certification requirements for transmission operator personnel as part of the standards development process. • Identify the minimum competencies operating personnel must demonstrate to be certified. • Specify the minimum competencies that must be demonstrated to become and remain a certified operator.
NERC Audit Observation Team	Who needs to be certified?
Version 0 Team	• Problem with wording change from 'both' to 'either' • Need to define critical tasks • Staffing plan is out of scope • Non-compliance levels missing • Need to specify exact position titles and match to credentials • Need to define 'current'
PER-004-1 — Reliability Coordination — Staffing	
FERC Order 693	Include requirements pertaining to personnel credentials for reliability coordinators similar to PER-003.

Project 2007-05 Balancing Authority Controls

Standards Involved:
BAL-002-0 — Disturbance Control Performance
BAL-004-0 — Time Error Correction
BAL-005-1 — Automatic Generation Control
BAL-006-1 — Inadvertent Interchange

Research Needed:
None

Brief Description:
The standard drafting team will:

- Work collaboratively with NAESB to ensure that the elements of these standards that are need to support reliability are include in the revised standard
- Consider comments receive during the initial development of this set of standards and other comments received from ERO regulatory authorities and stakeholders
- Bring the standards into conformance with the latest version of the Reliability Standards Development Procedure and the ERO Rules of Procedures
- Incorporate language to eliminate two interpretations (BAL-005, Requirement 17)
- Incorporate language to make permanent the Urgent Action removal of some of the reliability coordinator's requirements in BAL-004
- Review all of the requirements in the standards listed above.

For each existing requirement, the standard drafting team will also work with NAESB and stakeholders to:

- Eliminate redundancy (or overlap) in the requirements and associated business practices
- Identify requirement that should be moved into other SARs, standards, or business practices
- Eliminate requirements that do not support bulk power reliability
- Improve clarity of, improve measurability of, and remove ambiguity from the remaining requirements

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2008 Annual plan):
Annual Plan Item 1
Annual Plan Item 6.b
Provisional Item 5

Justification for NAESB consideration:
FERC Order 693
Project Description

SRS Recommendation:
During initial discussions (REF: Rae McQuade's letter to Gerry Adamski dated February 11, 2008), there was no identified need for business practices related to this project. NERC should point out any areas where they see a need for a business practice. This should be coordinated with the WEQ on current project Annual Plan Item 6.b.

Standards Development Status:

Project 2007-05 Balancing Authority Controls Web page

Project Schedule:

Project 2007-05 Schedule

Target Completion Date:

Phase 1: Fourth quarter of 2011.
Phase 2: Third quarter of 2012.

Standard Drafting Team Roster:

Chairman	Larry Akens	Tennessee Valley Authority
	Thomas Artau	Progress Energy Florida
	Harvie D. Beavers	Colmac Clarion/Piney Creek LP
	Gerald D Beckerle	Ameren Corp.
	David L. Folk	FirstEnergy Corp.
	William Franklin	Xcel Energy, Inc.
	Steve Gillespie	California ISO
	Howard F. Illian	Energy Mark, Inc.
	Ken McIntyre	Electric Reliability Council of Texas, Inc.
	Sydney Niemeyer	NRG Texas LP
	Guy Quintin	Hydro-Québec TransEnergie
	Kris Ruud	Midwest ISO, Inc.
	Mark Thomas	Entergy Transmission
	Raymond L. Vice	Southern Company Services, Inc.
NERC Staff	Andrew J. Rodriquez	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
NAESB Standards Review Subcommittee	NAESB Standards Review Subcommittee as input to the Reliability Standards Development Plan: 2010-2012: NAESB requests that NERC continue its coordination with NAESB on this project as it relates to item 1.d and 1.e in the NAESB WEQ 2009 Annual Plan.
BAL-002-0 — Disturbance Control Performance	
FERC Order 693	• Include a frequency response requirement. • Measures should be available in real-time to balancing authorities. • Substitute regional entity for regional reliability organization • Include a continent-wide contingency reserve policy, which should include uniform elements (definitions and requirements) • Modify to make requirements R4.2 and R6.2 refer to NERC rather than the NERC Operating Committee. • Define a significant (frequency) deviation and a reportable event, taking into account all events that have an impact on frequency, and how balancing authorities should respond. • Include a requirement that explicitly provides that DSM may be used as a resource for contingency reserves. • DSM should be treated on a comparable basis and must meet similar technical requirements as other resources providing this service • Policy can allow for regional differences, but should include procedures to determine the appropriate mix of operating reserves, spinning and non-spinning, as well as requirements pertaining to the specific amounts of operating reserves based on the load characteristics and magnitude, topology, and mix of resources in the region. • Address Commission concerns about having enough contingency reserves to respond to an event on the system in requirement 3.1 and how such reserves are measured. • Requires any single reportable disturbance that has a recovery time of 15 minutes or longer be reported as a violation.
Fill in the Blank Team	• Modify R2 to remove reference to "sub-Regional Reliability Organization or Reserve Sharing Group", and • Determine what elements of contingency reserve should be included in the North American standard and what elements should be included in the regional standard. • Development of regional standards needs to be coordinated with Regional entities. Regional entities should begin process for developing regional standards once the drafting team for the North American standard has determined what elements of contingency reserve should be included in the continent-wide standard and what elements should be included in the regional standards. • Regional reliability standards will be developed in support of North American standard BAL-002. • Each RRO will need to create a regional standard specifying its Contingency Reserve policy.

Source	Language
NERC Audit Observation Team	• Should the reserve sharing group be audited or the members? This should be tied to registration for consistency. • What is a sub-region
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Frequency Bias Setting Time Error Time Error Correction
Version 0 Team	• Need regional standards in support of N. American • Modify R2 • Determine N. America vs. regional elements
BAL-004-0 — Time Error Correction	
FERC Order 693	• Include levels of non-compliance and additional measures for requirement R3. • In the five-year review cycle of the standard, perform research that would provide a technical basis for the present or any alternative approach that is more effective and helps reduce inadvertent interchange.
NERC/NAESB Coordination	NERC/NAESB Coordination The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Frequency Bias Setting Time Error Time Error Correction
BAL-005-0 — Automatic Generation Control	
FERC Order 693	• Develop a process to calculate the minimum regulating reserve for a balancing authority, taking into account expected load and generation variation and transactions being ramped in and out. • Change title to be neutral as to the source of regulating reserves and allows the inclusion of technically qualified DSM. • Address comments of Xcel and FirstEnergy when the standard is revisited in the work plan. • If regulation is being provided over non-firm transmission service, the entity receiving the regulation must have a back-up plan to include the loss of the non-firm transmissions service as referenced in requirement R5. • Include a measure that provides for a verification process over the required automatic generation control, or regulating reserves a balancing authority maintains
Fill in the Blank Team	No comments
NERC Audit Observation Team	What the difference between this and BAL-005-1?
Version 0 Team	• Re-order & re-word requirements • Define data requirements • Non-compliance missing • Purpose statement

Source	Language
VRFs Team	• R14 — Check for redundancy of second statement. This seems to be a real-time requirement - not planning. Is this for archival data requirements? • R12.3 — redundant • R12 — sub-requirements should be separate requirements
BAL-005-1 — Automatic Generation Control	
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Frequency Bias Setting Time Error Time Error Correction
BAL-006-1 — Inadvertent Interchange	
FERC Order 693	• Regional Differences to BAL-006-1: Inadvertent Interchange Accounting and Financial Inadvertent Settlement: Explore FirstEnergy's request to define the function of a waiver in the reliability standard development process. • Regional Differences to BAL-006-1: Inadvertent Interchange Accounting and Financial Inadvertent Settlement: Reference the current reliability standards and are in the standard form, which includes requirements, measures, and levels of non-compliance. • Add measures concerning the accumulation of large inadvertent interchange balances and levels of non-compliance. • Examine the WECC time error correction procedure as a possible guide.
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Frequency Bias Setting Time Error Time Error Correction
Version 0 Team	• Wording in R4 • Split requirements • Requirements mixed in Compliance • Non-compliance missing • Purpose/Requirement contradiction

Project 2007-06 System Protection Coordination

Standards Involved:
PRC-001-1 — System Protection Coordination

Research Needed:
Identification of criteria for determining where to install protection systems

Brief Description:
The existing PRC-001 Standard has been identified in the Reliability Standards Development Plan as requiring revision, within the FERC Order 693 as requiring revisions, and by a SPCTF report (attached) which identified a number of issues with the existing standard (the SPCTF report, which precedes FERC Order 693, also includes observations from the preceding FERC NOPR on RM-06-16-000). This revision of PRC-001 should address concerns from these sources and should include upgrades to bring the revised standard into conformance with the latest version of the ERO Rules of Procedure.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2007-06 System Protection Web page

Project Schedule:
Project 2007-06 Schedule

Target Completion Date:
Third quarter of 2010

Standard Drafting Team Roster:

Chairman	Arthur J. Buanno	FirstEnergy Corp.
	David Cirka	National Grid
	Aaron Cooperberg	Hydro One Networks, Inc.
	Samuel Francis	Oncor Electric Delivery
	Jeffrey Iler	American Electric Power
	Bill Middaugh	Tri-State G & T Association Inc.
	Richard P. Quest	Xcel Energy, Inc.
	William Waudby	Consumers Energy
	Kevin Wempe	Kansas City Power & Light Co.
	Philip Winston	Georgia Power Company
NERC Staff	Al Calafiore	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
PRC-001-1 — System Protection Coordination	
FERC Order 693	• Upon detection of failures in relays or protection system elements on the bulk power system that threaten reliability, relevant transmission operators must be informed promptly, but within a specified period of time. -- (2) a requirement that transmission and generator operators be informed immediately upon the detection of failures in relays or protection system elements on the Bulk-Power System that would threaten reliable operation, so that these entities could carry out appropriate corrective control actions consistent with those used in mitigating IROL violations. • Once informed, transmission operators must carry out corrective control actions that return the system to a stable state that respects system requirements as soon as possible and no longer than 30 minutes. "[t]he transmission operator shall take corrective action as soon as possible" refers to transmission operators taking operator control actions. It does not refer to troubleshooting, repairing or replacing failed relays or equipment, etc., since these time-consuming corrective actions would prolong the risk of cascading failures to the Bulk-Power System. • Clarify the term "corrective action". 1440. We believe that "[t]he transmission operator shall take corrective action as soon as possible" refers to transmission operators taking operator control actions. It does not refer to troubleshooting, repairing or replacing failed relays or equipment, etc., since these time-consuming corrective actions would prolong the risk of cascading failures to the Bulk-Power System. 1441…. We direct the ERO to clarify the term "corrective action" consistent with this discussion when it modifies PRC-001-1 in the Reliability Standards development process. • Consider FirstEnergy's and the California PUC's comments about the maximum time for corrective actions in the standards development process. 1428. California PUC contends that imposing a time restriction for returning a system to a stable state may cause more harm than good since additional information and options may be available as time elapses. It repeats its suggestion from its earlier comments on the Staff Preliminary Assessment and proposes the following alternative language: "Transmission or generation operators shall carry out corrective control actions, i.e., returning the system to a stable state that respects system requirements as soon as possible, and no longer than 30 minutes, except where a longer response time is feasible, or where a longer response is demonstrated to produce a better ultimate solution without unacceptable interim risk." 1431. FirstEnergy contends that Requirement R2.1 essentially requires generator operators to report all protective relay or equipment failures, since generator operators may not be able to tell which failures will reduce system reliability. FirstEnergy suggests that R2.1 should be revised to require generator operators to report all equipment failures or outages. FirstEnergy further suggests that PRC-001-1 be revised to provide that if a company performs reasonable testing procedures, undiscoverable equipment failures will not be violations of R2.1. • Measures and levels of non-compliance incorrectly reference non-existent requirements.
Version 0 Team	• Consistent terminology as to neighbor vs. affected • Effects on reliability may not be known • Not all criteria moved over from policies

Project 2007-07 Vegetation Management

Standards Involved:
FAC-003-1 — Vegetation Management Program

Research Needed:
None

Brief Description:
This is a Version 1 standard that was approved in 2006. It has some 'fill-in-the-blank' components to eliminate. In addition, the following comments submitted by FERC and stakeholders need to be addressed in the refinement of the standard:

FERC Order 693 items
Address the issue regarding applicability:

- Work with the reliability entities and the ERO to collect and make available to the FERC, a list of critical lower voltage transmission lines. (Refer to Applicability 4.3 section of the standard.)
- Consider other criteria in determining applicability of the standard to sub 200kV lines.
- Address the issue of clearances for lines on both federal and non-federal lands:
- Review and analyze outage data (collected by the ERO) then consider defining clearances needed to avoid sustained vegetation-related outages that would apply to transmission lines crossing both federal and non-federal land.
- Consider revising the definition of right of way to encompass required clearance areas.
- Review the suitability of IEEE 516-2003 standard for minimum vegetation clearance.

Procedural items

- Re-format standard to bring it into conformance with the latest version of the Reliability Standard Development Procedure and the ERO Sanctions Guidelines.
- Remove references to RRO in the standard and substitute a responsible entity.
- Add newly developed compliance elements such as time horizons, violation risk factors, violation severity levels, etc.

Stakeholder items

- Prepare technical reference material such as a "white paper" to aid in understanding the technical basis for the standard.
- Review reporting criteria for Category 3 outages in the proposed technical reference material and may remove the reporting requirement of Category 3 outages in R.3 and R.4.
- Consider deleting requirement R.4.
- Review the reporting exemptions to include all category outages under major disasters in Requirement R3.2.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2007-07 Vegetation Management Web page

Project Schedule:
Project 2007-07 Schedule

Target Completion Date:
First quarter of 2011

Standard Drafting Team Roster:

Chairman	Richard E. Dearman	Tennessee Valley Authority
	Ron A. Adams	Duke Energy Carolina
	Tom Anderson	Lincoln Electric System
	Paul S. Beaulieu	Finley Engineering
	Stephen R. Cieslewicz	CN Utility Consulting LLC
	Randall F. Gann	Alabama Power Company
	Stephen Genua	Pepco Holdings, Inc.
	Jeff Hackman	Ameren Corp.
	Edward Mennella	Orange & Rockland Utilities
	Randall H. Miller	PacifiCorp
	David Morrell	New York State Department of Public Service
	John Pinney	Progress Energy
	John E. Schechter	American Electric Power
	John Tamsberg	Florida Power & Light Co.
	Stephen Tankersley	Pacific Gas and Electric Company
	Ron Turley	Western Area Power Administration
	Gary White	Oncor Electric Delivery
	Philip H. Whitmer	Georgia Power Company
	Ken Wright	Tucson Electric Power Co.
NERC Staff	Harry Tom	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
FAC-003-1 — Vegetation Management Program	
FERC Order 693	• …We recognize that many commenter's would like a more precise definition for the applicability of this Reliability Standard, and we direct the ERO to develop an acceptable definition that covers facilities that impact reliability but balances extending the applicability of this standard against unreasonably increasing the burden on transmission owners…
	• Evaluate suggestions by LPPC, APPA, and Avista in the standards development process.
	• Develop compliance audit procedures, using industry experts, which would identify appropriate inspection cycles based on local factors.
	• Define the minimum clearance needed to avoid sustained vegetation-related outages that apply to line crossing federal and non-federal lands.
	• Address issues that develop in the interim on a case-by-case basis
	• Incorporate suggestions to include facilities at lower voltages that are associated with IROLs.
	• We will not direct NERC to submit a modification to the general limitation on applicability as proposed in the NOPR. However, we will require the ERO to address the proposed modification through its Reliability Standards development process. As explained in the NOPR, the Commission is concerned that the bright-line applicability threshold of 200 kV will exclude a significant number of transmission lines that could impact Bulk-Power System reliability. Although the regional reliability organizations are given discretion to designate lower voltage lines under the proposed Reliability Standard, none have designated any operationally significant lines even though there are lower voltage lines involving IROL as suggested by Progress and SERC. We continue to be concerned that this approach will not prospectively result in the inclusion of all transmission lines that could impact Bulk-Power System reliability. In proposing to require the ERO to modify the Reliability Standard to apply to Bulk-Power System transmission lines that have an impact on reliability as determined by the ERO, we did not intend to make this Reliability Standard applicable to fewer facilities than it currently is with the 200 kV bright line applicability, but to extend the applicability to lower-voltage facilities that have an impact on reliability. We support the suggestions by Progress Energy, SERC and MISO to limit applicability to lower voltage lines associated with IROL and these suggestions should be part of the input to the Reliability Standards development process. Similarly, the ERO should evaluate the suggestions proposed by LPPC, APPA and Avista…..
	• Consider a phase-in timeframe if lower voltage facilities are included as applicable to this standard.
	• …. FirstEnergy and Xcel suggest that if the applicability of this Reliability Standard is expanded, the Commission should allow flexibility in complying with this Reliability Standard for lower-voltage facilities, or allow lower-voltage facilities one year before the Reliability Standard is implemented. The ERO should consider these comments when determining when it would request that the modification of this Reliability Standard to go into effect…..
	• Accordingly, the Commission directs the ERO to develop compliance audit procedures,

Source	Language
	using relevant industry experts, which would identify appropriate inspection cycles based on local factors. These inspection cycles are to be used in compliance auditing of FAC-003-1 by the ERO or Regional Entity to ensure such inspection cycles and vegetation management requirements are properly met by the responsible entities.
	• Accordingly, the Commission directs the ERO to develop a Reliability Standard that defines the minimum clearance needed to avoid sustained vegetation-related outages that would apply to transmission lines crossing both federal land and non-federal land. While this consensus is developed, the Commission directs the ERO to address any potential issues regarding mitigation measures needed to assure these minimum clearances on Forest Service lands are appropriate on a case-by-case basis. The Commission also directs the ERO to collect outage data for transmission outages of lines that cross both federal and non-federal lands, analyze it, and use the results of this analysis and information to develop a Reliability Standard that would apply to transmission lines crossing both federal and non-federal land.
	• FirstEnergy suggests that rights-of-way be defined to encompass the required clearance areas instead of the corresponding legal rights, and that the standards should not require clearing the entire right-of-way when the required clearance for an existing line does not take up the entire right-of-way. The Commission believes this suggestion is reasonable and should be addressed by the ERO. Accordingly, the Commission directs the ERO to address this suggestion in the Reliability Standards development process.
	• Address FirstEnergy's suggestion to clarify the definition of "rights-of-way" as part of the standards development process.
	• Collect outage data for transmission outages of lines that cross both federal and non-federal lands, analyze it, and use the results to develop a standard that would apply to both federal and non-federal lands.
	• Ensure inspection cycles and vegetation management requirements are properly met by the responsible entities.
	• Address the issue of "bright-line" applicability of 200 kV and above through the standards development process.
NERC Audit Observation Team	• It was pointed out that an entity did not need to be registered as a TO for FAC-003-1 to apply to them, only that they have transmission lines operated at 200 kV and above. This could include radial lines as well as generation leads at the 200kV and above level. This could mean functions other than TO would require FAC-003-1 to be in the audit scope. How are you looking at the applicability of FAC-003-1 as it applies to DPs, LSEs, and GOs etc. This could be applicable to many entities registered in multiple regions • TO's shall demonstrate compliance through self certification. Compliance monitoring shall conduct an on-site audit every five years or more frequently as deemed appropriate. Does this over-ride the six year audit cycle for TO's? • With regards to the vegetation management standard, what type of event would trigger a compliance investigation?
Version 0 Team	• RA vs. RRO • Too weak on compliance • Format inconsistencies

Project 2007-09 Generator Verification

Standards Involved:

PRC-019-1 — Coordination of Generator Voltage Regulator Controls with Unit Capabilities and Protection

PRC-024-1 — Generator Performance During Frequency and Voltage Excursions

MOD-024-1 — Verification of Generator Gross and Net Real Power Capability

MOD-025-1 — Verification of Generator Gross and Net Reactive Power Capability

MOD-026-1 —Verification of Models and Data for Generator Excitation System Functions

MOD-027-1 — Verification of Generator Unit Frequency Response

Research Needed:

None

Brief Description:

The scope of this project includes:

- Modifying the six standards associated with this project so they conform to the latest version of NERC's Reliability Standards Development Procedure and the ERO Rules of Procedure,
- Replacing the "fill-in-the-blank" requirements assigned to the Regional Reliability Organization with requirements that can be applied on a continent-wide basis and are assigned to users, owners or operators of the bulk power system,
- Considering and addressing issues identified in FERC orders, including the modifications to MOD-024-1 and MOD-025-1 as proposed in FERC Order 693, and
- Considering and addressing issues identified during Phase III & IV field testing.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project 2007-09 Generator Verification Web page

Project Schedule:

Project 2007-09 Schedule

Target Completion Date:

Second quarter of 2012

Standard Drafting Team Roster:

Chairman	Robert W. Millard	ReliabilityFirst Corporation
Vice Chairman	Lee Y. Taylor	Southern Company Services, Inc.
	Baj Agrawal	Arizona Public Service Co.
	Thomas J. Bradish	RRI Energy
	Donald G. Davies	Western Electricity Coordinating Council
	Les Hajagos	Kestrel Power Engineering Ltd
	John Hanson	CenterPoint Energy
	Gary Humphries	Duke Energy Carolina
	Venkat S. Kolluri	Entergy Corporation
	Dmitry Kosterev	Bonneville Power Administration
	David Kral	Xcel Energy, Inc.
	Gary Kruempel	MidAmerican Energy Co.
	Daniel J Leonard	GE Energy
	Craig Quist	PacifiCorp
	Balbir S. Sandhu	Manitoba Hydro
	William D Shultz	Southern Company Generation
	Vladimir Stanisic	Ontario Power Generation Inc.
	Ken Stenroos	Florida Power & Light Co.
	Rick Terrill	Luminant Energy
	Chifong L. Thomas	Pacific Gas and Electric Company
	Edward J. Wingard	American Electric Power
NERC Staff	Harry Tom	North American Electric Reliability Corporation
NERC Staff	Thomas Vandervort	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
MOD-024-1 — Verification of Generator Gross and Net Real Power Capability	
FERC Order 693	• Require users, owners, and operators of the system to provide this information. • Provide a work plan and compliance filing regarding the collection of information specified for standards that are deferred. • Clarify requirement R2 that specifies that the regional reliability organization shall provide generator gross and net real power capability verification within 30 calendar days of approval. The confusion centers on "approval" and when the 30-day period starts. • Document test conditions and the relationships between test conditions and generator output so that the amount of power that can be expected to be delivered from a generator at different conditions can be determined.
Fill in the Blank Team	• Review MOD-024 and MOD-025 concurrently to transition to uniform North American standards. • Remove the fill-in-the-blank aspects (correct reference to "…Regional Reliability Organization's procedures…"). • Goal is uniform North American standards for real and reactive power verification. Look at regional requirements and identify the best practice, commonalities and differences, and whether differences are needed for reliability.
Phase III/IV Team	• No requirement for the RRO to demonstrate that its procedures result in accurate information of gross and net real power capability of generators for steady state models • It is not clear in R3 to whom the Generator Owner will report the information. • Non compliance levels are too strict. A small utility with 15-20 units will be L4 non-compliant if they miss one unit
Team Comments	Provide clarity where the Planning Authority is mentioned
MOD-025-1 — Verification of Generator Gross and Net Reactive Power Capability	
FERC Order 693	• Provide a work plan and compliance filing regarding the collection of information specified for standards that are deferred. • Require verification of reactive power capability at multiple points over a unit's operating range. • Clarify requirement R2 that specifies that the regional reliability organization shall provide generator gross and net reactive power capability verification within 30 calendar days of approval. The confusion centers on "approval" and when the 30-day period starts.

Source	Language
Fill in the Blank Team	• Remove the fill-in-the-blank aspects (correct reference to "… Regional Reliability Organization's procedures…"). • Refer to MOD-024. • Review MOD-024 and MOD-025 concurrently to transition to uniform North American standards.
Phase III/IV Team	• These standards do not provide for uniform testing of generator capability. The determination of which units are tested, how frequently they are tested, and the criteria used for determining capability are left to individual regions. • R1.5.1: The benefit of verifying maximum capability of generators to absorb VArs at seasonal real power generation capability is unclear, particularly if this standard applies to virtually all generators. For the vast majority of units, the need to absorb VArs occurs during low-load conditions, when unit real power production is below maximum capability and the unit's ability to absorb VArs is greater. Therefore, the single datum for unit VAr absorption capability determined pursuant to this standard seems to be of little practical use, except for relatively few generators in a limited set of circumstances. • It is not clear in R3 to whom the Generator Owner will report the information. • Non compliance levels are too strict. A small utility with 15-20 units will be L4 non-compliant if they miss one unit. • Severity of non-compliance should be based on the percentage of the generator owner's total generation capability comprised of units required to be verified, rather than on the percentage (number) of generating units. Exempt units should be excluded from the total generation capability for determining level of non-compliance. • There is no clear reason for regional variations in capability testing. A generator in Georgia does not have more or less capability than an identical unit applied across the Florida line, despite the fact that one is in SERC and the other in FRCC. • Fundamental guidelines outlining some basic requirements (e.g., all units over 20 MW shall be tested annually under conditions that permit full net output of the unit for normal operation) are lacking.
Team Comments	Provide clarity where the Planning Authority is mentioned
PRC-022-1 — Under-Voltage Load Shedding Program Performance	
FERC Order 693	"In the NOPR, the Commission identified an implicit assumption in the TPL Reliability Standards that all generators are required to ride through the same types of voltage disturbances and remain in service after the fault is cleared. This implicit assumption should be made explicit. Commenter's agree with the proposed requirement for all generators to ride through the same set of Category B and C events as required for wind generators. The Commission understands that NRC has both degraded voltage and loss of voltage requirements. The degraded voltage requirement allows the voltage at the auxiliary power system busses to go below the minimum value for a time frame that is usually much longer than normal fault clearing time.457 If a specific nuclear power plant has an NRC requirement that would force it to trip off-line if its auxiliary power system

Source	Language
	voltage was depressed below some minimum voltage, the simulation should include the tripping of the plant in addition to the faulted facilities. In this regard, the Commission agrees that NRC requirements should be used when implementing the Reliability Standards. Using NRC requirements as input will assure that there is consistency between the Reliability Standards and the NRC requirement that the system is accurately modeled. Accordingly, the Commission directs the ERO to modify the Reliability Standard to explicitly require either that all generators are capable of riding through the same set of Category B and C contingencies, as required by wind generators in Order No. 661, or that those generators that cannot ride through be simulated as tripping. If a generator trips due to low voltage from a single contingency, the initial trip of the faulted element and the resulting trip of the generator would be governed by Category B contingencies and performance criteria. "

Project 2007-11 Disturbance Monitoring

Standards Involved:
PRC-002-1 — Define and Document Disturbance Monitoring Equipment Requirements
PRC-018-1 — Disturbance Monitoring Equipment Installation and Data Reporting

Research Needed:
The standard drafting team identified a need to conduct a regional data analysis in order to establish technical requirements for DME locations and thresholds.

Brief Description:
PRC-002 and PRC-018 were approved in 2006.

PRC-002 is one of four reliability standards identified by the Regional Reliability Standards Working Group as a standard that has some requirements that need to be defined by each regional entity in a regional standard. The standard drafting team (SDT) will review PRC-002 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to or contained with the disturbance monitoring program documentation. The SDT shall determine which requirements should be continent-wide requirements and which requirements should be included in regional standards.

When revising PRC-002 and PRC-018 the SDT shall address issues already identified by FERC, other drafting teams and stakeholders. Note: Phasor measurement networks are to be addressed by Project 2008-06.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2007-11 Disturbance Monitoring Web page

Project Schedule:
Project 2007-11 Schedule

Target Completion Date:
Second quarter of 2011

Standard Drafting Team Roster:

Chairman	Navin B. Bhatt, PhD., PE	American Electric Power
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	Alan D. Baker	Florida Power & Light Co.
	James R. Detweiler	FirstEnergy Corp.
	Richard Ferner	Western Area Power Administration
	Barry G. Goodpaster	Exelon Business Services Company
	Willy Haffecke	City Utilities of Springfield
	Daniel J. Hansen	RRI Energy
	Charles J. Jensen	JEA
	Tracy M. Lynd	Consumers Energy
	Susan L. McGill	PJM Interconnection, L.L.C.
	Robert W. Millard	ReliabilityFirst Corporation
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Jeffrey M. Pond	National Grid
	Larry E. Smith	Alabama Power Company
	Jack Soehren	ITC Holdings
NERC Staff	Stephanie Monzon	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
PRC-002-1 — Define Regional Disturbance Monitoring and Reporting Requirements	
FERC Order 693	Consider if greater consistency can be achieved in the standard as suggested by Otter Tail, APPA, and Alcoa.
Phase III/IV Team	There is no criteria that the RROs must use in specifying the process for identifying locations where DMEs are required
Version 0 Team	• Digital inputs and load need to be added • IDWG identified deficiencies • More specificity in equipment requirements needed
VRFs Team	R1 — This standard and all related sub requirements are after the fact data analysis
PRC-018-1 — Disturbance Monitoring Equipment Installation and Data Reporting	
Fill in the Blank Team	• PRC-002 will be a continent-wide standard supported by Regional Reliability Standards. • Need regions to develop and submit regional standards. NERC standard requires region to have this done in 9 months from board adoption (from August 9). Regions need to do this as a regional standard, not a procedure or some other document. • Development of regional standards needs to be coordinated with Regional entities. Regional entities should begin process for developing regional standards once the drafting team for the North American standard has determined what elements of disturbance monitoring should be included in the continent-wide standard and what elements should be included in the regional standards. • Determine what elements (if any) of disturbance monitoring should be included in the North American standard and what elements should be included in the regional standards. • PRC-002 is directly related to PRC-018. PRC-018 requires the functional entities to comply with the requirements developed by each RRO.
VRFs Team	R3.4, 3.5, 3.6, 3.7 — Ambiguous

Project 2007-12 Frequency Response

Standards Involved:
BAL-003-0 — Frequency Response and Bias

Research Needed:
None

Brief Description:
This project involves developing a new standard for the collection of data needed to accurately model existing Frequency Response within each interconnection.

The project will support the following directive in FERC Order 693:

- Define the necessary amount of Frequency Response needed for Reliable Operation for each balancing authority with methods of obtaining and measuring that the frequency response is achieved.

Standards Development Status:
Project 2007-12 Frequency Response Web page

Project Schedule:
Project 2007-12 Schedule

Target Completion Date:
Second quarter of 2010

Standard Drafting Team Roster

Chairman	William Herbsleb	PJM Interconnection, L.L.C.
	Don E Badley	Northwest Power Pool Corporation
	Terry Bilke	Midwest ISO, Inc.
	Les Hajagos	Kestrel Power Engineering Ltd
	Harvey Heinz Happ	New York State Department of Public Service
	Howard F. Illian	Energy Mark, Inc.
	David F. Lemmons	Xcel Energy, Inc.
	Clyde Loutan	California ISO
	Carlos Martinez	Electric Power Group
	James Murphy	Bonneville Power Administration
	Sydney Niemeyer	NRG Texas LP
	Michael Potishnak	ISO New England, Inc.
	Raymond L. Vice	Southern Company Services, Inc.
NERC Staff	Darrel Richardson	North American Electric Reliability Corporation
NERC Staff	Thomas Vandervort	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
BAL-003-0 — Frequency Response and Bias	
FERC Order 693	• Define the necessary amount of frequency response needed for reliable operation for each balancing authority with methods of obtaining and measuring that the frequency response is achieved. • Determine the appropriate periodicity of frequency response surveys necessary to ensure requirement R2 and other requirements are being met; also modify measure M1 based on this determination.

Project 2007-17 Protection System Maintenance & Testing

Standards Involved:
PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing
PRC-008-0 — Underfrequency Load Shedding Equipment Maintenance Programs
PRC-011-0 — UVLS System Maintenance and Testing
PRC-017-0 — Special Protection System Maintenance and Testing

Research Needed:
None

Brief Description:
Revise PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing, to consolidate PRC-005-1, PRC-008-0 — Underfrequency Load Shedding Equipment Maintenance Programs; PRC-011-0 — UVLS System Maintenance and Testing; and PRC-017-0 — Special Protection System Maintenance and Testing into a single maintenance and testing standard. Standards PRC-008-0, PRC-011-0, and PRC-017-0 would then be withdrawn.

The revised PRC-005 standard should address the issues raised in the FERC Order 693 and the issues addressed in the SPCTF report "Assessment of PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing; with implications for PRC-008-0, PRC-011-0, and PRC-017-0". The revised standard should also address the comments submitted by stakeholders during the development of Version 0, and Phase III & IV and should reflect improvements identified in the Reliability Standards Review Guidelines.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2007-17 Protection System Maintenance & Testing

Project Schedule:
Project 2007-17 Schedule

Target Completion Date:
Third quarter of 2010

Standard Drafting Team Roster:

Chairman	Charles W. Rogers	Consumers Energy
	John Anderson	Xcel Energy, Inc.
	Merle Ashton	Tri-State G & T Association Inc.
	Bob Bentert	Florida Power & Light Co.
	John L. Ciufo	Hydro One, Inc.
	Richard Ferner	Western Area Power Administration
	Carol Gerou	Midwest Reliability Organization
	Roger D. Green	Southern Company Generation
	Russell Hardison, P.E.	Tennessee Valley Authority
	Dave Harper	NRG Texas Maintenance Services
	John Kruse	Commonwealth Edison Co.
	Mark Peterson	Great River Energy
	William D Shultz	Southern Company Generation
	Leonard Swanson, Jr.	National Grid USA
	Eric Udren	Quanta Technology
	Philip Winston	Georgia Power Company
	John Zipp	ITC Holdings
NERC Staff	Al Calafiore	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing	
FERC Order 693	• Consider FirstEnergy's and ISO-NE's suggestions to combine PRC-005, PRC-008, PRC-011, and PRC-017 into a single standard. • Maintenance and testing of a protection system must be carried out within a maximum allowable time interval that is appropriate for the type of protection system and its impact on the reliability of the bulk power system. 1475. In addition, for the reasons discussed in the NOPR, the Commission directs the ERO to develop a modification to PRC-005-1 through the Reliability Standards development process that includes a requirement that maintenance and testing of a protection system must be carried out within a maximum allowable interval that is appropriate to the type of the protection system and its impact on the reliability of the Bulk-Power System.
NERC Audit Observation Team	• As applicable, each TO, DP and GOP shall have a protection system maintenance and testing program for protection systems that affect the reliability of the BES. Does this include major equipment like circuit breakers and transformers? • Determine what on schedule means. Is an entity who maintained/tested 95% of their relays at the same level of non-compliance as an entity who maintained/tested 10% of their relays? • How do you verify compliance for cts/pts? How do you audit these within a scheduled maintenance program? As part of the procedure, most have accepted visual inspection. Some entities state that testing of the relays verify functionality of the ct/pts • How do you verify DC control power? All regions require functional testing of the breaker. This should include functional relay & station battery checks, including breaker tripping, not just a visual inspection.
Phase III/IV Team	• All generation protection systems whose misoperations impact the bulk electric system • All protection systems on the bulk electric system. • Modify applicability to clarify that the requirements are applicable to the following: • Need to add language to ensure the Regional Requirements focus on the most impactive scenarios • PRC 003 to 005 only address generator (and transmission) protective systems, without defining this term. • There is no performance requirement or measure of effectiveness of a maintenance program required by the standard
Version 0 Team	• Define evidence • Include breakers/switches in list • Not a standalone standard
PRC-008-0 — Underfrequency Load Shedding Equipment Maintenance Programs	
FERC Order 693	Maintenance and testing of a protection system must be carried out within a maximum allowable time interval that is appropriate for the type of protection

Source	Language
	system and its impact on the reliability of the bulk power system.
Fill in the Blank Team	Okay if PRC-006 is fixed
Version 0 Team	• Consistent wording from standard to standard required • Definition of evidence required
PRC-011-0 — UVLS System Maintenance and Testing	
FERC Order 693	Maintenance and testing of a protection system must be carried out within a maximum allowable time interval that is appropriate for the type of protection system and its impact on the reliability of the bulk power system.
Version 0 Team	• Define evidence • Exemptions for those with shunt reactors
PRC-017-0 — Special Protection System Maintenance and Testing	
FERC Order 693	• Includes a requirement that documentation identified in Requirement R2 shall be routinely provided to the ERO or Regional Entity. 1546….and (2) a requirement that documentation identified in Requirement R2 shall be routinely provided to the ERO or Regional Entity • Maintenance and testing of a protection system must be carried out within a maximum allowable time interval that is appropriate for the type of protection system and its impact on the reliability of the bulk power system. • Require that documentation identified in requirement R2 be routinely provided to NERC or the regional entity. that includes: (1) …… and (2) a requirement that documentation identified in Requirement R2 shall be routinely provided to the ERO or Regional Entity
Version 0 Team	• Define evidence • Need to retain two dates

Project 2007-18 Reliability-based Control

Standards Involved:
BAL-001-0 — Real Power Balancing Control Performance
BAL-003-0 — Frequency Response and Bias
EOP-002-2 — Capacity and Energy Emergencies
IRO-005-2 — Reliability Coordination — Current Day Operations

Research Needed:
None

Brief Description:
This project includes expanding on the work already done in developing the draft BAL-007 through BAL-011 by adding requirements to address the following concerns:

- To support elimination of SOL/IROL violations caused by excessive (as determined by this standard) Area Control Error
- To prevent Interconnection frequency excursions of short duration attributed to the ramping of on and off-peak Interchange Transactions
- To support timely transmission congestion relief by requiring corrective load/generation management within a defined timeframe when ACE is impacted by the curtailment of
- Interchange Transactions under Transmission Loading Relief procedures
- To address the directives of FERC Order 693.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2008 Annual plan): Annual Plan Item 1 — Justification for NAESB consideration: WEQ SRS analysis

SRS Recommendation: The WEQ SRS has referred this to the JISWG for consideration.

Standards Development Status:
Project 2007-18 Reliability-based Control Web page

Project Schedule:
Project 2007-18 Schedule

Target Completion Date:
Fourth quarter of 2011

Standard Drafting Team Roster:

Chairman	Douglas E. Hils	Duke Energy
	Larry Akens	Tennessee Valley Authority
	William Herbsleb	PJM Interconnection, L.L.C.
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	Clyde Loutan	California ISO
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Sydney Niemeyer	NRG Texas LP
	LeRoy Patterson	Patterson Consulting
	Michael Potishnak	ISO New England, Inc.
	Mark Prosperi-Porta	British Columbia Transmission Corporation
	Thomas W. Siegrist	EnerVision, Inc.
	Glenn Stephens	Santee Cooper
	Stephen Swan	Midwest ISO, Inc.
	Raymond L. Vice	Southern Company Services, Inc.
NERC Staff	Stephen Crutchfield	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
BAL-001-0 — Real Power Balancing Control Performance	
FERC Order 693	Regional Differences to BAL-001-0: ERCOT Control Performance Standard 2: Include requirements concerning frequency response contained in Section 5 of the ERCOT protocols. Paragraph 313. The Commission approves the ERCOT regional difference as mandatory and enforceable. Order No. 672 explains that "uniformity of Reliability Standards should be the goal and the practice, the rule rather than the exception." However, the Commission has stated that, as a general matter, regional differences are permissible if they are either more stringent than the continent-wide Reliability Standard, or if they are necessitated by a physical difference in the Bulk-Power System. Regional differences must still be just, reasonable, not unduly discriminatory or preferential and in the public interest. 314. The Commission finds that ERCOT's approach under section 5 of the ERCOT protocols appears to be a more stringent practice than Requirement R2 in BAL-001-0 and therefore approves the regional difference. 315. As proposed in the NOPR, the Commission directs the ERO to file a modification of the ERCOT regional difference to include the requirements concerning frequency response contained in section 5 of the ERCOT protocols. As with other new regional differences, the Commission expects that the ERCOT regional difference will include Requirements, Measures and Levels of Non-Compliance sections.
BAL-003-0 — Frequency Response and Bias	
NERC Audit Observation Team	Both requirements need to be met?

Project 2008-01 Voltage and Reactive Control

Standards Involved:
VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules

Research Needed:
In August 2008, the Transmission Issues Subcommittee (TIS) formed the Reactive Support/Control Sub team to develop a report to address the fundamental issues associated with voltage and reactive control. The results of the report are being used to support improvements to the existing VAR standards and may result in development of an additional VAR standard. The Reactive Support and Control White Paper was produced by the TIS and identifies technical requirements needed to determine the reactive resources required under different system states. The white paper identifies the need for requirements that address:

- criteria and associated rationale needed to determine the split of dynamic reactive supply (such as reactive power provided by the generators and other dynamic devices) and static reactive power supply (such as static capacitors and other static devices)
- criteria for distribution of the interconnection's reactive resource needs among transmission, distribution, and generation facilities

The drafting team will incorporate the white paper into the standards as well as address other issues identified in the tables below.

Brief Description:
This is a new project and supports a blackout recommendation. Industry debate is needed on whether there should be a North American standard that requires a specific amount of reserves, or whether requirements for specific reserves should continue to be addressed at the regional level. The requirements in the existing standards need to be upgraded to be more specific in defining voltage and reactive power schedules. Consideration should be given to adding a requirement for the Reliability Coordinator to monitor and take action if reactive power falls outside identified limits.

The project will incorporate the interpretation of VAR-002 Requirement 1 and Requirement 2.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2008 Annual plan):
Annual Plan Item 1

Justification for NAESB consideration:
Industry recommendations

SRS Recommendation:
This project may need NAESB attention in the future. The WEQ SRS will place this on its watch list. The SRS wishes to know if this is still an active NERC project, as it is not included on their Standards under Development list.

Standards Development Status:
Project 2008-01 Voltage and Reactive project Web page

Project Schedule:
Project 2008-01 Project Schedule

Target Completion Date:
Third quarter of 2012

Standard Drafting Team Roster:
TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
VAR-001-1 — Voltage and Reactive Control	
FERC Order 693	"Address reactive power requirements for LSEs on a comparable basis with purchasing-selling entities. Paragraph 1856. The Commission agrees with SoCal Edison that not all LSEs are purchasing selling entities, because not all LSEs purchase or sell power from outside of their balancing authority area. This understanding is consistent with the NERC functional model and NERC glossary. Both LSEs and purchasing-selling entities should have some requirements to provide reactive power to appropriately compensate for the demand they are meeting for their customers. Neither a purchasing-selling entity nor a LSE should depend on the transmission operator to supply reactive power for their loads during normal or emergency conditions."
	"Expand the applicability to include LSEs and reliability coordinators and define the reliability coordinators monitoring responsibilities. Paragraph 1854. In a complex power grid such as the one that exists in North America, reliable operations can only be ensured by coordinated efforts from all operating entities in long-term planning, operational planning and real-time operations. To that end, the Staff Preliminary Assessment recommended and the NOPR proposed that the applicability of VAR-001-1 extend to reliability coordinators and LSEs. 1855. Since a reliability coordinator is the highest level of authority overseeing the reliability of the Bulk-Power System, the Commission believes that it is important to include the reliability coordinator as an applicable entity to assure that adequate voltage and reactive resources are being maintained. As MISO points out, other Reliability Standards address responsibilities of reliability coordinators, but we agree with EEI that it is important to include reliability coordinators in VAR-001-1 as well. Reliability coordinators have responsibilities in the IRO and TOP Reliability Standards, but not the specific responsibilities for voltage levels and reactive resources addressed by VAR-001-1, which have a great impact on system reliability. For example, voltage levels and reactive resources are important factors to ensure that IROLs are valid and operating voltages are within limits, and that reliability coordinators should have responsibilities in VAR-001-1 to monitor that sufficient reactive resources are available for reliable system operations. Accordingly, the ERO should modify VAR-001-1 to include reliability coordinators as applicable entities and include a new requirement(s) that identifies the reliability coordinator's monitoring responsibilities."
	"Include APPA's comments regarding varying power factor requirements due to system conditions and equipment in the standards development process. Paragraph 1860. APPA contends that it may be difficult to reach an agreement on acceptable ranges of net power factors at the interfaces where LSEs receive service from the Bulk-Power System because the acceptable range of power factors at any particular point on the electrical system varies based on many location-specific factors. APPA further states that system power factors will be affected by the transmission infrastructure used to supply the load. As an example, APPA states that an overhead circuit may operate at a higher power factor than an underground cable due to a substantial amount of reactive line charging, and that a transmission circuit carrying low levels of real power will tend to provide more reactive power, which will affect the need to switch off capacitor banks at the delivery point to manage delivery power factors."
	"Includes detailed and definitive requirements on "established limits" and

Source	Language
	"sufficient reactive resources", and identifies acceptable margins above the voltage instability points. Paragraph 1868. In the NOPR, the Commission expressed concern that the technical requirements containing terms such as "established limits" or "sufficient reactive resources" are not definitive enough to address voltage instability and ensure reliable operations.475 To address this concern, the NOPR proposed directing the ERO to modify VAR-001-1 to include more detailed and definitive requirements on "established limits" and "sufficient reactive resources" and identify acceptable margins (i.e. voltage and/or reactive power margins) above voltage instability points to prevent voltage instability and to ensure reliable operations. We will keep this direction, and direct the ERO to include this modification in this Reliability Standard. 1869. We recognize that our proposed modification does not identify what definitive requirements the Reliability Standard should use for "established limits" and "sufficient reactive resources." Rather, the ERO should develop appropriate requirements that address the Commission's concerns through the ERO Reliability Standards development process. The Commission believes that the concerns of Dynegy, EEI and MISO are best addressed by the ERO in the Reliability Standards development process. 1870. In response to EEI's concerns about a prescriptive analytical methodology, we clarify that the Commission is not asking that the Reliability Standard dictate what methodology must be used to determine reactive power needs. Rather, the Commission believes that the Reliability Standard would benefit from having more defined requirements that clearly define what voltage limits are used and how much reactive resources are needed to ensure voltage instability will not occur under normal and emergency conditions. For example, in the NOPR, the Commission suggested that NERC consider WECC's Reliability Criteria, which contain specific and definitive technical requirements on voltage and margin application. While we are not directing that the WECC reliability criteria be adopted, we believe they represent a good example of clearly-defined requirements for voltage and reactive margins. 1871. In sum, the Commission believes that minimum requirements for voltage levels and reactive resources should be clearly defined by placing more detailed requirements on the terms "established limits" and "sufficient reactive resources" in the Reliability Standard as discussed in the NOPR and the Staff Preliminary Assessment. As mentioned above, EEI's concerns should be considered in the ERO's Reliability Standards development process."
	Address the concerns of Dynegy, EEI, and MISO through the standards development process. Paragraph 1864. Dynegy supports the Commission's proposal to include more definitive requirements on "established limits" and "sufficient reactive resources." It recommends that VAR-001-1 be further modified to require the transmission operator to have more detailed and definitive requirements when setting the voltage schedule and associated tolerance band that is to be maintained by the generator operator. Dynegy states that the transmission operator should not be allowed to arbitrarily set these values, but rather should be required to have a technical basis for setting the required voltage schedule and tolerance band that takes into account system needs and any limitations of the specific generator. Dynegy believes that such a requirement would eliminate the potential for undue discrimination, as well as the possibility of imposing overly conservative and burdensome voltage schedules and tolerance bands on generator operators that could be detrimental to grid reliability, or conversely, the imposition of too low a voltage schedule and too wide a tolerance band that could also be detrimental to grid reliability. 1865. While MISO supports the concept of including more detailed requirements, it believes that there needs to be a definitive reason for establishing voltage schedules and tolerances, and

Source	Language
	that any situations monitored in this Reliability Standard need to be limited to core reliability requirements. 1866. EEI seeks clarification about whether the Commission is suggesting that reactive requirements should aim for significantly greater precision, especially in terms of planning for various emergency conditions. If so, EEI cautions the Commission against "'putting too many eggs' in the reactive power 'basket.'"474 To the extent compliance takes place pursuant to all other modeling and planning assessments under the other Reliability Standards, EEI strongly believes that the Commission should have some high level of confidence that the system's reactive power needs can be met satisfactorily across a broad range of contingencies that planners might reasonably anticipate. Moreover, EEI believes that requirements to successfully predict reactive power requirements in conditions of near-system collapse would require significantly more creative guesswork than solid analysis and contingency planning. For example, EEI notes that the combinations and permutations of how a voltage collapse could occur on a system as large as the eastern Interconnection are numerous. 1867. EEI suggests that, alternatively, the Commission should consider that reactive power evaluations should be conducted within a process that is documented in detail and includes a range of contingencies that might be reasonably anticipated, because this would avoid the 'one size fits all' problem, where a prescriptive analytical methodology does not fit with a particular system configuration. EEI believes that this flexible approach would provide a more effective planning tool for the industry, while satisfying the Commission's concerns over potentially inadequate reactive reserves. MRO notes that the need for, and method of providing for, reactive resources varies greatly, and if this Reliability Standard is expanded it must be done carefully. MRO believes that all entities should not be required to follow the same methodology to accomplish the goal of a reliable system.
	Address the power factor range at the interface between LSEs and the transmission grid. Paragraph 1861. In the NOPR, the Commission asked for comments on acceptable ranges of net power factor at the interface at which the LSEs receive service from the Bulk-Power System during normal and extreme load conditions. The Commission asked for these comments in response to concerns that during high loads, if the power factor at the interface between many LSEs and the Bulk-Power System is so low as to result in low voltages at key busses on the Bulk-Power System, then there is risk for voltage collapse. The Commission believes that Reliability Standard VAR-001-1 is an appropriate place for the ERO to take steps to address these concerns by setting out requirements for transmission owners and LSEs to maintain an appropriate power factor range at their interface. We direct the ERO to develop appropriate modifications to this Reliability Standard to address the power factor range at the interface between LSEs and the Bulk-Power System. 1862. We direct the ERO to include APPA's concern in the Reliability Standards development process. We note that transmission operators currently have access to data through their energy management systems to determine a range of power factors at which load operates during various conditions, and we suggest that the ERO use this type of data as a starting point for developing this modification. 1863. The Commission expects that the appropriate power factor range developed for the interface between the bulk electric system and the LSE from VAR-001-1 would be used as an input to the transmission and operations planning Reliability Standards. The range of power factors developed in this Reliability Standard provides the input to the range of power factors identified in the modifications to the TPL Reliability Standards. In the NOPR, the Commission suggested that sensitivity studies for the TPL Reliability Standards should consider the range of load power factors.

Source	Language
	Include controllable load among the reactive resources to satisfy reactive requirements, considering the comments of Southern California Edison and SMA in the development of the standard. Paragraph 1879. The Commission noted in the NOPR that in many cases, load response and demand-side investment can reduce the need for reactive power capability in the system.476 Based on this assertion, the Commission proposed to direct the ERO to include controllable load among the reactive resources to satisfy reactive requirements for incorporation into Reliability Standard VAR-001-1. While we affirm this requirement, we expect the ERO to consider the comments of SoCal Edison with regard to reliability and SMA in its process for developing the technical capability requirements for using controllable load as a reactive resource in the applicable Reliability Standards. 1877. SMA supports adoption of the proposal to include controllable load as a reactive resource. SMA notes that its members' facilities often include significant capacitor banks, and further, reducing load can reduce local reactive requirements. 1878. SoCal Edison suggests caution regarding the Commission's proposal to include controllable load as a reactive resource. It agrees that, when load is reduced, voltage will increase and for that reason controllable load can lessen the need for reactive power. However, SoCal Edison believes that controllable load is typically an energy product and there are other impacts not considered by the Commission's proposal to include controllable load as a reactive resource. For example, activating controllable load for system voltage control lessens system demand, requiring generation to be backed down. It is not clear to SoCal Edison whether any consideration has been given to the potential reliability or commercial impacts of the Commission's proposal.
	Perform voltage analysis periodically, using on-line techniques where commercially available and off-line techniques where not available on-line, to assist real-time operations, for areas susceptible to voltage instability. Paragraph 1875. In response to the concerns of APPA, SDG&E and EEI on the availability of tools, the Commission recognizes that transient voltage stability analysis is often conducted as an offline study, and that steady-state voltage stability analysis can be done online. The Commission clarifies that it does not wish to require anyone to use tools that are not validated for real-time operations. Taking these comments into consideration, the Commission clarifies its proposed modification from the NOPR. For the Final Rule, we direct the ERO, through its Reliability Standards development process, to modify Reliability Standard VAR-001-1 to include Requirements to perform voltage stability analysis periodically, using online techniques where commercially-available, and offline simulation tools where online tools are not available, to assist real-time operations. The ERO should consider the available technologies and software as it develops this modification to VAR-001-1 and identify a process to assure that the Reliability Standard is not limiting the application of validated software or other tools.
Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan: 2010-2012	Requirement R2 requires the TOP to acquire sufficient reactive resources. The statement probably ought to clearly delineate that this requirement is applicable to the operating horizon only and that the TP is responsible for adequate reactive resources in the planning horizon.
NERC Audit Observation Team	If the TOP does not supply the GOP with a voltage or reactive power schedule is that a noncompliance for the TOP?

Source	Language
Phase III/IV Team	Consolidate R8 and R9
	No criteria for what is an acceptable reactive margin.
	No requirement for verifying that the reactive resources are truly available.
	R10 remove "first" so as not to limit this requirement to first contingency conditions. As written with or without removing "first", R10 provides no additional information not already required in R3.
	R10.1 does 'disperse and locate' mean the same as 'dispatch'? If so, changing the wording to 'dispatch' would make the meaning clearer.
	R11 — Redundant with TOP-007
	R3 covers normal and contingency conditions, while R10 mentions only first contingency conditions. Is there a reason for this difference?
	R3 Suggest changing the phrase…"to protect the voltage"…. To "maintain the voltage"
	R3, R6, R10 go beyond the control of the responsible entity noted.
	R3, the Transmission Operator only has the reactive resources that exist in the area — how does the TO "acquire sufficient reactive resources" if existing resources are not adequate?
	R5 This requirement is an Open Access Transmission Tariff requirement and does not belong in a reliability standard.
	R6 and R10.1 presume that sufficient reactive resources are available.
	R7 and R8 — consider adding more specificity to distinguish the TOP's authority to direct others to operate (Each Transmission Operator shall operate owned devices or direct the operation of, within their normal operating parameters and capabilities, capacitive and inductive reactive resources within its area-including reactive generation scheduling; transmission line and reactive resource switching; and, if necessary, load shedding- to maintain system and Interconnection voltages within established limits.)
	R7 obligates Transmission Operators to know the status of all reactive power sources including AVRs and PSSs. Clarify that this means the generator is available and if dispatched will operate in voltage control mode and with the PSS active.
	R9.1 This requirement is not feasible. Cannot dictate where generation resources are to be disbursed or located.
	Should R3 be assigned to the TP?
	Should the word "acquire" in R3 be replaced with the word "operate"?
	The language in the measures and compliance sections such as "2.1.2 One incident of failing to maintain a voltage or reactive power schedule" is too vague and does not specify any duration that is acceptable or unacceptable to be off schedule.
	VAR-001 requirements (R1, R2, R7, R8, R9, R10, and R12) are redundant to the

Source	Language
	TOP standards
	What does the second sentence in R3 mean by the phrase 'transmission operator's share of the reactive requirements of interconnecting transmission circuits'? What would be the reactive requirements of transmission circuits?
	Will R6 also apply to wind generation absorbing reactive power at the point of interconnection?
Version 0 Team	• Add BA (R1 & 3)and RA (R5, 7, 8, 10 & 11) • Add GO as entity • Clarify if this includes distribution • Clarify responsibility for voltage support • Define high probability • Define voltage levels • Delete SOL violations • Expand to include relays • Mention power factor requirements for distribution • Move R9 to 5.2 • Not a standard but a business practice
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules	
FERC Order 693	Consider Dynegy's suggestion to improve the standard. Paragraph 1883. Dynegy believes that VAR-002-1 should be modified to require more detailed and definitive requirements when defining the time frame associated with an "incident" of non compliance (i.e., each 4-second scan, 10-minute integrated value, hourly integrated value). Dynegy states that, as written, this Reliability Standard does not define the time frame associated with an "incident" of non-compliance, but apparently leaves this decision to the transmission operator. Dynegy believes that either more detail should be added to the Reliability Standard to cure this omission, or the Reliability Standard should require the transmission operator to have a technical basis for setting the time frame that takes into account system needs and any limitations of the generator. Dynegy believes that this approach will eliminate the potential for undue discrimination and the imposition of overly conservative or excessively wide time frame requirements, both of which could be detrimental to grid reliability.
NERC Audit Observation Team	If a generator does not have an automatic voltage regulator do they need to install one?
Phase III/IV Team	R5 of VAR-002: Recognizing that such action would require the generator to change its loading level or cycle, the transmission operator should not rely on tap position changes on a step-up transformer with a no-load tap changer (NLTC) for periodic or seasonal system control, unless there is an explicit voluntary arrangement with the Generator Operator. For each instance of an urgent directive for such action, the transmission operator must justify its action to affected parties

Project 2008-02 Undervoltage Load Shedding

Standards Involved:
PRC-010-0 — Assessment of the Design and Effectiveness of UVLS Program
PRC-022-1 — Under-Voltage Load Shedding Program Performance

Research Needed:
Criteria for installing UVLS need to be identified. The "Technical Reference Paper Fault-Induced Delayed Voltage Recovery" was accepted by the NERC Planning Committee in June of 2009. This reference paper identifies a Fault Induced Delayed Voltage Recovery (FIDVR) as the phenomenon whereby system voltage remains at significantly reduced levels for several seconds after a transmission, sub transmission, or distribution fault has been cleared. Significant load loss due to motor protective device action can result, as can significant loss of generation, with a potential secondary effect of high system voltage due to load loss. A severe event can result in fast voltage collapse. This phenomenon should be addressed in the development of UVLS criteria.

Brief Description:
These standards should be consolidated. Missing are any criteria for identifying where UVLS should be installed.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Target Completion Date:
TBD

Standard Drafting Team Roster:
TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
PRC-010-0 — Technical Assessment of the Design and Effectiveness of Undervoltage Load Shedding Program	
FERC Order 693	Require that an integrated and coordinated approach be included in all protection systems on the bulk power system, including generators and transmission lines, generators' low-voltage ride-through capabilities, and UFLS and UVLS systems. Paragraph 1509. We appreciate MEAG's feedback to our response in the NOPR. For the reasons discussed in the NOPR, as well as our explanation above, the Commission approves Reliability Standard PRC-010-0 as mandatory and enforceable. In addition, the Commission directs the ERO to develop a modification to PRC-010-0 through the Reliability Standards development process that requires that an integrated and coordinated approach be included in all protection systems on the Bulk-Power System, including generators and transmission lines, generators' low voltage ride-through capabilities, and UFLS and UVLS programs.
Fill in the Blank Team	Placeholder
Phase III/IV Team	• PRC-010 is a very weak standard — it only requires documentation and, in very broad terms, 'coordination' — it doesn't specify any level of desired performance or any specific scope for coordination. There should be some details to identify what the coordination must achieve — such as verification that the UVLS will trip when voltage drops to a specified voltage and verification that only a specified amount of load will be tripped and that other special protection systems will not be activated by the UVLS program. • There is no requirement that identifies the desired performance of a UVLS program (what voltage set points and timing are acceptable?). • What is the reliability-related need for the RRO to collect data on misoperations and operations of UVLS programs? Is this information used for anything?
Team Comments	Provide clarity where the Planning Authority is mentioned
Version 0 Team	• Define evidence • Exemptions for some who use shunt reactors • Level 4 vs. level 1 changes
PRC-022-1 — Under-Voltage Load Shedding Program Performance	
FERC Order 693	Consider FirstEnergy's suggestions to revise requirement R1.3 as part of the standards development process. Paragraph 1564. FirstEnergy comments that Requirement R1.3 requires "a simulation of the event, if deemed appropriate by the RRO" and believes that the applicable entities such as transmission operators may not be able to simulate large system events. FirstEnergy suggests that Requirement R1.3 be revised to state that "a simulation of the event, if deemed appropriate, and assisted by the [regional reliability organization]."

Source	Language
Phase III/IV Team	• Consider incorporating into this family of standards a requirement that each TO should study, and implement if found effective, a UVLS program to mitigate the risk of voltage collapse or voltage instability in the BES. • The reliability-related need for the RRO to collect data on operations and misoperations isn't clear — should this be revised and made available instead to the Compliance Monitor or to the Planning Authority? • The TO should also be required to demonstrate that its UVLS program is coordinated with adjacent TOs.

Project 2008-06 Cyber Security — Order 706

Standards Involved:
CIP-002-1 — Critical Cyber Asset Identification
CIP-003-1 — Security Management Controls
CIP-004-1 — Personnel & Training
CIP-005-1 — Electronic Security Perimeter(s)
CIP-006-1 — Physical Security of Critical Cyber Assets
CIP-007-1 — Systems Security Management
CIP-008-1 — Incident Reporting and Response Planning
CIP-009-1 — Recovery Plans for Critical Cyber Assets

Research Needed:
None

Brief Description:
Implement changes to the Cyber Security Standards (above) as indicated in FERC Order 706.

This set of revisions in this project includes:

- Modifying the standards so they conform to the latest approved versions of the ERO Rules of Procedure as outlined in the Standard Review Guidelines identified in Attachment 1.
- Addressing the directives issued by FERC, in Order 706 relative to the approved Cyber Security Standards CIP-002-1 through CIP-009-1. Refer to http://www.ferc.gov/whats-new/comm-meet/2008/011708/E-2.pdf for the complete text of the final order. Specific requirements from the Order are identified in Attachment 2.
    - Emphasis on Order 706 directive for NERC to address revisions to the CIP standards considering applicable feature of the NIST Security Risk Management Framework among other resources.
- Incorporating clarifications from the Interpretation of CIP-006-1 Requirement 1.1.

Additional issues identified by stakeholders during the posting of this SAR are listed in Attachment 3.

Revisions should consider other Cyber-related standards, guidelines and activities:

- Consider adopting the NIST Security Risk Management Framework (includes GAO, OMB and FIPS)
- Consider other cyber security related documents such as NIST, ISO 27000 Family, CIPC WG Risk Assessment Guideline, MITRE corporation technical report, DHS, National Laboratories papers, DOE 417, IEC, ISA, etc.
- Stay apprised of coordination work between FERC, NEI and NRC in regard to the nuclear facility exemption issue with respect to regulatory gaps. As necessary modify the standards to reflect current determinations.

Standards Development Status:
Project 2008-06 Cyber Security Web page

Project Schedule:
TBD

Target Completion Date:
TBD

Standard Drafting Team Roster:

Chairman	Jeri Domingo Brewer	U.S. Bureau of Reclamation
Vice Chairman	Kevin B. Perry	Southwest Power Pool Regional Entity
	Robert Antonishen	Ontario Power Generation Inc.
	Jim Brenton	Electric Reliability Council of Texas, Inc.
	Jackie Collett	Manitoba Hydro
	Jay S. Cribb	Southern Company Services, Inc.
	Joe Doetzl	Kansas City Power & Light Co.
	Sharon Edwards	Duke Energy
	Scott W. Fixmer	Exelon Corporation
	Gerald S. Freese	American Electric Power
	Philip Huff	Arkansas Electric Cooperative Corporation
	Frank Kim	Hydro One Networks, Inc.
	Richard Kinas	Orlando Utilities Commission
	John Lim, CISSP	Consolidated Edison Co. of New York
	David L. Norton	Entergy Corporation
	Christopher Peters	ICF International
	David S Revill	Georgia Transmission Corporation
	Scott Rosenberger	Luminant Energy
	Kevin Sherlin	Sacramento Municipal Utility District
	Jon Stanford	Bonneville Power Administration
	Keith Stouffer	National Institute of Standards & Technology
	John D. Varnell	Tenaska Power Services Co.
	William Winters	Arizona Public Service Co.
Consultant to NERC	Hal Beardall	Florida State University
Consultant to NERC	Joseph Bucciero	Bucciero Consulting, LLC
Consultant to NERC	Robert M. Jones	Florida State University
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NERC Staff	Tom Hofstetter	North American Electric Reliability Corporation
NERC Staff	Roger Lampila	North American Electric Reliability Corporation
NERC Staff	Scott Mix	North American Electric Reliability Corporation
NERC Staff	David Taylor	North American Electric Reliability Corporation
NERC Staff	Todd Thompson	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
CIP-001-1 — Sabotage Reporting	
FERC Order 693	Consider the need for wider application of the standard. Consider whether separate, less burdensome requirements for smaller entities may be appropriate. Paragraph 458. The Commission acknowledges the concerns of the commenter's about the applicability of CIP-001-1 to small entities and has addressed the concerns of small entities generally earlier in this Final Rule. Our approval of the ERO Compliance Registry criteria to determine which users, owners and operators are responsible for compliance addresses the concerns of APPA and others. 459. However, the Commission believes that there are specific reasons for applying this Reliability Standard to such entities, as discussed in the NOPR. APPA indicates that some small LSEs do not own or operate "hard assets" that are normally thought of as "at risk" to sabotage. The Commission is concerned that, an adversary might determine that a small LSE is the appropriate target when the adversary aims at a particular population or facility. Or an adversary may target a small user, owner or operator because it may have similar equipment or protections as a larger facility, that is, the adversary may use an attack against a smaller facility as a training "exercise." The knowledge of sabotage events that occur at any facility (including small facilities) may be helpful to those facilities that are traditionally considered to be the primary targets of adversaries as well as to all members of the electric sector, the law enforcement community and other critical infrastructures. 460. For these reasons, the Commission remains concerned that a wider application of CIP-001-1 may be appropriate for Bulk-Power System reliability. Balancing these concerns with our earlier discussion of the applicability of Reliability Standards to smaller entities, we will not direct the ERO to make any specific modification to CIP-001-1 to address applicability. However, we direct the ERO, as part of its Work Plan, to consider in the Reliability Standards development process, possible revisions to CIP-001-1 that address our concerns regarding the need for wider application of the Reliability Standard. Further, when addressing such applicability issues, the ERO should consider whether separate, less burdensome requirements for smaller entities may be appropriate to address these concerns.
	"Define "sabotage" and provide guidance on triggering events that would cause an entity to report an event. Paragraph 461. Several commenter's agree with the Commission's concern that the term "sabotage" should be defined. For the reasons stated in the NOPR, we direct that the ERO further define the term and provide guidance on triggering events that would cause an entity to report an event. However, we disagree with those commenter's that suggest the term "sabotage" is so vague as to justify a delay in approval or the application of monetary penalties. As explained in the NOPR, we believe that the term sabotage is commonly understood and that common understanding should suffice in most instances. Further, in the interim while the matter is being addressed by the Reliability Standards development process, we direct the ERO to provide advice to entities that have concerns about the reporting of particular circumstances as they arise. 462. Further, in defining sabotage, the ERO should consider FirstEnergy's suggestions to differentiate between cyber and physical sabotage and develop a threshold of materiality. However, regarding the latter suggestion, the Commission directs that guidance for a threshold of materiality must be designed carefully to mitigate the risk that an unsuccessful sabotage event is not correctly reported because it did not cause sufficient harm. 463. Requirement R1 of CIP-001-1 provides that an applicable entity must have procedures "for the recognition of and for making their operational personnel aware of sabotage events on its facilities and multi-site sabotage affecting larger portions of the Interconnection." The NOPR expressed concern that the provision does not establish baseline requirements regarding what issues should be addressed by the developed procedures. APPA goes

Source	Language
	even further and, characterizing it as an entity specific fill-in the-blank standard, contends that it lacks sufficient detail upon which the ERO can base compliance and enforcement efforts. 464. While the Commission believes that this Reliability Standard can and should be enhanced by specifying baseline requirements regarding what issues should be addressed in the procedures for recognizing sabotage events and making personnel aware of such events, it disagrees with APPA that Requirement R1 lacks sufficient detail on which to base ERO compliance and enforcement efforts. As indicated in Measure M1, an applicable entity must have and maintain the procedure as defined by Requirement R1. Thus, if an applicable entity cannot provide the required procedure to the ERO or a Regional Entity auditor upon request, it would likely be subject to an enforcement action. While we expect that an applicable entity that has made a good faith effort to develop a meaningful procedure to comply with Requirement R1 (and Measure M1) would not be subject to an enforcement action, an ERO or Regional Entity audit team may provide steps to improve the individual entity's procedure, which would serve as a baseline for that entity for any subsequent audit. Such an approach would be acceptable and allow for meaningful compliance in the interim until CIP-001-1 is modified pursuant to our directive."
	In the interim, provide advice to entities about the reporting of particular circumstances as they arise. Paragraph 461. Several commenter's agree with the Commission's concern that the term "sabotage" should be defined. For the reasons stated in the NOPR, we direct that the ERO further define the term and provide guidance on triggering events that would cause an entity to report an event.209 However, we disagree with those commenter's that suggest the term "sabotage" is so vague as to justify a delay in approval or the application of monetary penalties. As explained in the NOPR, we believe that the term sabotage is commonly understood and that common understanding should suffice in most instances.210 Further, in the interim while the matter is being addressed by the Reliability Standards development process, we direct the ERO to provide advice to entities that have concerns about the reporting of particular circumstances as they arise.
	Consider FirstEnergy's suggestions to differentiate between cyber and physical security sabotage and develop a threshold of materiality. Paragraph 451. A number of commenter's agree with the Commission's concern that the term "sabotage" needs to be better defined and guidance provided on the triggering events that would cause an entity to report an event. FirstEnergy states that this definition should differentiate between cyber and physical sabotage and should exclude unintentional operator error. It advocates a threshold of materiality to exclude acts that do not threaten to reduce the ability to provide service or compromise safety and security. SoCal Edison states that clarification regarding the meaning of sabotage and the triggering event for reporting would be helpful and prevent over-reporting.
	Incorporate a periodic review or updating of the sabotage reporting procedures and for their periodic testing. Consider a staggered schedule of annual testing and formal review every two to three years. Paragraph 466. The Commission affirms the NOPR directive and directs the ERO to incorporate a periodic review or updating of the sabotage reporting procedures and for the periodic testing of the sabotage reporting procedures. At this time, the Commission does not specify a review period as suggested by FirstEnergy and MRO and, rather, believes that the appropriate period should be determined through the ERO's Reliability Standards development process. However, the Commission directs that the ERO begin this process by considering a staggered schedule of annual testing of the procedures with modifications made when warranted formal review of the procedures every two or three years.
	"Include a requirement to report a sabotage event to the proper government authorities. Develop the language to specifically implement this directive. Paragraph 467. CIP-001-1,

Source	Language
	Requirement R4, requires that each applicable entity establish communications contacts, as applicable, with the local FBI or Royal Canadian Mounted Police officials and develop reporting procedures as appropriate to its circumstances. The Commission in the NOPR expressed concern that the Reliability Standard does not require an applicable entity to actually contact the appropriate governmental or regulatory body in the event of sabotage. Therefore, the Commission proposed that NERC modify the Reliability Standard to require an applicable entity to "contact appropriate federal authorities, such as the Department of Homeland Security, in the event of sabotage within a specified period of time."212 468. As mentioned above, NERC and others object to the wording of the proposed directive as overly prescriptive and note that the reference to "appropriate federal authorities" fails to recognize the international application of the Reliability Standard. The example of the Department of Homeland Security as an "appropriate federal authority" was not intended to be an exclusive designation. Nonetheless, the Commission agrees that a reference to "federal authorities" could create confusion. Accordingly, we modify the direction in the NOPR and now direct the ERO to address our underlying concern regarding mandatory reporting of a sabotage event. The ERO's Reliability Standards development process should develop the language to implement this directive."
	Explore ways to reduce redundant reporting, including central coordination of sabotage reports and a uniform reporting format. Paragraph 469. As noted above, FirstEnergy, EEI and others express concern regarding the potential for redundant reporting under CIP-001-1 and other government reporting standards, and the need for greater coordination. The Commission understands the concern about multiple reporting channels that may arise and the burden that this may present to applicable entities. We direct the ERO to explore ways to address these concerns — including central coordination of sabotage reports and a uniform reporting format — in developing modifications to the Reliability Standard with the appropriate governmental agencies that have levied the reporting requirements.
NERC Audit Observation Team	• Registered Entities have sabotage reporting processes and procedures in place but not all personnel has been trained. • "What is meant by: "establish contact with the FBI"? Is a phone number adequate? Many entities which call the FBI are referred back to the local authority. The AOT noted that on the FBI website it states to contact the local authorities. Is this a question for Homeland Security to deal with for us?" • Establish communications contacts, as applicable with local FBI and RAMP officials. Some entities are very remote and the sheriff is the only local authority does the FBI still need to be contacted? • Question: How do you "and make the operator aware" • How does this standard pertain to Load Serving Entities, LSE's?
Version 0 Team	• Object to multi-site requirement • Definition of sabotage required
VRFs Team	Adequate procedures will insure it is unlikely to lead to bulk electric system instability, separation, or cascading failures.
CIP-003-1 — Cyber Security — Security Management Controls	
NERC Audit Observation Team	Security Management Controls specifies the minimum Critical Cyber Asset information to be protected in requirement R4.1. Among the information asset types identified by R4.1. are network topology diagrams. The context of this requirement is clear and applies to computer network topology diagrams relating to Critical Cyber Asset information only.

Source	Language
VRFs Team	R4.2 — only an administrative requirement
CIP-004-1 — Cyber Security — Personnel & Training	
VRFs Team	R3 - This needs to be looked at for 30 days - should be done prior to access being granted.
CIP-005-1 — Cyber Security — Electronic Security Perimeter(s)	
VRFs Team	• R1.3 — administrative definition • R1.5 — standard to comply with a standard = double jeopardy
CIP-006-1 — Cyber Security — Physical Security of Critical Cyber Assets	
VRFs Team	• R1.5 & .9 — Should be consistent with CIP-005 • R1.8 - A requirement to meet other standard requirements - double jeopardy • R2.1, .2, .3 & .4 - These are 4 things from which to choose one or more, so no one of them is required. Should be a bulleted list, not subrequirements. • R3.1 — May statement
CIP-007-1 — Cyber Security — Systems Security Management	
VRFs Team	• R2 & 2.3 — An open port can lead to loss of system integrity. • R3 — An improper patch can lead to loss of system integrity.

Project 2008-12 Coordinate Interchange Standards

Standards Involved:

INT-001-3 — Interchange Transaction Tagging
INT-003-2 — Interchange Transaction Implementation
INT-004-1 — Interchange Transaction Modifications
INT-005-2 — Interchange Authority Distributes Arranged Interchange
INT-006-2 — Response to Interchange Authority
INT-007-1 — Interchange Confirmation
INT-008-2 — Interchange Authority Distributes Status
INT-009-1 — Implementation of Interchange
INT-010-1 — Interchange Coordination Exemptions

Research Needed:

None

Brief Description:

The modifications in the set of Coordinate Interchange Standards should address the following:

- Determine if the activities in the Coordinate Interchange standards correctly identify the responsible entity.
- Consider requiring the Sink Balancing Authority responsibility for Interchange Authority functions, using an interchange transaction tool process as defined in the latest approved version of the e-Tag Specifications.
- The existing requirements are tool-neutral — consider adding specific references to the e-Tagging process in the requirements
- Consider adding a requirement to have backup capability for use when the interchange transaction tool fails.
- Consider combining requirements into a fewer number of standards so that the resultant set of requirements follows a chronological sequence that is easier to follow.
- Address the directives issued by FERC in Order 693, and the stakeholder comments from the V0 drafting team and the Violation Risk Factor drafting team. (See Attachment 1)
- Determine if there is industry-wide support for the Interchange Subcommittee's Principles and definition supporting dynamic transfers and pseudo-ties and if there is support, modify the requirements and add definitions accordingly. Make other changes to the standards to bring them into conformance with the latest version of the Reliability Standards Development Procedure, Sanctions Guidelines and Uniform Compliance Monitoring and Enforcement Program.
- The work in this project should be done in two phases, with the first phase focused solely on clarifying the applicability of each requirement in the existing set of standards. All other revisions should take place in a second phase.

Coordination with NAESB:

The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2008 Annual plan):
- Annual Plan Item 1
- Annual Plan Item 3

Justification for NAESB consideration:
- Industry recommendations

SRS Recommendation:
- The WEQ SRS will coordinate with the JISWG on this project.

Standards Development Status:

Project 2008-12 Coordinate Interchange Standards Web page

Project Schedule:

Project 2008-12 Project Schedule

Target Completion Date:

Phase 1: First quarter of 2011
Phase 2: First quarter of 2013

Standard Drafting Team Roster:

Chairman	Joseph Gardner	Midwest ISO, Inc.
	Clint Aymond	Entergy Services, Inc.
	Kelly W Bertholet	Manitoba Hydro
	Eric Grau	Tennessee Valley Authority
	James Michael Hansen	Seattle City Light
	Peter Harris	ISO New England, Inc.
	Robert H. Harshbarger	Puget Sound Energy, Inc.
	Donald P. Lacen	Public Service Company of New Mexico
	Marcus V Lotto	Southern California Edison Co.
	Gregory D Maxfield	PacifiCorp
	David McRee	Duke Energy Carolina
	Joel L Mickey	Electric Reliability Council of Texas, Inc.
	Brian Neal	Bonneville Power Administration
	Michael Oatts	Southern Company Services, Inc.
	Christopher Pacella	PJM Interconnection, L.L.C.
NERC Staff	Andrew J. Rodriquez	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
NAESB Standards Review Subcommittee	NAESB Standards Review Subcommittee as input to the Reliability Standards Development Plan: 2010-2012: NAESB requests that NERC engage in coordination with them as needed on this project as it relates to item 3.a.viii in the NAESB WEQ 2009 Annual Plan.
INT-001-2 — Interchange Information	
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-003-2 — Interchange Transaction Implementation	
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-004-1 — Dynamic Interchange Transaction Modifications	
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-005-2 — Interchange Authority Distributes Arranged Interchange	
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-006-2 — Response to Interchange Authority	
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-007-1 — Interchange Confirmation	
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-008-2 — Interchange Authority Distributes Status	

Source	Language
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-009-1 — Implementation of Interchange	
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-010-1 — Interchange Coordination Exemptions	
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA

Project 2009-01 Disturbance and Sabotage Reporting

Standards Involved:
CIP-001-0 — Sabotage Reporting
EOP-004-1 — Disturbance Reporting

Research Needed:
None

Brief Description:
The existing requirements need to be revised to be more specific — and there needs to be more clarity in what sabotage looks like.

CIP-001 may be merged with EOP-004 to eliminate redundancies. Acts of sabotage have to be reported to the DOE as part of EOP-004. Specific references to the DOE form need to be eliminated.

EOP-004 has some 'fill-in-the-blank' components to eliminate.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2009-01 Disturbance and Sabotage Reporting Web page

Project Schedule:
Project 2009-01 Project Schedule

Target Completion Date:
Second quarter of 2012

Standard Drafting Team Roster:

Chairman	Ed Seddon	Orlando Utilities Commission
Vice Chairman	Judith A. James	Texas Regional Entity
SAR Requester	Patrick Brown	PJM Interconnection, L.L.C.
	Joseph G. DePoorter	Madison Gas and Electric Co.
	Brandy A Dunn	Western Area Power Administration
	Brian Evans-Mongeon	Utility Services LLC
	Brian M Harrell	SERC Reliability Corporation
	James E. Hartmann, Jr.	Electric Reliability Council of Texas, Inc.
	Tom Jones	Midwest ISO, Inc.
	David McRee	Duke Energy Carolina
	Mark Mullen	Xcel Energy, Inc.
	Drew Phillips	Independent Electricity System Operator
	Lewe Sessions	NextEra Energy Resources, LLC
	Raymond Tran	Ascendant Energy Services, LLC
NERC Staff	Stephen Crutchfield	North American Electric Reliability Corporation
NERC Staff	Scott Mix	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
EOP-004-1 — Disturbance Reporting	
Events Analysis Team	Reliability Issue: Coordination and follow up on lessons learned from event analyses Consider adding to EOP-004 – Disturbance Reporting Proposed requirement: Regional Entities (REs) shall work together with Reliability Coordinators, Transmission Owners, and Generation Owners to develop an Event Analysis Process to prevent similar events from happening and follow up with the recommendations. This process shall be defined within the appropriate NERC Standard
FERC Order 693	Change NERC's Rules of Procedure to assure the Commission receives these reports in the same frame as the DOE. Paragraph 618. requirement R3 addresses the reporting of disturbances to the regional reliability organizations and NERC. The Commission directs the ERO to change its Rules of Procedure to assure that the Commission also receives these reports within the same time frames as DOE.
	Consider all comments offered in a future modification of the reliability standard. Comments begin at paragraph 606 of the order. 606. EEI and FirstEnergy support the Commission's proposed modifications to the Reliability Standard. EEI states that data reporting requirements and other process requirements should be contained in enforceable Reliability Standards. FirstEnergy states that the proposed modification corresponds to good utility practice and that explicitly stating the requirement to provide data to NERC brings clarity to the expectations of NERC and the Commission. 607. APPA is concerned about the scope of Requirement R2 because, in its opinion, Requirement R2 appears to impose an open-ended obligation on entities such as generation operators and LSEs that may have neither the data nor the tools to promptly analyze disturbances that could have originated elsewhere. APPA proposes that Requirement R2 be modified to require affected entities to promptly begin analyses to ensure timely reporting to NERC and DOE. 608. Xcel expresses concern regarding what constitutes a reportable event for each applicable entity and recommends that the Reliability Standard be revised to define what a reportable event is for each entity that has reporting obligations. Further, Xcel states that the requirement in Requirement R3.4 for a final report within 60 days may not be feasible given the current WECC process, which among other things, requires the creation of a group to prepare the report and a 30-day posting of a draft report before it becomes final. Xcel also states that if the ultimate purpose of the report is to provide information to avoid a recurrence of a system disturbance, then the Reliability Standard should be revised to require the distribution of the report to similarly situated entities. 609. FirstEnergy states that, since nuclear units have their own NRC reporting procedures covering the Requirements under EOP-004-1, the Reliability Standard should specify that compliance with such operating procedures is sufficient to satisfy the requirements of EOP-004-1. FirstEnergy also states that the title of this Reliability Standard should be changed to "Disturbance Event Reporting" to indicate that the events covered under this Reliability Standard include a broad range of events that go beyond the events for which reports may be required under Reliability Standard BAL-002-0. 610. APPA states that NERC's November 15, 2006 revision partially fulfills the proposed modification to include Measures and Levels of Non-Compliance. APPA notes that EOP-004-1 did not provide Measures for R2, R3.2, R3.4, R4 and R5.
	Consider APPA's concern about generator operators and LSEs analyzing performance of their equipment and provide data and information on the equipment to assist others with analysis. Paragraph 607. APPA is concerned about the scope of Requirement R2 because, in its opinion, Requirement R2 appears to impose an open-ended obligation on

Source	Language
	entities such as generation operators and LSEs that may have neither the data nor the tools to promptly analyze disturbances that could have originated elsewhere. APPA proposes that Requirement R2 be modified to require affected entities to promptly begin analyses to ensure timely reporting to NERC and DOE.
	Include any requirements for users, owners, and operators of the bulk power system to provide data that will assist NERC in the investigation of a blackout or disturbance. Paragraph 617. While the Commission has identified concerns with regard to EOP-004-1, we believe that the proposal serves an important purpose in establishing requirements for reporting and analysis of system disturbances. Accordingly, the Commission approves Reliability Standard EOP-004-1 as mandatory and enforceable. In addition, pursuant to section 215(d) (5) of the FPA and § 39.5(f) of our regulations, the Commission directs the ERO to develop a modification to EOP-004-1 through the Reliability Standards development process that includes any Requirements necessary for users, owners and operators of the Bulk-Power System to provide data that will assist NERC in the investigation of a blackout or disturbance.
Fill in the Blank Team	• Consider changes to R1 and R3.4 to standardize the disturbance reporting requirements (requirements for disturbance reporting need to be added to this standard) • Regions currently have procedures, but not in the form of a standard. The drafting team will need to review regional requirements to determine reporting requirements for the North American standard.
NERC Audit Observation Team	Can there be a violation without an event?
Other	From: David Cook Sent: Wednesday, July 16, 2008 6:06 PM To: Rick Sergel; Dave Nevius; David A. Whiteley; Management Subject: RE: FERC request for DOE-417s I agree the real fix is to revise the EOP-004 standard. I agree that we can't (and shouldn't try) to do that by way of amendments to our Rules of Procedure. So we should include that fix in the standards work plan, do the best we can in the meantime to provide FERC with the 417s, and I'll have the conversation with Joe McClelland about not being able to do what the Commission directed in Order 693 (i.e., change the standards by way of a change in the Rules of Procedure). David ---------- From: Rick Sergel Sent: Wednesday, July 16, 2008 5:26 PM To: Dave Nevius; David A. Whiteley; David Cook; Management Subject: RE: FERC request for DOE-417s Dave, thanks. My tongue-in-cheek remark assumes the CSO will have Situation Awareness -- a growing possibility. Rick ---------- From: Dave Nevius Sent: Wed 7/16/2008 5:23 PM To: Rick Sergel; David A. Whiteley; David Cook; Management Subject: RE: FERC request for DOE-417s Rick The reporting requirements of the EOP standards go beyond physical and cyber security issues. I think this is just a case of our standard catching up with the fact that FERC now has some reliability responsibilities that they didn't have when the standard was written and when the DOE-417 requirements were established. Dave N ---------- From: Rick Sergel Sent: Wednesday, July 16, 2008 5:06 PM To: David A. Whiteley; David Cook; Management Subject: RE: FERC request for DOE-417s Let's not take all the fun out of the CSO job--shouldn't they have the chance to solve this one! Rick ---------- From: David A. Whiteley Sent: Wed 7/16/2008 2:19 PM To: David Cook; Management Subject: RE: FERC request for DOE-417s Dave C – It appears to me that if we simply change the RoP per the Order, that would effectively change the standard which sets forth the reporting requirement (currently EOP-004 R3 says reports go to the RRO and NERC). Recognizing the Commission's desire, would the better approach be

Source	Language
	to include this change as part of standards project 2009-01 (CIP-001 and EOP-004 review) to be completed in the fourth quarter of 2010? The change would simply require US entities to include FERC in their reporting requirement along with NERC and their Regional Entity (another clean-up item). Dave W ---------- From: David Cook Sent: Wednesday, July 16, 2008 11:57 AM To: Management Subject: FERC request for DOE-417s Management Team Joe McClelland has raised again the DOE-417 issue. Please see the attached memo for additional details. This continues to be an irritant with the Commission staff, and I believe we need to take steps to resolve it. In the memo, I have asked for your response to a few questions to assist in that regard. Thanks. David N. Cook
Version 0 Team	• How does this apply to generator operator? • R3 – too many reports, narrow requirement to RC

Project 2009-02 Real-time Tools

Standards Involved:
New

Research Needed:
No additional research needed. The NERC Real-Time Tools Best Practices Task Force (RTBPTF) performed an extensive, three-year process of fact finding and analysis supported by the results of their Real-Time Tools Survey, the most comprehensive survey ever conducted of current electric industry practices.

The RTBPTF summarized their findings in a report titled *Real-Time Tools Survey Analysis and Recommendations* dated March 13, 2008. The report includes the RTBPTF's recommendations for minimum acceptable capabilities and best practices for real-time tools necessary to ensure reliable electric system operation and reliability coordination.

Brief Description:
The scope of the SAR is to establish requirements for the functionality, performance, and management of tools used in support of Real-time System Operations. The intent is to describe 'what' needs to be done but not 'how' to do it.

This project will be responsive to the U.S.-Canada Power System Outage Task Force blackout recommendation 10: Establish Guidelines for Real-Time Operating Tools.

Standards Development Status:
Project 2009-02 Real-time Tools Web page

Project Schedule:
TBD

Target Completion Date:
TBD

SAR Drafting Team Roster:

Chairman	Sam Brattini	KEMA
Vice Chairman	Chuck Abell	Ameren
SAR Requester	Jack Kerr	Dominion
	Greg Campbell	WECC
	Jay Dondetti	MISO
	Vinit Gupta	Entergy
	Mike Richardson	AEP
	Bob Savage	APS
	Bob Staton	Xcel
	Scott Vidler	Hydro One
	Jerry Whooley	PJM
NERC Staff	Edd Dobrowolski	North American Electric Reliability Corporation

Project 2009-03 Emergency Operations

Standards Involved:
EOP-001-0 — Emergency Operations Planning
EOP-002-2 — Capacity and Energy Emergencies
EOP-003-1 — Load Shedding Plans
IRO-001-1 — Reliability Coordination — Responsibilities and Authorities

Research Needed:
None

Brief Description:
The first three standards in the list above may be merged into a single standard. There are some requirements in IRO-001 that may be improved and merged into the new EOP standard

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2008 Annual plan):
Annual Plan Item 1

Justification for NAESB consideration:
WEQ SRS analysis
Industry recommendations

SRS recommendation:
Refer to Project 2007-18 Reliability Based Control

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Target Completion Date:
TBD

Standard Drafting Team Roster:
TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
EOP-001-0 — Emergency Operations Planning	
Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan: 2010-2012	• The NERC Glossary of terms defines a BA as: "The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time." In other words, responsible for supply and demand balance in the operating horizon. With this definition in mind, why is the BA responsible for EOP-001-1 R2.2 "Develop, maintain, and implement a set of plans to mitigate operating emergencies on the transmission system"? • The NERC Glossary of terms defines a TOP as: "(t)he entity responsible for the reliability of its 'local' transmission system, and that operates or directs the operations of the transmission facilities." With this definition in mind, why is the TOP made responsible for EOP-001-1 R2.1: "(d)evelop, maintain, and implement a set of plans to mitigate operating emergencies for insufficient generating capacity"? • Requirement R4 (and by reference Attachment 1-EOP-001-0) is applicable to both the Transmission Operator and Balancing Authority but includes items that are not applicable to the TOP and are only applicable to the BA, e.g., why is a TOP responsible for fuel supply? Why is a TOP responsible for R6.2 concerning emergency energy? Why is a TOP responsible for fuel supply in R6.4, and why is the TOP responsible for arranging energy delivery?
Real-time Best Practices Standards Study Group	Establish document plans and procedures for conservative operations
EOP-003-1 — Load Shedding Plans	
Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan: 2010-2012	• With regard to requirement R2, why is the BA responsible for Under Frequency Load Shedding (UFLS) when PRC-006-0 and PRC-007-0 make it the responsibility of the Regional Entities, the TOPs, the Distribution Providers and the LSEs? Why is the BA responsible for Under Voltage Load Shedding (UVLS) when the responsibility should probably be just the TOP's? Isn't this requirement redundant with PRC-006-0 and PRC-007-0? • Requirement R2 of EOP-003-1 states: “Each Transmission Operator and Balancing Authority shall establish plans for automatic load shedding for underfrequency or undervoltage conditions.” The standards drafting team for Project 2007-01 Underfequency Load Shedding should consider modifying this requirement as part of their project.
Real-time Best Practices Standards Study Group	Provide the location, Real-time status, and MWs of Load available to be shed.
INT-001-1 — Interchange Information	
FERC Order 693	Regional Difference to INT-001/4: WECC Tagging Dynamic Schedules and Inadvertent Payback: Submit a filing within 90 days of the Order that provides the needed information or withdraws the regional variance.
Version 0 Team	Lack of compliance

Source	Language
	More commercial problem than reliability
	Onerous to BA's
	Question on generation scheduling
	R2.2 – 60 minute time frame questioned
	Clarify tagging of reserves
	Load PSE responsibility is new restriction
	R1 – Who tags dynamic schedules?
	R1 - Too stringent
VRFs Team	R1, 1.1, 2, 2.1, 2.2 – commercial and administrative
INT-001-2 — Interchange Information	
FERC Order 693	Consider Santa Clara's comments about the applicability of the LSE in the standard as part of the standards development process.
	Include a requirement that interchange information must be submitted for all point-to-point transfers entirely within a balancing authority area, including all grandfathered and "non-Order No. 888" transfers.
INT-003-1 — Interchange Transaction Implementation	
VRFs Team	R1, 1.1, 1.1.2, 1.2 – commercial and administrative
INT-004-1 — Dynamic Interchange Transaction Modifications	
FERC Order 693	Consider adding levels of non-compliance to the standard.
Version 0 Team	Suggested non-compliance levels
	Non-compliance based on %
	Need to address tag curtailment
	Replace TSP with TOP
	Use WECC criteria
VRFs Team	R2, 2.2, 2.3 – commercial and administrative
INT-005-2 — Interchange Authority Distributes Arranged Interchange	
FERC Order 693	Consider adding levels of non-compliance to the standard.
VRFs Team	R5 – administrative
INT-006-1 — Response to Interchange Authority	
FERC Order 693	Consider the suggestions made by EEI and TVA and address questions raised by Entergy and Northern Indiana as part of the standard development process.
	Include reliability coordinators and transmission operators as applicable

Source	Language
	entities.
	Require reliability coordinators and transmission operators to review energy interchange transactions from the wide-area and local area reliability viewpoints respectively and, where their review indicates a potential detrimental reliability impact, communicate to the sink balancing authorities necessary transaction modifications before implementation.
INT-006-2 — Response to Interchange Authority	
NERC Audit Observation Team	Does confirmed action mean direct action needs to be taken or, does confirmed action mean that a process has been put in place that will take action and, the entity agrees with such since they have employed the program.
INT-007-1 — Interchange Confirmation	
VRFs Team	R1, 1.1, 1.3, 1.3.1, 1.3.2, 1.3.3, 1.3.4, 1.4 – administrative
INT-008-2 — Interchange Authority Distributes Status	
FERC Order 693	Consider APPA's suggestion to clarify what reliability entity the standard applies as part of the standard development process.
VRFs Team	R1.1.1 & 1.1.2 – commercial and administrative
INT-009-1 — Implementation of Interchange	
FERC Order 693	Consider APPA's suggestion to clarify what reliability entity the standard applies as part of the standard development process.
INT-010-1 — Interchange Coordination Exemptions	
FERC Order 693	Consider Northern Indiana's and ISO-NE's suggestions in the standards development process.
VRFs Team	R1 & 3 – administrative

Project 2009-04 Phasor Measurement Units

Standards Involved:
New

Research Needed:
Analysis of existing research needs to be conducted.

Brief Description:
This is a new project that was identified in 2006 in support of a blackout recommendation. Several industry studies were recently issued and these studies need to be analyzed to determine appropriate requirements for a NERC standard.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Target Completion Date:
Third quarter of 2011

Standard Drafting Team Roster:
TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
MOD-010-0 — Steady-State Data for Modeling and Simulation of the Interconnected Transmission System	
FERC Order 693	Require users, owners, and operators to submit data to the regional entities as needed for modeling studies and assessments.
	Require transmission planners to provide the contingency lists they use in performing system operation and planning studies.
	Expand the applicability to include transmission operators and the planning authority.
	Address critical energy infrastructure confidentiality issues as part of the standard development process.
	290. The Commission directs public utilities, working through NERC, to modify the reliability standards MOD-010 through MOD-025 to incorporate a requirement for the periodic review and modification of models for (1) load flow base cases with contingency, subsystem, and monitoring files, (2) short circuit data, and (3) transient and dynamic stability simulation data, in order to ensure that they are up to date. This means that the models should be updated and benchmarked to actual events. We find that this requirement is essential in order to have an accurate simulation of the performance of the grid and from which to comparably calculate ATC, therefore increasing transparency and decreasing the potential for undue discrimination by transmission providers.
Fill in the Blank Team	• Review MOD-010, MOD-011, MOD-012, and MOD-013 concurrently for modeling requirements and reporting. • This standard is directly related to MOD-011. • Coordinate the revision of this standard with the revision to MOD-011. MOD-011 needs to be written as a North American standard with requirements for each interconnection. Once MOD-011 is modified, the only changes needed to MOD-010 are the references to the appropriate requirements in MOD-011.
Version 0 Team	• Non-compliance does not have time elements • Don't provide data to NERC • Confidentiality needs not cited • Don't need schedules for transactions within RTO • Not a standalone standard
MOD-011-0 — Maintenance and Distribution of Steady-State Data Requirements and Reporting Procedures	
FERC Order 693	• Expand the applicability to include the planning authority. • Develop a work plan and submit a compliance filing that will facilitate the ongoing collection of the steady-state modeling and simulation data specified in this standard.

Source	Language
Fill in the Blank Team	• Revise NERC MOD-011 to clarify that the data reporting requirements must be uniform across each interconnection. • This should be a North American Standard containing requirements which are interconnection-wide. • MOD-010 and 011 are related. This is the MMWG work for the eastern interconnection. • Review MOD-010, MOD-011, MOD-012, and MOD-013 concurrently for modeling requirements and reporting. • Coordinate the revision of this standard with the revision to MOD-010. MOD-011 needs to be written as a North American standard with requirements for each interconnection.
Version 0 Team	• Consistency across standards for non-compliance • Confidentiality of data • Add equipment types and variables • Not a standalone standard • Time element not cited in non-compliance • Several semantics issues • Locations of substations should be deleted
MOD-012-0 — Dynamics Data for Modeling and Simulation of the Interconnected Transmission System	
FERC Order 693	• Provide a list of faults and disturbances used in performing dynamics system studies for operation and planning. • Address critical energy infrastructure confidentiality issues as part of the standard development process. • Expand the applicability to include transmission operators, planning authorities, and transmission planners. • Require users, owners, and operators to submit data to the regional entities as needed for modeling studies and assessments.
Fill in the Blank Team	• This standard is directly related to MOD-013. • Coordinate the revision of this standard with the revision to MOD-013. MOD-013 needs to be written as a North American standard with requirements for each interconnection. Once MOD-013 is modified, the only changes needed to MOD-012 are the references to the appropriate requirements in MOD-013. • Review MOD-010, MOD-011, MOD-012, and MOD-013 concurrently for modeling requirements and reporting.
Version 0 Team	• Not a standalone standard • Time element missing in non-compliance • Consistency of non-compliance • Confidentiality of data
MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures	
ATFNSDT	MOD-013 needs to ask for voltage ride through data from generators as per 693.

Source	Language
FERC Order 693	• Permit entities to estimate dynamics stat if they are unable to obtain unit specific information. • Require verification of the dynamic models with actual disturbance data. • Expand the applicability to include transmission operators, planning authorities, and transmission planners. • Develop a work plan and submit a compliance filing that will facilitate the ongoing collection of the dynamics modeling and simulation data specified in this standard.
Fill in the Blank Team	• Review MOD-010, MOD-011, MOD-012 and MOD-013 concurrently for modeling requirements and reporting. • This should be a North American Standard containing requirements which are interconnection-wide. • Revise MOD-013 to clarify that the data reporting requirements must be uniform across each interconnection. • MOD-012 and MOD-013 are related. This is the MMWG work for the Eastern Interconnection.
Version 0 Team	• Several semantics issues • Consistency in non-compliance • Confidentiality of data • Timing element not mentioned in non-compliance • Not a standalone standard • 5 business days not sufficient
MOD-014-0 — Development of Steady-State System Models	
FERC Order 693	• If model output is not within the accuracy required, the model shall be modified to achieve the necessary accuracy. • Require models to be validated against actual system response. • Require users, owners, and operators to provide the validated models to regional reliability organizations. • Develop a work plan that will facilitate ongoing validation of steady-state models and submit a compliance filing to the Commission.
Fill in the Blank Team	No action
Version 0 Team	• Define near-term vs. long-term • Timing element missing in non-compliance • Solved cases should not have violations • Consistency of non-compliance
MOD-015-0 — Development of Dynamics System Models	

Source	Language
FERC Order 693	• Require actual system events be simulated and dynamics system model output be validated against actual system response. • Require users, owners, and operators to provide the validated models to regional entity. • Develop a work plan that will facilitate ongoing validation of dynamics models and submit a compliance filing to the Commission.
Fill in the Blank Team	No action
Version 0 Team	• Consistency of non-compliance • Timing element of non-compliance • Confidentiality of data
PRC-013-0 — Special Protection System Database	
FERC Order 693	Consider APPA's suggestions for interconnection-wide consistency in the standards development process.
Fill in the Blank Team	• Related to PRC-015. • Review PRC-013 and PRC-015 together to properly reference regional standards (see notes of PRC-015 for options).
Version 0 Team	• Define evidence • Not a standalone standard
PRC-015-0 — Special Protection System Data and Documentation	
Fill in the Blank Team	• Consider impact of removing R1.2 from PRC-012-0 and revision of PRC-013-0, R1.1, 1.2, & 1.3 to include a specific list of items to be included in the RRO SPS database. The same list could be added to PRC-015, R1.1. However, it may be cleaner to move PRC-015-0, R1.1 and the data portion of R1.3 to PRC-013. (Note: revisions to PRC-012 are identified for a separate drafting team and are expected to take place after revisions to PRC-013 and PRC-015 are completed.) • Tied to PRC-013. • Review PRC-013 and PRC-015 together to properly reference regional standards (see notes of PRC-015 for options).
Version 0 Team	• Define evidence • Already covered elsewhere
PRC-020-1 — Under-Voltage Load Shedding Program Database	
Fill in the Blank Team	No action required
Phase III/IV Team	The reliability-related need for the RRO to have the data isn't clear
Team Comments	Provide clarity where the Planning Authority is mentioned
PRC-021-1 — Under-Voltage Load Shedding Program Data	
Fill in the Blank Team	No action required

Project 2009-05 Resource Adequacy Assessments

Standards Involved:
New

Research Needed:
None

Brief Description:
This is a continuation of a project from 2006 that was delayed for higher priority projects. The purpose of this standard is to implement some of the recommendations from the Resource and Transmission Adequacy Task Force Report and the Gas/Electricity Interdependency Task Force Report approved by the NERC BOT in 2004 related to resource adequacy.

As envisioned, the standard will require entities to create metrics to assess resource adequacy that takes into account various factors such as fuel deliverability, performing resource adequacy assessments, sharing the results of those assessments. The standard would also require that resource adequacy assessments be conducted according to those metrics.

NERC Staff is developing a paper discussing the options regarding resource adequacy issues. This issue may be better served through the NERC Rules of Procedure rather than a specific Reliability Standard. Two Regional Entities have developed draft standards relating to resource adequacy and these are being included in the consideration of options.

Standard Development Steps Completed:
The SAR has been posted for two comment periods but has not been finalized due to other conflicting higher priority projects. The SAR will be finalized and then work will be delayed on drafting the standard until 2008.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2009-05 Resource Adequacy Assessments

Project Schedule:
Project 2009-05 Project Schedule

Target Completion Date:
Third quarter of 2011

Standard Drafting Team Roster:

Chairman	Mary H. Johannis	Bonneville Power Administration
Vice Chairman	Phil Fedora	Northeast Power Coordinating Council, Inc.
	Yong Cai	Sacramento Municipal Utility District
	Curt J. Dahl, P.E.	KeySpan Corp.
	Gregory S. Drake	New York Independent System Operator
	Andrew Fusco	North Carolina Eastern Municipal Power Agency
	William J. Head	Midwest Reliability Organization
	Daniel Huffman	FirstEnergy Corp.
	Tom Kaslow	Calpine Corporation
	Richard Kosch	Lincoln Electric System
	Garey C. Rozier	Southern Company Services, Inc.
	Donald M. Schlegel	American Electric Power
	Steve Scroggs	Florida Power & Light Co.
	Sam Waters	Progress Energy
NERC Staff	Stephen Crutchfield	North American Electric Reliability Corporation

Issues to be Considered by Drafting Team

Source	Language
MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands	
FERC Order 693	Expand the applicability to include transmission planners. Paragraph 1224. In the NOPR, the Commission proposed to approve Reliability Standard MOD-016-1 as mandatory and enforceable. In addition, the Commission proposed to direct NERC to submit a modification to MOD-016-1 that expands the applicability section to include the transmission planner.
	Modify the definition of DSM to include any other entities that undertake activities or programs to influence the amount or timing of electricity they use without violating other reliability standards requirements. Paragraph 1232. Supported by many commenter's, the Commission directs the ERO to modify MOD-016-1 and expand the applicability section to include the transmission planner, on the basis that under the NERC Functional Model the transmission planner is responsible for collecting system modeling data, including actual and forecast load, to evaluate transmission expansion plans. We disagree with EEI that this Reliability Standard should not be applied to the transmission planner because load-related data for controllable DSM is not only needed for distribution and transmission operations, but is also necessary for the transmission planner to take controllable DSM into account in planning the transmission system. Requirement R1.1 relates to data submittal, and requires data to be consistent with that supplied for the TPL-005 and TPL-006 standards, which clearly apply to transmission planners. We approve the ERO's definition in the glossary of DSM as "all activities or programs undertaken by a Load-Serving Entity or its customers to influence the amount or timing of electricity they use." Only activities or programs that meet the ERO definition, with the modification directed below, may be treated as DSM for purposes of the Reliability Standards. Recognizing the potential role that industrial customers who do not take service through an LSE and load aggregators, for example, may play in meeting the Reliability Standards, we direct the ERO to modify the definition of DSM. Specifically, we direct the ERO to add to its definition of DSM "any other entities" that undertake activities or programs to influence the amount or timing of electricity they use without violating other Reliability Standard Requirement.
Fill in the Blank Team	• Review MOD-016, MOD-017, and MOD-019 concurrently to develop uniform North American Standards for reporting of actual and forecast demand and NEL data to be reported to RRO for system modeling and analysis. • Standard should address quality and accuracy of the forecast; need to avoid double-counting, etc. • MOD-016 is the NERC requirement on region; MOD-017 and MOD-019 are the entity requirements to comply with the region. Includes MOD-016 through MOD-021.

Source	Language
Phase III/IV Team	• Expand the applicability to include Load Serving Entities and Purchasing/Selling entities • Add specificity to identify what must be considered in identifying the demand load forecast– is this expected to be the 'peak' demand and should it include such factors as economic, demographic, and customer trends; conservation, improvements in the efficiency of electrical energy use, and other changes in the end uses of electricity; and weather effects? Should the peak demand load forecast have a 50% probability of not being exceeded (expected peak demand)? This load forecast is commonly referred to as the 1-in-2 peak load forecast. • Purpose – revise to add 'best available' where noted. Ensure that accurate, actual demand data is available to support assessments and validation of past events and databases. Forecast demand data is needed to perform future system assessments to identify the need for system reinforcements for continued reliability. In addition, to assist in proper real-time operating, best available load information related to controllable demand-side management (DSM) programs is needed. A clear definition of forecast demand is needed. • R1 - Transmission providers who serve customers who have retail access may have difficulty obtaining documentation identifying the scope and details of actual and forecast data. These transmission providers' can provide the actual and forecast data using their own data sets, but they may not have access to an individual retail choice customer's documentation for historical and forecast data. Often concerns about loss of competitive advantage or confidentiality issues are expressed about providing the data to the transmission provider. • R1.2 – needs to identify the type of forecast • R1.2 - revise to recognize that service territories may host multiple LSEs • R2 and R3 – clarify what entity is providing the approval • Explicitly state that LSEs are required to provide the documentation for actual and load forecast data for the loads they serve to the PAs and RROs. • Where Purchasing/ Selling entities are retail access customers who perform load forecasts, specify that these entities also need to provide similar documentation to PAsnd RROS • There is a disconnect between LSE load forecasting and planning and the control area reporting as a major issue in the reporting of quality load and resources data to WECC. Confidentiality issues and other communication issues have contributed to making this an issue of concern therefore the following are action needs:
Team Comments	Provide clarity where the Planning Authority is mentioned
Version 0 Team	• Consistency in non-compliance • Weather data needed
MOD-017-0 — Aggregated Actual and Forecast Demands and Net Energy for Load	
FERC Order 693	Reporting of accuracy, error and bias of load forecasts compared to actual loads taking temperature and humidity conditions into account. Paragraph 1251. The Commission adopts the NOPR proposal directing the ERO to modify the Reliability Standard to require reporting of the accuracy, error and bias of load forecasts compared to actual loads with due regard to temperature and humidity

Source	Language
	variations. This requirement will measure the closeness of the load forecast to the actual value. We understand that load forecasting is a primary factor in achieving Reliable Operation. Underestimating load growth can result in insufficient or inadequate generation and transmission facilities, causing unreliability in real-time operations. Measuring the accuracy, error and bias of load forecasts is important information for system planners to include in their studies, and also improves load forecasts themselves.
	Include requirements for reporting of temperature and humidity along with the peak loads. Paragraph 1249. The Commission also directs the ERO to modify the Reliability Standard to require reporting of temperature and humidity along with peak load because actual load must be weather normalized for meaningful comparison with forecasted values.361 In response to MidAmerican's observation that it sees little value in collecting this data, we believe that collecting it will allow all load data to be weather-normalized, which will provide greater confidence when comparing data accuracy, which ultimately will enhance reliability. As a result, we reject Xcel's proposal that the standard be revised to include only the generic term "peak producing weather conditions" because it is too generic for a mandatory Reliability Standard.
	Expand the applicability to include transmission planners. Paragraph 1257. The Commission approves Reliability Standard MOD-017-0 as mandatory and enforceable. In addition, the Commission directs the ERO to develop a modification to MOD-017-0 through the Reliability Standards development process that includes requirements for: (1) reporting of temperature and humidity along with the peak loads; (2) reporting of accuracy, error and bias of load forecasts compared to actual loads taking temperature and humidity variations into account; (3) addressing methods to correct forecasts to minimize prior inaccuracies, errors and bias and (4) including the transmission planner in the applicability section.
	"Address methods to correct forecasts to minimize prior inaccuracies, errors, and bias. Paragraph 1252. The Commission agrees with APPA that accuracy, error and bias of load forecasts alone will not increase the reliability of load forecasts, and, as a result, will not affect system reliability. Understanding of the differences without action based on that understanding would not change anything. Therefore, we direct the ERO to add a Requirement that addresses correcting forecasts based on prior inaccuracies, errors and bias."
Fill in the Blank Team	• Correct reference to MOD-016 when MOD-016 is revised (MOD-016-1) • Review MOD-016, MOD-017, and MOD-019 concurrently to develop uniform North American Standards for reporting of actual and forecast demand and NEL data to be reported to RRO for system modeling and analysis.
Team Comments	Provide clarity where the Planning Authority is mentioned
MOD-018-0 — Treatment of Nonmember Demand Data and How Uncertainties are Addressed in the Forecasts of Demand and Net Energy for Load	
FERC Order 693	Provide a work plan and compliance filing regarding the collection of information specified for standards that are deferred. Paragraph 1264. As an initial matter, we disagree that MOD-018-0 cannot be implemented because it is dependent on various unapproved standards. As previously stated, we direct the ERO to provide a Work Plan and compliance filing regarding the collection of information specified for standards that are deferred, and believe there should be no

Source	Language
	difficulties complying with this Reliability Standard. We reiterate that ongoing collection of data is necessary to maintain system reliability, and approval of MOD-018-0 will help to achieve this goal.
Team Comments	Provide clarity where the Planning Authority is mentioned
Version 0 Team	• Need to define uncertainty • Confidentiality of data
MOD-019-0 — Reporting of Interruptible Demands and Direct Control Load Management	
FERC Order 693	Require users, owners, and operators to provide to the regional entity information related to forecasts of interruptible demands and direct control load management. Paragraph 1275. As an initial matter, we disagree that MOD-019-0 cannot be implemented because it is dependent on MOD-016-0, which further depends on various unapproved standards. As previously stated, we direct the ERO to provide a Work Plan and compliance filing regarding the collection of information specified under related standards that are deferred, and believe there should be no difficulties complying with this Reliability Standard. We reiterate that ongoing collection of data is necessary to maintain system reliability, and approval of MOD-019-0 will help to achieve this goal. We therefore direct the ERO to use its authority pursuant to § 39.2(d) of our regulations to require users, owners and operators to provide to the Regional Entity information related to forecasts of interruptible demands and direct control load management.
	Analyze differences between actual and forecasted demands for five years of actual controllable load and identify what corrective actions should be taken to approve controllable load forecasting for the 10-year planning horizon. Paragraph 1277. We direct the ERO to include APPA's proposal in the Reliability Standards development process to add a new requirement to MOD-019-0 that would oblige resource planners to analyze differences between actual and forecasted demands for the five years of actual controllable load and identify what corrective actions should be taken to improve controllable load forecasting for the 10-year planning horizon.
	Require reporting of the accuracy, error, bias of controllable load forecasts. Paragraph 1276. The Commission adopts the NOPR proposal directing the ERO to modify this standard to require reporting of the accuracy, error and bias of controllable load forecasts. This requirement will enable planners to get a more reliable picture of the amount of controllable load that is actually available, therefore allowing planners to conduct more accurate system reliability assessments. The Commission finds that controllable load can be as reliable as other resources, and therefore should also be subject to the same reporting requirements. Although we recognize that verifying load control devices and interruptible loads may be complex, we do not believe that it is overly so. Further, we believe that the ERO, through its Reliability Standards development process can develop innovative solutions to the Commission's concern. We also note that EEI is concerned about such testing at times of peak load. We clarify that we are not requiring the testing to be conducted at peak load conditions. Consequently, we reject the proposals of EEI, FirstEnergy and International Transmission to discard the requirement for reporting of the accuracy, error and bias of controllable load forecasts.

Source	Language
Fill in the Blank Team	• Review MOD-016, MOD-017, and MOD-019 concurrently to develop uniform North American Standards for reporting of actual and forecast demand and NEL data to be reported to RRO for system modeling and analysis. • Correct reference to MOD-016 when MOD-016 is revised (MOD-016-1)
Team Comments	Provide clarity where the Planning Authority is mentioned
Version 0 Team	• Level 4 non-compliance is harsh • Confidentiality of data
MOD-020-0 — Providing Interruptible Demands and Direct Control Load Management Data to System Operators and Reliability Coordinators	
FERC Order 693	Require reporting of the accuracy, error, and bias of controllable load forecasts. Paragraph 1289. The Commission approves Reliability Standard MOD-020-0 as mandatory and enforceable and directs the ERO to develop a modification to MOD-020-0 through the Reliability Standards development process to require reporting of the accuracy, error and bias of controllable load forecasts.
MOD-021-0 — Documentation of the Accounting Methodology for the Effects of Controllable DSM in Demand and Energy Forecasts	
FERC Order 693	Standardize principles on reporting and validation of DSM program information. Paragraph 1298. We agree with FirstEnergy and SMA that standardization of principles on reporting and validating DSM program information will provide consistent and uniform evaluation of demand response to facilitate system operator confidence in relying on such resources, which will further increase accuracy of transmission system reliability assessment and consequently enhance overall reliability. We direct the ERO to modify this Reliability Standard to allow resource planners to analyze the causes of differences between actual and forecasted demands, and to identify any corrective actions that should be taken to improve forecasted demand responses for future forecasts. Therefore, we adopt the NOPR proposal and direct the ERO to modify MOD-021-0 by adding a requirement for standardization of principles on reporting and validating DSM program information.
	Require users, owners, and operators to provide to the regional entity information related to this standard. Paragraph 1297. As an initial matter, we disagree that MOD-021-0 cannot be implemented because it is based on MOD-016-0, and through it on various unapproved standards, which creates an implementation problem. As previously stated, we direct the ERO to provide a Work Plan and compliance filing regarding collection of information specified under related standards that are deferred, and believe there should be no difficulty complying with this Reliability Standard. We reiterate that ongoing collection of data is necessary to maintain system reliability, and approval of MOD-21-0 will help to achieve this goal. Therefore, we direct the ERO to use its authority pursuant to § 39.2(d) of our regulations to require users, owners and operators to provide to the Regional Entity the information required by this Reliability Standard.
	Modify the title and purpose statement to remove the word “controllable”. Paragraph 1300. The Commission directs the ERO to modify the title and purpose statement to remove the word “controllable.” We note that no commenter disagrees.

Source	Language
	Allow resource planners to analyze the causes of differences between actual and forecasted demands, and identify any corrective actions that should be taken to improve forecasted demand responses for future forecasts. Paragraph 1298. We agree with FirstEnergy and SMA that standardization of principles on reporting and validating DSM program information will provide consistent and uniform evaluation of demand response to facilitate system operator confidence in relying on such resources, which will further increase accuracy of transmission system reliability assessment and consequently enhance overall reliability. We direct the ERO to modify this Reliability Standard to allow resource planners to analyze the causes of differences between actual and forecasted demands, and to identify any corrective actions that should be taken to improve forecasted demand responses for future forecasts. Therefore, we adopt the NOPR proposal and direct the ERO to modify MOD-021-0 by adding a requirement for standardization of principles on reporting and validating DSM program information.
Team Comments	Provide clarity where the Planning Authority is mentioned

Project 2009-06 Facility Ratings

Standards Involved:
FAC-008-1 — Facility Ratings
FAC-009-1 — Establish and Communicate Facility Ratings

Research Needed:
None

Brief Description:
The revisions to these two standards will result in a single standard that is responsive to the recommended changes identified in the Standard Review Guidelines attached to this SAR and also to two of the three applicable FERC directives in Order 693.

The proposed changes to FAC-008 and FAC-009 have already been through stakeholder review and reached consensus in 2008 on all requirements except the requirement (R7) developed to meet the FERC directive in Order 693 that required identification of the most limiting component of a facility and the theoretical increase in rating if the limitation were removed. Stakeholders indicated that this requirement (R7) did not have a reliability-related benefit, and voted against the inclusion of a requirement to meet this directive. Thus, this SAR proposes the same standard that was developed and balloted in late 2008, but without the requirement (R7).

Standards Development Status:
Project 2009-06 Facility Ratings Web page

Project Schedule:
TBD

Target Completion Date:
Fourth quarter of 2011

Standard Drafting Team Roster:

Chairman	Paul B. Johnson, P.E.	American Electric Power
	Robert A. Birch	Florida Power & Light Co.
	Terry L. Crawley	Southern Company Services, Inc.
	Robert Kluge	American Transmission Company, LLC
	Robert W. Millard	ReliabilityFirst Corporation
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Philip Riley	Public Service Commission of South Carolina
	Tapani Seppa	The Valley Group, Inc.
	Vladimir Stanisic	Ontario Power Generation Inc.
	Ronald F. Szymczak	Exelon Corporation
	Chifong L. Thomas	Pacific Gas and Electric Company
NERC Staff	Stephen Crutchfield	North American Electric Reliability Corporation

Project 2009-07 Reliability of Protection Systems

Standards Involved:
New

Research Needed:
None

Brief Description:
The proposed standard requires facility owners to have protection system equipment installed such that, if there were a failure to a specified component of that protection system, the failure would not prevent meeting the BES performance identified in the TPL standards.

Standards Development Status:
Project 2009-07 Reliability of Protection Systems Web page

Project Schedule:
TBD

Target Completion Date:
Fourth quarter of 2011

Standard Drafting Team Roster:

Chairman	Ed Taylor	Pacific Gas and Electric Co.
	Robert Johnson	Allegheny Power
	Clarence Bradley	Georgia Transmission Co.
	Jonathon Glidewell	Southern Company Transmission Co.
	James Hubertus	Public Service Electric and Gas Co.
	Steve Leistner	PacifiCorp
	Stanley J. Lewis	Consolidated Edison Co. of New York
	Susan L. McGill	PJM
	John Mulhausen	Florida Power & Light Co.
	Jill Muller	American Transmission Co., L.L.C.
	Bill Newell	Progress Energy
	Don Oatman, Jr.	Electric Reliability Council of Texas, Inc.
	Richard P. Quest	Xcel Energy
	Dean Sorensen	National Grid
	Xiaodong Sun	Ontario Power Generation, Inc.
	Roger Whitaker	Bonneville Power Administration
NERC Staff	Darrel Richardson	North American Electric Reliability Corporation

Project 2009-18 Withdraw Three Midwest ISO Waivers

Standards Involved:
BAL-006-2 — Inadvertent Interchange
INT-003-3 — Interchange Transaction Implementation

Research Needed:
None

Brief Description:
During their April 15-16, 2009 meeting the Standards Committee approved a SAR for removing waivers in the current NERC Standards associated with accommodating the operation of the Midwest ISO market in a multi-Balancing Authority environment. These waivers are no longer needed by the Midwest ISO now that the Midwest ISO is a Balancing authority:

- References to the Midwest ISO should be removed from the "Scheduling Agent Waiver" associated with INT-003-2 — Interchange Transaction Implementation.
- The "Enhanced Scheduling Agent Waiver" associated with INT-003-2 should be retired.
- References to the Midwest ISO should be removed from the "RTO Inadvertent Interchange Accounting Waiver" associated with BAL-006-1 — Inadvertent Interchange.

The purpose/industry need is to provide clarity in the applicability of the standard.

Standards Development Status:
Project 2009-18 Withdraw Three Midwest ISO Waivers Web page

Project Schedule:
TBD

Target Completion Date:
Fourth quarter of 2009

Standard Drafting Team Roster:

Terry Bilke	Midwest ISO
Stephen Crutchfield	NERC Staff Coordinator

Project 2010-01 Support Personnel Training

Standards Involved:
New

Research Needed:
None

Brief Description:
This is a new project that was identified in support of a blackout recommendation. Stakeholders indicated a preference for completing work on a standard for real-time system operators before beginning work on this standard, due to resource limitations. The standard will require the use of a systematic approach to determining training needs of generator operators and operations planning and support staff with a direct impact on the reliable operations of the bulk power system.

The standard will require that entities have evidence that this systematic approach is used and require that each responsible entity have evidence that each of applicable personnel is competent to perform each assigned task that is on its company-specific list of reliability-related tasks.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Target Completion Date:
Fourth quarter of 2011

Standard Drafting Team Roster:
TBD

Project 2010-02 Connecting New Facilities to the Grid

Standards Involved:
FAC-001-0 — Facility Connection Requirements
FAC-002-0 — Coordination of Plans for New Facilities

Research Needed:
None

Brief Description:
A broad review needs to take place to ensure that all of the elements that should be addressed when a new facility is connected to the grid are included in the revised standard. New requirements are needed to require that the facility connection requirements are followed.

FAC-001 and FAC-002 have some 'fill-in-the-blank' components to eliminate.
The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2008 Annual plan):
Annual Plan Item 1

Justification for NAESB consideration:
Industry recommendations

SRS Recommendation:
The WEQ SRS will add this project to its watch list.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Target Completion Date:
First quarter of 2011

Standard Drafting Team Roster:
TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
Phillip R. Kleckley (SERC EC Planning Standards Subcommittee (PSS)) as input to the Reliability Standards Development Plan:2010-2012	Consider adding a definition of “end user” to the NERC Glossary. (Note: This recommendation was received as part of the comments on Question 3 of the comments form for the “Draft Revision 6 of the SERC Facility Connection Requirements (FCR) Guideline”.)

Project 2010-03 Modeling Data

Standards Involved:
MOD-010-0 — Steady-State Data for Transmission System Modeling and Simulation
MOD-011-0 — Regional Steady-State Data Requirements and Reporting Procedures
MOD-012-0 — Dynamics Data for Transmission System Modeling and Simulation
MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures
MOD-014-0 — Development of Interconnection-Specific Steady State System Models
MOD-015-0 — Development of Interconnection-Specific Dynamics System Models
PRC-013-0 — Special Protection System Database
PRC-015-0 — Special Protection System Data and Documentation
PRC-020-1 — Under-Voltage Load Shedding Program Database
PRC-021-1 — Under-Voltage Load Shedding Program Data

Research Needed:
18 months study for dynamics modeling of load in simulations and analyses

Brief Description:
This is one of two projects aimed at identifying all the 'data provision' requirements and consolidating the requirements into fewer standards. Research is needed to clearly identify what data is needed to accurately model load in simulations and analyses. The requirements need to be more specific to clearly identify the format, etc., for providing data.

As envisioned, this project will result in the elimination of most if not all region-specific requirements and the revised requirements would include much more specificity. MOD-010 through MOD-015 has some 'fill-in-the-blank' components to eliminate.

Many of the requirements need to be realigned so that the data that is needed is provided to the entity that needs the data. In several of the existing standards, the data is provided to the RRO who then provides the data to the Planning Authority or other entities.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Target Completion Date:
First quarter of 2011

Standard Drafting Team Roster:
TBD

Project 2010-04 Demand Data

Standards Involved:
MOD-016-1 — Actual and Forecast Demands, Net Energy for Load, Controllable DSM
MOD-017-0 — Aggregated Actual and Forecast Demands and Net Energy for Load
MOD-018-0 — Reports of Actual and Forecast Demand Data
MOD-019-0 — Forecasts of Interruptible Demands and DCLM Data
MOD-020-0 — Providing Interruptible Demands and DCLM Data
MOD-021-0 — Accounting Methodology for Effects of Controllable DSM in Forecasts

Research Needed:
None

Brief Description:
This is one of two projects aimed at identifying all the 'data provision' requirements and consolidating the requirements into fewer standards. As envisioned, this project will result in two standards — with MOD-016 through MOD-020 in a single standard, and MOD-021 in a separate standard. The requirements need to be more specific to clearly identify the format, etc., for providing data.

MOD-016, MOD-017, and MOD-019 have some 'fill-in-the-blank' components to eliminate. The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Target Completion Date:
Second quarter of 2011

Standard Drafting Team Roster:
TBD

Project 2010-05 Protection Systems

Standards Involved:
PRC-003-1 — Regional Requirements for Transmission and Generation Protection System Misoperations
PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations
PRC-012-0 — Special Protection System Review Procedure
PRC-014-0 — Special Protection System Assessment
PRC-016-0 — Special Protection System Misoperations

Research Needed:
None

Brief Description:
Consideration should be given to merging some of the standards to eliminate the need for cross-referencing.

PRC-003, PRC-004, PRC-014, and PRC-016 have some 'fill-in-the-blank' components to eliminate.

PRC-012 is one of the few 'fill-in-the-blank' standards that was identified by the Regional Reliability Standards Working Group as a standard that has some requirements that need to remain in regional standards.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Target Completion Date:
Second quarter of 2011

Standard Drafting Team Roster
TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
PRC-003-1 — Regional Requirements for Transmission and Generation Protection System Misoperations	
FERC Order 693	Consider if greater consistency can be achieved in the standard as suggested by APPA.
Fill in the Blank Team	• Modify PRC-003 to include specific requirements for each functional entity. Each of the regional plans needs to be reviewed to determine what should be included in the North American standard. The current PRC-003 defines requirements for RROs. The drafting team should revise PRC-004 to include proper references to the new PRC-003. • This is a North American Standard as written which places requirements on the regions to develop a procedure. However, PRC-004 requires functional entities to comply with the procedures the RROs develop. Craft a new PRC-003 as a North American standard containing the specific requirements for each functional entity. • Review PRC-003 and PRC-004 together to identify the specific requirements of the functional entities (include specific requirements for each functional entity).
Phase III/IV Team	• All transmission circuits 200 kV and above • Enhance the applicability section to clarify that the systems addressed by the requirements are limited to: • All transmission circuits 100 kV to 200 kV operationally significant circuits, as defined by the RROs • In R1.2 change format to content • The RRO should be required to demonstrate that the requirements developed in accordance with R1 produce the desired result. • Generator protection systems, whose misoperations impact the bulk electric system
Version 0 Team	• Change wording to reporting instead of monitoring • Need to define evidence
PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations	
FERC Order 693	• Consider ISO-NE's suggestion that LSEs and transmission operators should be listed as applicable entities. • The regional entity should develop procedures for corrective action plans.
Fill in the Blank Team	• Coordinate the revision of this standard with the revision to standard PRC-003. PRC-003 needs to be written as a North American standard with requirements for each functional entity as appropriate. Once PRC-003 is modified, the only changes needed to PRC-004 are the references to the appropriate requirements in PRC-003. • See notes for PRC-003-1. • Review PRC-003 and PRC-004 together to identify the specific requirements of the functional entities.
NERC Audit Observation Team	• "Document the process"

Source	Language
	• The Generator Owner shall analyze its generator protection system misoperations and implement corrective action plans to avoid future misoperations.
Phase III/IV Team	This standard should apply to all protection systems on the Bulk Electric System (BES) not just those that 'impact' the BES
Version 0 Team	Levels of non-compliance need to be redefined

Project 2010-06 Performance-based Reliability Standards

Standards Involved:
Entire set of NERC Reliability Standards

Research Needed:
In 2008 the NERC Standards Committee Process Subcommittee conducted a review of the then existing NERC reliability standards and identified those that contained requirements that are administrative in nature or are simply explanatory text and which do not appear to contribute directly to meeting reliability objectives. The review results were presented to the Standards Committee at their April 16-17, 2009 meeting, and were adopted as the starting point for prioritizing standard changes and a basis for removing the administrative type of requirements. Detailed review results were included as Attachments 7di, 7dii and 7diii of the April 15-16, 2009 Standards Committee meeting agenda package.

In addition, as documented in Attachment 2 of the ERO Three-Year Assessment dated July 20, 2009 stakeholders recommend that the industry should "focus existing reliability standards and reliability standards development on areas that will lead to the greatest improvement in bulk power system reliability." Suggestions include: "(1) focus the development of new reliability standards on those that will lead to the greatest improvement in reliability; i.e., address the greatest risks of wide-area cascading outages; (2) reduce the number of existing reliability standards to just those that have a critical impact on reliability of the bulk power system and convert the remaining reliability standards to guidelines; and (3) develop a more systematic process for prioritizing new reliability standards development projects based on risks to the bulk power system."

In August 2009 an ad-hoc group was organized made up of representatives from the Standards Committee, Regional Entity staff, and NERC standards staff for developing a plan for transitioning the exiting set of NERC reliability standards into a set of revised reliability standards. The goal of the plan is to define a more focused set of reliability requirements that are predominantly performance-based, with a direct relation to bulk power system reliability. The plan is anticipated to be presented to the NERC Board of Trustees (BOT) at their November 4, 2009 meeting for consideration and approval.

Project Description:
Implement the plan approved by the NERC Board of Trustees (BOT) for improving the set of NERC reliability standards to be more focused on reliability performance. The plan is anticipated to be presented to the BOT during their November 4, 2009 meeting for consideration and approval.

Project 2012-01 Equipment Monitoring and Diagnostic Devices

Standards Involved:
New

Research Needed:
None

Brief Description:
This project was proposed Mr. R. W. Kenyon, J.D., P.E. during the 2008 revision of the Reliability Standards Development Plan.

The drafting team will propose Reliability Standard(s) covering the application of major equipment monitoring and diagnostic devices and procedures. As proposed by Mr. Kenyon, the Reliability Standard(s) will address dissolved gas and moisture sampling processes and the application on on-line monitoring devices to detect incipient faults within BES major components, such as EHV transformers. These processes and devices enable the equipment owner to detect evolving internal faults, allowing corrective action under controlled conditions. In some instances, early warning of evolving faults can permit field repair of the unit, avoiding a system fault and destruction of a major piece of equipment. In other circumstances, the warning obtained permits the equipment owner to monitor the situation and to schedule unit replacement in a deliberate, controlled manner. Again, occurrence of a major system fault and unscheduled loss of a major unit can be avoided. Obviously, such measures can contribute significantly to reliability of the Bulk Electric System.

Ideally, the proposed Reliability Standard(s) would make the application of this technology mandatory for classes of critical equipment, with EHV transformers and shunt reactors an obvious example. Similar diagnostic approaches could be taken on critical EHV and/or major generator Gas Insulated Switchgear. The general approach could follow PRC-005, where the owner must have a system, but particulars are left to the equipment owner. The proposed Reliability Standard(s) could extend to other equipment condition monitoring such as Doble testing.

In many instances, equipment owners already recognize the value of major equipment monitoring and have equipment and/or procedures in place addressing this technology. However, there is far less assurance that monitoring equipment is properly maintained, that scheduled routine sampling is being fully performed, and that full use is being made of data obtained. Again, as with the Protective Relay Standard PRC-005, the proposed Reliability Standard(s) would contribute to insuring that equipment owners have a program addressing this technology and are indeed following their program. In other instances, equipment owners without such equipment might be obligated to establish a monitoring program.

Project 2012-02 Physical Protection

Standards Involved:
New

Research Needed:
None

Project Description:
This project was proposed Mr. Wayne E. Guthrie during the 2009 revision of the Reliability Standards Development Plan.

The development of reliability standards for the physical protection of essential equipment, buildings and people located in power generation, transmission, or distribution system locations should be considered in on order to mitigate the associated reliability risks to the bulk power system. The ANSI NFPA 850 standard "Recommended Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations" provides a potential starting reference for such standards.

If further information or discussion is required, please contact:

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Attachment 1

Standard Authorization Request Form

Title of Proposed Standard	Protection Misoperations Revisions to PRC-003, PRC-004, PRC-012, and PRC-016
Request Date	June 10, 2009

SAR Requester Information		**SAR Type** (*Check a box for each one that applies.*)	
Name	System Protection and Control Subcommittee	☐	New Standard
Primary Contact	John Ciufo, Chairman	X	Revision to existing Standard
Telephone Fax	(416) 345-5258 (416) 345-5406	X	Withdrawal of existing Standard (PRC-016)
E-mail	john.ciufo@HydroOne.com	☐	Urgent Action

Purpose (Describe what the standard action will achieve in support of bulk power system reliability.)

A key element of bulk power system reliability is the performance of the Protection Systems. To properly gage Protection System performance, is necessary to have a consistent set of metrics on Protection System Misoperations. Current PRC standards and definitions related to Protection System Misoperations are confusing and do not support a good metric for measurement of Protection System performance.

Industry Need (Provide a justification for the development or revision of the standard, including an assessment of the reliability and market interface impacts of implementing or not implementing the standard action.)

Current PRC standards and definitions related to Protection System Misoperations are confusing and do not support a good metric for measurement of Protection System performance.

Brief Description (Provide a paragraph that describes the scope of this standard action.)

SPCS recommends creation of a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016.

Detailed Description (Provide a description of the proposed project with sufficient details for

the standard drafting team to execute the SAR.)

Standard PRC-003 is intended to ensure that all System Protection Misoperations are analyzed and mitigated according to guidelines established by the regions. The FERC, in Order 693, dated March 16, 2007, declared this standard as a "fill in the blank" type of standard that does not merit approval unless it is modified to make it more specific and consistent for all Regions. The SPCS concurs with the FERC order and provides recommendations on how the standard can be rewritten.

Because the procedures for analyzing and mitigating Misoperations were to be established by the regions, there is significant dissimilarity between the Misoperation data reported by each region, resulting in a virtually unusable misoperation metric for North America. SPCS recommends a change to the definition of Misoperation (Reportable Protection Misoperation) to provide uniformity to the misoperation data reported to the regions and NERC.

Protection System elements used for Special Protection Systems (SPS) or Remedial Action Schemes (RAS) are no different from those used for non Special Protection Systems. The revision to Standard PRC-003 should therefore apply to all Protection Systems, including SPS and RAS.

The SPCS also recommends that Standard PRC-016-0 – Special Protection System Misoperations, be requirements, merging its SPS/RAS Misoperation reporting, Corrective Action Plans, and tracking requirements into PRC-004 – Analysis and Mitigation of Transmission and Generation Protection System Misoperations.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and is coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should be modified to refer to that review process.

SPCS recommends creation of a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016.

See attached Technical Review document for additional details.

Reliability Functions

The Standard will Apply to the Following Functions *(Check box for each one that applies.)*		
☐	Reliability Coordinator	Responsible for the real-time operating reliability of its Reliability Coordinator Area in coordination with its neighboring Reliability Coordinator's wide area view.
☐	Balancing Authority	Integrates resource plans ahead of time, and maintains load-interchange-resource balance within a Balancing Authority Area and supports Interconnection frequency in real time.
☐	Interchange Authority	Ensures communication of interchange transactions for reliability evaluation purposes and coordinates implementation of valid and balanced interchange schedules between Balancing Authority Areas.
☐	Planning Coordinator	Assesses the longer-term reliability of its Planning Coordinator Area.
☐	Resource Planner	Develops a >one year plan for the resource adequacy of its specific loads within a Planning Coordinator area.
☐	Transmission Planner	Develops a >one year plan for the reliability of the interconnected Bulk Electric System within its portion of the Planning Coordinator area.
☐	Transmission Service Provider	Administers the transmission tariff and provides transmission services under applicable transmission service agreements (e.g., the pro forma tariff).
X	Transmission Owner	Owns and maintains transmission facilities.
☐	Transmission Operator	Ensures the real-time operating reliability of the transmission assets within a Transmission Operator Area.
X	Distribution Provider	Delivers electrical energy to the End-use customer.
X	Generator Owner	Owns and maintains generation facilities.
☐	Generator Operator	Operates generation unit(s) to provide real and reactive power.
☐	Purchasing-Selling Entity	Purchases or sells energy, capacity, and necessary reliability-related services as required.
☐	Market Operator	Interface point for reliability functions with commercial functions.
☐	Load-Serving Entity	Secures energy and transmission service (and reliability-related services) to serve the End-use Customer.

Reliability and Market Interface Principles

Applicable Reliability Principles *(Check box for all that apply.)*	
X	1. Interconnected bulk power systems shall be planned and operated in a coordinated manner to perform reliably under normal and abnormal conditions as defined in the NERC Standards.
☐	2. The frequency and voltage of interconnected bulk power systems shall be controlled within defined limits through the balancing of real and reactive power supply and demand.
☐	3. Information necessary for the planning and operation of interconnected bulk power systems shall be made available to those entities responsible for planning and operating the systems reliably.
☐	4. Plans for emergency operation and system restoration of interconnected bulk power systems shall be developed, coordinated, maintained and implemented.
☐	5. Facilities for communication, monitoring and control shall be provided, used and maintained for the reliability of interconnected bulk power systems.
☐	6. Personnel responsible for planning and operating interconnected bulk power systems shall be trained, qualified, and have the responsibility and authority to implement actions.
X	7. The security of the interconnected bulk power systems shall be assessed, monitored and maintained on a wide area basis.
☐	8. Bulk power systems shall be protected from malicious physical or cyber attacks.
Does the proposed Standard comply with all of the following Market Interface Principles? *(Select 'yes' or 'no' from the drop-down box.)*	
1. A reliability standard shall not give any market participant an unfair competitive advantage. Yes	
2. A reliability standard shall neither mandate nor prohibit any specific market structure. Yes	
3. A reliability standard shall not preclude market solutions to achieving compliance with that standard. Yes	
4. A reliability standard shall not require the public disclosure of commercially sensitive information. All market participants shall have equal opportunity to access commercially non-sensitive information that is required for compliance with reliability standards. Yes	

Related Standards

Standard No.	**Explanation**
PRC-003	Revise
PRC-004	Revise
PRC-012	Revise

PRC-016	Retire

Related SARs

SAR ID	Explanation

Regional Variances

Region	Explanation
ERCOT	
FRCC	
MRO	
NPCC	
SERC	
RFC	
SPP	
WECC	

NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

NERC SPCS Assessment of Standards:

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations
- PRC-016-1 — Special Protection System Misoperations

A Technical Review of Standards Prepared by the System Protection and Controls Subcommittee of the NERC Planning Committee

May 2009

to ensure the reliability of the bulk power system

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Table of Contents

This report was approved by the Planning Committee on June 10, 2009, for forwarding to the Standards Committee.

Introduction

When the original scope for the System Protection and Control Task Force (SPCTF, now the System Protection and Control Subcommittee – SPCS) was developed, one of the assigned items was to review all of the existing PRC-series of Reliability Standards, to advise the Planning Committee, and to develop Standards Authorization Requests, as appropriate, to address any perceived deficiencies.

This report presents the SPCS' assessment of three of the PRC standards pertaining to relay misoperations:

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations
- PRC-016-1 — Special Protection System Misoperations

This report serves as a precursor for a Standards Authorization Request (SAR) for modifications to PRC-003 that will be submitted by the SPCS.

Executive Summary

Standard PRC-003 is intended to ensure that all System Protection Misoperations are analyzed and mitigated according to guidelines established by the regions. The FERC, in Order 693, dated March 16, 2007, declared this standard as a "fill in the blank" type of standard that does not merit approval unless it is modified to make it more specific and consistent for all Regions. The SPCS concurs with the FERC order and provides recommendations on how the standard can be rewritten.

Because the procedures for analyzing and mitigating Misoperations were to be established by the regions, there is significant dissimilarity between the Misoperation data reported by each region, resulting in a virtually unusable misoperation metric for North America. SPCS recommends a change to the definition of Misoperation (Reportable Protection Misoperation) to provide uniformity to the misoperation data reported to the regions and NERC.

Protection System elements used for Special Protection Systems (SPS) or Remedial Action Schemes (RAS) are no different from those used for non Special Protection Systems. The revision to Standard PRC-003 should therefore apply to all Protection Systems, including SPS and RAS.

The SPCS also recommends that Standard PRC-016-0 — Special Protection System Misoperations, be requirements, merging its SPS/RAS Misoperation reporting, Corrective Action Plans, and tracking requirements into PRC-004 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and is coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should be modified to refer to that review process.

A Standards Authorization Request (SAR) will be submitted by the SPCS calling for a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016.

Assessment of PRC-003-1

PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems requires the regions to establish procedures for analysis of Misoperations. This has resulted in significant and substantive differences in regional procedures and this was noted in FERC's recommendation for "greater uniformity."

SPCS proposes updating the PRC-003-1 standard to be applicable to all regions based on following tenets:

1. **Applicability** — The existing standard says that the Protection Systems shall be reviewed but does not specify which systems apply to this standard.

   It is necessary for the new standard to define the protections systems to which the standard applies:

   - Transmission Protection Systems which trip:
     a. Transmission system elements 200-kV and above
     b. Operationally significant system elements 100-kV to 200-kV
     c. Transformers with 100-kV or higher on the low side
     d. GSU transformers with high side voltages of 100-kV or higher
   - Generation Protection Systems which trip:
     a. Transmission system elements 200-kV and above
     b. Operationally significant system elements 100-kV to 200-kV
     c. Transformers with 100-kV or higher on the low side
     d. GSU transformers with high side voltages of 100-kV or higher
     e. Generators connected through GSU transformers with high side voltages of 100-kV or higher
   - Protection Systems that trip aggregate generation of 75 MW or more (such as wind farms, geothermal, or solar) connected to the transmission system at 100-kV or higher.

2. **Definitions** — The NERC Glossary of Terms currently defines Misoperation as:

   Misoperation (current definition)

   - Any failure of a Protection System element to operate within the specified time when a fault or abnormal condition occurs within a zone of protection.
   - Any operation for a fault not within a zone of protection (other than operation as backup protection for a fault in an adjacent zone that is not cleared within a specified time for the protection for that zone).
   - Any unintentional Protection System operation when no fault or other abnormal condition has occurred unrelated to on-site maintenance and testing activity

   The existing definition does not address what are reportable and non-reportable misoperations. Reportable misoperations should be redefined in terms of both

dependability and security, as a function of the impact of the Protection Systems on the electric system performance. SPCS recommends the following definition:

Reportable Protection Misoperation (proposed definition)

Dependability (failure to operate):

- Failure of the composite Protection System to initiate the isolation of a faulted power system Element as designed or within its designed operating time.
- Failure of the composite Protection System to operate as intended for a non-fault condition, such as out-of-step, overload, etc., within its designed operating time.
- Failure of an SPS/RAS, UVLS system, or UFLS system to operate for an intended condition or within its designed operating time.

Security (false or undesirable operations):

- Improper operation of a Protection System in absence of a fault on the power system Element it is designed to protect.
- Improper operation of a Protection System during a fault on any other power system Element it is not designed to protect.
- Improper operation of an SPS/RAS, UVLS system, or UFLS system in absence of its designed trigger conditions.
- Over-response of an SPS/RAS, UVLS system, or UFLS system

Notes to the proposed definition:

A. The composite Protection System in the context of this standard is the total complement of protection for a system Element (line, bus, transformer, generator, etc). Primary and secondary protection of a given Element is considered as the composite Protection System, not two separate Protection Systems.

B. Delayed clearing, where a high-speed system is employed and is essential for transmission system performance, is considered a reportable misoperation of the high-speed system.

C. Lack of targeting of the high-speed system, such as when it is beat out by a high-speed zone, is not considered a reportable misoperation.

D. Multiple misoperations of a Protection System before it can be reasonably investigated and remedied should be considered as a single misoperation.

E. Failure to automatically reclose after a fault is not a reportable misoperation.

F. Human errors made in protection settings either as calculated or as installed, or wiring errors, which result in a misoperation are reportable.

G. Protection System operations related to on-site maintenance, testing, construction and or commissioning activities for that Protection System, when no fault or other abnormal condition has occurred, are not considered reportable Protection System misoperations.

H. Operations which are initiated by control systems (not by the Protection Systems), such as those associated with generator controls or turbine/boiler controls, SVCs,

FACTS, HVDC, circuit breaker mechanism, or insulation media, or other facility control systems, are not reportable Protection System misoperations.

I. *Protection System operations which occur with the protected element already out of service, that do not trip any in-service elements, are not reportable Protection System misoperations.*

3. **Reporting of Misoperations** — Because the current PRC-003 calls for regional procedures and reporting requirements, there is a wide variation in those requirements from region to region, making comparison of misoperations metrics at the NERC level virtually impossible. Since any assessment of the success or failure of the NERC protection-related standards to maintain or improve reliability depends on those metrics, it is important to provide for uniformity. The variations in definitions can be corrected by the adoption of the Reportable Protection Misoperation definition above. Uniform reporting can be addressed by following proposed reporting requirements:

   - Transmission Owner or Generation Owners that own Protection Systems shall submit a quarterly report of the total number of events , the number of Protection System misoperations, and the number of events still under analysis, in a prescribed format (to be part of the revised PRC-003 standard) no later than two calendar months after each quarter.
   - The regions shall, in turn, submit a quarterly report to NERC – consolidated data for the Region in a prescribed format (also part of the revised PRC-003 standard).
   - The regions shall provide any additional information on misoperations to NERC as requested.

4. **Peer Review of Misoperations —** Peer review of misoperations and tracking of mitigation plans is an important part of improving Protection System performance. Logically, that function should be done by the Regional Entities. However, since standards requirements cannot be placed on the Regional Entities, the following suggestions are made but the mechanics are left open.

   - The regions, through their appropriate committees or subcommittee, shall review the misoperation reports. This review should determine whether further analysis, data, or other documentation is required, and it will confirm that appropriate mitigation is defined and scheduled.
   - The regions should maintain records of the quarterly reports and confirm the implementation of any proposed mitigation plan.
   - The regions should track the mitigation of reported misoperations to avoid further occurrences.

Assessment of PRC-004 and PRC-016-0

NERC standards PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations, and PRC-016 – Special Protection System Misoperations both require that Protection System misoperations are analyzed and reported, and that corrective actions are taken where necessary. However, PRC-016 exclusively applies to special protection systems (SPS) also know as remedial action schemes (RAS). Since analysis and reporting of protection system misoperations is the same regardless of whether or not a SPS/RAS is involved; there is no need for a separate standard. Standard PRC-004-1 should be revised to include SPS/RAS, and PRC-016 should be retired.

SPS Corrective Action Plan Review

PRC-012-0 — Special Protection System Review Procedure is intended to provide a review procedure to ensure that all SPS/RAS are properly designed, meet performance requirements, and are coordinated with other Protection Systems.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and are coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should refer to that review process.

Proposed PRC-004-1 Revisions

SPCS recommends the following revisions to PRC-004-1 requirements to encompass those of PRC-016:

R1. The Transmission Owner and any Distribution Provider that owns a transmission Protection System or SPS shall each analyze its transmission Protection System or SPS Misoperations and shall develop and implement a Corrective Action Plan to avoid future Misoperations of a similar nature in accordance with Standard PRC-003 (revised).

R2. The Generator Owner shall analyze its generator Protection System or SPS Misoperations, and shall develop and implement a Corrective Action Plan to avoid future Misoperations of a similar nature in accordance with Standard PRC-003 (revised).

R3. The Transmission Owner, Generator Owner, and Distribution Provider that owns a transmission Protection System or an SPS shall provide documentation of the misoperation analyses and the Corrective Action Plans to its Regional Reliability Organization and NERC upon request (within 90 calendar days).

R4. All Corrective Action Plans for SPS shall be subject to SPS Review Procedures in accordance with Standard PRC-012.

Appendix A — System Protection and Control Subcommittee

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NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Reliability Standards Development Plan: 2009–2011

Volume III — Regional Reliability Standards Projects

to ensure the reliability of the bulk power system

August 28, 2009

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Introduction

NERC's Rules of Procedure Section 300 allows for a regional entity to develop regional reliability standards. A regional entity developing regional reliability standards must adhere to a NERC-approved regional reliability standards development procedure when developing its regional reliability standards. Each regional entity's regional standards development procedure is in Exhibit C of its regional delegation agreement with NERC.

NERC shall rebuttably presume that a regional reliability standard developed by a regional entity organized on an interconnection-wide basis in accordance with a regional reliability standards development process approved by NERC is just, reasonable, and not unduly discriminatory or preferential, and in the public interest, and consistent with such other applicable standards of governmental authorities. Regional reliability standards that are not proposed to be applied on an interconnection-wide basis are not presumed to be valid but may be demonstrated by the proponent to be valid. NERC's process for reviewing and approving proposed regional standards is delineated in its rules of procedure.

No regional reliability standard shall be effective within a region unless approved and filed by NERC with the Commission and the applicable authorities in Canada and Mexico and approved by such regulatory authorities. Regional reliability standards, when approved by FERC and the applicable authorities in Canada and Mexico, shall be made part of the body of NERC reliability standards and shall be enforced upon all applicable bulk-power system owners, operators, and users within the applicable regional entity's region, regardless of membership in the region.

Regional reliability standards shall provide for as much uniformity as possible with reliability standards across the interconnected bulk power system of the North American continent. A regional reliability standard shall be:

- more stringent than a continent-wide reliability standard, including regional standards that address matters that continent-wide reliability standards do not; or
- necessitated by a physical difference in the bulk power system.

This Volume III of NERC's Reliability Standards Development Plan identifies the standards anticipated to be developed by the individual regions over the next three years. With the exception of regional standards developed in support of continent-wide standards, the regional entities may independently initiate regional standards development and forward such standards to NERC for review and approval. NERC has identified 19 regional standards that are currently under development as listed in the index that follows this discussion. Additionally, four continent-wide standards projects identified in Volume II may require each regional entity to develop a companion regional standard. The NERC continent-wide projects that may require each regional entity to develop companion regional standards are:

- Project 2007-01 — Underfrequency Load Shedding
- Project 2007-05 — Balancing Authority Controls
- Project 2007-11 — Disturbance Monitoring
- Project 2008-04 — Protection Systems

NERC has identified a total of 51 proposed regional standards it expects to receive over the course of the timeframe contemplated by this work plan.

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Regional Projects Possibly Requiring Coordination with NERC Continent-wide Projects

In this section, four regional reliability standards development projects are described. These four regional projects are:

Project 2007-01-RE — Underfrequency Load Shedding
Project 2007-05-RE — Balancing Authority Controls
Project 2007-11-RE — Disturbance Monitoring
Project 2008-04-RE — Protection Systems

These projects are being coordinated with NERC's continent-wide standards projects as described in Volume II of this three-year development plan. In general, the standard drafting team of the NERC continent-wide project working with industry stakeholders shall propose which requirements should be continent-wide and which should be included in regional standards. Further, the timing of these regional projects is driven to large degree by the timeline of the corresponding continent-wide project.

Additional information is found in the individual projects that follow.

2007-01-RE — Underfrequency Load Shedding — Regional Standards Development

Standards Involved:
Eight regional reliability standards (one for each of the eight regions) identifying regional requirements in support of the following continent-wide standards:

- PRC-006 — Development and Documentation of Regional Reliability Organizations' Underfrequency Load Shedding Programs
- PRC-007 — Assuring Consistency with Regional UFLS Programs
- PRC-009 — UFLS Performance Following an Underfrequency Event

Research Needed:
None

Brief Description:
This is a continuation of the corresponding project in Volume II of this work plan. Depending on the findings and determinations of the NERC standard draft team for Project 2007-01 Underfrequency Load Shedding (NERC UFLS SDT), it is anticipated that each region may be required to develop a regional standard that supports the continent-wide standard(s) developed for underfrequency load shedding.

PRC-006 is one of the few reliability standards identified by the Regional Reliability Standards Working Group as a standard that has some requirements that may need to be defined by each regional entity in a regional standard.

The NERC UFLS SDT will work with stakeholders to review PRC-006 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the UFLS program documentation. The NERC UFLS SDT working with industry stakeholders shall propose which requirements should be continent-wide requirements and which requirements should be included in regional standards.

PRC-007 and PRC-009 have some 'fill-in-the-blank' characteristics, as identified in the Regional Reliability Standards Working Group work plan, which need to be removed. These standards shall be included with PRC-006 for consideration as one or more revised standards as necessary for consistency and clarity of overall program requirements and any other associated programs and/or requirements that affect or impact the UFLS program.

Standard Development Status:
See NERC Project 2007-01 UFLS

Milestone Timeline:
See NERC UFLS SDT schedule

Related Links:

NERC Regional Reliability Standards Under Development
Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool, Inc. (SPP)
Texas Regional Entity (Texas RE)
Western Electricity Coordinating Council (WECC)

2007-05-RE — Balancing Authority Controls — Regional Standards Development

Standards Involved:
Eight regional reliability standards (one for each of the eight regions) identifying regional requirements in support of the following continent-wide standard:

- BAL-002 — Disturbance Control Performance

Research Needed:
None

Brief Description:
This is a continuation of the corresponding project in Volume II of this work plan. Depending on the findings and determinations of the NERC standard draft team for Project 2007-05 Balancing Authority Controls (NERC BAC SDT), it is anticipated that each region may be required to develop a regional standard that supports the continent-wide standard(s) developed for disturbance control performance.

BAL-002 is one of the few reliability standards identified by the Regional Reliability Standards Working Group (RRSWG) as a standard that has some requirements that may need to be defined by each regional entity in a regional standard. In particular, its October 2006 report, the RRSWG suggested the following related to BAL-002:

- In the long-term, regional reliability standards should be developed in support of North American standard BAL-002.
- Each regional entity should create a regional standard specifying its Contingency Reserve policy.
- The continent-wide BAL-002 should be modified to:
  - address FERC's May 11 comments and
  - revise R2 to remove reference to "sub-Regional Reliability Organization or Reserve Sharing Group".

The NERC BAC SDT will work with stakeholders to review BAL-002 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the BAC program documentation. The NERC BAC SDT shall determine which requirements should be continent-wide requirements and which requirements should be included in regional standards.

Standards Development Status:
See NERC Project 2007-05 Balancing Authority Controls

Milestone Timeline:
See NERC BAC SDT schedule

Related Links:

NERC Regional Reliability Standards Under Development
Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool, Inc. (SPP)
Texas Regional Entity (Texas RE)
Western Electricity Coordinating Council (WECC)

2007-11-RE — Disturbance Monitoring — Regional Standards Development

Standards Involved:
Eight regional reliability standards (one for each of the eight regions) identifying regional requirements in support of the following continent-wide standard:

- PRC-002 — Define and Document Disturbance Monitoring Equipment Requirements

Research Needed:
None

Brief Description:
This is a continuation of the corresponding project in Volume II of this work plan. Depending on the findings and determinations of the NERC standard draft team for Project 2007-11 Disturbance Monitoring (NERC DM SDT), it is anticipated that each region may be required to develop a regional standard that supports the continent-wide standard(s) developed for disturbance monitoring.

PRC-002 is one of the few reliability standards identified by the Regional Reliability Standards Working Group (RRSWG) as a standard that has some requirements that may need to be defined by each regional entity in a regional standard. In particular, in its October 2006 report the RRSWG suggested the following related to PRC-002:

- In the long-term, this should be a Regional Reliability Standard.
- As written, it is a requirement for each RRO to develop a comprehensive set of requirements for DME and can be enforced that way.
- PRC-002 is directly related to PRC-018. PRC-018 requires the functional entities to comply with the requirements developed by each RRO. Any references to each other embedded in the requirements of the two standards need verified.
- Need regions to develop and submit regional standards.

The NERC DM SDT will work with stakeholders to review PRC-002 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the DM program documentation. The NERC DM SDT working with industry stakeholders shall propose which requirements should be continent-wide requirements and which requirements should be included in regional standards.

Standards Development Status:
See NERC Project 2007-11 Disturbance Monitoring.

Milestone Timeline:
See NERC DM SDT schedule.

Related Links:
NERC Regional Reliability Standards Under Development

Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool, Inc. (SPP)
Texas Regional Entity (Texas RE)
Western Electricity Coordinating Council (WECC)

2008-04-RE — Protection Systems — Regional Standards Development

Standards Involved:
Eight regional reliability standards (one for each of the eight regions) identifying regional requirements in support of the following continent-wide standard:

- PRC-012 — Special Protection System Review Procedure

Research Needed:
None

Brief Description:
This is a continuation of the corresponding project in Volume II of this work plan. Depending on the findings and determinations of the NERC standard draft team for Project 2008-04 Protection Systems (NERC PS SDT), it is anticipated that each region may be required to develop a regional standard that supports the continent-wide standard(s) developed for special protection systems/schemes.

PRC-012 is one of the few reliability standards identified by the Regional Reliability Standards Working Group (RRSWG) as a standard that has some requirements that may need to be defined by each regional entity in a regional standard.

The NERC PS SDT will work with stakeholders to review PRC-012 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the special protection system program documentation. The NERC PS SDT working with industry stakeholders shall propose which requirements should be continent-wide requirements and which requirements should be included in regional standards.

Standards Development Status:
This project has not yet started.

Milestone Timeline:
The timeline for this project has not yet been established.

Related Links:
NERC Regional Reliability Standards Under Development
Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool, Inc. (SPP)
Texas Regional Entity (Texas RE)
Western Electricity Coordinating Council (WECC)

Florida Reliability Coordinating Council (FRCC)
Regional Reliability Standards Development Projects

PRC-002-FRCC-01 — Definition of FRCC Regional Disturbance Monitoring and Reporting Requirements — FRCC

Standards Involved:
PRC-002-FRCC-01 — Definition of FRCC Regional Disturbance Monitoring and Reporting Requirements — FRCC

Research Needed:
None

Brief Description:
FRCC plans to convert the existing handbook document, "FRCC Requirements for Disturbance Monitoring Equipment", revision dated June, 2006 into a new regional reliability standard, that complies with the requirements of NERC Reliability Standard, PRC-002-1 — "Define Regional Disturbance Monitoring and Reporting Requirements".

Standards Development Status:
See FRCC Definition of FRCC Regional Disturbance Monitoring and Reporting Requirements

Related Links:
See Florida Reliability Coordinating Council (FRCC) Standards Under Development page.

PRC-003-FRCC-01 — Misoperation of Protection Systems — FRCC

Standards Involved:
PRC-003 — FRCC-01 — Analysis of Misoperations of Transmission and Generation Protection Systems — FRCC

Research Needed:
None

Brief Description:
FRCC plans to convert the existing handbook document, "FRCC Requirements for Analysis of Protection Mis-operations & Corrective Actions Reporting", revision dated October 2003 into a new regional reliability standard, that complies with the requirements of NERC Reliability Standard, PRC-003-1 — "Regional Procedure for Analysis of Mis-operations of Transmission and Generation Protection Systems".

Standards Development Status:
See FRCC Regional Procedure for Analysis of Mis-operations of Transmission and Generation Protection Systems.

Related Links:
See Florida Reliability Coordinating Council (FRCC) Standards Under Development page.

PRC-006-FRCC-01 — FRCC Automatic Underfrequency Load Shedding Program

Standards Involved:
PRC-006-FRCC-01 — FRCC Automatic Underfrequency Load Shedding Program

Research Needed:
None

Brief Description:
FRCC plans to develop a regional standard to provide last resort system preservation measures by implementing an Underfrequency Load Shedding (UFLS) program.

In accordance with NERC Reliability Standard, PRC-006-0, "Development and Documentation of Regional Reliability Organizations' Underfrequency Load Shedding Programs", the FRCC plans to develop, coordinate, and document an UFLS program. These procedures are to be provided to the Load Serving Entities within the Region that are affected by the procedures.

Standards Development Status:
See FRCC Automatic Underfrequency Load Shedding Program

Related Links:
See Florida Reliability Coordinating Council (FRCC) Standards Under Development page.

PRC-024-FRCC-01 — Generator Performance During Frequency and Voltage Excursions — FRCC

Standards Involved:
PRC-024 — FRCC-01 — Generator Performance during Frequency and Voltage Excursions — FRCC

Research Needed:
None

Brief Description:
FRCC is developing a standard to establish “ride through” requirements for generators in the FRCC Region with respect to temporary grid voltage or frequency deviations from their normal range.

Standards Development Status:
See FRCC Regional Generator Performance During Frequency and Voltage Excursions.

Related Links:
See Florida Reliability Coordinating Council (FRCC) Standards Under Development page.

Midwest Reliability Organization (MRO) Regional Reliability Standards Development Projects

TPL-503-MRO-01 — System Performance Requirement — MRO

Standards Involved:
TPL-503-MRO-01 — System Performance Requirement — MRO

Research Needed:
None

Brief Description:
The MRO is developing a regional standard to ensure adequate interconnected transmission system performance in the MRO.

Standards Development Status:
See MRO System Performance Requirement.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

TPL-504-MRO-01 — Sub synchronous Resonance Requirement — MRO

Standards Involved:
TPL-504-MRO-01 — Subsynchronous Resonance Requirement — MRO

Research Needed:
None

Brief Description:
The MRO is developing a regional standard to ensure subsynchronous resonance with series compensated lines, torsional interaction with power system controls and generator shaft damage or excessive torsional fatigue due to network switching does not occur in the Midwest Reliability Organization ("MRO").

Standards Development Status:
See MRO Subsynchronous Resonance Requirement.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

PRC-502-MRO-01 — Power System Stabilizer Requirement — MRO

Standards Involved:
PRC-502-MRO-01 — Power System Stabilizer Requirement — MRO

Research Needed:
None

Brief Description:
The MRO is developing a regional standard to ensure that power system stabilizers are designed, installed and tuned as required to dampen power system oscillations in the Midwest Reliability Organization ("MRO"). To ensure small signal stability assessments are performed. To ensure testing programs are developed and poorly damped oscillations are analyzed and corrected.

Standards Development Status:
See MRO Power System Stabilizer Requirement.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

RES-501-MRO-01 — Generation Planning Reserve Requirements — MRO

Standards Involved:
RES-501-MRO-01 — Generation Planning Reserve Requirements — MRO

Research Needed:
None

Brief Description:
The MRO is developing a regional standard to establish common criteria by which to assess Resource Adequacy in the MRO for the short term and long term planning horizon.

Standards Development Status:
See MRO Generation Planning Reserve Requirements.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

PRC-006-MRO-01 — Development and Documentation of Regional UFLS Programs — MRO

Standards Involved:
PRC-006-MRO-01 — Development and Documentation of Regional UFLS Programs — MRO

Research Needed:
None

Brief Description:
The MRO will develop a regional reliability standard (Standard) with requirements for automatic Underfrequency Load Shedding (UFLS) programs. The regional Standards will require that UFLS programs arrest declining frequency and assist recovery of frequency following a frequency excursion. This standard will address the UFLS Regional Reliability Standard Characteristics developed by the NERC UFLS standard draft team.

Standards Development Status:
See MRO Development and Documentation of Regional UFLS Programs.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

BAL-002-MRO-01 — Disturbance Control Performance — MRO

Standards Involved:
BAL-002-MRO-01 — Disturbance Control Performance — MRO

Research Needed:
None

Brief Description:
The MRO will update the current regional standard that supports the continent-wide standard(s) developed for disturbance control performance. The regional Standards will specify regional Contingency Reserve policy.

Standards Development Status:
See MRO Disturbance Control Performance.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

PRC-012-MRO-01 — Special Protection System Review Procedure — MRO

Standards Involved:
PRC-012-MRO-01 — Special Protection System Review Procedure — MRO

Research Needed:
None

Brief Description:
The MRO will develop the requirements for the design, performance, coordination, maintenance and testing of Special Protection Systems; to ensure misoperations are properly analyzed and corrected. The MRO will develop the technical criteria required to support its implementation.

Standards Development Status:
See MRO Special Protection System Review Procedure.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

PRC-018-MRO-01 — Disturbance Monitoring — MRO

Standards Involved:
PRC-018-MRO-01 — Disturbance Monitoring — MRO

Research Needed:
None

Brief Description:
The MRO will develop requirements for recording and reporting sequence of events (SOE) data, fault recording (FR) data, and dynamic disturbance recording (DDR) data to facilitate analysis of Disturbances including:

- how to determine / select a preferred location of this equipment,
- installation and equipment minimum technical requirements,
- data communication requirements,

Standards Development Status:
See MRO Disturbance Monitoring.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

Northeast Power Coordinating Council (NPCC) Regional Reliability Standards Development Projects

At this time, NPCC will be developing at least four regional standards projects as required to support reliability objectives and as may be required to support their associated continent-wide NERC reliability standards identified in the first part of this volume. NPCC will develop the initial four regional standards in conjunction with, and as set forth by the schedules associated with the continent-wide standards, or schedules set forth by FERC, or our members.

In conjunction with this effort, a project is underway to translate the NPCC Criteria into "Directories" to demonstrate consistency with the NERC Reliability Standards. These Directories will utilize the applicable NERC Functional Model language, contain reference to related NERC standards, clearly identify applicability and utilize NERC glossary terms and when no term is available, use NPCC defined terms. These Directories are updated and submitted to NERC periodically to satisfy the NERC requirement as outlined in the Rules of Procedure to maintain a catalog of regional criteria. The Directories may be viewed on the "Regional Documents" section of the NPCC website or accessed through a link on the NERC website.

BES-501-NPCC-01 — Classification of Bulk Power Systems Elements — NPCC

Standards Involved:
BES-501-NPCC-01 — Classification of Bulk Power System Elements — NPCC

Research Needed:
None

Brief Description:
NPCC has begun the development of a standard that outlines the methodology of how the BPS in the NPCC region is determined through analytical studies. The Standard will be based on the NPCC A-10 Classification of Bulk Power System Elements, criteria.

Standards Development Status:
The NPCC Regional Standards Committee has approved the Regional Standards Authorization Request, RSAR, drafting will begin shortly and in accordance with NPCC's, FERC filed and approved Regional Standards Development Procedure.

Related Links:
See Northeast Power Coordinating Council's NPCC "Standards Under Development" page.

PRC-006-NPCC-01 — Underfrequency Load Shedding Program — NPCC

Standards Involved:
PRC-006-NPCC-01 — Underfrequency Load Shedding Program — NPCC

Research Needed:
None

Brief Description:
This Standard will provide the detailed requirements and measures to automatically provide system preservation by implementing an automatic underfrequency load shedding program to respond to system underfrequency events. The Standard will also emphasize the need for coordination amongst the NPCC region's members, and those areas outside the NPCC footprint, and provide direction for refinements of underfrequency systems already in place. The standard will address issues that smaller entities may have due to reduced amounts of distribution feeders.

The Standard will ensure that all requirements will be identified to ensure compliance with relevant NERC standards.

The NPCC regional UFLS standard shall apply to Balancing Authority Areas "BA Areas" that are both synchronous and asynchronous to the eastern interconnection. BA Areas that are asynchronous (e.g. Quebec) will develop UFLS parameters with a different technical basis and requirements.

Standards Development Status:
The NPCC Regional Standards Committee has approved the Regional Standards Authorization Request, RSAR, drafting has begun and an open process posting for comments has been completed and in accordance with NPCC's, FERC filed and approved Regional Standards Development Procedure. NPCC is targeting member approvals by December 2009 with submission to NERC and FERC targeted for 2010.

Related Links:
See Northeast Power Coordinating Council's NPCC "Standards Under Development" page.

PRC-012-NPCC-01 — Special Protection Systems — NPCC

Standards Involved:
PRC-012-NPCC-01 — Special Protection Systems — NPCC

Research Needed:
None

Brief Description:
The proposed Standard will describe the requirements for the design of Special Protection Systems, and the technical criteria required to support its implementation. The Standard will also identify the need for close coordination among various parties to ensure that the Special Protection Systems are implemented correctly, and triggers and resulting actions are made known and communicated in an on-line database.

Standards Development Status:
The NPCC Regional Standards Committee has approved the Regional Standards Authorization Request, RSAR, drafting will begin shortly in accordance with NPCC's, FERC filed and approved Regional Standards Development Procedure. NPCC is targeting member approval the standard by December 2010 and submission to NERC and FERC is targeted for 2011.

Related Links:
See Northeast Power Coordinating Council's NPCC "Standards Under Development" page.

PRC-002-NPCC-01 — Disturbance Monitoring — NPCC

Standards Involved:
PRC-002-NPCC-01 — Disturbance Monitoring— NPCC

Research Needed:
None

Brief Description:
The Standard will establish the technical requirements for disturbance monitoring equipment, including:

- system operating parameters that are to be measured and recorded,
- how to determine/select a preferred location of this equipment,
- installation and equipment minimum technical requirements,
- data communication requirements,
- analysis tools.

Criteria for facility owner requirements for reporting disturbance data will also be defined.

Standards Development Status:
The NPCC Regional Standards Committee has approved the Regional Standards Authorization Request, RSAR, drafting has begun and an open process posting for comment has been completed in accordance with NPCC's, FERC filed and approved Regional Standards Development Procedure. NPCC is targeting member approval for this standard by December 2009 with submission to NERC and FERC targeted for 2010.

Related Links:
See Northeast Power Coordinating Council's NPCC "Standards Under Development" page.

ReliabilityFirst Corporation (RFC) Regional Reliability Standards Development Projects

MOD-024-RFC-01 — Generator Real (MW) Power Capability — RFC

Standards Involved:
MOD-024-RFC-01 — Verification of Generator Real (MW) Power Capability — RFC

Research Needed:
None

Brief Description:
RFC plans to develop a regional standard to ensure accurate information on generator gross and net Real (MWs) Power capability is available for steady-state models used to assess Bulk Electric System reliability.

Standards Development Status:
See RFC Verification and Data Reporting of Generator Gross and Net Real Power Capability project.

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page.

MOD-025-RFC-01 — Generator Reactive (MVAR) Power Capability — RFC

Standards Involved:
MOD-025-RFC-01 — Verification of Generator Reactive (MVAr) Power Capability — RFC

Research Needed:
None

Brief Description:
RFC plans to develop a regional standard to ensure accurate information on generator gross and net Reactive (MVAR) Power capability is available for steady-state models used to assess Bulk Electric System reliability.

Standards Development Status:
See RFC Verification and Data Reporting of Generator Gross and Net Reactive Power Capability project

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page.

BAL-502-RFC-02 — Resource Planning Reserve Requirement Standard — RFC

Standards Involved:
BAL-502-RFC-02 — Resource Planning Reserve Requirement Standard — RFC

Research Needed:
None

Brief Description:
RFC is developing a regional standard to establish requirements for a minimum level of resource adequacy to reliably serve all load in the ReliabilityFirst (RFC) corporate region.

Standards Development Status:
See RFC Planning Resource Adequacy Analysis, Assessment and Documentation.

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page.

PRC-006-RFC-01 — Automatic Underfrequency Load Shedding Requirements — RFC

Standards Involved:
PRC-006-RFC-01 — Automatic Underfrequency Load Shedding Requirements — RFC

Research Needed:
None

Brief Description:
RFC is developing a regional standard to establish requirements for automatic underfrequency load shedding (UFLS) to support NERC Reliability Standard PRC-006.

Standards Development Status:
See RFC Automatic Underfrequency Load Shedding Requirements.

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page

PRC-002-RFC-01 — Disturbance Monitoring and Reporting Requirements — RFC

Standards Involved:
PRC-002-RFC-01 — Disturbance Monitoring and Reporting Requirements — RFC

Research Needed:
None

Brief Description:
RFC is developing a regional standard to establish requirements establish requirements for Disturbance monitoring and reporting to support NERC Reliability Standard PRC-002.

Standards Development Status:
See RFC Disturbance Monitoring and Reporting Requirements

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page

PRC-012-RFC-01 — Special Protection System Requirements — RFC

Standards Involved:
PRC-012-RFC-01 — Special Protection System Requirements — RFC

Research Needed:
None

Brief Description:
RFC is developing a regional standard to establish requirements for the review, development and application of Special Protection Systems (SPS) in one RFC standard allowing the retirement of the associated legacy documents. The standard will ultimately be mandated by NERC in support of NERC PRC-012-1 as related to a review process as well as a unique RFC application criterion.

Standards Development Status:
See RFC Special Protection System Requirements Standard.

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page

SERC Reliability Corporation (SERC) Regional Reliability Standards Development Projects

SERC has no additional regional standards planned at this time beyond the four regional standards projects required to support their associated continent-wide NERC reliability standards identified in first part of this volume. SERC will develop these four regional standards in conjunction with, and as set forth by the schedules associated with, the continent-wide standards.

PRC-006-SERC-01 — Underfrequency Load Shedding Program — SERC

Standards Involved:
PRC-006-SERC-01 — Underfrequency Load Shedding Program — SERC

Research Needed:
None

Brief Description:
This standard will provide the measures to automatically provide system preservation by implementing an automatic underfrequency load shedding (UFLS) program to respond to system underfrequency events. The standard will also emphasize the need for coordination amongst the entities within the SERC footprint, and with those areas outside the SERC footprint. The standard requirements will ensure compliance with the NERC PRC-006-1 continent-wide standard, and other relevant NERC standards.

Standards Development Status:
The SERC Standards Committee accepted the SAR to develop a SERC UFLS Regional Reliability Standard on February 27, 2008 and assigned to the SERC Engineering Committee (EC). It was approved by the EC Executive Committee on April 25, 2008 and a standard draft team (or Responsible SERC Subgroup—RSS) was appointed on June 19, 2008. The first draft of the standard was posted for comments on September 19, 2008; second draft posted for comments on November 21, 2008; and the third draft was posted for information on February 9, 2009. Currently in Step 6 (*Drafting of a SERC Regional Reliability Standard*) of the 13 steps SERC Regional Standards Development Procedure. Plans are to update the third draft to make it consistent with the NERC continent-wide standard, post it for one more comment period, and take the final draft to ballot in the fourth quarter of 2009.

Related Links:
See the SERC Reliability Corporation Standards page

Southwest Power Pool, Inc. (SPP) Regional Reliability Standards Development Projects

PRC-300-SPP-01 — Automatic Underfrequency Load Shedding Program — SPP

Standards Involved:
PRC-300-SPP-01 — Automatic Underfrequency Load Shedding Program — SPP

Research Needed:
None

Brief Description:
The SPP Standard Drafting Team is in a process developing first draft of SPP regional standard for Underfrequency Load Shedding Program. The regional Standards will require that UFLS programs arrest declining frequency and assist recovery of frequency following a frequency excursion. This standard will consider the UFLS Regional Reliability Standard Characteristics developed by the NERC UFLS standard draft team.

Standards Development Status:
See SPP Standard Development Page

Related Links:
See Southwest Power Pool's (SPP) Standards Under Development page

Texas Regional Entity (Texas RE) Regional Reliability Standards Development Projects

BAL-001-TRE-01 — Regional Variance for CPS2 — Texas RE

Standards Involved:
BAL-001-TRE-01 Regional Variance for CPS2 — Texas RE

Research Needed:
None

Brief Description:
A Texas RE standard drafting team is drafting a regional variance to R2 of BAL-001-0 that still meets the purpose of the standard: Maintain Interconnection steady-state frequency within defined limits by balancing real power demand and supply in real-time. ERCOT currently has a NERC waiver for the CPS2 method (11/21/02) described in R2. This regional variance will provide what ERCOT employs instead of CPS2 to achieve the overall purpose of the BAL standard.

This variance will be the modification that was ordered by FERC in Order 693: As with other new regional differences, the commission expects that the ERCOT regional difference will include Requirements, Measures, and Levels of Non-Compliance sections. This regional variance will incorporate Section 5.9 of the ERCOT Protocols (and the applicable Nodal Protocol) to accomplish this objective. This variance as currently drafted will apply to the Balancing Authority that is ERCOT , GOs and GOPs.

Standards Development Status:
See Texas Regional Entity (Texas RE) Reliability Standards Tracking Status

Related Links:
SAR-003 Standard Drafting Team: Modification to ERCOT Waiver to R2 of BAL-001-0 CPS2

PRC-006-TRE-01 — Development and Documentation of Regional UFLS Program — Texas RE

Standards Involved:
PRC-006-TRE-01 — Development and Documentation of Regional UFLS Program — Texas RE

Research Needed:
None

Brief Description:
A Texas RE standard drafting team is currently following, reviewing, and commenting upon the characteristics of the NERC UFLS continent-wide standard that is under development (Project 2007-01). Depending on the specific characteristics and requirements of the continent-wide standard, and if necessary, the team will develop a regional reliability standard with requirements for automatic UFLS programs that will require that UFLS programs arrest declining frequency and assist recovery of frequency following a frequency excursion.

Standards Development Status:
See Texas Regional Entity (Texas RE) Reliability Standards Tracking Status

Related Links:
SAR-002 Standard Drafting Team: Development and Documentation of Regional UFLS Programs

Western Electricity Coordinating Council (WECC) Regional Reliability Standards Development Projects

(Note: WECC is currently undergoing an extensive study of what regional standards need to be developed. The study should be completed by the end of 2007 at which time WECC may add to the list of WECC regional reliability standards to be developed.)

TOP-007-WECC-1 — Operating Transfer Capability — WECC

Standards Involved:
TOP-007-WECC-1 — Operating Transfer Capability — WECC

Research Needed:
None

Brief Description:
The purpose of this standard is to create a permanent replacement standard for TOP-STD-007-0. TOP-007-WECC-1 is designed to implement the directives of FERC and recommendations of NERC when TOP-STD-007-0 was approved as a NERC reliability standard.

This draft standard incorporates the following refinements to the first draft of TOP-007-WECC-1 in response to comments received during the first comment period that ended November 5, 2007 and the second comment period that ended January 2, 2008.

1. Refine R1 to remove the requirement to return a path to within its limit in 20 minute for SOLs based upon Transient Stability and Voltage Stability.
2. Refine R2 to limit the compliance period for the Net Scheduled Interchange to the real-time schedules for the next hour.
3. Refine R2 to permit 30 minutes to adjust Net Scheduled Interchange when SOLs reduce within 20 minutes of the start of the hour.
4. Change M2 based upon the refinements to R2.
5. Base the violation severity levels for R2 upon magnitude.

This version of the TOP-007-WECC-1 standard is for NERC Board of Trustee ballot. The WECC Board of Directors approved the standard April 16, 2008. WECC Operating Committee approved the standard March 6, 2008. The WECC Board of Directors and Operating Committee request that the NERC Board of Trustees approve the TOP-007-WECC-1 Standard as a permanent replacement standard for TOP-STD-007-0 and that the NERC Board of Trustees submits the standard to FERC for approval and replacement of TOP-STD-007-0.

Justification for a Regional Standard
The NERC standard (TOP-STD-007-0) has requirements for reducing actual flows to within System Operating Limits (SOL) on Major WECC Transfer Paths in the Bulk Electric System. The major paths listed in the Table titled “Major WECC Transfer Paths in the Bulk Electric System” are significant components for reliable delivery of power in the Western Interconnection. System Operating Limits for these paths are critical because they transfer energy from remotely located generation to population/load centers. The entities of the Western Interconnection through studies and operation see the need for optimizing the capacity of these paths. The lack of redundant transmission in these corridors raises the level of scrutiny for these paths; therefore, this standard is designed to add emphasis to reducing flows to within SOL to maintain reliable Western Interconnection operation.

NERC TOP-007-0 (R2) requires the Transmission Operator to return its transmission path flows to within Interconnection Reliability Operating Limits (IROL) as soon as possible, but no longer than 30 minutes following a contingency or event. This requirement applies only to those limits that are defined as IROL. Depending on the current system conditions, the limits for the paths identified in this TOP-007-WECC-1 standard are SOL that would not result in cascading outages. There is no NERC requirement to return the transmission system to within SOL limits, only a requirement to report to the Reliability Coordinator. TOP-007-WECC-1 specifically applies to the major paths in the Western Interconnection regardless of whether the limit is defined as an IROL or the less severe SOL.

In Order No. 693 and Docket No. RR07-11-000, the FERC expressed concern that TOP-007-0 could be interpreted as allowing a system operator to respect IROLs in one of two ways: (1) allowing IROL to be exceeded during normal operations, *i.e.*, prior to a contingency, provided that corrective actions are taken within 30 minutes; or (2) allowing IROL to be exceeded only after a contingency and subsequently returning the system to a secure condition as soon as possible, but no longer than 30 minutes. FERC explained that the system could be one contingency away from potential cascading failure if operated under the first interpretation and two contingencies away from cascading failure under the second interpretation. FERC directed NERC to conduct a survey on IROL practices and actual operating experiences of managing within IROL. The survey results will provide guidance on the frequency, duration, and magnitude of IROL violations and whether these IROL violations occur during normal or contingency conditions.

WECC and NERC responded to FERC's June 8, 2007 Order (Docket No. RR007-11-000) in its compliance filing of July 9, 2007. The compliance filing document is posted with this standard for reference. On November 2, 2007, FERC accepted NERC's and WECC's filing and indicated that the filling satisfactorily responds to the Commission's directive, *Order Approving Regional Reliability Standards for the Western Interconnection and Directing Modifications*, 119 FERC ¶ 61,260 (2007) at P 108.

Standards Development Status:

See WECC Development Status page

Related Links:

See WECC Approved Standards page

PRC-STD-001-1 — Certification of Protective Relay — WECC

Standards Involved:
PRC-STD-001-1 — Certification of Protective Relay — WECC

Research Needed:
None

Brief Description:
The PRC-STD-001 standard will be retired.

Standards Development Status:

Related Links:

PRC-004-WECC-1 — Protective Relay and RAS Misoperation — WECC

Standards Involved:
PRC-004-WECC-1 — Protective Relay and RAS Misoperation — WECC

Research Needed:
None

Brief Description:
The purpose of this standard is to create a permanent replacement standard for PRC-STD-001-1 and PRC-STD-003-1. PRC-004-WECC-1 is designed to implement the directives of FERC and recommendations of NERC when PRC-STD-001-1 and PRC-STD-003-1 were approved as NERC reliability standards. The new standard addresses the following areas:

1. Requirements for investigating operations to check for Misoperations.
2. Mitigation requirements after security-based Misoperations for redundant or non-redundant Protection Systems or Remedial Action Schemes.
3. Mitigation requirements after dependability-based Misoperations that do not adversely affect the reliability of the Bulk Electric System.

Several significant changes were made to PRC-STD-001 and PRC-STD-003 and they are itemized here:

1. PRC-STD-003 was renumbered to PRC-004-WECC-1. This makes both the PRC-004 and the Regional PRC-004-WECC-1 standards applicable to similar entities. PRC-003 is applicable to the RRO.
2. Standard PRC-STD-001 will be retracted because the requirements are covered by other standards per description below:
    a. PRC-STD-001 requirements B-WR1-a,b,c are covered under PRC-001
    b. PRC-STD-001 requirement B-WR1-d is covered in this standard PRC-004-WECC-1
    c. PRC-STD-001 requirement B-WR1-e is covered under TOP-005-1

The WECC Operating Committee approved the PRC-004-WECC-1 standard as a permanent replacement standard for PRC-STD-001-1 and PRC-STD-003-1 on March 6, 2008. The WECC Board of Directors approved this standard April 16, 2008. The WECC Board of Directors recommends that the NERC Board of Trustees approve the PRC-004-WECC-1 as a permanent replacement standard for PRC-STD-001-1 and PRC-STD-003-1. In addition, the WECC Board of Directors recommends that the NERC Board of Trustees submits the standard to FERC for approval.

Justification for a Regional Standard
The NERC standard PRC-003-1 has requirements for Regional Reliability Organizations to establish procedures for review, analysis, reporting, and mitigation of transmission and generation Protection System Misoperations but does not address the owners of the transmission and generation facilities. The NERC standard PRC-004-1 has requirements for Protection

System Misoperations but does not provide for the additional requirements as listed in PRC-004-WECC-1. The WECC Transmission Paths listed in the table titled "Major WECC Transfer Paths in the Bulk Electric System" and WECC RAS listed in table titled "Major WECC Remedial Action Schemes (RAS)" of PRC-004-WECC-1 are significant components for reliable delivery of power in the Western Interconnection. Protection System Misoperations and failures can cause reductions to the System Operating Limits (SOL) for those paths, and thus limit transfers between remotely located generation in the Western Interconnection and population/load centers. WECC identified the need for the timely mitigation of relaying problems and implemented such actions under the Reliability Management System (RMS). PRC-004-WECC-1 incorporates the RMS criteria and provides:

1. More robust requirements for review and analysis of all operations of those elements by operating and system protection personnel, and
2. Timely actions that must be taken to ensure that Misoperations of those elements are not repeated.

This standard is designed to minimize the SOL reductions required to maintain reliable Western Interconnection operation.

Standards Development Status:

See WECC Standards Development page

Related Links:

See WECC Approved Standards page

IRO-006-WECC-1 — Unscheduled Flow — WECC

Standards Involved:
IRO-006-WECC-1 — Unscheduled Flow — WECC

Research Needed:
None

Brief Description:
The WECC Regional Standards Task Force (RSTF) has identified the Qualified Path Unscheduled Flow (USF) Relief Criterion included in Reliability Management System (RMS) Reliability Criteria Agreement as a criterion that the RSTF desires to translate to the newly approved WECC Standards format for submittal to the ERO for approval for mandatory compliance. All requirements and compliance elements associated with the Qualified Path Unscheduled Flow Relief requirements are already identified in the existing RMS Agreement, so development of these components is not necessary. This is a translation effort to put the requirements in the approved format and seek WECC approval for submittal to the ERO for mandatory enforcement.

The purpose of this standard is to create a permanent replacement standard for IRO-STD-006-0 that implements key requirements from WECC's Unscheduled Flow Mitigation Plan (UFMP). The standard called IRO-006-WECC-1 is designed to implement the FERC directives and NERC recommendations when IRO-STD-006-0 was approved as a NERC reliability standard. In the UFMP the Qualified Path Unscheduled Flow Relief responsibilities do not conform to the current NERC functional model. This RMS Criterion and currently-approved standard assigns Load Serving Entities (LSEs) the responsibility of curtailing schedules to reduce unscheduled flow, a reliability function that the NERC functional model now assigns to Reliability Coordinators and Balancing Authorities. The existing RMS and IRO-STD-006 standards place the sole responsibility for providing relief upon the LSE without providing the ability for the LSE to ensure compliance (e.g. the Balancing Authority does not have to approve a curtailment request made by the LSE).

In the proposed IRO-006-WECC-1 standard, responsibility for initiating schedule curtailment is assigned to the Reliability Coordinators, and the responsibility for implementing the curtailments is assigned to Balancing Authorities. The proposed standard should improve the efficiency of the program including improved compliance, more certain Unscheduled Flow relief, and fewer complications associated with multiple entities taking partial responsibility for curtailment activity.

Standards Development Status:
See WECC Standards Development page

Related Links:
See WECC Approved Standards page

FAC-501-WECC-1 — Transmission Maintenance — WECC

Standards Involved:
FAC-501-WECC-1 — Transmission Maintenance — WECC

Research Needed:
None

Brief Description:
The purpose of this standard is to create a permanent replacement standard for PRC-STD-005-1. In response to comments, the drafting team changed the name of the standard from PRC-005-WECC-1 to FAC-501-WECC-1 to better align with the NERC numbering system. FAC-501-WECC-1 is designed to implement the directives of FERC and recommendations of NERC when PRC-STD-005-1 was approved as a NERC reliability standard. This version of the FAC-501-WECC-1standard is for NERC Board of Trustee ballot. The WECC Board of Directors approved the standard April 16, 2008. WECC Operating Committee approved the standard March 6, 2008. The WECC Board of Directors and Operating Committee request that the NERC Board of Trustees approve the FAC-501-WECC-1 Standard as a permanent replacement standard for PRC-STD-005-1 and that the NERC Board of Trustees submits the standard to FERC for approval and replacement of PRC-STD-005-1.

Standards Development Status:
See WECC Standards Development page

Related Links:
See WECC Approved Standards page

VAR-002-WECC-1 — Automatic Voltage Regulators — WECC

Standards Involved:
VAR-002-WECC-1 — Automatic Voltage Regulators — WECC

Research Needed:
None

Brief Description:
The purpose of this standard is to create a permanent replacement standard for VAR-STD-002a-1. VAR-002-WECC-1 is designed to implement the directives of FERC and recommendations of NERC when VAR-STD-002a-1 was approved as a NERC reliability standard.

In the Western Interconnection, System Operating Limits for transmission paths in the Bulk Electric System assume that Automatic Voltage Regulators are in service to control voltage to support the transfer capability. The requirements in VAR-002-WECC-1 are to ensure that the generator provides the proper voltage support when generation and transmission outages occur.

This version of the VAR-002-WECC-1 standard is for NERC Board of Trustee ballot. The WECC Board of Directors approved the standard April 16, 2008. WECC Operating Committee approved the standard March 6, 2008. The WECC Board of Directors and Operating Committee request that the NERC Board of Trustees approve the VAR-002-WECC-1 Standard as a permanent replacement standard for VAR-STD-002a-1 and that the NERC Board of Trustees submits the standard to FERC for approval and replacement of VAR-STD-002a-1.

VAR-002-WECC-1 is more stringent than a continent wide standard.

Standards Development Status:
See WECC Standards Development page

Related Links:
See WECC Approved Standards page

VAR-501-WECC-1 — Power System Stabilizers — WECC

Standards Involved:
VAR-501-WECC-1 — Power System Stabilizers — WECC

Research Needed:
None

Brief Description:
The WECC Regional Standards Task Force (RSTF) has identified the Power System Stabilizers (PSS) Criterion included in Reliability Management System (RMS) Reliability Criteria Agreement as a criterion that the RSTF desires to translate to the newly approved WECC Standards format for submittal to the ERO for approval for mandatory compliance. All requirements and compliance elements associated with the PSS requirements are already identified in the existing RMS Agreement, so development of these components is not necessary. This is a translation effort to put the requirements in the approved format and seek WECC approval for submittal to the ERO for mandatory enforcement.

The purpose of this standard is to create a permanent replacement standard for VAR-STD-002b-1. VAR-501-WECC-1 is designed to implement the directives of FERC and recommendations of NERC when VAR-STD-002b-1 was approved as a NERC reliability standard. NERC Standard VAR-002-1 only requires that Transmission operators know the status of Power System Stabilizers (PSS). WECC's proposed VAR-501-WECC-1 standard requires that PSS to be in service 98% of all operating hours for synchronous generators, unless very specific with restrictive repair and operational conditions exist. The permanent replacement standard VAR-STD-002b-1 addresses requirements for which there is no similar NERC Standard.

Standards Development Status:

Related Links:
See WECC Approved Standards page

BAL-004-WECC-01 — Automatic Time Error Correction Standard — WECC

Standards Involved:
BAL-004-WECC-01 — Automatic Time Error Correction Standard — WECC

Research Needed:
None

Brief Description:
WECC is developing a regional standard to maintain Interconnection frequency within a predefined frequency profile under all conditions (i.e. normal and abnormal), and to ensure that Time Error Corrections are effectively conducted in a manner that does not adversely affect the reliability of the Interconnection.

The Automatic Time Error Correction standard is designed to:

1. Ensure that Automatic Time Error Correction is an enforceable mandatory standard in the Western Interconnection
2. Ensure participation from all Balancing Authorities in the Western Interconnection
3. Ensure continuous and equitable payback of accumulated Inadvertent Interchange between Balancing Authorities in the Western Interconnection
4. Ensure continuous reduction in time error correction

Submitted to FERC for approval.

Standards Development Status:

Related Links:
See WECC Approved Standards page

BAL-002-WECC-1 — Contingency Reserves — WECC

Standards Involved:
BAL-002-WECC-01 Contingency Reserves Standard — WECC

Research Needed:
None

Brief Description:
The purpose of this standard is to create a permanent replacement standard for BAL-STD-002-0. BAL-002-WECC-1 is designed to implement the directives of FERC and recommendations of NERC when BAL-STD-002-0 was approved as a NERC reliability standard. The drafting team implemented in the standard additional refinements to address concerns as explained in the document titled, "WECC Standard BAL-002-WECC-1 Contingency Reserves." To assist in understanding the refinements made to the standard, the drafting team has developed a document that compares BAL-002-WECC-1, the permanent replacement standard, with the existing BAL-STD-002-0 (see BAL-002-WECC-1 Comparison).

This version of the BAL-002-WECC-1 standard is for NERC Board of Trustee ballot. The WECC Board of Directors approved the standard April 16, 2008. WECC Operating Committee approved the standard March 6, 2008. The WECC Board of Directors and Operating Committee request that the NERC Board of Trustees approve the BAL-002-WECC-1 Standard as a permanent replacement standard for BAL-STD-002-0 and that the NERC Board of Trustees submits the standard to FERC for approval and replacement of BAL-STD-002-0.

Standards Development Status:
See WECC Standards Development Status page:

Related Links:
See WECC Approved Standards page

Webinar: Reliability Standards Development Plan: 2010-2012

September 17, 2009 | 11:00 a.m. – 12:00 p.m. Eastern

Register online today: https://www.nerc.net/nercsurvey/Survey.aspx?s=fd27acc93a1e4eed94ba24600ef3d19b

View the draft plan at: http://www.nerc.com/page.php?cid=2|247|290

Invited Audience:	Industry professionals wishing to provide input into NERC's standards development program. Specifically geared towards those who are reviewing the draft 2010-2012 standards development plan. Learn how NERC proposes to identify priorities and pursue standards development over the coming year.
Speakers:	David Taylor, Manager of Standards Development
Access:	All that is needed to access the session is a computer connected to the internet and a phone. Specific access information will be provided to those who register at the link above. Registration is complimentary, but limited. Register today to reserve your space.

For more information or assistance, please contact Tina McClellan at tina.mcclellan@nerc.net.

North American Electric Reliability Corporation
116-390 Village Blvd.
Princeton, NJ 08540
609.452.8060 | www.nerc.com

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Reliability Standards Suggestions and Comments

Introduction

NERC welcomes suggestions and comments targeted at improving the reliability of the bulk power system through improved reliability standards. Please use this form to submit your suggestions and/or comments related to NERC's Reliability Standards or Reliability Standards Development Plan. NERC will consider all suggestions and comments received and will incorporate the ideas submitted into a future standards development project or a future revision of the Reliability Standards Develop Plan, as appropriate.

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Please return all completed forms via e-mail to sarcomm@nerc.net with the words "Standards Suggestions" in the subject line.

Submission Information

Date:	
Submitted by (Name): *If submitted for a group, please complete the table at the end of this form.	**Organization:**
Phone:	**E-mail:**
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**

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Suggestion or Comment Detail (Complete only those items applicable to your submittal)
Notes: 1. Please be as specific as possible. 2. To the extent possible, please identify the specific element(s) of the standard (e.g. Requirement R1.2 or Section D.1.1 or Measure M1, etc.) each suggestion or comment pertains to. 3. If practical, please provide an example to clearly describe the issue. 4. If possible please provide a suggestion for improving the specific language of a standard to mitigate the issue.
1. Does this suggestion or comment address an existing standard? Yes ☐ No ☐ (If no, skip to the next question.)
Standard Number(s):
Standard Title(s):
Element(s) (i.e., Requirement R1.2., Measure M2., etc.):
Suggestion or Comment:
Example:
Recommendation for improvement:
2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan? Yes ☐ No ☐ (If no, skip to the next question.)
Project Number(s):
Project Title(s):
Suggestion or Comment:
Recommendation for improvement:

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)? Yes ☐ No ☐
Reliability Issue:
Suggestion or Comment:
Example:
Recommendation for improvement:
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment:
Example:
Recommendation for improvement:
Additional information:
Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Group Members (Names)	Group Member Organization	Region*	Segment*

* If more than one Region or Segment applies, please list all that apply.

Regional acronyms are:

Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool (SPP)
Texas Regional Entity (TRE)
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Segment numbers are:

1 — Transmission Owners
2 — RTOs and ISOs
3 — Load-serving Entities
4 — Transmission-dependent Utilities
5 — Electric Generators
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Submission Information

Date: 9-28-09

Submitted by (Name):	**Organization:**
Barry Lawson *If submitted for a group, please complete the table at the end of this form.	National Rural Electric Cooperative Association (NRECA)
Phone:	**E-mail:**
703-907-5781	barry.lawson@nreca.coop
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**

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Suggestion or Comment:
Example:
Recommendation for improvement:
2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan? Yes ☐ No ☒ (If no, skip to the next question.)
Project Number(s):
Project Title(s):
Suggestion or Comment:
Recommendation for improvement:

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)?

Yes ☒ No ☐

Reliability Issue:

Suggestion or Comment: The industry cannot continue, without an end in sight, to support the development of the number of standards included in the current Reliability Standards Development Plan. During the past year there has been an average of 30 to 40 Standard Drafting Teams (SDTs) functioning all at the same time. With this many SDTs in place, the expertise in the industry that voluntarily staffs these teams is spread too thin. NRECA believes that at any one time there should be an average of 10-15 SDTs in place. These SDTs should be focused on standards that are the most critical the enhancing the reliability of the Bulk Power System (BPS). Reducing the number of SDTs in place at one time will help to ensure that the best quality standards are developed by:

-- helping to ensure the best quality SDTs by increasing the number of available industry stakeholders; and

-- helping to ensure that the right industry experts are reviewing the posted standards they are most knowledgeable about.

The bottomline is that not every standard can be a top priority. There is not an endless supply of industry resources to staff SDTs and to review proposed/revised standards, and therefore, the present pace of an average of 30-40 SDTs in place at one time is not sustainable without the possibility of negative impacts on standards development activities. To address this a significant and urgent effort needs to be expended to determine the most critical standards development activities that are needed to enhance the reliabilty of the BPS. From this effort, the 10-15 most critical standards should be determined and these should be the standards that SDTs are formed to address in a particular year.

In addition, there should be particular attention placed on completing the fill-in-the-blank standards since many of the approved standards refer to the fill-in-the-blank standards that have not been approved.

Finally, several months ago the NERC Standards Committee approved a "Roles and Responsibilities" document which addressed the appropriate roles for SDT members, NERC and FERC staff regarding standards development activities. NRECA supported the development of this important document and is not yet confident that NERC and FERC staff are consistently operating under the roles identified in the document. We see a need to ensure that all parties involved clearly understand their appropriate roles and responsibilities and that they work in such a manner.

We look forward to working with you to make sure these issues are fully addressed.

Example:

Recommendation for improvement:
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment:
Example:
Recommendation for improvement:
Additional information:
Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

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Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

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Submission Information

Date: 9/28/09

Submitted by (Name):	**Organization:**
Group. See details at end of form. *If submitted for a group, please complete the table at the end of this form.	IRC Standards Review Committee
Phone: 832-724-6142	**E-mail:** cyeung@spp.org
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**

Suggestion or Comment Detail (Complete only those items applicable to your submittal)
Notes: 1. Please be as specific as possible. 2. To the extent possible, please identify the specific element(s) of the standard (e.g. Requirement R1.2 or Section D.1.1 or Measure M1, etc.) each suggestion or comment pertains to. 3. If practical, please provide an example to clearly describe the issue. 4. If possible please provide a suggestion for improving the specific language of a standard to mitigate the issue.
1. Does this suggestion or comment address an existing standard? Yes ☐ No ☒ (If no, skip to the next question.)
Standard Number(s):
Standard Title(s):
Element(s) (i.e., Requirement R1.2., Measure M2., etc.):
Suggestion or Comment:
Example:
Recommendation for improvement:
2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan? Yes ☐ No ☒ (If no, skip to the next question.)
Project Number(s):
Project Title(s):
Suggestion or Comment:
Recommendation for improvement:

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)? Yes ☐ No ☒
Reliability Issue:
Suggestion or Comment:
Example:
Recommendation for improvement:
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:

Suggestion or Comment:

We applaud the staff and the Standards Committee for taking a new approach to developing the 2010-2011 standards development work plan. We see changes that are a positive first step toward arriving at a consolidated set of reliability standards of good quality all of which contribute to reliability. In particular, we are encouraged by some of the objectives listed:

• Addressing quality issues to ensure each reliability standard has a clear statement of purpose, and has outcome-focused requirements that are clear and measurable.

• Ensuring measures and compliance elements are aligned to support the requirements within the reliability standards and follow definitions outlined in the reliability standards template.

• Reorganizing the reliability standards based on topic.

• Eliminating requirements that do not have an impact on bulk power system reliability; retiring redundant requirements; retiring or converting (into guidelines) lower-level "facilitating" requirements that are already measured through compliance with higher level requirements; and moving basic "capability" requirements that are routinely used for the certification processes.

We wish to express our strong support for the proposal to move toward developing the performance-based reliability standards. This work, together with improved standard quality, will give rise to a set of sustainable reliability standards which in our view will meet with FERC's acceptance and reduce the revision/maintenance requirements, reduce the number of requests for interpretation and even eliminate a good number of assessed violations owing to lack of clarity.

We are also pleased to see some general reduction in the number of projects planned for future years. However, recognizing that some existing standards are still being revised and some of them may be remanded by FERC when they are submitted for approval (as evidenced in past performance), we suggest the number of planned projects to be further reduced to provide a much needed "buffer" to

respond to the FERC directives - not just for the remanded standards but also for any proposed new standards as initiated by the FERC and the industry. We suggest a reduction of the amount of standards in the plan based upon the historical increased workload from FERC remands of proposed standards so that the 3 year Work Plan schedule can be more closely adhered to.
Example:
Recommendation for improvement:
Additional information:

Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

Group Comments (Complete this page if comments are from a group.)

Group Name: IRC Standards Review Committee

Lead Contact: Ben Li

Contact Organization: IESO

Contact Segment: 2

Contact Telephone: 647-388-1498

Contact E-mail: ben@benli.ca

Group Members (Names)	Group Member Organization	Region*	Segment*
Matt Goldberg	ISO-NE	NPCC	2
Anita Lee	AESO	WECC	2
Patrick Brown	PJM	RFC	2
Charles Yeung	SPP	SPP	2
Steve Myers	ERCOT	ERCOT	2
Bill Phillips	MISo	MRO	2
James Castle	NYISO	NPCC	2
Lourdes Estrada-Salinero	CAISO	WECC	2

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Submission Information

Date:	
Submitted by (Name): Dan Rochester *If submitted for a group, please complete the table at the end of this form.	**Organization:** Independent Electricity System Operator
Phone: 905-855-6363	**E-mail:** dan.rochester@ieso.ca
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**

Suggestion or Comment Detail (Complete only those items applicable to your submittal)
Notes: 1. Please be as specific as possible. 2. To the extent possible, please identify the specific element(s) of the standard (e.g. Requirement R1.2 or Section D.1.1 or Measure M1, etc.) each suggestion or comment pertains to. 3. If practical, please provide an example to clearly describe the issue. 4. If possible please provide a suggestion for improving the specific language of a standard to mitigate the issue.
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Standard Number(s):
Standard Title(s):
Element(s) (i.e., Requirement R1.2., Measure M2., etc.):
Suggestion or Comment:
Example:
Recommendation for improvement:
2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan? Yes ☐ No ☒ (If no, skip to the next question.)
Project Number(s):
Project Title(s):
Suggestion or Comment:
Recommendation for improvement:

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)? Yes ☐ No ☒
Reliability Issue:
Suggestion or Comment:
Example:
Recommendation for improvement:
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment: Our comments are of a general nature and address the important issues of prioritization and scheduling. We commend the NERC Reliability Standards Program for their efforts to respond to industry comment and to develop a more realistic overall project schedule. By my count, there are 8 project scheduled for completion in 2010 with numerous others either continuing or being initiated. It is left to be seen whether or not this "aggressive" schedule will be met, given the unpredictable impact of requests for interpretation and SARs. We support the effort to develop Perfformance-based reliability standards and believe this will produce standards that ultimately achieve their desired end.
Example:
Recommendation for improvement:
Additional information:
Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Group Members (Names)	Group Member Organization	Region*	Segment*

* If more than one Region or Segment applies, please list all that apply.

Regional acronyms are:

Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool (SPP)
Texas Regional Entity (TRE)
Western Electricity Coordinating Council (WECC)

Segment numbers are:

1 — Transmission Owners
2 — RTOs and ISOs
3 — Load-serving Entities
4 — Transmission-dependent Utilities
5 — Electric Generators
6 — Electricity Brokers, Aggregators, and Marketers
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NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Reliability Standards Suggestions and Comments

Introduction

NERC welcomes suggestions and comments targeted at improving the reliability of the bulk power system through improved reliability standards. Please use this form to submit your suggestions and/or comments related to NERC's Reliability Standards or Reliability Standards Development Plan. NERC will consider all suggestions and comments received and will incorporate the ideas submitted into a future standards development project or a future revision of the Reliability Standards Develop Plan, as appropriate.

A link to the current version of the Reliability Standards Development Plan can be found on NERC's standards Web page.

Please return all completed forms via e-mail to sarcomm@nerc.net with the words "Standards Suggestions" in the subject line.

Submission Information

Date:	
Submitted by (Name): Denise Koehn *If submitted for a group, please complete the table at the end of this form.	**Organization:** Bonneville Power Administration
Phone: 360-418-2533	**E-mail:** dekoehn@bpa.gov
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**

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Suggestion or Comment Detail (Complete only those items applicable to your submittal)
Notes: 1. Please be as specific as possible. 2. To the extent possible, please identify the specific element(s) of the standard (e.g. Requirement R1.2 or Section D.1.1 or Measure M1, etc.) each suggestion or comment pertains to. 3. If practical, please provide an example to clearly describe the issue. 4. If possible please provide a suggestion for improving the specific language of a standard to mitigate the issue.
1. Does this suggestion or comment address an existing standard? Yes ☐ No ☒ (If no, skip to the next question.)
Standard Number(s):
Standard Title(s):
Element(s) (i.e., Requirement R1.2., Measure M2., etc.):
Suggestion or Comment:
Example:
Recommendation for improvement:
2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan? Yes ☒ No ☐ (If no, skip to the next question.)
Project Number(s): 2008-12
Project Title(s): Coordinate Interchange Standards
Suggestion or Comment: BPA supports the consolidation effort currently underway in the drafting team's workload. BPA believes the consolidation described thus far will yield a more efficient demonstration of compliance with each requirement. The existing Standards require considerable duplication of explanation and documentation to prove compliance.
Recommendation for improvement: Continue with current effort.

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)? Yes ☐ No ☐
Reliability Issue:
Suggestion or Comment:
Example:
Recommendation for improvement:
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment: BPA agrees with the recommendations from other stakeholders that the industry should focus existing reliability standards and reliability standards development on areas that will lead to the greatest improvement in bulk power system reliability. BPA fully supports the suggestions that the industry should: (1) focus the development of new reliability standards on those that will lead to the greatest improvement in reliability; i.e., address the greatest risks of widearea cascading outages; (2) reduce the number of existing reliability standards to just those that have a critical impact on reliability of the bulk power system and convert the remaining reliability standards to guidelines; and (3) develop a more systematic process for prioritizing new reliability standards development projects based on risks to the bulk power system. However, BPA feels that it is an aggressive schedule and will require considerable effort to accomplish as many items per year as scheduled. The industry needs improved, clear, concise Standards asap, but it is the same staff that is needed to work on the improvements for nearly each of the revisions. Really tough balancing acts to get everything accomplished within the timeframes.
Example:
Recommendation for improvement:
Additional information:
Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

Group Comments (Complete this page if comments are from a group.)	
Group Name:	Bonneville Power Administration
Lead Contact:	Denise Koehn
Contact Organization:	BPA Transmission Reliability Program
Contact Segment:	1, 3, 5, 6
Contact Telephone:	360-418-2533
Contact E-mail:	dekoehn@bpa.gov

Group Members (Names)	Group Member Organization	Region*	Segment*
Wes Hutchison	BPA Transmission Operational Analysis & Support	WECC	1
Laura Trolese	BPA Transmission Policy Development & Analysis	WECC	1

* If more than one Region or Segment applies, please list all that apply.

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Reliability Standards Suggestions and Comments

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Please return all completed forms via e-mail to sarcomm@nerc.net with the words "Standards Suggestions" in the subject line.

Submission Information

Date: September 25, 2009

Submitted by (Name):	**Organization:**
Ed Skiba, Co-chair Narinder Saini, Co-chair *If submitted for a group, please complete the table at the end of this form.	North American Energy Standard Board Wholesale Electric Quadrant Standards Review Subcommittee
Phone:	**E-mail:**
317-249-5377 870-543-5420	eskiba@midwestiso.org nsaini@entergy.com
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**

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Suggestion or Comment Detail (Complete only those items applicable to your submittal)
Notes: 1. Please be as specific as possible. 2. To the extent possible, please identify the specific element(s) of the standard (e.g. Requirement R1.2 or Section D.1.1 or Measure M1, etc.) each suggestion or comment pertains to. 3. If practical, please provide an example to clearly describe the issue. 4. If possible please provide a suggestion for improving the specific language of a standard to mitigate the issue.
1. Does this suggestion or comment address an existing standard? Yes ☐ No ☐ (If no, skip to the next question.)
Standard Number(s):
Standard Title(s):
Element(s) (i.e., Requirement R1.2., Measure M2., etc.):
Suggestion or Comment:
Example:
Recommendation for improvement:
2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan? Yes ☒ No ☐ (If no, skip to the next question.)
Project Number(s): See Suggestions or Comments
Project Title(s): See Suggestions or Comments
Suggestion or Comment: Project 2006-08 Transmission Loading Relief - The Related NAESB Projects should be updated to reference the NAESB WEQ 2009 Annual Plan and the Annual Plan Item 1.b "Continuous support of TLR Procedure in alignment with NERC efforts on TLR Phase II and Phase III development." Additionally the reference to Annual Plan Item 1.d should be changed to 1.b under the section labeled SRS recommendation. Project 2007-05 Balancing Authority Controls - The related NAESB Projects should be updated to reference the NAESB WEQ 2009 Annual Plan and the Annual Plan Items listed should include 1.d and 1.e. Under the SRS recommendation it should be noted that there is ongoing coordination between the BAC Standards Drafting Team and the NAESB WEQ Time and Inadvertent Management Task Force. Project 2007-18 Reliability-based Control - Related NAESB projects should be updated to reference the NAESB WEQ 2009 Annual Plan and the Annual Plan Item listed should be 3.a.viii. Under the SRS

Recommendation the language should be changed to indicate that the NERC/NAESB JESS has reviewed EOP-002-2 and identified that there is potential coordination opportunities.

Project 2008-01 Voltage and Reactive Control - The Related NAESB Projects should be updated to reference the NAESB WEQ 2009 Annual Plan. There is no need to change the Annual Plan Item Number. Under SRS Recommendation, the last sentence should be deleted since the project is now included on the NERC Standards Under Development webpage.

Project 2008-12 Coordinate Interchange Standards - The Related NAESB Projects should be updated to reference the NAESB WEQ 2009 Annual Plan. Additionally, the Annual Plan Items currently listed should be deleted and Annual Plan Item 3.a.viii should be added. Under the SRS recommendation it should state that the NERC/NAESB JESS was assigned an annual plan to "Review and correct WEQ-004 Coordinate Interchange Business Practice Standard as needed based on activities in NERC Project 2008-12, Coordinate Interchange Standards Revisions and supporting EOP-002-2 R4 and R6."

2009-03 Emergency Operations - The Related NAESB Projects should be updated to reference the NAESB 2009 WEQ Annual Plan. Additionally, the Annual Plan Item listed should be 3.a.viii.

Project 2010-02 Connecting NeW Facilities to the Grid - The Related NAESB Projects should be updated to reference the NAESB 2009 WEQ Annual Plan.

Project 2010-Demand Data - Suggest the following language be added:

Coordination with NAESB:

The NAESB WEQ Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual Plan_:

Annual Plan Item

Justification for NAESB Consideration

NAESB has developed Demand Response Measurement and Verification standards and have additional annual plan items related to Demand Response.

SRS Recommendation

Since this project has not started the WEQ will add this project to its watch list.

Recommendation for improvement:

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)? Yes ☐ No ☐
Reliability Issue:
Suggestion or Comment:
Example:
Recommendation for improvement:
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment:
Example:
Recommendation for improvement:
Additional information:
Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Group Members (Names)	Group Member Organization	Region*	Segment*

* If more than one Region or Segment applies, please list all that apply.

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Reliability Standards Suggestions and Comments

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Please return all completed forms via e-mail to sarcomm@nerc.net with the words "Standards Suggestions" in the subject line.

Submission Information

Date: Sept. 27, 2009

Submitted by (Name):	**Organization:**
Guy Zito *If submitted for a group, please complete the table at the end of this form.	Northeast Power Coordinating Council
Phone:	**E-mail:**
212-840-1070	gzito@npcc.org
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**

Suggestion or Comment Detail (Complete only those items applicable to your submittal)
Notes: 1. Please be as specific as possible. 2. To the extent possible, please identify the specific element(s) of the standard (e.g. Requirement R1.2 or Section D.1.1 or Measure M1, etc.) each suggestion or comment pertains to. 3. If practical, please provide an example to clearly describe the issue. 4. If possible please provide a suggestion for improving the specific language of a standard to mitigate the issue.
1. Does this suggestion or comment address an existing standard? Yes ☐ No ☐ (If no, skip to the next question.)
Standard Number(s):
Standard Title(s):
Element(s) (i.e., Requirement R1.2., Measure M2., etc.):
Suggestion or Comment:
Example:
Recommendation for improvement:
2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan? Yes ☐ No ☐ (If no, skip to the next question.)
Project Number(s):
Project Title(s):
Suggestion or Comment:
Recommendation for improvement:

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)? Yes ☐ No ☐
Reliability Issue:
Suggestion or Comment:
Example:
Recommendation for improvement:
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment: The document is primarily informational. The timelines for project development cannot be firm, given the statement on p. 10 in Volume I that the six projects anticipated to be started in 2010 will be worked on when "appropriate NERC staff and industry resources are freed up from other projects". On p 16--It is stated "Reliability Standards Development Plan: 2009-2012." Shouldn't this be 2010-2012? For project prioritization,on p. 10 (Volume I) it is stated that there are projects to have existing projects revised while there are high priority reliability projects still waiting to be developed. Projects important for system reliability that haven't been developed yet should be given priority over existing projects.
Example:
Recommendation for improvement: Add the criteria for determining the priority of projects. If this information is in another document, it should be repeated in the Reliability Standards Development Plan for ease of reference.
Additional information:
Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

Group Comments (Complete this page if comments are from a group.)

Group Name: Northeast Power Coordinating Council

Lead Contact: Guy Zito

Contact Organization: Northeast Power Coordinating Council

Contact Segment: 10

Contact Telephone: 212-840-1070

Contact E-mail: gzito@npcc.org

Group Members (Names)	Group Member Organization	Region*	Segment*
Ralph Rufrano	New York Power Authority	NPCC	5
Alan Adamson	New York State Reliability Council	NPCC	10
Gregory Campoli	New York Independent System Operator	NPCC	2
Roger Champagne	Hydro-Quebec TransEnergie	NPCC	2
Kurtis Chong	Independent Electricity System Operator	NPCC	2
Sylvain Clermont	Hydro-Quebec TransEnergie	NPCC	1
Saurabh Saksena	National Grid	NPCC	1
Chris de Graffenried	Consolidated Edison Co. of New York, Inc.	NPCC	1
Brian D. Evans-Mongeon	Utility Services	NPCC	8
Mike Garton	Dominion Resources Services, Inc.	NPCC	5
Brian L. Gooder	Ontario Power Generation Incorporated	NPCC	5
Kathleen Goodman	ISO - New England	NPCC	2
David Kiguel	Hydro One Networks Inc.	NPCC	1
Michael R. Lombardi	Northeast Utilities	NPCC	1

* If more than one Region or Segment applies, please list all that apply.

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Reliability Standards Suggestions and Comments

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Submission Information

Date: Sept. 28, 2009

Submitted by (Name):	**Organization:**
Jack Cashin *If submitted for a group, please complete the table at the end of this form.	EPSA
Phone:	**E-mail:**
202-349-0155	jcashin@epsa.org
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**

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Suggestion or Comment Detail (Complete only those items applicable to your submittal)
Notes: 1. Please be as specific as possible. 2. To the extent possible, please identify the specific element(s) of the standard (e.g. Requirement R1.2 or Section D.1.1 or Measure M1, etc.) each suggestion or comment pertains to. 3. If practical, please provide an example to clearly describe the issue. 4. If possible please provide a suggestion for improving the specific language of a standard to mitigate the issue.
1. Does this suggestion or comment address an existing standard? Yes ☐ No ☐ (If no, skip to the next question.)
Standard Number(s):
Standard Title(s):
Element(s) (i.e., Requirement R1.2., Measure M2., etc.):
Suggestion or Comment:
Example:
Recommendation for improvement:
2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan? Yes ☒ No ☐ (If no, skip to the next question.)
Project Number(s): 2010-06
Project Title(s): Performance Based Reliability Standards
Suggestion or Comment: Based on the presentation by Gerry Cauley during the webinar on Sept. 17th, it appears that a great deal of work related to this project is currently underway. What is not clear is the sectoral composition of the ad hoc group carrying out this work to be presented to the Standards Committee in November 2009.
Recommendation for improvement: While EPSA is generally supportive of the direction in which this ad hoc group appears to be headed, we are concerned about the lack of broad stakeholder representation. It would be our expectation, that once this work product is presented to the Standards Committee and before it is used in any standard development work, there will be an opportunity for substantive stakeholder review and comment.

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)? Yes ☒ No ☐
Reliability Issue: Work of the GO/TO Team
Suggestion or Comment:
Example:
Recommendation for improvement: At the May 2009 Board of Trustees meeting, a Task Force was established to review the applicability of a number of Transmission Owner/Operator standards to Generator Owners and Operators with respect to Generator Interconnections to the Transmission System. While the work of this group is still proceeding, it can be anticipated that their recommendations will necessitate standard development and the Standards Development Plan should take this into account. Given that this Task Force resulted from action of the Board of Trustees, this work should receive high priority.
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment: Review of standards related to Generator Relaying
Example:
Recommendation for improvement: The general subject of generator relaying has been the subject of numerous technical reviews over the last several months. The list of such reviews would include, FERC NOPR on PRC-023 issued May 21st, NERC Technical Reference on Power Plant and Transmission System Protection Coordination issued Sept. 2009 referencing PRC-001, Reliability of Protection Systems (Project 2009-07) and possibly others. EPSA would recommend that there be greater coordination of all of the work underway reviewing generator protection generally so that generator owners and operators may more rationally contribute to the development of any new or revised standards
Additional information:
Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Group Members (Names)	Group Member Organization	Region*	Segment*

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Submission Information

Date: 09/28/09

Submitted by (Name):	**Organization:**
John Brockhan *If submitted for a group, please complete the table at the end of this form.	CenterPoint Energy
Phone:	**E-mail:**
713-207-2790	john.brockhan@centerpointenergy.com
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**

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Suggestion or Comment Detail
(Complete only those items applicable to your submittal)

Notes:

1. Please be as specific as possible.
2. To the extent possible, please identify the specific element(s) of the standard (e.g. Requirement R1.2 or Section D.1.1 or Measure M1, etc.) each suggestion or comment pertains to.
3. If practical, please provide an example to clearly describe the issue.
4. If possible please provide a suggestion for improving the specific language of a standard to mitigate the issue.

1. Does this suggestion or comment address an existing standard?

   Yes ☐ No ☒ (If no, skip to the next question.)

Standard Number(s):

Standard Title(s):

Element(s) (i.e., Requirement R1.2., Measure M2., etc.):

Suggestion or Comment:

Example:

Recommendation for improvement:

2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan?

   Yes ☒ No ☐ (If no, skip to the next question.)

Project Number(s): 2012-01 / 2012-02

Project Title(s): Equipment Monitoring and Diagnostic Devices / Physical Protection

Suggestion or Comment: CenterPoint Energy appreciates the efforts of the NERC Standards Program in recognizing the need to focus efforts and prioritize projects having the greatest impact on reliability. To that end, we believe that the two projects currently scheduled to begin in 2012 should be further delayed indefinitely or at least until the next Standards Development Plan cycle so that projects currently underway and those projects scheduled to begin later this year and in 2010 may be farther along (or completed) before additional projects are initiated.

Recommendation for improvement: CenterPoint Energy recommends delaying Projects 2012-01 and 2012-02 indefinitely or into 2013 or later and re-evaluating the need to begin these projects during the drafting of the 2011-2013 Reliability Standards Development Plan. The assessment of any new proposed standards should emphasize whether there is a true reliability need, or is simply a business growth opportunity. Furthermore, we recommend that no new projects be added to future Standards Development Plans until already identified projects are completed.

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)? Yes ☒ No ☐
Reliability Issue: A. Proposed 2010-2012 Standards Development Plan / Developing Results-Based Standards as presented by the Ad Hoc Group on Results-Based Standards B. Load Serving Entity/Distribution Provider Issue
Suggestion or Comment: A. CenterPoint Energy shares the views of many previous commentors that the number of existing reliabiltiy standards and requirements should be reduced to only those that truly impact the reliability of the Bulk Electric System (BES). CenterPoint Energy also agrees that new projects should be prioritized and only those that truly improve the reliability of the BES should be included in the Standards Development Plan and initiated. CenterPoint Energy supports efforts to alter (or, move away from) the current environment of prescriptive and unnecessary process-based reliability standards and requirements. As presented in the webinar on September 17, the Ad Hoc Group proposal is promising in that results-based standards would be more likely to improve the reliability of the Bulk Electric System. In the current environment, the standards include many requirements that are overly prescriptive and are not necessary for the reliable operation of the BES. B. CenterPoint Energy is concerned that there appears to be a lack of interest in resolving the Load Serving Entity (LSE)/Distribution Provider (DP) issue. The Functional Model SDT remarked that the LSE/DP issue is not a Functional Model issue but one of registration and commented that NERC was to begin a project to resolve this issue. NERC indicated it would begin a project to address this issue through the Reliablity Standards Development Plan. CenterPoint Energy failed to see such a project in this draft and believes it is an important issue with impacts to many entities.
Example: A. Underfrequency load shedding (UFLS) is an example of overly prescriptive requirements. PRC-007 requires consistency with Regional Reliability Organization's UFLS program requirements. There is also standard PRC-008 requiring preventive maintenance of UFLS components. If PRC-007 contained results-based requirements it would be sufficient to address the reliability need. As an entity worked to meet the performance criteria, concerns such as design, maintenance, testing, etc. would be addressed with a single standard.
Recommendation for improvement: A. Focus NERC and industry resources by accelerating Project 2010-06 Performance-Based Reliability Standards in the que. The work of the Ad Hoc Group on Results-based Standards could serve as a foundation for the Project team's efforts. B. Add an accelerated project in the 2010-2012 Standards Development Plan to resolve the LSE/DP issue.
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment:
Example:

Recommendation for improvement:
Additional information:

Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Group Members (Names)	Group Member Organization	Region*	Segment*

* If more than one Region or Segment applies, please list all that apply.

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Texas Regional Entity (TRE)
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NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Reliability Standards Suggestions and Comments

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A link to the current version of the Reliability Standards Development Plan can be found on NERC's standards Web page.

Please return all completed forms via e-mail to sarcomm@nerc.net with the words "Standards Suggestions" in the subject line.

Submission Information

Date: 9-28-2009

Submitted by (Name):	**Organization:**
Laura Lee *If submitted for a group, please complete the table at the end of this form.	Duke Energy
Phone:	**E-mail:**
704-382-3625	Laura.Lee@duke-energy.com
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**

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Suggestion or Comment Detail (Complete only those items applicable to your submittal)
Notes: 1. Please be as specific as possible. 2. To the extent possible, please identify the specific element(s) of the standard (e.g. Requirement R1.2 or Section D.1.1 or Measure M1, etc.) each suggestion or comment pertains to. 3. If practical, please provide an example to clearly describe the issue. 4. If possible please provide a suggestion for improving the specific language of a standard to mitigate the issue.
1. Does this suggestion or comment address an existing standard? Yes ☐ No ☒ (If no, skip to the next question.)
Standard Number(s):
Standard Title(s):
Element(s) (i.e., Requirement R1.2., Measure M2., etc.):
Suggestion or Comment:
Example:
Recommendation for improvement:
2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan? Yes ☒ No ☐ (If no, skip to the next question.)
Project Number(s): 2010-06
Project Title(s): Performance-based Reliability Standards
Suggestion or Comment: Duke would like to commend NERC for initiation of this project in response to industry input. It is vital that the industry concentrate its resources and attention on requirements that preserve BES reliability. We also appreciate the fact that no projects are currently scheduled to start in 2011 to facilitate concentration on this project and the others that will still be in progress.
Recommendation for improvement:

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)? Yes ☐ No ☐
Reliability Issue:
Suggestion or Comment:
Example:
Recommendation for improvement:
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment: No new standards should be initiated until completion of Project 2010-06. It is likely that the work on this project will result in a clearer consensus of what type of requirements and standards are truly essential for ensuring reliability of the BES, so it seems premaure to initiate development of new standards until this work is nearing completion. This would defer commencement of Projects 2009-04 and 2010-01. Addition of a section expicitlyspecifying the alignment of the projects to NERC's priority initiatives (i.e., System Protection Initiative, System Modeling Improvement Initiative, etc.) would enhance the report - perhaps expand the last paragraph of "Other modifications" in the Summary section with additional specific details. Another enhancement to the report would be an additional header in the Summary section explaining how reliability issues surrounding emerging technologies such as smart grid, energy efficiency, renewable resources, etc. are being addressed.
Example:
Recommendation for improvement:
Additional information:
Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

Group Members (Names)	Group Member Organization	Region*	Segment*

* If more than one Region or Segment applies, please list all that apply.

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Please return all completed forms via e-mail to sarcomm@nerc.net with the words "Standards Suggestions" in the subject line.

Submission Information

Date: September 28, 2009

Submitted by (Name):	**Organization:**
Martin Bauer *If submitted for a group, please complete the table at the end of this form.	US Bureau of Reclamation
Phone:	**E-mail:**
303-445-2901	mbauer@usbr.gov
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**

Suggestion or Comment Detail (Complete only those items applicable to your submittal)
Notes: 1. Please be as specific as possible. 2. To the extent possible, please identify the specific element(s) of the standard (e.g. Requirement R1.2 or Section D.1.1 or Measure M1, etc.) each suggestion or comment pertains to. 3. If practical, please provide an example to clearly describe the issue. 4. If possible please provide a suggestion for improving the specific language of a standard to mitigate the issue.
1. Does this suggestion or comment address an existing standard? Yes ☐ No ☒ (If no, skip to the next question.)
Standard Number(s):
Standard Title(s):
Element(s) (i.e., Requirement R1.2., Measure M2., etc.):
Suggestion or Comment:
Example:
Recommendation for improvement:
2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan? Yes ☐ No ☒ (If no, skip to the next question.)
Project Number(s):
Project Title(s):
Suggestion or Comment:
Recommendation for improvement:

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)? Yes ☒ No ☐
Reliability Issue: Report from the Ad Hoc Group for Generator Requirements at the Transmission Interface
Suggestion or Comment: The report addresses a serious problem in the construction of the existing reliability standards. The recommendations in the report should be incorporated into the various projects currently underway. A new project should be initiated for those standards who have already been vetted and balloted. The recommendations should be added to the project description for all other standards.
Example:
Recommendation for improvement:
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment: This comment is reference to the lack of bilateral communication or coordination evident in the standards between the TO/TOP and GO/GOP entities. In most of the standards the communication or coordination requirement is from the GO/GOP to the TO/TOP. This unilateral requirement does not promote reliability and can result in the exclusion of the GO/GOP in critical system operation decisions or planning functions. In the cases cited below, there is no consideration that Transmission facilities could affect the Generator facilities.
Example: FAC008 R2, FAC 009 R2, PRC 001 R 2.1, R2.2, R3.1, R3.2, R5.1, R5.2, TOP 001 R7.2, R7.3, and TOP 003 R1.1
Recommendation for improvement: Review the listed standards and develop an appropriate requirements for communication and coordination for the TO/TOP with the GO/GOP entities.
Additional information:
Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact E-mail:

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Submission Information

Date: 9-23-09

Submitted by (Name):	**Organization:**
Wayne Pourciau *If submitted for a group, please complete the table at the end of this form.	Georgia System Operations Corp.
Phone:	**E-mail:**
770-270-7118	wayne.pourciau@gasoc.com
NERC Committee (if applicable):	**Subcommittee, Working Group, or Task Force (if applicable):**
NERC Program Area (if applicable):	**Compliance audit, readiness review, or events analysis (if applicable — specify the entity and date of the audit, evaluation, or event):**

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Suggestion or Comment Detail (Complete only those items applicable to your submittal)
Notes: 1. Please be as specific as possible. 2. To the extent possible, please identify the specific element(s) of the standard (e.g. Requirement R1.2 or Section D.1.1 or Measure M1, etc.) each suggestion or comment pertains to. 3. If practical, please provide an example to clearly describe the issue. 4. If possible please provide a suggestion for improving the specific language of a standard to mitigate the issue.
1. Does this suggestion or comment address an existing standard? Yes ☒ No ☐ (If no, skip to the next question.)
Standard Number(s): All
Standard Title(s): All
Element(s) (i.e., Requirement R1.2., Measure M2., etc.): All
Suggestion or Comment: Project 2010-06 Performance-based Reliability Standards is the most important project for the 2010 to 2012 development period.
Example:
Recommendation for improvement: Implement the plan for improving the set of NERC reliability standards to be more focused on reliability performance with a direct relation to bulk power system reliability.
2. Does this suggestion or comment address a standards development project identified in the current Reliability Standards Development Plan? Yes ☒ No ☐ (If no, skip to the next question.)
Project Number(s): Project 2010-06
Project Title(s): Performance-based Reliability Standards
Suggestion or Comment: Project 2010-06 Performance-based Reliability Standards is the most important project for the 2010 to 2012 development period.
Recommendation for improvement: Implement the plan for improving the set of NERC reliability standards to be more focused on reliability performance.

3. Does this suggestion or comment address a new topic or issue (please be as specific as possible)? Yes ☒ No ☐
Reliability Issue: Existing standards are unclear and confusing. Many requirements are repeated throughtout the set of standards. There are many requirements that are administrative in nature or are simply explanatory text and which do not appear to contribute directly to meeting reliability objectives. The resources of NERC, the Regional Entities, and the Registered Entities are wasted on duplicate and unnessary requirements.
Suggestion or Comment: Implement the Project 2010-06 Performance-based Reliability Standards for improving the set of NERC reliability standards to be more focused on reliability performance with a direct relation to bulk power system reliability. Failing to address this issue at this time in the standards development work plan serves to perpetuate the current course of adding requirements and detail to a set of requirements that has no discernable distinction between bulk power system performance-based outcomes and the other types of requirements. This current approach will continue to dilute resources needed for standards development, compliance monitoring and enforcement, and the compliance resources at registered entities across a spectrum of requirements that have mixed value for ensuring reliability. A plan is needed to shift the standards, and the efforts needed to develop and implement them, toward performance-based requirements that have a clear beneficial impact on reliability of the bulk power system. The same public interest that is served by having reliability standards is best served if the standards have a direct and material impact on the reliability of the bulk power system.
Example:
Recommendation for improvement: Implement the Project 2010-06 Performance-based Reliability Standards for improving the set of NERC reliability standards to be more focused on reliability performance with a direct relation to bulk power system reliability.
4. Please provide any additional information you feel will assist the NERC standards staff in addressing this suggestion or comment that could not be captured in questions 1, 2, or 3 above:
Suggestion or Comment:
Example:
Recommendation for improvement:
Additional information: A lack of clarity and direction with regard to some of the reliability standards has resulted in confusion. Where we once used language somewhat loosly in a voluntary environment and everyone had a general idea of what was meant, now sactions and penalties are dependent on the exact meaning of the words. Under the mandatory enforceable environment, words which were generally used are now being scrutinized and called into question. This is a result of the environment of exactly following prescribed actions. A change to a focus on the end result would change the environment from a legalistic, "letter of the law" environment to a more techincal, reliability-based, "intent of the law" environment. Additionally, this project should include an effort to develop at least one objective measurement for each requirement.

Thank you for taking the time to submit your suggestion(s) for improving the reliability of the bulk power system through improved reliability standards!

Group Comments (Complete this page if comments are from a group.)	
Group Name:	Georgia System Operations Corp.
Lead Contact:	Wayne Pourciau
Contact Organization:	Georgia System Operations Corp.
Contact Segment:	3, 4
Contact Telephone:	770-270-7118
Contact E-mail:	wayne.pourciau@gasoc.com

Group Members (Names)	Group Member Organization	Region*	Segment*
Jason Snodgrass	Georgia Transmission Corp.	SERC	1
Scott McGough	Oglethorpe Power	SERC	5

* If more than one Region or Segment applies, please list all that apply.
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NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Reliability Standards Development Plan: 2010–2012

Volume I — Overview

to ensure the reliability of the bulk power system

October 7, 2009

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Acknowledgement

The NERC Reliability Standards Program would like to thank all the individuals who invest their time and expertise in the development of NERC Reliability Standards and in the annual revision of this *Reliability Standards Development Plan*. The plan reflects comments and input from stakeholders, staff, the NERC technical community, and government agencies with oversight for electric reliability. Through collaboration and industry consensus, we expect to develop NERC Reliability Standards that are technically accurate, clear, enforceable, and provide an Adequate Level of Reliability for the North American bulk power system.

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Volume I: Overview

Volume II: Project Descriptions (provided separately)

Volume III: Regional Reliability Standards Projects (provided separately)

Introduction

Purpose

The North American Electric Reliability Corporation (NERC) is committed to developing reliability standards that deliver an Adequate Level of Reliability for the North American bulk power system. The NERC *Reliability Standards Development Plan* serves as the foundation for reliability standards development efforts. The plan serves as the management tool that guides, prioritizes, and coordinates revision or retirement of existing reliability standards and the development of new reliability standards for the immediate 3-year time horizon.

The initial 3-year plan was developed in 2006 and has been since updated annually. In doing so, NERC seeks input from the other program areas within NERC, as well as from NERC's technical committees and industry groups, on the need for and prioritization of new or revised reliability standards.

The objectives of the plan include but are not limited to:

- Addressing the recommendations for new or revised reliability standards identified in the *U.S.-Canada Power System Outage Task Force Final Report on the August 14, 2003 Blackout in the United States and Canada: Causes and Recommendations*.
- Addressing comments from industry, the Federal Energy Regulatory Commission (FERC), and others suggesting improvements to each reliability standard, including those comments received from industry stakeholders during public comment periods.
- Addressing quality issues to ensure each reliability standard has a clear statement of purpose, and has results-based requirements that are clear and measurable.
- Ensuring measures and compliance elements are aligned to support the requirements within the reliability standards and follow definitions outlined in the reliability standards template.
- Eliminating requirements that do not have an impact on bulk power system reliability; retiring redundant requirements; retiring or converting (into guidelines) lower-level "facilitating" requirements that are already measured through compliance with higher-level requirements; and moving basic "capability" requirements that are routinely used into the NERC certification process.
- Improving reliability standard requirements by incorporating approved interpretations.
- Incorporating feedback from other NERC program areas such as compliance monitoring and enforcement, reliability assessments, and event analysis.
- Satisfying the requirement in section 300 of the Rules of Procedure of the North American Electric Reliability Corporation for a five-year review of all reliability standards.

Developing excellent reliability standards is a long-term effort. This plan best supports the effort in that it is flexible and can be continuously adapted to circumstances and changing priorities.

The plan is reviewed and maintained by the NERC Standards Committee and Standards staff, and is updated on an annual basis or more frequently if necessary.

Summary

This revised *Reliability Standards Development Plan: 2010-2012* identifies a total of 36 continent-wide standards development projects. These projects are:

Projects initiated in 2006:
2006-02 Assess Transmission Future Needs
2006-04 Backup Facilities
2006-06 Reliability Coordination
2006-08 Transmission Loading Relief

Projects initiated in 2007:
2007-01 Underfrequency Load Shedding
2007-02 Operating Personnel Communications Protocols
2007-03 Real-time Operations
2007-04 Certifying System Operators
2007-05 Balancing Authority Controls
2007-06 System Protection Coordination
2007-07 Vegetation Management
2007-09 Generator Verification
2007-11 Disturbance Monitoring
2007-12 Frequency Response
2007-17 Protection System Maintenance and Testing
2007-18 Reliability-based Control

Projects initiated in 2008:
2008-01 Voltage and Reactive Control
2008-02 Undervoltage Load Shedding
2008-06 Cyber Security — Order 706
2008-12 Coordinate Interchange Standards

Projects initiated in 2009:
2009-01 Disturbance and Sabotage Reporting
2009-02 Real-time Tools
2009-03 Emergency Operations
2009-04 Phasor Measurements Units
2009-05 Resource Adequacy Assessments
2009-06 Facility Ratings
2009-07 Reliability of Protection Systems
2009-18 Withdraw Three Midwest ISO Waivers

Projects anticipated commencing in 2010:
2010-01 Support Personnel Training
2010-02 Connecting New Facilities to the Grid
2010-03 Modeling Data
2010-04 Demand Data
2010-05 Protection Systems
2010-06 Results-based Reliability Standards
2010-07 Generator Requirements at the Transmission Interface

Projects anticipated commencing in 2011:
None

Projects anticipated commencing in 2012:
2012-01 Equipment Monitoring and Diagnostic Devices
2012-02 Physical Protection

Projects within this Plan:

The number of projects proposed in this plan decreased to 37 from the 39 listed in the 2009-2011 version of the plan:

- The following seven projects identified in the 2009-2011 plan have been completed and removed from this revised plan:

Projects initiated in 2006:
2006-01 System Personnel Training
2006-03 System Restoration and Blackstart
2006-07 Transfer Capabilities: ATC, TTC, CBM, and TRM
2006-09 Facility Ratings

Projects initiated in 2007:
2007-14 Permanent Changes to CI Timing Table
2007-23 Violation Severity Levels

Projects initiated in 2008:
2008-08 EOP Violation Severity Levels Revisions

- Project 2008-05 Credible Multiple Element Contingencies which was identified in the 2009-2011 plan was removed from this revised plan as the requester of the Standard Authorization Request (SAR) for the project withdrew the SAR from further development and consideration by the industry.

- The following six projects are new to the Reliability Standards Development Plan:

Projects initiated in 2009:
2009-06 Facility Ratings
2009-07 Reliability of Protection Systems
2009-18 Withdraw Three Midwest ISO Waivers

Projects anticipated commencing in 2010:
2010-06 Results-based Reliability Standards
2010-07 Generator Requirements at the Transmission Interface

Projects anticipated commencing in 2012:
2012-02 Physical Protection

To summarize, the *Reliability Standards Development Plan: 2009-2011* identified a total of 39 continent-wide standards development projects. Seven of those 39 projects have been completed and one was withdrawn leaving 31 currently active projects from the 2009-2011 plan. Six new projects have been added to the 2010-2012 plan, three of which were unanticipated but initiated in 2009 and three new projects, bringing to a total of 37 continent-wide standards development projects in this Reliability Standards Development Plan: 2010-2012.

Focus on Impact to Reliability

As part of the process employed in 2009 for revising the *Reliability Standards Development Plan,* NERC staff reached out to all stakeholders and asked for input on the plan. Similar to the last two years, several stakeholders indicated a concern that too many projects were under development concurrently which is stretching the industry resources available to work on standards development to their limits. They recommended that the plan focus industry resources on the projects having the greatest impact on reliability in the near-term, while deferring those of less immediate reliability benefit.

In addition, during the development of NERC's Three-year Assessment of its performance as the electric reliability organization, several stakeholders recommended that the industry focus existing reliability standards and reliability standards development on areas that will lead to the greatest improvement in bulk power system reliability. Suggestions included: (1) focus the development of new reliability standards on those that will lead to the greatest improvement in reliability; i.e., address the greatest risks of wide-area cascading outages; (2) reduce the number of existing reliability standards to just those that have a critical impact on reliability of the bulk power system and convert the remaining reliability standards to guidelines; and (3) develop a more systematic process for prioritizing new reliability standards development projects based on risks to the bulk power system.

Accordingly, this version of the plan establishes a new project (Project 2010-06 Results-based Reliability Standards) aimed at focusing NERC Reliability Standards to be more focused on reliability performance. This version of the plan also realigns one project, Project 2012-01 Equipment Monitoring and Diagnostic Devices, from 2011 to 2012 in order to ensure NERC and

industry resources are available to devote the needed level of expertise to Project 2010-06 Results-based Reliability Standards. There are no other projects planned for initiation in 2011 as a result.

Fill-in-the-blank Standards

The phrase "fill-in-the-blank standards" refers to standards that require a bulk power system user, owner, or operator to implement regional criteria that are not specifically part of a NERC Reliability Standard. While an acceptable practice, the regional criteria needs regulatory approval for proper evaluation in support of the NERC Reliability Standards or needs to be replaced with mandatory and enforceable standards that incorporate the needed reliability aspects.

NERC recognized this issue at the time it applied to become the ERO. Working with the Regional Entities, NERC provided dedicated staff to coordinate the development of regional standards and address the "fill-in-the-blank" issue . As a result, the action plans and schedules to resolve each "fill-in-the-blank" standard were provided in Volume III of the original 2007-2009 plan and has since been wholly incorporated into the projects identified in Volume II of each of the succeeding work plans.

Priority of Projects

All currently active projects are considered to be high priority projects meriting continuation.

For proposed standards development projects identified in the *Reliability Standards Development Plan*, the NERC Standards Committee, comprised of industry representatives, assists NERC staff in prioritizing the initiation of these projects.

Those projects anticipated to be started in 2010 represent the next highest priority set of projects. Each will be initiated in 2010 as determined by the NERC Standards Committee in coordination with NERC staff as other projects are concluded and coordinator and drafting team resources become available:

- Project 2010-01 Support Personnel Training is a priority project as it was proposed in support of a 2003 blackout recommendation.
- The following projects involve the original "Version 0" standards originally approved in 2005. They all are required to be reviewed in 2010 pursuant to the Rules of Procedure of the North American Electric Reliability Corporation which state in part "each reliability standard shall be reviewed at least once every five years from the effective date of the standard or the latest revision to the standard, whichever is later."
    - Project 2010-02 Connecting New Facilities to the Grid involves revisions to FAC-001 and FAC-002.
    - Project 2010-03 Modeling Data involves revisions to MOD-010, MOD-011, MOD-012, MOD-014, PRC-013, and PRC-015.
    - Project 2010-04 Demand Data involves revisions to MOD-018, MOD-020, and MOD-021
    - Project 2010-05 Protection Systems involves revisions to PRC-012 and PRC-014.

- Project 2010-06 Results-based Reliability Standards is a priority project as discussed in the "Focus on Impact to Reliability" section above. The project provides for improving the set of NERC Reliability Standards to be more focused on reliability performance.
- Project 2010-07 Generator Requirements at the Transmission Interface is a priority project as it will add greater specificity and clarity to the expectations of those responsible for owning and operating the interconnection facilities that connect generators to the transmission grid.

As noted earlier, the single project anticipated to commence in 2011 pursuant to the 2009-2011 plan has been moved to 2012 in this revised plan to ensure industry and NERC staff resources are available to devote to Project 2010-06 Results-based Reliability Standards, identified as a higher priority in the plan.

Other modifications

As part of the process employed in 2009 for revising the *Reliability Standards Development Plan*, NERC staff reached out to the stakeholder community seeking input on how to improve and update the plan. In so doing, NERC received a number of comments that led to various modifications and improvements to the plan. Appendix A to this Volume I summarizes the comments received and NERC's response to the comments.

In conjunction with this year's project to revise the plan, NERC staff reviewed the items in what is termed the "NERC Standards Issues Database (Issues Database)." The Issues Database is used by the NERC Standards program staff to track the issues and concerns identified with a particular standard. These 'issues" are then used to populate the "Issues to be Considered by the Standard Drafting Team" tables included for each project in Volume II of this plan. As such, projects in Volume II include the "issues" identified to date.

The update to this year's plan also includes another improvement in the form of a set of more detailed project schedules. The revised project schedules include a more detailed list of tasks needed to be undertaken as part of the standards development project and has been modified based on "lessons learned" from prior projects. In doing so the timeline for the majority of projects has been extended, but at the same time provides a better estimate for the completion of each of the projects. Further, a link to each of the project schedules (for the projects currently under development) has been posted on the "Related Files" page on the NERC website.

NERC has also developed specific initiatives related to compliance monitoring and enforcement, reliability assessment and performance analysis, and event analysis to identify possible "high impact" reliability standard development projects that may have significant impact on the reliability of the bulk power system. For example, lessons learned and trends identified from system events tracked for the last three years that have been causal or contributory to the severity of system disturbances are helping NERC focus efforts and provide the technical foundation for standards development and modification efforts on issues that are most critical to bulk power system reliability. NERC has developed a broad-based reliability initiative that addresses issues in the area of system protection and control which is the basis for Project 2010-05 System Protection and a number of other ongoing standards development projects in the area of system protection and control. That initiative identified a compendium of system protection and control

issues that have contributed to many system events. This ongoing collaborative effort between the Event Analysis program and Standards development will continue to be used to identify specific changes to reliability standards to ensure an Adequate Level of Reliability of the North American bulk power system.

Organization of the Plan

The *Reliability Standards Development Plan: 2010-2012* is organized into three volumes:

- Volume I provides an overview of the plan and the modifications made to the plan as compared to the prior year.
- Volume II provides project descriptions for current and planned standards development project.

Volume III summarizes the regional reliability standards development activity anticipated over the next three years.

Background

Authority

Through the enactment of the Energy Policy Act of 2005, Congress created Section 215 of the Federal Power Act (FPA). Section 215 assigns to the Commission the responsibility and authority for overseeing the reliability of the bulk power systems in the United States, including the setting and enforcing of mandatory reliability standards. In February 2006, the Commission issued Order No. 672 establishing its requirements for certifying an industry, self-regulating ERO, as envisioned in the legislation. On the basis of that order, NERC filed its application to become the ERO in the United States on April 4, 2006. NERC concurrently filed for similar recognition with the federal and provincial governments in Canada.

On July 20, 2006, the Commission issued its *Order Certifying the North American Electric Reliability Corporation as the Electric Reliability Organization and Ordering Compliance Filing*, finding that NERC met the requirements of Order No. 672. NERC's filings with FERC[1] and the Commission's orders[2] can be found on the NERC Web site.[3]

NERC has been similarly acknowledged to be the international electric reliability organization in many of the provinces in Canada and by the National Energy Board. NERC continues to formalize these relationships through Memoranda of Understanding (MOU) recognizing NERC as the ERO in Canada and hopes to achieve this status in all provinces by 2010.

Standards Development Process

NERC uses a process for refining, developing, and approving reliability standards that has received national, formal accreditation and approval by federal regulators in the United States. A key element of the development plan is to review and upgrade all the existing standards based on the directives in the FERC's final rules on standards, previous industry comments, and actual experience gathered from using the standards. Additionally, NERC's rules and a condition of accreditation by the American National Standards Institute (ANSI)[4] require that each standard be reviewed at least every five years. NERC received ANSI accreditation on March 24, 2003. Through the remaining projects in 2010, NERC anticipates completing its review and upgrade of standards identified in this development plan in support of these accreditation requirements.

The *Reliability Standards Development Procedure*[5] provides a systematic approach to improve the standards and to document the basis for those improvements, and it will serve as the mechanism for achieving the improvements detailed in this plan. The standards development process includes active involvement of industry experts and stakeholders tasked with developing excellent standards.

[1] NERC filings to FERC, http://www.nerc.com/page.php?cid=1|8|170
[2] Commission orders, http://www.nerc.com/page.php?cid=1|8|170
[3] NERC Web site, http://www.nerc.com/
[4] ANSI accreditation, http://www.nerc.com/filez/ansi.html
[5] Reliability Standards Development Procedure, http://www.nerc.com/fileUploads/File/Standards/RSDP_V6_1_12Mar07.pdf

In its April 2006 application to be certified as the ERO, NERC proposed to develop reliability standards in accordance with Section 300 (Reliability Standards Development) of its Rules of Procedure[6] and the *Reliability Standards Development Procedure*[7], which was incorporated into the Rules of Procedure as Appendix A. In its June 2006 ERO Certification Order, the Commission found that NERC's proposed rules provide for reasonable notice and opportunity for public comment, due process, openness, and a balance of interests in developing reliability standards. The Commission noted that NERC's procedure calls for notifying and involving the public in developing a reliability standard. The development process is open to any person or entity with a legitimate interest in the reliability of the bulk power system. NERC considers the comments of all stakeholders, and a vote of stakeholders is required to approve a reliability standard before it is submitted for NERC Board action and regulatory approval.

Furthermore, NERC also coordinates its reliability standards development activities with the business practices developed by the North American Energy Standards Board[8] (NAESB).

Strategy for Project Resources

Reliability Standards Development Plan: 2010–2012 is designed recognizing there are limited available staff and industry resources to complete the projects immediately and concurrently. While the volume of work and schedules are aggressive, they are manageable because the work is being extended over several years, and because much of the work involves revising and improving existing standards for which the issues are already well-defined. However, the development of regional standards, the influx of formal interpretation requests, and the progress of the existing projects has impacted the deliverables noted in the plan and has been reflected in the proposed projects for 2010, 2011, and 2012. In 2009, NERC Standards Program staff includes seven project coordinators in support of the development plan activities, supported by various support and management resources, as well as consulting resources in support of the fast-track Order 706 Cyber Security project team.

[6] NERC Rules of Procedure, http://www.nerc.com/files/NERC_Rules_of_Procedure_EFFECTIVE_20080321.pdf
[7] Reliability Standards Development Procedure, http://www.nerc.com/fileUploads/File/Standards/RSDP_V6_1_12Mar07.pdf
[8] NAESB http://www.nerc.com/page.php?cid=2|247|248

Global Improvements

The standard drafting team for each of the projects identified in this plan is expected to review the assigned standards and modify the standards to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure as described in this "Global Improvements" section.

Statutory Criteria

In accordance with Section 215 of the Federal Power Act, FERC may approve, by rule or order, a proposed reliability standard or modification to a reliability standard if it determines that "the standard is just, reasonable, not unduly discriminatory or preferential, and in the public interest."

The first three of these criteria can be addressed in large part by the diligent adherence to NERC's *Reliability Standards Development Procedure*, which has been certified by the ANSI as being open, inclusive, balanced, and fair. Users, owners, and operators of the bulk power system that must comply with the standards, as well as the end-users who benefit from a reliable supply of electricity and the public in general, gain some assurance that standards are just, reasonable, and not unduly discriminatory or preferential because the standards are developed through an ANSI-accredited procedure.

The remaining portion of the statutory test is whether the standard is "in the public interest." Implicit in the public-interest test is that a standard is technically sound and ensures a level of reliability that should be reasonably expected by end-users of electricity. Additionally, each standard must be clearly written, so that bulk power system users, owners, and operators are put on notice of the expected behavior. Ultimately, the standards should be defensible in the event of a governmental authority review or court action that may result from enforcing the standard and applying a financial penalty.

The standards must collectively provide a comprehensive and complete set of technically sound requirements that establish an acceptable threshold of performance necessary to ensure the reliability of the bulk power system. "An adequate level of reliability" would argue for both a complete set of standards addressing all aspects of bulk power system design, planning, and operation that materially affect reliability, and for the technical efficacy of each standard. The Commission directed NERC to define the term, "adequate level of reliability" as part of its January 18, 2007 Order on Compliance Filing. Accordingly, NERC's Operating and Planning Committees prepared the definition and the NERC Board approved it at its February 2008 meeting for filing with regulatory authorities. The NERC Standards Committee was then tasked to integrate the definition into the development of future reliability standards.

Quality Objectives

To achieve the goals outlined above, NERC has developed 10 quality objectives for the development of reliability standards. Drafting teams working on assigned projects are charged to ensure their work adheres to the following quality objectives:

1. **Applicability** — Each reliability standard shall clearly identify the functional classes of entities responsible for complying with the reliability standard, with any specific additions or exceptions noted. Such functional classes[9] include: ERO, Regional Entities, reliability coordinators, balancing authorities, transmission operators, transmission owners, generator operators, generator owners, interchange authorities, transmission service providers, market operators, planning coordinators, transmission planners, resource planners, load-serving entities, purchasing-selling entities, and distribution providers. Each reliability standard that does not apply to the entire North American bulk power system shall also identify the geographic applicability of the standard, such as an interconnection, or within a regional entity area. The applicability section of the standard should also include any limitations on the applicability of the standard based on electric facility characteristics, such as a requirement that applies only to the subset of distribution providers that own or operate underfrequency load shedding systems.
2. **Purpose** — Each reliability standard shall have a clear statement of purpose that shall describe how the standard contributes to the reliability of the bulk power system.
3. **Performance Requirements** — Each reliability standard shall state one or more performance requirements, which if achieved by the applicable entities, will provide for a reliable bulk power system, consistent with good utility practices and the public interest. Each requirement is not a "lowest common denominator" compromise, but instead achieves an objective that is the best approach for bulk power system reliability, taking account of the costs and benefits of implementing the proposal.
4. **Measurability** — Each performance requirement shall be stated so as to be objectively measurable by a third party with knowledge or expertise in the area addressed by that requirement. Each performance requirement shall have one or more associated measures used to objectively evaluate compliance with the requirement. If performance results can be practically measured quantitatively, metrics shall be provided within the requirement to indicate satisfactory performance.
5. **Technical Basis in Engineering and Operations** — Each reliability standard shall be based upon sound engineering and operating judgment, analysis, or experience, as determined by expert practitioners in that particular field.
6. **Completeness** — Each reliability standard shall be complete and self-contained. The standards shall not depend on external information to determine the required level of performance.
7. **Consequences for Noncompliance** — Each reliability standard shall make clearly known to the responsible entities the consequences of violating a standard, in combination with guidelines for penalties and sanctions, as well as other ERO and Regional Entity compliance documents.
8. **Clear Language** — Each reliability standard shall be stated using clear and unambiguous language. Responsible entities, using reasonable judgment and in keeping with good

[9] These functional classes of entities are derived from NERC's Reliability Functional Model. When a standard identifies a class of entities to which it applies, that class must be defined in the Glossary of Terms Used in Reliability Standards.

utility practices, are able to arrive at a consistent interpretation of the required performance.

9. **Practicality** — Each reliability standard shall establish requirements that can be practically implemented by the assigned responsible entities within the specified effective date and thereafter.
10. **Consistent Terminology** — Each reliability standard, to the extent possible, shall use a set of standard terms and definitions that are approved through the NERC Reliability Standards Development Process.

In addition to these factors, standard drafting teams also contemplate the following factors the Commission uses to approve a proposed reliability standard as outlined in Order No. 672. A standard proposed to be approved:

1. **Must be designed to achieve a specified reliability goal**
   "321. The proposed Reliability Standard must address a reliability concern that falls within the requirements of section 215 of the FPA. That is, it must provide for the reliable operation of bulk power system facilities. It may not extend beyond reliable operation of such facilities or apply to other facilities. Such facilities include all those necessary for operating an interconnected electric energy transmission network, or any portion of that network, including control systems. The proposed Reliability Standard may apply to any design of planned additions or modifications of such facilities that is necessary to provide for reliable operation. It may also apply to cyber security protection."

   "324. The proposed Reliability Standard must be designed to achieve a specified reliability goal and must contain a technically sound means to achieve this goal. Although any person may propose a topic for a Reliability Standard to the ERO, in the ERO's process, the specific proposed Reliability Standard should be developed initially by persons within the electric power industry and community with a high level of technical expertise and be based on sound technical and engineering criteria. It should be based on actual data and lessons learned from past operating incidents, where appropriate. The process for ERO approval of a proposed Reliability Standard should be fair and open to all interested persons."

2. **Must contain a technically sound method to achieve the goal**
   "324. The proposed Reliability Standard must be designed to achieve a specified reliability goal and must contain a technically sound means to achieve this goal.

   Although any person may propose a topic for a Reliability Standard to the ERO, in the ERO's process, the specific proposed Reliability Standard should be developed initially by persons within the electric power industry and community with a high level of technical expertise and be based on sound technical and engineering criteria. It should be based on actual data and lessons learned from past operating incidents, where appropriate. The process for ERO approval of a proposed Reliability Standard should be fair and open to all interested persons."

3. **Must be applicable to users, owners, and operators of the bulk power system, and not others**
   "322. The proposed Reliability Standard may impose a requirement on any user, owner, or operator of such facilities, but not on others."

4. **Must be clear and unambiguous as to what is required and who is required to comply**
   "325. The proposed Reliability Standard should be clear and unambiguous regarding what is required and who is required to comply. Users, owners, and operators of the Bulk-Power System must know what they are required to do to maintain reliability."

5. **Must include clear and understandable consequences and a range of penalties (monetary and/or non-monetary) for a violation**
   "326. The possible consequences, including range of possible penalties, for violating a proposed Reliability Standard should be clear and understandable by those who must comply."

6. **Must identify clear and objective criterion or measure for compliance, so that it can be enforced in a consistent and non-preferential manner**
   "327. There should be a clear criterion or measure of whether an entity is in compliance with a proposed Reliability Standard. It should contain or be accompanied by an objective measure of compliance so that it can be enforced and so that enforcement can be applied in a consistent and non-preferential manner."

7. **Should achieve a reliability goal effectively and efficiently - but does not necessarily have to reflect "best practices" without regard to implementation cost**
   "328. The proposed Reliability Standard does not necessarily have to reflect the optimal method, or "best practice," for achieving its reliability goal without regard to implementation cost or historical regional infrastructure design. It should however achieve its reliability goal effectively and efficiently."

8. **Cannot be "lowest common denominator," i.e., cannot reflect a compromise that does not adequately protect bulk power system reliability**
   "329. The proposed Reliability Standard must not simply reflect a compromise in the ERO's Reliability Standard development process based on the least effective North American practice — the so-called "lowest common denominator"—if such practice does not adequately protect Bulk-Power System reliability. Although the Commission will give due weight to the technical expertise of the ERO, we will not hesitate to remand a proposed Reliability Standard if we are convinced it is not adequate to protect reliability."

9. **Costs to be considered for smaller entities but not at consequence of less than excellence in operating system reliability**
   "330. A proposed Reliability Standard may take into account the size of the entity that must comply with the Reliability Standard and the cost to those entities of implementing the proposed Reliability Standard. However, the ERO should not propose a "lowest common denominator" Reliability Standard that would achieve less than excellence in

operating system reliability solely to protect against reasonable expenses for supporting this vital national infrastructure. For example, a small owner or operator of the Bulk-Power System must bear the cost of complying with each Reliability Standard that applies to it."

10. **Must be designed to apply throughout North American to the maximum extent achievable with a single reliability standard while not favoring one area or approach**
"331. A proposed Reliability Standard should be designed to apply throughout the interconnected North American Bulk-Power System, to the maximum extent this is achievable with a single Reliability Standard. The proposed Reliability Standard should not be based on a single geographic or regional model but should take into account geographic variations in grid characteristics, terrain, weather, and other such factors; it should also take into account regional variations in the organizational and corporate structures of transmission owners and operators, variations in generation fuel type and ownership patterns, and regional variations in market design if these affect the proposed Reliability Standard."

11. **No undue negative effect on competition or restriction of the grid**
"332. As directed by section 215 of the FPA, the Commission itself will give special attention to the effect of a proposed Reliability Standard on competition. The ERO should attempt to develop a proposed Reliability Standard that has no undue negative effect on competition. Among other possible considerations, a proposed Reliability Standard should not unreasonably restrict available transmission capability on the Bulk-Power System beyond any restriction necessary for reliability and should not limit use of the Bulk-Power System in an unduly preferential manner. It should not create an undue advantage for one competitor over another."

12. **Implementation time**
"333. In considering whether a proposed Reliability Standard is just and reasonable, the Commission will consider also the timetable for implementation of the new requirements, including how the proposal balances any urgency in the need to implement it against the reasonableness of the time allowed for those who must comply to develop the necessary procedures, software, facilities, staffing or other relevant capability."

13. **Whether the reliability standard process was open and fair**
"334. Further, in considering whether a proposed Reliability Standard meets the legal standard of review, we will entertain comments about whether the ERO implemented its Commission-approved Reliability Standard development process for the development of the particular proposed Reliability Standard in a proper manner, especially whether the process was open and fair. However, we caution that we will not be sympathetic to arguments by interested parties that choose, for whatever reason, not to participate in the ERO's Reliability Standard development process if it is conducted in good faith in accordance with the procedures approved by the Commission."

14. **Balance with other vital public interests**

"335. Finally, we understand that at times development of a proposed Reliability Standard may require that a particular reliability goal must be balanced against other vital public interests, such as environmental, social and other goals. We expect the ERO to explain any such balancing in its application for approval of a proposed Reliability Standard."

15. **Any other relevant factors**

"323. In considering whether a proposed Reliability Standard is just and reasonable, we will consider the following general factors, as well as other factors that are appropriate for the particular Reliability Standard proposed."

"337. In applying the legal standard to review of a proposed Reliability Standard, the Commission will consider the general factors above. The ERO should explain in its application for approval of a proposed Reliability Standard how well the proposal meets these factors and explain how the Reliability Standard balances conflicting factors, if any. The Commission may consider any other factors it deems appropriate for determining if the proposed Reliability Standard is just and reasonable, not unduly discriminatory or preferential, and in the public interest. The ERO applicant may, if it chooses, propose other such general factors in its ERO application and may propose additional specific factors for consideration with a particular proposed reliability standard."

Issues Related to the Applicability of a Standard

In Order No. 672, the Commission states that a proposed reliability standard should be clear and unambiguous regarding what is required and who is required to comply. Users, owners, and operators of the bulk power system must know what they are required to do to maintain reliability. Section 215(b) of the FPA requires all "users, owners and operators of the bulk power system" to comply with Commission-approved reliability standards.

The term "users, owners, and operators of the bulk power system" defines the statutory applicability of the reliability standards. NERC's Reliability Functional Model (Functional Model) further refines the set of users, owners, and operators by identifying categories of functions that entities perform so the applicability of each standard can be more clearly defined. Applicability is clear if a standard precisely states the applicability using the functions an entity performs. For example, "Each generator operator shall verify the reactive power output capability of each of its generating units" states clear applicability compared with a standard that states "a bulk power system user shall verify the reactive power output capability of each generating unit." The use of the Functional Model in the standards narrows the applicability of the standard to a particular class or classes of bulk power system users, owners, and operators. A standard is more clearly enforceable when it narrows the applicability to a specific class of entities than if the standard simply references a wide range of entities, e.g., all bulk power system users, owners, and operators.

In determining the applicability of each standard and the requirements within a standard, the drafting team should follow the definitions provided in the NERC Glossary of Terms Used in Reliability Standards and should also be guided by the Functional Model.

In addition to applying definitions from the Functional Model, the revised standards must address more specific applicability criteria that identify only those entities and facilities that are material to bulk power system reliability with regard to the particular standard.

The drafting team should review the registration criteria provided in the NERC Statement of Compliance Registry Criteria, which is the criteria for applicability. The registration criteria identify the criteria NERC uses to identify those entities responsible for compliance to the reliability standards. Any deviations from the criteria used in the Statement of Compliance Registry Criteria must be identified in the applicability section of the. It is also important to note that standard drafting teams cannot set the applicability of reliability standards to extend to entities beyond the scope established by the criteria for inclusion on NERC's Compliance Registry. This is expressly prohibited by Commission Order No. 693-A.

The goal is to place obligations on the entities whose performance will impact the reliability of the bulk power system, but to avoid painting the applicability with such a broad brush that entities are obligated even when meeting a requirement will make no material contribution to bulk power system reliability.

Every entity class described in the Functional Model performs functions that are essential to the reliability of the bulk power system. This point is best highlighted with the example that might be the most difficult to understand, the inclusion of distribution providers. Section 215 of the FPA specifically excludes facilities used in the local distribution of electric energy. Nonetheless, some of the NERC standards apply to a class of entities called distribution providers. Distribution providers are covered because, although they own and operate facilities in the local distribution of electric energy, they also perform functions affecting and essential to the reliability of the bulk power system. With regard to these facilities and functions that are material to the reliability of the bulk power system, a distribution provider is a bulk power system user. For example, requirements for distribution providers in the reliability standards apply to the underfrequency load shedding relays that are maintained and operated within the distribution system to protect the reliability of the bulk power system. There are also requirements for distribution providers to provide demand forecast information for the planning of reliable operations of the bulk power system.

A similar line of thinking can apply to every other entity in the Functional Model, including load-serving entities and purchasing-selling entities, which are users of the bulk power system to the extent they transact business for the use of transmission service or to transfer power across the bulk power system. NERC has specific requirements for these entities based on how these uses may impact the reliability of the bulk power systems. Other functional entities are more obviously bulk power system owners and operators, such as reliability coordinators, transmission owners and operators, generator owners and operators, planning coordinators, transmission planners, and resource planners. It is the extent to which these entities provide for a reliable bulk power system or perform functions that materially affect the reliability of the bulk power system that these entities fall under the jurisdiction of Section 215 of the FPA and the reliability standards. The use of the Functional Model simply groups these entities into logical functional areas to enable the standards to more clearly define the applicability.

Issues Related to Regional Entities and Reliability Organizations

Because of the transition from voluntary reliability standards to mandatory reliability standards, confusion has occurred over the distinction between Regional Entities and Regional Reliability Organizations. The regional councils have traditionally been the owners and members of NERC. They have been referred to as Regional Reliability Organizations in the Functional Model and in the reliability standards. In an era of voluntary standards and guides, it was acceptable that a number of the standards included requirements for Regional Reliability Organizations to develop regional criteria, procedures, and plans, and included requirements for entities within the region to follow those requirements. Section 215 of the FPA introduced a new term, called "Regional Entity." Regional Entities have specific delegated authorities, under agreements with NERC, to propose and enforce reliability standards within the region, and to perform other functions in support of the electric reliability organization. The former Regional Reliability Organizations have entered into delegation agreements with NERC to become Regional Entities for this purpose.

With regard to distinguishing between the terms Regional Reliability Organizations and Regional Entities, the following guidance should be used. The corporations that provide regional reliability services on behalf of their members are Regional Reliability Organizations. NERC may delegate to these entities a set of regional entity functions. The Regional Reliability Organizations perform delegated regional entity functions much like NERC is the organization that performs the ERO function. Regional Reliability Organizations may do things other than their statutory or delegated regional entity functions.

With the regions having responsibility for enforcement, it is no longer appropriate for the regions to be named as responsible entities within the standards. The work plan calls for removing requirements from the standards that refer to Regional Reliability Organizations, either by deleting the requirements or redirecting the responsibilities to the most applicable functions in the Functional Model, such as planning coordinators, reliability coordinators, or resource planners. In instances where a regional standard or criteria are needed, the ERO may direct the Regional Entities to propose a regional standard in accordance with ERO Rule 312.2, which states NERC, may "direct regional entities to develop regional reliability standards." There is no need to have a NERC standard that directs the regions to develop a regional standard. NERC standards should only include requirements for Regional Entities in those rare instances where the regions have a specific operational, planning, or security responsibility. In this case, Regional Entities (or NERC) may be noted as the applicable entity. However, these Regional Entities (or NERC) are held accountable for compliance to these requirements through NERC's rules of procedure that, by delegation agreement, extend to the Regional Entities. The Regional Entities are not users, owners, or operators of the bulk power system and cannot be held responsible for compliance through the compliance monitoring and enforcement program. However, NERC and the Regional Entities can be held by the Commission to be in violation of its rules of procedure for failing to comply with the standards requirements to which it is assigned.

Issues Related to Ambiguity

Drafting teams should strive to remove all potential ambiguities in the language of each standard, particularly in the performance requirements. Redundancies should also be eliminated.

Specifically, each performance requirement must be written to include four elements:

- **Who** — defines which functional entity or entities are responsible for the requirements, including any narrowing or qualifying limits on the applicability to or of an entity, based on material impact to reliability.
- **Shall do what —** describes an action the responsible entity must perform.
- **To what outcome** — describes the expected, measurable outcome from the action.
- **Under what conditions** — describes specific conditions under which the action must be performed. If blank, the action is assumed to be required at all times and under all conditions.

Each requirement should identify a product or activity that makes a definite contribution to reliability.

Drafting teams should focus on defining measurable outcomes for each requirement, and not on prescribing *how* a requirement is to be met. While being more prescriptive may provide a sense of being more measurable, it does not add reliability benefits and may be inefficient and restrict innovation.

Issues Related to Technical Adequacy

In May 2006, the Commission Staff issued an assessment on the then proposed reliability standards. The Staff noted under a "technical adequacy" section that requirements specified in some standards may not be sufficient to ensure an adequate level of reliability. While Order No. 672 notes that "best practice" may be an inappropriately high standard, it also warns that a "lowest common denominator" approach will not be acceptable if it is not sufficient to ensure system reliability.

Each standard should clearly meet the statutory test of providing an adequate level of reliability to the bulk power system. Each requirement should be evaluated and the bar raised as needed, consistent with good practice and as supported by consensus.

Issues Related to Compliance Elements

Each reliability standard includes a section to address measures and a section to address compliance. Most of the major changes made to the template for reliability standards over the past year have been focused on re-aligning the content of standards to include the various elements needed to support mandatory compliance. The Uniform Compliance Enforcement Guidelines, ERO Sanctions Guidelines, and Compliance Registry Criteria have been modified and have been approved by the Commission. As each standard is revised, or as new standards

are developed, drafting teams need to familiarize themselves with these documents to ensure that each standard proposed for ballot is in a format that includes all the elements needed to support reliability and to ensure that the standard can be enforced for compliance.

The compliance-related elements of standards that may need to be modified to meet the latest approved versions of the various compliance documents noted above include the following:

- Each requirement must have an associated Violation Risk Factor.
- Each requirement must have an associated Time Horizon.
- The term, "Compliance Monitor" has been replaced with the term, "Compliance Enforcement Authority." Either the Regional Entity or the ERO may serve as the compliance enforcement authority. For most standards, the Regional Entity will serve as the compliance enforcement authority. In the situation where a Regional Entity has authority over a reliability coordinator, for example, the ERO will serve as the compliance enforcement authority to eliminate any conflict of interest.
- The eight processes used to monitor and enforce compliance have been assigned new names.
    - Compliance Audits
    - Self-Certifications
    - Spot Checking
    - Compliance Violation Investigations
    - Self-Reporting
    - Periodic Data Submittals
    - Exception Reporting
    - Complaints
- The audit cycles for various entities have been standardized so that the Reliability Coordinator, Transmission Operator, and Balancing Authority will undergo a routine audit to assess compliance with each applicable requirement once every three years while all other responsible entities will undergo a routine audit once every six years.
- Levels of Non-compliance have been replaced with "Violation Severity Levels."

All requirements are subject to compliance audits, self-certification, spot checking, compliance violation investigations, self-reporting and complaints. Only a subset of requirements is subject to monitoring through periodic data submittals and exception reporting.

Measures: While a measure can be used for more than one requirement, there must be at least one measure for each requirement. A measure states what a responsible entity must have or do to demonstrate compliance to a third party, i.e., the compliance enforcement authority. Measures are "yardsticks" used to evaluate whether required performance or outcomes have been achieved. Measures do not add new requirements or expand the details of the requirements. Each measure shall be tangible, practical, and objective. A measure should be written so that achieving full compliance with the measure provides the compliance monitor with the necessary and sufficient

information to demonstrate that the associated requirement was met by the responsible entity. Each measure should clearly refer to the requirement(s) to which it applies.

Violation Severity Levels: The Violation Severity Levels (formerly known as Levels of Non-Compliance) indicate how severely an entity violated a requirement. Historically, there has been confusion about Levels of Non-Compliance. Some of the previously existing Levels of Non-Compliance incorporate reliability-related risk impacts or consequences. Going forward, the risk or consequences component should be addressed only by the Violation Risk Factor, while the Violation Severity Levels should only be used to categorize how badly the requirement was violated. A set of Commission-approved VSLs exists for each of the original 83 reliability standards as a result of the work of the Project 2007-23 drafting team.

Criteria for determining which VSL to use:
It is preferable to have four VSLs representing a spectrum of performace, but where that does not work, the VSLs should be defensible in supporting the criteria in the table below.

Lower VSL	Moderate VSL	High VSL	Severe VSL
The performance or product measured almost meets the full intent of the requirement.	The performance or product measured meets the majority of the intent of the requirement.	The performance or product measured does not meet the majority of the intent of the requirement, but does meet some of the intent.	The performance or product measured does not substantively meet the intent of the requirement.

Violation Risk Factors: Each drafting team is also instructed to develop a Violation Risk Factor for each requirement in a standard in accordance with the following definitions:

- **High Risk Requirement** — A requirement that, if violated, could directly cause or contribute to bulk power system instability, separation, or a cascading sequence of failures, or could place the bulk power system at an unacceptable risk of instability, separation, or cascading failures; or a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly cause or contribute to bulk power system instability, separation, or a cascading sequence of failures, or could place the bulk power system at an unacceptable risk of instability, separation, or cascading failures, or could hinder restoration to a normal condition.
- **Medium Risk Requirement** — A requirement that, if violated, could directly affect the electrical state or the capability of the bulk power system, or the ability to effectively monitor and control the bulk power system. However, violation of a medium risk requirement is unlikely to lead to bulk electric system instability, separation, or cascading failures; or a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly and adversely affect the electrical state or capability of the bulk power system, or the ability to effectively monitor, control, or restore the bulk power system. However, violation of a medium risk requirement is unlikely, under emergency, abnormal, or restoration conditions anticipated by the preparations, to lead to bulk power system

instability, separation, or cascading failures, nor to hinder restoration to a normal condition.

- **Lower Risk Requirement** — A requirement that is administrative in nature and, a requirement that, if violated, would not be expected to affect the electrical state or capability of the bulk power system, or the ability to effectively monitor and control the bulk power system. A requirement that is administrative in nature; or a requirement in a planning time frame that, if violated, would not, under the emergency, abnormal, or restorative conditions anticipated by the preparations, be expected to affect the electrical state or capability of the bulk power system, or the ability to effectively monitor, control, or restore the bulk power system.

Time Horizons: The drafting team must also indicate the time horizon available for mitigating a violation to the requirement:

- **Long-term planning** — a planning horizon of one year or longer.
- **Operations planning** — operating and resource plans from day ahead up to and including seasonal.
- **Same-day operations** — routine actions required within the timeframe of a day, but not real time.
- **Real-time operations** — actions required within one hour or less to preserve the reliability of the bulk electric system.
- **Operations assessment** — follow-up evaluations and reporting of real time operations.

Note that some requirements occur in multiple time horizons, and it is acceptable to have more than one time horizon for a single requirement.

The drafting team should seek input and review of all measures and compliance information from the compliance elements drafting team members assigned to support each standard drafting team or from the NERC compliance staff.

Coordination with NAESB

Many of the existing NERC standards are related to business practices, although their primary purpose is to support reliability. Reliability standards, business practices, and commercial interests are inextricably linked. An example of an existing standard that is both a reliability standard and a business practice is the Transmission Loading Relief (TLR) Procedure currently used as an interconnection-wide congestion management method in the Eastern Interconnection.

It would be safe to conclude that every reliability standard has some degree of commercial impact and therefore impacts competition. The statutory test to be applied by the Commission is whether the reliability standard has an "undue adverse effect" on competition.

NERC has taken several steps to ensure its reliability standards do not have any undue, adverse impact on business practices or competition. First, NERC coordinates the development of all

standards with the North American Energy Standards Board (NAESB). In addition to this formal process, drafting teams work with NAESB groups to ensure effective coordination of wholesale electric business practice standards and reliability standards. NERC and NAESB follow their procedure for the joint development of standards in areas that have both reliability and business practice elements. This procedure is being implemented for all standards in which the reliability and business practice elements are closely related, thereby making joint development a more efficient approach.

This work plan includes several projects that require close coordination and joint development with NAESB:

- Project 2006-08 — Transmission Loading Relief
- Project 2007-05 — Balancing Authority Controls
- Project 2007-18 — Reliability Based Control
- Project 2008-01 — Voltage and Reactive Control
- Project 2008-12 — Coordinate Interchange Standards
- Project 2009-03 — Emergency Operations
- Project 2010-02 — Connecting New Facilities to the Grid
- Project 2010-04 — Demand Data

To ensure each reliability standard does not have an undue adverse effect on competition, NERC requires that each standard meet the following criteria:

- Competition — A reliability standard shall not give any market participant an unfair competitive advantage.
- Market Structures — A reliability standard shall neither mandate nor prohibit any specific market structure.
- Market Solutions — A reliability standard shall not preclude market solutions to achieve compliance with that standard.
- Commercially Sensitive Information — A reliability standard shall not require the public disclosure of commercially sensitive information. All market participants shall have equal opportunity to access commercially non-sensitive information that is required for compliance with reliability standards.

During the standards development process, each Standards Authorization Request (SAR) drafting team asks the following question to determine if there is a need to develop a business practice associated with the proposed standard:

- Are you aware of any associated business practices that we should consider with this SAR?

Each standard drafting team also asks the following question to determine if there is a potential conflict between a reliability standard and business practice:

- Are you aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement? If yes, please identify the conflict.

Additional Considerations

Drafting teams should consider the following in reviewing and revising their assigned standards:

- **Title**: In general, the title should be concise and to the point. Care should be taken not to try to fully describe a standard through its title. The title should fit a single line in both the header and in the body of the standard.
- **Purpose**: Current purpose statements are inconsistent. The purpose should clearly state a benefit to the industry (value proposition) in fulfilling the requirements. The purpose should not simply state "the purpose is to develop a standard to…" The purpose should be tied to one or more of the reliability principles.
- **References**: Section (F) provides a place to list associated references that support implementation of the standard. Drafting teams may develop or reference supporting documents with approval of the Standards Committee.
- **Version histories**: Version histories should be expanded to include complete listings of what has been changed from version to version so that end-users can easily keep track of changes to standards. This will also serve as a type of audit trail for changes.

Resource Documents Used

NERC used several references when preparing this plan. These references provide detailed descriptions of the issues and comments that need to be considered by the drafting teams, which are included in the second volume of the work plan, as they work on the standards projects defined in the plan. The references include:

- FERC NOPR on Reliability Standards, October 20, 2006.
- FERC Staff Preliminary Assessment of Proposed Reliability Standards, May 11, 2006.
- FERC Order No. 693 Mandatory Reliability standards for the Bulk Power System, March 16, 2007.
- FERC Order No. 693-A Mandatory Reliability Standards for the Bulk Power System, July 19, 2007.
- FERC Order No. 890 Preventing Undue Discrimination and Preference in Transmission Service, February 16, 2007.
- Comments of the North American Electric Reliability Council and North American Electric Reliability Corporation on Staff Preliminary Assessment of Reliability Standards, June 26, 2006.
- Comments of the North American Electric Reliability Corporation on Staff Preliminary Assessment of NERC Standards CIP-002 through CIP-009, February 12, 2007.

- Comments of the North American Electric Reliability Corporation on the Notice of Proposed Rulemaking for Facilities Design, Connections and Maintenance Reliability standards, September 19, 2007.
- Comments received during the development of Version 0 reliability standards.
- Consideration of comments of the Missing Compliance Elements drafting team.
- Consideration of comments of the Violation Risk Factors drafting team.
- Consideration of comments in the Phase III–IV standards.
- Comments received during industry comment period on work plan.
- Q&A for Standards and Compliance.

Appendix A — Summary of Industry Comments

Reliability Standards Development Plan 2010-2012
As of September 29, 2009

Comment 1
Name: Carol Gerou
Organization: Midwest Reliability Organization

Suggestion or Comment: NERC should sponsor an industry triage of the standards to identify the core requirements and flag those that are minutia. This will allow all of industry (NERC, Regional Entities and Registered Entities) to focus resources on what will support reliability rather than push paper to demonstrate compliance with requirements that don't support realiability.

Example: A simple example is the DCS. The true core requirements are to recover from all reportable events in 15 minutes and replentish reserves in 90 minutes thereafter. The rest of the Rs are an explanation of what that means, how it's handled in a Reserve Sharing Group and also the procedural reporting items. However, we are now moving down a path to assign measures and sanctions to 20 different things in this standard.

Recommendation for improvement: A first step for any standards improvement effort would be the creation of a database companion to the standards. This would not only be a platform to capture the triage comments, the database could be used by registered entities to identify all the requirements that apply to them. Presently it is impossible to say with assurance you have found all applicable requirements. For example, there are several cases where an entity is mentioned in a requirement, but that entity is not identified in the "applicability" section of the standards.

Once you have the triage complete, format changes are just a matter of programming.

If you look at the present V0 and V1 standards, many things labled as requirements are actually criteria, procedures, administrative directions and explanitory text.

As an example of what can be done to improve the final format after the triage, refer to Europe's Policy 1 at: http://www.ucte.org/resources/publications/ophandbook/

The bullets in their policies are broken into a few categories:

- C for Criteria (goals and background of the standard)
- R for Requirements (generally attributes that are yes/no go/no-go)
- S for Standards (things measured on a scale)
- P for Procedures (administrative information)
- G for guides (while we have moved away from guides, the issue still remains what to do with the good practices that are being lost from institutional memory)

If there is information beyond this, it is likely reference information and should be moved to an appendix in the standard (using A for paragraph numbers).

The benefit in making such a format change is that the industry can focus on those things that are important for reliability. It also allows NERC and the Regions to focus on the important things.

Compliance elements would be applied to the requirements and standards. There still could be notification to regulatory bodies on procedural deficiencies.

This is not a suggestion for any change to content in the standards, just a reformatting.

NERC Response:

In response to your recommendation (as well as similar recommendations from others) we have added Project 2010-06 Results-based Reliability Standards to the *Reliability Standards Development Plan: 2010-2012* for a project focused on:

- triaging the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all,
- developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis,
- promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and
- revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability.

Note that the "applicability" section of each standard doesn't identify all functional entities mentioned in a standard – the "applicability" section of the standard identifies just those functional entities with responsibility for compliance with one or more requirements in the standard.

There is an effort underway to put the standards into a relational database, until this is ready for stakeholder use, we have published a list of all requirements in all standards that have been approved by FERC that can be sorted by functional entity. This excel spreadsheet is posted at the following site:

http://www.nerc.com/docs/standards/rs/VRF_Standards_Applicability_Matrix_2009June25.xls

Project Number(s): 2007-09

Project Title(s): Generation Verification

Suggestion or Comment: In Volume 2, Reliability Standards Development Plan Overall Project Schedules, the Generation Verification project looks like it's mislabeled as Project 2007-08.

Recommendation for improvement: Update Overall Project Schdeules or connect hyperlink to current project summary calendar (called "Standards Under Development Anticipated Posting Calendar") provided on the NERC sStandards Under Deveopment webpage.

NERC Response:

The label for Project 2007-09 Generator Verification in the Overall Project Schedules in Volume II of the Reliability Standards Development Plan: 2010-2012 has been corrected.

Reliability Issue: List of projects

Suggestion or Comment: The plan lists several projects but it indicates that limited resources exist, it would seem partical to pick a set of projects which have a high priority and complete that set and then move on to less priority projects. Plus, in the plan Volume 1 mentions that some project have a higher proirity then other. The plan even expresses the objectives for determining the priority (Volume 1, page 5, and section titled "Objectives as Part of the Goal") but the actual projects are not priortized.

Example: A set of projects would be the fill-in-the-blank standards. If the industry could take an approach on this set alone, it would not be spinning it wheels so to speak. The technical expertise used to develop both regional and continental wide standards could be free to work on other standards.

Recommendation for improvement: Pick a set of projects which have a high priority and complete

that set then work on less priority projects.

NERC Response:

You touch upon two distinct concepts in your comments above. The first being the need to work on high priority projects before moving on to lower priority projects. With respect to this issue, what might be a high priority project in the eyes of one entity might not be in the eyes of another entity. NERC staff coordinates all standards development activities through the NERC Standards Committee. In compliance with the *NERC Reliability Standards Development Procedure*, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. NERC staff works with the NERC Standards Committee to identify the projects of highest overall industry importance before working on lower priority projects. In some cases a high priority project is delayed while waiting for research or analysis needed to develop a set of technically-based requirements. This was the case with the Voltage and VAR Control project, the Real-time Tools project, and others. As we move forward, we are trying to have the technical foundation for each standard clearly identified before the SAR is initiated.

The second concept you touch upon in your comments above is the statement that actual projects are not prioritized. It might not obviously appear that projects in the *Reliability Standards Development Plan*: 2009-2011 are prioritized but in actuality the structure of the *Reliability Standards Development Plan: 2009-2011* as well as this revised plan is such that the projects are positioned in the plan so that the "higher priority" projects are designated to be initiated in the immediate year and the "lower priority" projects are designated to be initiated in the later years of the plan.

Suggestion or Comment: The plan should be updated to show actual status of the projects. Only show last major milestone.

Example: Starting from the Reliability Standards Development Plan Overall Project Schedule housed in the plan (Volume 2) add a diamond symbol to show latest milestone in the project. Milestones would be last posting for ballots or comments.

NERC Response:

Links to the current project schedule for each of the active projects are provided at the end of each project description in Volume II of the Reliability Standards Development Plan. The on-line project schedules are updated monthly and should provide the level of detail you suggest in your comment above.

Comment 2
Name: Denise Koehn
Organization: Bonneville Power Administration

Suggestion or Comment: BPA has no dispute regarding the revision needs; however, this is an aggressive schedule and will require considerable effort to accomplish as many items per year as scheduled. The schedule seems a little aggressive. Otherwise, plan looks good.

NERC Response:

We appreciate your comment relative to the "aggressiveness" of the schedules indicated in the *Reliability Standards Development Plan*. The standards development process continues to evolve as does the establishment of realistic project schedules to complement the process. With the publication of this *Reliability Standards Development Plan: 2010-2012* NERC staff, working in conjunction with the individual drafting teams, has attempted to publish more realistic schedules for each project.

Comment 3
Name: Dora Moreno
Organization: Southern California Edison Company

Standard Title(s): NERC Reliability Standards Development Plan 2009-2011

Suggestion or Comment: Southern California Edison Company ("SCE") hereby submits its comments on the North American Electric Reliability Corporation's ("NERC") annual revision to the NERC Reliability Standards Development Plan (Plan).

SCE greatly appreciates the work that went into developing the Plan, and commends NERC for the extensive overview and depth it provides with respect to the development of reliability standards. This being said, SCE is generally supportive of the document and goals NERC has set for the development of reliability standards. The timelines identified in the Plan, like the Plan itself, are too dynamic (non-static/ever changing) to be used as targets, and may need to be modified as projects are launched and the drafting teams proceed forward with them.

NERC Response:

NERC staff appreciates you comments and concurs with your specific comment that the timelines identified in the plan, like the plan itself, is dynamic. NERC staff will continue to coordinate all standards development activities through the NERC Standards Committee and be responsive to industry needs and will publish more realistic schedules for each project in the future.

Comment 4

Name: Doug Hohlbaugh

Organization: FirstEnergy

Project Number(s): 2009-03

Project Title(s): Emergency Operations (Covers standards EOP-001 "Emergency Operations Planning", EOP-002 "Capacity & Energy Emergencies", EOP-003 "Load Shedding Plans" and IRO-001 "Reliability Coordinator - Responsibilities and Authorities"

Suggestion or Comment Consider advancing project 2009-03 and including it in a list of High Priority projects that need addressed within NERC 3-year Work Plan. See FE comment 4B below stating a need to establish a list of High Priority projects and suggestions on how such a list may be compiled.

Project 2009-03 is an example project that addresses core real-time operations requirements that should be considered for advancement in NERC's work plan. This project has yet to start and there are reliability and compliance ambiguities that require mitigation. For example, in EOP-003, R5 states the following "A Transmission Operator or Balancing Authority shall implement load shedding in steps established to minimize the risk of further uncontrolled separation, loss of generation, or system

shutdown" This is a HIGH Violation Risk Factor requirement that should not lack clarity in compliance certainty related to who has the authority to shed load.

The purpose statement of the EOP-003 standard indicates that the BA and TOP must have the capability and authority to shed load. It is unclear what is meant by capability. Capability could range from ability to direct action to open breakers or an expectation to open breakers and drop load. However, the standard is not written clearly related to the expectations of the TOP and BA in regard to load shed. Within the EOP-003 standard, 50% of the requirements include a statement "A Transmission Operator or Balancing Authority shall …" and should be revised on a more expeditious schedule to improve reliability and compliance certainty.

Recommendation for improvement: Consider advancing project 2009-03 and including it in a list of High Priority projects that need addressed within NERC 3-year Work Plan. See FE comment 4B below stating a need to establish a list of High Priority projects and suggestions on how such a list may be compiled.

NERC Response:

NERC staff agrees with FirstEnergy's suggestion of the importance of Project 2009-03 Emergency Operations. As of this writing, Project 2009-03 has not been initiated; however, it is one of the next projects waiting to be initiated once one of the currently active projects has completed and the appropriate resources are made available.

Suggestion or Comment:

A) The industry -BES users, owners and operators as well as regulatory enforcement staff - is overwhelmed with compliance enforcement actions based on little or no BES reliability gap related to violations that are largely documentation related. This inefficiency is wasting valuable resources with no measured improvement in NERC's vision of Adequate Level of Reliability which the standards collectively aim to achieve. Requirements that are largely administrative should not be subjected to the compliance Sanctions Matrix and should be partitioned within the standards.

B) We are concerned with the large volume of work within the NERC work plan and the stress placed on its limited staff and industry resources. NERC needs to re-assess its projects and develop a short list of key High Priority projects that will drive the greatest reliability improvements within the industry. These select projects should receive detailed attention and priority by NERC staff, NERC SC and industry as they move through the standards development process.

The key projects should be held to greater scrutiny from a project management view. It should be expected that team members on these teams are held to a higher level of accountability, committed to providing significant time and energy to advance the industry in the key areas that will raise the adequate level of reliability. One example where this has been used is the CIP project.

c) Interpretation Request - NERC should allow sufficient bandwidth in their schedule to address interpretation requests which seem to be on the rise. It should be understood that the use of existing drafting teams to respond to interpretation requests causes delays in standard development work progress.

D) The NERC Work plan should cast a clear picture of the ERO/industry vision that clearly articulates a future target for the reliability standards and the core BES reliability goals they aim to achieve.

Recommendation for improvement:

A) The standards should be scrubbed to remove or re-classify administrative and documentation related requirements that do not serve a reliability related goal. To the extent retained, two levels of requirements should exist within the standard 1) Reliability Requirements and 2) Administrative Requirements. For example many requirements direct entities to provide some sort of documentation

within X calendar days, upon a request to do so. These types of requirements, if violated, should not bog the industry down in paperwork moving through the normal compliance enforcement process and should only be subject to a penalty for repeat offenders. When a penalty is warranted for Administrative Requirements, it should have a separate expedited process and the fine should escalate for repeat offenders with some consideration of the length of time between repeat violations.

B) We suggest a leadership team with representative members of each of the NERC Standing Committees (SC, PC, OC, CCC and CIPC) direct a working group aimed at developing a methodical review of the existing standards to develop the High Priority list of reliability standards that require sharp focus from industry. The prioritization should be based on a number of different aspects such as: 1) frequency of interpretation requests for a given standard - this could point to lack of clear requirement language; 2) the frequency of violations for a given standard - could point to a need to re-evaluate the metrics used to gauge compliance and determine if the proper industry expectations regarding a particular reliability target is being achieved. The standards should not expect perfection as their goal.; 3) requirement redundancy - this should remain a focus of the Work Plan to remove potential for multiple violations, the standards should remain clear and concise; 4) Clear expectations - many of the standards still lack measures. It's not clear why the industry is putting forth time and energy on developing both measures and Reliability Standards Audit Worksheets (RSAWs). It seems that clear written measures along with the requirements should suffice in providing a responsible entity the information needed to ensure compliance. The RSAWs should not be an on-going expecatation of the standards and the Work Plan should clearly cast this vision. Creating both RSAWs and measures creates unnecessary effort to maintain two sets of information serving the same function.

A presentation was made by the NERC Standards Process Subcommittee (a subcommittee of the SC) at the April 15-16, 2009 NERC Standards Committee meeting that describe a potential method for establishing a list of criteria for evaluating the standards, prioritizing the work needed with a focused effort of trimming down the requirements to core reliability requirements aimed at a particular reliability goal. It's suggested that the work of the NERC Process Subcommittee form the basis of establishing the High Priority list of standards which should ultimately rise to the top of NERC's Work Plan.

C) FE well understands the benefits of utilizing an already formed standards drafting team (SDT) to expedite a response to a standard interpretation request as the team already assembles the SMEs to address a particular subject matter. The SDT also benefits from the experience by being made acutely aware of confusion that exists within an existing standard it is addressing for improvement.

A potential downside to using SDT personnel is the distraction created by the interpretation request and a delay in the standards development work. NERC should closely monitor the workload placed on SDT's being asked to respond to interpretation requests and poll the SDT members to see if they believe there would be any benefit in an alternative approach for interpretation responses.

One potential alternative would be to form a separate sub-committee or work group under the CIPC, OC and PC that would address all interpretation requests related to various class of standards that each of these standing committees would be expected to address. This would allow the SDTs to remain focused on their work in developing new/revised reliability requirements.

D) The Work Plan should set the vision of what the ERO/industry will achieve as a 5-year target. This vision should foretell a 5-year plan of a strong, self supporting industrial model that will triage the standards to separate critical core reliability requirements from the lesser administrative tasks, a dedicated focus of reducing the reliability requirements to those that support NERC's Adequate Level of Reliability and clearly identify the High Priority projects being addressed on a expedited schedule. The 5-year target should seek to continuously improve and adjust as needed to raise the BES reliability where warranted by clear metrics and should not anticipate perfect reliability.

NERC Response:

A and B) In response to your recommendation (as well as similar recommendations from others) we

have added Project 2010-06 Results-based Reliability Standards to the *Reliability Standards Development Plan: 2010-2012* for a project focused on:

- triaging the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all,
- developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis,
- promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and
- revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability.

C) We appreciate your concern related to the process used for developing interpretations. This topic is one of many topics currently being vetted by the members of the NERC Standards Committee and your concerns are more appropriately addressed in that venue.

D) The Reliability Standards Development Plan is a short-term forward looking three-year plan for reliability standard development and not necessarily a master plan that sets the long-term goals of the standards program. NERC staff coordinates all standards development activities through the NERC Standards Committee whose membership consists of industry representatives. In compliance with the NERC Reliability Standards Development Procedure, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. The Standards Committee protects the integrity and credibility of the standards development process. NERC staff facilitation of the standards development process in coordination with the Standards Committee takes into consideration the potential impact on industry resources when planning standards related projects and activities.

Comment 5
Name: Frank Gaffney
Organization: Florida Municipal Power Agency

Standard Number(s): EOP-001-1, EOP-003-1, IRO-008-1, IRO-009-1, IRO-010-1, PRC-006-0, PRC-007-0, TOP-001-1, TOP-002-2a, TOP-003-1, TOP-006-2, VAR-001-1a

Standard Title(s): Emergency Operations Planning, Load Shedding Plans, Reliability Coordinator Operational Analyses and Real-Time Assessments, Reliability Coordinator Actions to Operate Within IROLs, Reliability Coordinator Data Specifications and Collection, Development and Documentation of Regional UFLS Programs, Assuring Consistency with Regional UFLS Programs, Reliability Responsibilities and Authorities, Monitoring System Conditions, Voltage and Reactive Control

Suggestion or Comment: The current standards are inconsistent with each other in certain areas and confuse the roles of a Balancing Authority (BA), Transmission Operator (TOP), Reliability Coordinator (RC), Regional Entity (RE), Generation Operator (GOP) and Transmission Planner (TP). The confusion manifests in a few ways. First, it causes the BA to be responsible for requirements that ought to be only applicable to the TOP (such as managing transmission line outages), and visa versa (such as managing fuel supply), probably thinking that most BAs are also TOPs. However, there are BAs that are not TOPs and visa versa. Secondly, it causes redundancy in roles and confusion in leadership in causing certain activities to happen. For instance, both the TOP and RC are responsible for managing IROLs without clear leadership between the two. Also, if a Load Serving Entity (LSE) or GOP receives directives from both the RC and the TOP that conflict with each other, what should the LSE or GOP do?

Example: The NERC Glossary of terms defines a BA as: "The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time." In other words, responsible for supply and demand balance in the operating horizon. With this definition in mind, why is the BA responsible for EOP-001-1 R2.2 "Develop, maintain, and implement a set of plans to mitigate operating emergencies on the transmission system"? Similarly, the TOP is defined as: "(t)he entity responsible for the reliability of its 'local' transmission system, and that operates or directs the operations of the transmission facilities." With this definition in mind, why is the TOP made responsible for EOP-001-1 R2.1: "(d)evelop, maintain, and implement a set of plans to mitigate operating emergencies for insufficient generating capacity"? There are more examples of this, and other inconsistencies between the BA, TOP, RC, RE, GOP and TP, as summarized below:

In EOP-001-1 R4, Appendix A includes items that are not applicable to the TOP and are only applicable to the BA, e.g., why is a TOP responsible for fuel supply? Why is a TOP responsible for R6.2 concerning emergency energy? Why is a TOP responsible for fuel supply in R6.4, and why is the TOP responsible for arranging energy delivery?

In EOP-003-1 R2, why is the BA responsible for Under Frequency Load Shedding (UFLS) when PRC-006-0 and PRC-007-0 make it the responsibility of the Regional Entities, the TOPs, the Distribution Providers and the LSEs? Why is the BA responsible for Under Voltage Load Shedding (UVLS) when the responsibility should probably be just the TOP's? Isn't this requirement redundant with PRC-006-0 and PRC-007-0?

IRO-008-1 and IRO-009-1 requires RCs to operationally plan for and operate within IROLs. TOP-004-2 and VAR-001-1a R10 requires the TOPs to do the same, yet there is no discussion in the standards of coordination between the RC and TOPs in the standards. Note that VAR-001-1a R10 and R12 are dedundant with TOP standards such as TOP-004-2.

TOP-001-1 R8, the requirement ought to clearly delineate that the BA is responsible for restoring real power balance, and the TOP reactive power balance.

TOP-002-2a, the standard is for Transmission Operations Planning yet there are numerous requirements for the BA that should probably be set apart as separate requirements under a new BAL standard for operational planning for supply and demand balance, contingency reserves, and regulation service, which are not related to Transmission Operations Planning.

TOP-002-2a R8, why is it the BA's responsibility to meet voltage or reactive reserves, isn't that the role of the TOP, as spelled out in the VAR standards? If the issue is to ensure enough generation is on-line in specific areas that might need reactive support, isn't that still the TOP's responsibility to coordinate with the BA and issue direction if necessary?

TOP-003-1 R1.2, why is the TOP responsible for providing generator outage information? Isn't that the BA's or GOP's responsibility and isn't this redundant with IRO-010-1?

TOP-006-2 R1, R1.2, why are BAs responsible for information regarding transmission resources available for use? Isn't that the role of the TOP?

TOP-006-2 R2, why is the BA responsible for monitoring transmission line status, voltage, load tap changer settings, and reactive power in general? Monitoring and managing reactive resources, voltage and tap settings is clearly made the responsibility of the TOP in VAR-001-1a.

TOP-006-2 R3 why does the BA need to understand protective relaying? Isn't that the role of the TOP and GOP?

VAR-001-1a R2 requires the TOP to acquire sufficient reactive resources. The statement probably ought to clearly delineate that this requirement is applicable to the operating horizon only and that the TP is responsible for adequate reactive resources in the planning horizon.

Recommendation for improvement: Revise the standards to clearly delineate the responsibilities of the various entities and clear up the redundancy and inconsistencies between the standards. The examples provided include some suggestions for changes to help make roles and responsibilities more clear.

NERC Response:

There are some inconsistencies in identifying the responsible entity – during the development of the Version 0 standards, the drafting team sometimes converted the term, "control area" to "Balancing Authority and Transmission Operator" when the conversion should have clearly assigned the requirement to either the Transmission Operator or the Balancing Authority, but not to both. We are trying to correct these applicability errors as we modify the standards.

Several of the recommended modifications have already been addressed, including deletion of TOP-001-1, Requirement R8; removal of BA requirements from TOP-002; deletion of TOP-003 Requirement R1.2;removal of BA from TOP-006; IRO-008 and IRO-009 require the RC to develop action plans for preventing and mitigating instances of exceeding IROLs and require sharing this information with the entities that need to take these actions – so there is coordination between the IRO standards and the TOP standards.

The following items have been added to the Issues Database to be addressed by the standard drafting team responsible for revising the standard:

Source: Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan:2010-2012

EOP-001-1	Project 2009-03	The NERC Glossary of terms defines a BA as: "The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time." In other words, responsible for supply and demand balance in the operating

		horizon. With this definition in mind, why is the BA responsible for EOP-001-1 R2.2 "Develop, maintain, and implement a set of plans to mitigate operating emergencies on the transmission system"?
EOP-001-1	Project 2009-03	The NERC Glossary of terms defines a TOP as: "(t)he entity responsible for the reliability of its 'local' transmission system, and that operates or directs the operations of the transmission facilities." With this definition in mind, why is the TOP made responsible for EOP-001-1 R2.1: "(d)evelop, maintain, and implement a set of plans to mitigate operating emergencies for insufficient generating capacity"?
EOP-001-1	Project 2009-03	Requirement R4 (and by reference Attachment 1-EOP-001-0) is applicable to both the Transmission Operator and Balancing Authority but includes items that are not applicable to the TOP and are only applicable to the BA, e.g., why is a TOP responsible for fuel supply? Why is a TOP responsible for R6.2 concerning emergency energy? Why is a TOP responsible for fuel supply in R6.4, and why is the TOP responsible for arranging energy delivery?
EOP-003-1	Project 2009-03	With regard to requirement R2, why is the BA responsible for Under Frequency Load Shedding (UFLS) when PRC-006-0 and PRC-007-0 make it the responsibility of the Regional Entities, the TOPs, the Distribution Providers and the LSEs? Why is the BA responsible for Under Voltage Load Shedding (UVLS) when the responsibility should probably be just the TOP's? Isn't this requirement redundant with PRC-006-0 and PRC-007-0?
EOP-003-1	Project 2007-01	Requirement R2 of EOP-003-1 states: “Each Transmission Operator and Balancing Authority shall establish plans for automatic load shedding for underfrequency or undervoltage conditions.” The standards drafting team for Project 2007-01 Underfequency Load Shedding should consider modifying this requirement as part of their project.
VAR-001-1a	Project 2008-01	Requirement R2 requires the TOP to acquire sufficient reactive resources. The statement probably ought to clearly delineate that this requirement is applicable to the operating horizon only and that the TP is responsible for adequate reactive resources in the planning horizon.
VAR-001-1a TOP-004-2.	Project 2008-01	VAR-001-1a R10 and R12 are redundant with TOP standards such as

Comment 6
Name: Guy Zito
Organization: Northeast Power Coordinating Council

Suggestion or Comment: The initial draft of the intended "final" version of the document should be posted for comment. "Fill in the blank" projects versus blackout recommendation projects should be appropriately prioritzed.

Recommendation for improvement: The Reliability Standards Development Plan: 2010-2012 version should be the version that is posted for comments. Having the 2009-2011 version posted is contributing to industry confusion over what information to submit for comments.

NERC Response:

Thank you for your comment. We will consider incorporating your suggestion into next year's project for revising the *Reliability Standards Development Plan.*

Comment 7
Name: Hugh Francis
Organization: Southern Company

Suggestion or Comment: Page 9 of Appendix A has a list of projects that will be initiated each year. At the bottom of page 10 there is a strategy for project resources that addresses the resources needed to complete the standards projects in the project list. There are about the same number of projects in each year. What is not addressed is how these new projects are going to be started/completed without additional resources. This plan does not address the resources needed to keep the earlier projects revised and current. At this time there are 95 nation-wide standards and only 35 or less than 37% have not been revised.

Recommendation for improvement: The new Standards Development Plan needs to address current manpower requirements as well as future needs for manpower. Adjust the project list in the future years to levelize manpower needed to initiate new standards as well as keep the current standards up to date and revised as needed.

NERC Response:

NERC understands the amount of resources required (both industry and NERC specific resources) for the development of quality standards and is cognizant of the fact that industry resources are not limitless. NERC staff coordinates all standards development activities through the NERC Standards Committee whose membership consists of industry representatives. In compliance with the NERC Reliability Standards Development Procedure, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. NERC staff facilitation of the standards development process in coordination with the Standards Committee takes into consideration the potential impact on industry resources when planning standards related projects and activities.

One of the requirements of the Rules of Procedure of the North American Electric Reliability Corporation is to review each standard at least once every five years, and we are facing the "five-year" anniversary of the initial effective date for the "Version 0" standards. The majority of projects slated to commence in 2010 in this revised plan will enable NERC to meet this requirement as it relates to the initial set of reliability standards.

Comment 8

Name: Jalal Babik

Organization: Dominion Resources Inc.

Project Number(s): 2007-01-RE, 2007-05-RE, 2007-11-RE, 2008-04-RE.

Project Title(s): Underfrequency Load Shedding, Balancing Authority Contols, Disturbance Monitoring, Protection System

Suggestion or Comment: NERC must place more priority on fill-in the blank standards in its Reliability Standards Development Plan. Since several of these standards, have not gotten priority attention, Regional Councils are moving ahead with Regional Standards development on these standards, while a national standard would be more appropriate and prevent the development of unnecesary regional differences in standards that ultimately make standards compliance more difficult for registered entities operating in more then one Region. Further, a national standard on these important compliance topics would set the threshold and hence, regional differences or variences could be minimized. Without this prioritization, registered entities could face very different compliance requirements on simliar equipment in their fleet, based soley on what Region the equipment resides; making compliance management more difficult, yet for little to no benefit to the bulk power system and compliance costs. Additionally, given several of these projects were started in 2007, that reason alone should move these projects into the highest priority on NERC Development Plan.

Recommendation for improvement: These fill-in-the-blank standards should review top priority from NERC staff until they are balloted. Regional Standards that address then same compliance subjects should be put on hold until the national standard on the same compliance objective is addressed by ballot body. It is after that national balloting that Regions will know what regional differences are truly needed based on unique characteristics of their regional bulk electric system.

NERC Response:

The projects in question relative to the above comments are:

- Project 2007-01-RE — Underfrequency Load Shedding,
- Project 2007-05-RE — Balancing Authority Controls,
- Project 2007-11-RE — Disturbance Monitoring, and
- Project 2008-04-RE — Protection Systems

as described in Volume III of the *Reliability Standards Development Plan: 2009-2011* and the corresponding continent-wide projects currently underway or planned.

Three of the four corresponding continent-wide projects are well underway (those being Project 2007-01 Underfrequency Load Shedding, Project 2007-05 Balancing Authority Controls, and Project 2007-11 Disturbance Monitoring) and are subject to the schedule established by the associated standard drafting team. The fourth continent-wide project was identified in Volume II of the Reliability Standards Development Plan: 2009-2011 as Project 2010-05 Protection Systems. The work being performed in parallel by any particular region is subject to the oversight of the regional standards organization for that region and is not controlled by NERC staff. NERC standards staff is in regular contact with the individuals at each of the Regional Entities responsible for developing regional reliability standards. Coordination of the four projects referenced above is ongoing. In many instances, the Regional Entity has decided to commence work on the four 'fill-in-the blank' standards in order to able to better coordinate the development of the regional standard with the development of the continent-wide standard. This actually is to the benefit of those entities in the region affected by the standard.

Each Regional Entity has a FERC-approved regional standard development procedure. Embedded in the regional standard development process, a region seeking approval of a regional reliability standard must justify the need for the standard. It is incumbent on those that participate in the regional standards development process to determine the need to expend resources on developing a standard

as they deem appropriate. Each of the regional standards development procedures mandates a fair and open process for the development of standards. As such any interested party in the region should have a voice in which standards development projects are pursued and which standards are not. NERC cannot require a Regional Entity to justify a regional standard before it is developed.

Also, please see the "Fill-in-the-blank Standards" section of this Volume I for additional information related to fill-in-the-blank standards.

With respect to your comment regarding regional differences, we respectfully disagree with the assertion that only after national balloting will the need for a regional difference be known. It is optimal for all regional differences to be identified whether as part of the continent-wide standards development process or as part of a regional standards development effort prior to the continent-wide standard being balloted.

Comment 9

Name: Jason Marshall

Organization: Midwest ISO

Suggestion or Comment: NERC should sponsor an industry triage of the standards to identify the core requirements and flag those that are minutia. This will allow all of industry (NERC, Regional Entities and Registered Entities) to focus resources on what will support reliability rather than push paper to demonstrate compliance with requirements that don't support reliability.

Example: A simple example is the DCS. The true core requirements are to recover from all reportable events in 15 minutes and replenish reserves in 90 minutes thereafter. The rest of the Requirements are an explanation of what that means, how it's handled in a Reserve Sharing Group and also the procedural reporting items. However, we are now moving down a path to assign measures and sanctions to 20 different things in this standard.

Recommendation for improvement: A first step for any standards improvement effort would be the creation of a database companion to the standards. This would not only be a platform to capture the triage comments, the database could be used by registered entities to identify all the requirements that apply to them. Presently, it is impossible to say with assurance you have found all applicable requirements. For example, there are several cases where an entity is mentioned in a requirement, but that entity is not identified in the "applicability" section of the standards. In addition, the database would help to identify where there are redundant requirements in multiple standards and help to eliminate these redundancies and streamline the standards.

Once you have the triage complete, format changes are just a matter of programming.

If you look at the present V0 and V1 standards, many things labeled as requirements are actually criteria, procedures, administrative directions and explanatory text.

As an example of what can be done to improve the final format after the triage, refer to Europe's Policy 1 at: http://www.ucte.org/resources/publications/ophandbook/

The bullets in their policies are broken into a few categories:

- C for Criteria (goals and background of the standard)
- R for Requirements (generally attributes that are yes/no go/no-go)
- S for Standards (things measured on a scale)

- P for Procedures (administrative information)
- G for guides (while we have moved away from guides, the issue still remains what to do with the good practices that are being lost from institutional memory)

If there is information beyond this, it is likely reference information and should be moved to an appendix in the standard (using A for paragraph numbers).

The benefit in making such a format change is that the industry can focus on those things that are important for reliability. It also allows NERC and the Regions to focus on the important things.

Compliance elements would be applied to the requirements and standards. There still could be notification to regulatory bodies on procedural deficiencies.

This is not a suggestion for any change to content in the standards, just a reformatting.

NERC Response:

In response to your recommendation (as well as similar recommendations from others) we have added Project 2010-06 Results-based Reliability Standards to the *Reliability Standards Development Plan: 2010-2012* for a project focused on:

- triaging the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all,
- developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis,
- promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and
- revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability.

Project Number(s): Project 2009-04, Project 2011-01

Project Title(s): Phasor Measurement Units, Equipment Monitoring and Diagnostic Services

Suggestion or Comment: Project 2009-04 Phasor Measurement Units - While Midwest ISO supports continued and expanded use of PMUs, we believe that any standard developed should be a technical standard that facilitates a common implementation.

Project 2011-01 Equipment Monitoring and Diagnostic Services - While this project has some merit, it needs to be prioritized among all of the existing on-going standards work. There does not appear to be an overwhelming industry need to implement this standard to prevent the next system disturbance. One could even argue this standard is not about improving BES reliability because the BES must already be operated to withstand the next contingency.

Recommendation for improvement: Ensure the SAR for Project 2009-04 proposes to develop a technical standard only. Delay Project 2011-01 indefinitely until all version 0 standards have been approved by FERC with no additional revisions required. Then evaluate to determine if it is needed for reliability.

NERC Response:

With respect to your comment regarding Project 2009-04 Phasor Measurement Units the following item has been added to the Issues Database to be addressed by the standard drafting team responsible for revising the standard:

Source: Jason Marshall (Midwest ISO) as input to the Reliability Standards Development Plan:2010-2012

Project No.: 2009-04 Phasor Measurement Units

Language: While Midwest ISO supports continued and expanded use of Phasor Measurement Units, we believe that any standard developed should be a technical standard that facilitates a common implementation. Ensure the SAR for Project 2009-04 proposes to develop a technical standard only.

With respect to your comment regarding Project 2011-01 Equipment Monitoring and Diagnostic Services, the priority of this particular project remains relatively low in the revised Reliability Standards Development Plan.

Comment 10

Name: Jianmei Chai

Organization: Consumers Energy Company

Suggestion or Comment: When there are revisions to the NERC Glossary of Terms (Glossary), NERC should notify stakeholders of the change. New or revised terms are not added to the Glossary until they are approved by the NERC Board of Trustees. However, due to the volume of standards that go through the Standard Development Process, providing notice to stakeholders when the Glossary is revised provides the opportunity to validate that stakeholders are, in fact, adhering to the appropriate definitions. This is especially important with regard to revised terms. Currently, NERC provides notice to stakeholders for ballot results and when Standard Authorization Requests (SARs) and proposed Standards have been posted for comment. However, to our knowledge, no notice is provided when the Glossary is revised.

With regard to the Glossary itself, we offer the following suggestions:

1) Glossary terms should reference the Standards to which they apply. Not only would this be helpful in identifying how stakeholders should revise their compliance process, it would assist the Standards Drafting Teams, because they are required to determine if any existing Standards would be affected by a revision.

2) Clean and redline versions of the Glossary should be posted to allow stakeholders to more accurately track revisions.

3) Regional terms should state the region(s) to which they apply. This is especially important with respect to terms that subsequently may be incorporated into another region's Standards or into national Standards, particularly since stakeholders outside the region associated with the specific term(s) generally would not have had an opportunity to comment, except when the Regional Standard is posted for ballot at NERC.

4) Each Glossary term should appear in at least one Standard. We have identified terms that are not associate with any Standard.

5) When a term is revised, an effective date should be noted, as well as a termination date for the old definition.

6) Historical versions of the Glossary should be readily available on the NERC web site.

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In addition, we suggest that Requirements NOT include reporting data for compliance monitoring (this

should be in Measures), but only include data reporting where the data is used by the recipient for other reliability purposes. In other words, providing data to the RE periodically to demonstrate compliance should be a measure, but providing data to the RE periodically for RE model development should be a requirement.

NERC Response:

With regard to your first suggestion that NERC should notify the industry when a change is made to the NERC Glossary of Terms Used in Reliability Standards, NERC staff appreciates your concern and has begun revising our internal process by modifying our announcements to notify stakeholders when the NERC Board of Trustees approves a new/revised/retired definition.

With regard to your additional suggestions:

1. While this would be "nice" it is not "necessary." Each time a defined term is used in a reliability standard, the term is capitalized to indicate that the term uses the definition found in the glossary. If a drafting team proposes revising a standard, then the team must search all standards approved by the Board of Trustees and determine, with stakeholder feedback, if the modification to the term would adversely impact any of the already approved requirements. (You can see an example of this with the current posting for Project 2007-17 - Protection System Maintenance and Testing - the team is proposing to change the definition of Protection System and has provided a table with every instance where the term is used in an approved standard.)
2. While this would be "nice" it is not "necessary." The value of tracking past versions isn't clear.
3. We agree. The current version of the Glossary of Terms in Reliability Standards does not embed any regional definitions in the set of continent-wide definitions. In the future, additional sections may be added to the Glossary of Terms in Reliability Standards to provide a place to identify definitions that were developed and approved through a regional standards development process and approved by the NERC Board of Trustees.
4. We agree. We are unaware of any terms that aren't in any standards. Please forward the terms that you have discovered are no longer needed.
5. This is a good suggestion and can be adopted moving forward - however making this retroactive to provide the initial date for all terms would be labor intensive and isn't "necessary."
6. Because the glossary is updated after most Board of Trustee meetings, this would require retaining many versions of the glossary, and the benefit isn't clear.

Comment 11
Name: James H. Sorrels, Jr.
Organization: American Electric Power

Reliability Issue: With the addition of increasing volumes of new generation types and the current use of fossil fuel generation characteristics for such units, the accuracy of state estimator models are being adversely impacted.

Suggestion or Comment: Establish a Standards Drafting Team to address this reliability concern.

Example: Wind generators do not follow the typical reactive curves attributed to fossil fuel generator units. In fact, some types of wind units do not produce reactive support, while the state estimator model is reflecting that it does produce reactive support. Fossil fuel units produce dynamic reactor capability, while wind generators can be a combination of dynamic and static capability.

Recommendation for improvement: The developed standard, when effective, will improve the accuracy of state estimator models.

NERC Response:

Project 2009-02 Real-time Tools was initiated this year the Purpose of which states:

> "The new standard or standards will establish requirements for the functionality, performance, and management of Real-time tools for Reliability Coordinators, Transmission Operators, and Balancing Authorities for use by their System Operators in support of reliable System operations."

Please monitor and/or participate in this project to the extent possible with respect to the issue raised above. To encourage the drafting team to consider your concern we have added your issue to our Issues Database associated with the project.

Comment 12

Name: Laura Lee
Organization: Duke Energy

Suggestion or Comment:

#1 There are requirements in standards, and standards themselves, that do not clearly ensure the reliability of the bulk power system. Unnecessary requirements are detrimental to the reliability of the BES because they divert entities' resources from focusing on the core actions that are truly essential to maintaining reliability. In addition, there are so many standards development projects currently active that entities are devoting resources to, the industry has little time to reflect and identify what gaps may exist in the reliability standards or formulate recommendations for eliminating those gaps. The Reliability Standards Development Plan: 2009-2011 does not clearly identify the top few priorities and how the projects in the plan support those priorities.

#2 Development of regional standards in parallel with development of a continent wide standard on the same subject results in inefficency.

#3 There appear to have been more interpretation requests than were anticipated in the past year, and it is reasonable to expect this trend to continue.There is currently not a process to control the amount of resources that are devoted to developing reliability standards interpretations.

Recommendation for improvement:

#1 Duke advocates pausing non-essential standard development activity in order for NERC to engage the industry in an effort to identify the standards and requirements that are truly essential for maintaining an adequate level of reliability of the BES. This could take the form of a "clean slate" approach, similar to the effort underway prior to development of the version 0 standards to define about 13 core standards, or a stop/start/continue review of the current slate of standards and requirements. The Standards Committee would be a logical lead for this effort, providing directional definition in addition to their process leadership. The result should be a clearly articulated vision of where the reliability standards development efforts need to be applied, a plan to achieve that vision and an explanation of how each project in the plan supports that vision.

#2 Regional standard development needs to be more closely coordinated with continent wide standard development.

#3 Either more allawance needs to be given in the subsequent Reliability Standards Development Plan

for the actual and anticipated increase in reliability standards interpretation requests by defering the commencement of projects that have not been started or the process needs to be streamlined while still including industry input. A prioritization/classification effort as proposed in recommendation #1 above that resulted in fewer and more focused requirements would have the added benefit of reducing the volume of interpretation requests.

NERC Response:

#1 In response to your recommendation (as well as similar recommendations from others) we have added Project 2010-06 Results-based Reliability Standards to the Reliability Standards Development Plan: 2010-2012 for a project focused on:

- triaging the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all,
- developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis,
- promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and
- revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability.

#2 There are currently four continent-wide projects which may or may not require each regional entity to develop companion regional standards:

- Project 2007-01 Underfrequency Load Shedding
- Project 2007-05 Balancing Authority Controls
- Project 2007-11 Disturbance Monitoring
- Project 2010-05 Protection Systems (as identified in Volume II of *Reliability Standards Development Plan: 2009-2011*)

Three of the four corresponding continent-wide projects are well underway (those being Project 2007-01 Underfrequency Load Shedding, Project 2007-05 Balancing Authority Controls, and Project 2007-11 Disturbance Monitoring) and at this point in time may not even require regional standards. The fourth continent-wide project (Project 2010-05 Protection Systems) has yet to be initiated and it is unknown to what degree regional standards will need to be developed.

NERC standards staff is in regular contact with the individuals at each of the Regional Entities responsible for developing regional reliability standards. Coordination of the four projects referenced above is ongoing. In many instances, the Regional Entity has decided to commence work on the four 'fill-in-the blank' standards in order to able to better coordinate the development of the regional standard with the development of the continent-wide standard. This actually is to the benefit of those entities in the region affected by the standard.

Each Regional Entity has a FERC-approved regional standard development procedure. Embedded in the regional standard development process, a region seeking approval of a regional reliability standard must justify the need for the standard. It is incumbent on those that participate in the regional standards development process to determine the need to expend resources on developing a standard as they deem appropriate. Each of the regional standards development procedure mandates a fair and open process for the development of standards. As such any interested party in the region should have a voice in which standards development projects are pursued and which standards are not. NERC cannot require a Regional Entity to justify a regional standard before it is developed.

#3 We appreciate your concern related to the process of developing interpretations. This topic is one of many topics currently being vetted by the members of the NERC Standards Committee and your

concerns are more appropriately addressed in that venue.

Comment 13

Name: Michelle Rheault

Organization: Manitoba Hydro

Suggestion or Comment:

Over the past few years, there has been a modest improvement in the quality of some reliability standards. Manitoba Hydro would like to encourage NERC to continue its efforts at improving existing standards.

Manitoba Hydro is not satisfied with the Standards Under Development (SUD) 2009-2011 Plan. Many of our comments below mirror those previously provided to NERC from industry participants (Appendix A of the 2009-2011 plan). The fact that comments from previous years have not been addressed seems to indicate that the commenting process is a formality that consumes scarce entity resources with little reward for the effort. Nevertheless, we feel it is important to continue voicing our concerns.

We believe that the three issues outlined below are key to improving the SUD plan.

1. Standard Quality

   Manitoba Hydro feels that standard quality is vital to the reliability of the BES. More standards do not lead to better reliability; rather, this is achieved by fewer high-quality standards that focus on essentials for reliability.

   As per the Standard Development Plan (Volume I, page 8), "Order No. 672 provides guidance on the factors the Commission will consider when determining whether proposed reliability standards meet the statutory criteria." It states that standards must be "clear and unambiguous." We recommend that this guidance be used to develop a method to measure the quality attributes of a standard. This would allow industry and NERC to determine when they are satisfied with a standard and can move on to allocating resources to create new standards. The number of Requests for Interpretation put forth by industry is an indication that there are many standards which are neither clear nor unambiguous.

2. Project Prioritization

   Manitoba Hydro believes that in order to best improve the reliability of the BES, NERC needs to change the way it prioritizes projects.

   New projects are questionable given the greater need to improve the clarity of existing standards that are already auditable. Some proposed projects may be a good idea, but are not an immediate necessity for BES reliability and dilute the resources available to more critical projects. Some examples from the 2009-2011 plan include:

   - Project 2009-04 Phasor Measurement Units
   - Project 2010-01 Support Personnel Training
   - Project 2011-01 Equipment Monitoring and Diagnostic Devices
   - Project 2009-02: Real-time Tools

   Prioritization can be improved by developing a priority ranking tool. The Blackout report is getting stale as a source of priority in a changing environment. In developing the ranking tool, Manitoba Hydro has several suggestions to improve the prioritization of projects:

   - Survey the industry to obtain an indication of the greatest need for the reliability standards.

Focus on value added projects where deficiencies clearly exist today.

- Focus on cleaning up existing standards, rather than merging multiple standards, which requires significantly more effort to achieve a "clear and unambiguous" result.
- Limit the number of standards involved in the standards under development process: This type of limit would prevent the plan from using too many resources. Unless there is a high priority for it, new projects should not be added to the plan or started until old projects are finished. As an example, there are still nine projects initiated in 2006 which have not been completed, while limited NERC and industry resources are assigned to the start of 2009 projects.
- Do not create new standards which duplicate what is already found in other standards and only serve to prescribe the method to meet the original requirement. If requirements are clear and unambiguous, any method used by entities to comply with the standards will be appropriate and mitigate risk to the BES.
- Low-priority projects should not be scheduled for future years, but rather put on a to-do list which can be reviewed when resources are available.
- Develop a risk profile for the entirety of NERC Standards. NERC needs a more holistic approach to risk management. While VRFs identify risk for each requirement and are used for enforcement purposes, they do not lend themselves to a "big picture" assessment of risk and comparison of standards on a risk basis. Selecting projects for the current work plan based on the associated risk to the BES is very difficult using the VRFs. The Standards Committee should develop a risk profile that effectively compares standards on a risk basis and facilitates the targeting of activities on those key standards that mitigate the greatest risk to the reliability of the BES.

3. Management of the Plan

Like any project, the Standard Under Development plan must be properly managed. This includes three components as outlined below:

- Resourcing

  There are currently too many projects drawing on limited industry resources for both participation on drafting teams as well as commenting and voting on standards under development. An excessive number of projects may result in industry fatigue in the standards development process. If fewer requests for comments were sent out, the quality of the feedback received would be higher, which would lead to better quality standards.

  The SUD Plan must reflect the need for resources to focus on interpretation requests which come up during the year. The number of interpretations will not decrease until existing standards are updated to improve clarity and measures of compliance. Hence, this should be the focus of activities in the short term.

- Cost

  NERC should publish the cost of the SUD program implementation, so that industry can weigh the benefits of new projects versus the cost of implementing them.

- Metrics

  There is a need for metrics to evaluate the standards development process in order to understand how long it takes to complete a project and how many can be completed per year in order to better plan future work. Past performance is an indication of future performance; therefore, plans should not encompass more work than has been shown to be completed in the past. For example, only one project identified in the 2008-2010 plan has been completed, but four projects have been added. The concern is that as more projects are added than completed,

the plan will become unachievable and projects that actually improve reliability will not be completed.

These metrics should be published in the Standards Development Plan in an easy to understand format (tables, graphs, etc) to demonstrate what is achieved from year to year and predict what is achievable for future years. Possible metrics include:

- Number of projects completed each year
- Number of projects added each year
- Number of projects failed/withdrawn each year
- Number of projects rescheduled to future years
- Average time to complete a project
- Number of new requests for interpretations each year
- Summary of what phase the projects are at (i.e. percent started, percent voted on, percent waiting for BOT approval, etc)

NERC Response:

1. Standard Quality

In response to your recommendation (as well as similar recommendations from others) we have added Project 2010-06 Results-based Reliability Standards to the Reliability Standards Development Plan: 2010-2012 for a project focused on:

- triaging the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all,
- developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis,
- promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and
- revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability.

2. Project Prioritization

The concept of project prioritization is paramount to a successful reliability standards development plan. A high priority project in the eyes of one entity might not be in the eyes of another entity. NERC staff coordinates all standards development activities through the NERC Standards Committee. In compliance with the *NERC Reliability Standards Development Procedure*, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. NERC staff works with the NERC Standards Committee to identify the projects of highest overall industry importance before working on lower priority projects. In fact, the Standards Committee Process Subcommittee is currently discussing methodologies for prioritizing standards development projects. We encourage your company's participation on that subcommittee.

3. Management of the Plan

- Resourcing

  NERC appreciates the industry resources necessary for the development of quality standards and is cognizant of the fact that industry resources are not limitless. NERC staff coordinates all standards development activities through the NERC Standards Committee whose membership consists of industry representatives. In compliance with the NERC Reliability Standards

Development Procedure, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. NERC staff facilitation of the standards development process in coordination with the Standards Committee takes into consideration the potential impact on industry resources when planning standards related projects and activities. Specific comments in how this Reliability Standards Development Plan could be modified to more effectively use industry resources are welcome.

- Costs

  The costs of the NERC Standards program are detailed in the NERC Business Plan and Budget.

- Metrics

  A set of metrics related to the length if time to complete a standards development process was provided in Appendix A to Attachment 1 of the Three-Year Electric Reliability Organization Performance Assessment Report.

Comment 14

Name: Standards Review Subcommittee

Organization: North American Energy Standards Board

Suggestion or Comment:

2006-07 Transfer Capabilities - (ATC, TTC, CBM, TRM)

Comment - NAESB completed its original work under FERC Order 890 for ATC, TTC, CBM, and TRM, which was coordinated with NERC. In the NERC NOPR related to this project there was the identification of potential for additional work. NAESB requests that NERC continue to coordinate and notify NAESB if there are any addition changes to the NERC standards affected under this project which could have an impact on the NAESB Business Practice Standards.

A potential area of additional coordination between the NERC drafting team and NAESB's WEQ ESS/ITS may arise in the handling of designation and undesignation of network resources under NAESB WEQ 2009 Annual Plan item 3.a.i "Group 3: Network Service On OASIS." The ESS/ITS is developing business practice standards for Network Service on OASIS, that include OASIS formats and requirements for capturing information on designation and undesignation of network resources. The information captured in the NAESB standards may provide useful data for inter-BA communication of resource allocations.

2006-08 Transmission Loading Relief

Comment - This project has ongoing coordination with NAESB since it directly impact the NAESB Business Practice Standard WEQ-008 (Transmission Loading Relief - Eastern Interconnection). NAESB expects this coordination will continue as the project moves forward.

2007- 05 Balancing Authority Control

This project is currently being coordindated with the NAESB Time and Inadvertent Management Task Force. Changes to the NERC standards may have an impact on the NAESB Business Practice Standards WEQ-006 (Time Error Correction) and WEQ-007 (Inadvertent Interchange Payback). We request that the Reliability Standards Development Plan continue to reflect that the project be coordinated with NAESB and reference the NAESB WEQ 2009 Annual Plan Items:

1.d Time Error and Indavertent (BAL-004 and BAL-006) Coordination with NERC

1.e DCS and AGC (BAL-002 and BAL-005) Coordination with NERC

2007-18 Reliability Based Controls

Comment - The Joint Interchange Scheduling Working Group in first quarter 2009 reviewed EOP-002 and determined that there should be some level of coordination between NERC and NAESB. As a result of this review the NAESB WEQ 2009 Annual Plan item (3.a.viii) "Review and correct WEQ-004 Coordinate Interchange Business Practice Standard as needed based on activities in NERC Project 2008-12, Coordinate Interchange Standards Revisions and supporting EOP-002-2 R4 and R6" was added. We request that this project reference that coordination between NERC and NAESB needs to occur and the cross reference to the NAESB WEQ 2009 Annual Plan item be added in the 2010-2012 Reliability Standards Development Plan.

2008-12 Coordinate Interchange

Comment - The Joint Interchange Scheduling Working Group in first quarter 2009 reviewed EOP-002 and determined that there should be some level of coordination between NERC and NAESB. As a result of this review the NAESB WEQ 2009 Annual Plan item (3.a.viii) "Review and correct WEQ-004 Coordinate Interchange Business Practice Standard as needed based on activities in NERC Project 2008-12, Coordinate Interchange Standards Revisions and supporting EOP-002-2 R4 and R6" was added. We request that this project reference that coordination between NERC and NAESB needs to occur and the cross reference to the NAESB WEQ 2009 Annual Plan item be included in the 2010-2012 Reliability Standards Development Plan.

2009-03 Emergency Operations

Comment - This project indicates that it will affect EOP-002-2. As a result of the Joint Interchange Scheduling Working Group's review of EOP-002-2 R4 and R6 and the issues noted in the project could affect R6 this project should be coordinated with NAESB and reference the NAESB WEQ 2009 Annual Plan item (3.a.viii) "Review and correct WEQ-004 Coordinate Interchange Business Practice Standard as needed based on activities in NERC Project 2008-12, Coordinate Interchange Standards Revisions and supporting EOP-002-2 R4 and R6."

2009-05 Resource Adequacy

Comment - NAESB created Provisional Item 1 "Develop and or modify business practices related to support of NERC effort on the NERC Resources and Transmission Adequacy (Project 2009-05 Resource Adequacy Assessment)" in its NAESB WEQ 2009 Annual Plan. We are requesting that this project be noted as one which may require coordination with NAESB.

Reliability Issue: Gas/Electric Coordination

Suggestion or Comment: Coordinate with NAESB to determine if some or all of the requirements contained in the NAESB Business Practice Standards WEQ-011 (Gas/Electric Coordination) should be transitioned to NERC.

Example: Refer to WEQ-011-1.3 through WEQ-011-1.6

Recommendation for improvement: The WEQ-011 was developed so that entities received critical notices from gas Transportation Service Providers, such that the Power Plant Operators were notified of material changes in circumstances that may impact hourly flow rates. The ISO/RTOS and/or BAs, and/or Power Plant Operators are to develop procedures when extreme conditions occur. These NAESB standards appear to be of a reliability nature rather than commercial. NERC and NAESB should review the standards to determine if all or part of WEQ-011 should be transitioned to NERC.

NERC Response:

NERC believes that continued coordination with NAESB is an important component of bulk power

operations, and remains committed to work with NAESB as needed.

With regard to project 2006-07 Transfer Capabilities, NERC will work with NAESB to ensure that any changes to these standards, directed by the Commission in its final rule or otherwise, will be coordinated between the two organizations. NERC will add a statement to this effect in our Plan.

With regard to projects 2006-08 Transmission Loading Relief, 2007-05 Balancing Authority Controls, and 2008-12 Coordinate Interchange, NERC will add statements to our Annual Work Plan about NERC/NAESB Coordination.

Regarding Projects 2007-18 Reliability Based Controls, 2009-03 Emergency Operations, and 2009-05 Resource Adequacy, NERC agrees that continued coordination with NAESB is important and work with NAESB as needed to ensure our work products are complementary. Should any changes to standards occur related to these projects that have business practice implications, NERC will work to coordinate with NAESB. If the NAESB SRS is aware of proposed changes that they feel would impact business practices, please advise the NERC Manager of Business Practice Coordination.

As far as Gas/Electric Coordination, NERC appreciates this suggestion, and welcomes further discussion related to this item. NERC suggests that one or more members of the NAESB SRS develop a NERC Standards Authorization Request that proposes this transfer, at which point NERC can establish a team of industry representatives to work with the requester(s) and discuss this item in depth.

Comment 15

Name: Stephanie Monzon - Regional Reliability Standards Working Group
Organization: NERC, RFC, MRO, WECC, NPCC, SPP, TRE, SERC, FRCC

Suggestion or Comment:

- The process for updating the NERC Workplan should begin with industry input prior to posting the workplan. The current process posts the existing, approved version of the work plan to solicit industry input. Instead, NERC staff should conduct an industry webinar to collect initial thoughts followed by a posting of the revised version of the workplan.

- A status of the existing approved projects in the workplan should be provided as reference material to the industry either during the webinar or before the posting to faciliate the commenting process. The status of the existing projects will provide the industry with an understanding of how many projects are still open, nearing completion, or completed.

- In 2006 the RRSWG assisted in the development of the original Work Plan by performing a sweeping assessment of the "fill in the blank" standards. It provided as input to the Plan recommendations on how the "fill in the blank" characteristics could be eliminated by modifying then existing standards and set forth the possibility of the need for stand-alone regional standards or regional standards in support of continent wide standards. Since that time the UFLS and DM SDTs have been formed and posted at least one draft of the respective standards. Both drafting teams are proposing continent wide requirements/ standards in these subject areas. Given the evolution of standards development the original RRSWG recommendations should be deleted from the Work Plan. Regarding the remaining fill in the blank standards (SPS and BAL) the NERC standards projects are either in the infancy stages of development or have not commenced. The RRSWG recommendations to create regional standards in these areas should be considered "on hold" until the drafting efforts have matured and a technical determination can be made for the need of regional standards that includes consideration by the Regions and NERC.

Recommendation for improvement: - Conduct a webinar or other similar activity to get initial suggestions for the next version of the workplan instead of posting the existing version of the workplan. This should be followed by the first posting of a revised workplan.

- Provide the industry with a status of the existing projects in the work plan

- Remove the RRSWG recommendations for the UFLS and DME standards and place "on hold" the recommendations for SPS and BAL fill in the blank standards.

NERC Response:

- Conduct a webinar…

Thank you for your comment. We will consider incorporating your suggestion into next year's project for revising the *Reliability Standards Development Plan.*

- Provide the industry with a status …

Links to the current project schedule for each of the active projects are provided at the end of each project description in Volume II of the Reliability Standards Development Plan. The on-line project schedules are updated monthly and should provide the level of detail you suggest in your comment above.

- Remove the RRSWG recommendations for the UFLS and DME standards and place "on hold" the recommendations for SPS and BAL fill in the blank standards.

The recommendations of the RRSWG are noted in the Issues Database and do not need to be removed

at this time. The recommendations will be treated as any other recommendation in the database in that the standard drafting team working on the applicable standard will consider the recommendation but is not obligated to implement the recommendation. Maintaining it in the Issues database ensures that the recommendation is tracked and not lost in the standards development process.

Comment: 16

Name: Wayne Pourciau

Organization: Georgia System Operations Corp.

Reliability Issue: Interfering with compliance and enforcement of requirements essential for reliability

Suggestion or Comment: There are a number of requirements that are not essential to the reliability of the bulk power system (e.g., needed to prevent cascading outages). These requirements interfer with compliance by reliability entities with requirements essential to reliability and interfer with compliance enforcement by regional entities of those essential requirements. There is a need to place primary focus on the essential requirements. Reporting and other lesser requirements should be a secondary focus and only as long as they do not take away the focus on the essential requirements.

Example: BAL-006-1, R5: "Adjacent Balancing Authorities that cannot mutually agree upon their respective Net Actual Interchange or Net Scheduled Interchange quantities by the 15th calendar day of the following month shall, for the purposes of dispute resolution, submit a REPORT to their respective Regional Reliability Organization Survey Contact. The REPORT shall describe the nature and the cause of the dispute as well as a process for correcting the discrepancy."

This reporting is not a reliability requirement. A reliability requirement is one that focuses on operating the elements of the BES within system thermal, voltage, and stability limits so that instability, uncontrolled separation, or cascading failures of such system will not occur as a result of a sudden disturbance or unanticipated failure of system elements. A reliability requirement deals with the operation and maintenance of BES facilities and the design of planned additions or modifications to such facilities to the extent necessary to provide for reliable operation of the BES. The example above is an administrative requirement. It does not deal with current or future operation of the BES.

The reporting requirements of EOP-004, other than those relating to physical and cyber threats and attacks, are some more examples. These deal with information on past events (water under the bridge) and do not deal with operating the BES. This reporting is needed by NERC to investigate incidents, collect statistics on incidents, and other purposes relating to overseeing reliability (but such reporting is not needed for operating the BES).

Another example is TOP-005-1.1, R2 "As a condition of receiving data from the Interregional Security Network (ISN), each ISN data recipient shall sign the NERC Confidentiality Agreement for “Electric System Reliability Data.” " This is not a reliability requirement.

Recommendation for improvement: Review all existing FERC approved Reliability Standards to eliminate Reliability Standards that are not essential to the reliability of the bulk power system (e.g., needed to prevent cascading outages). Reduce less significant Reliability Standards to a lesser category, such as operating guides, policies or criteria and remove documentation related requirements from the requirements of Reliability Standards. Move documentation related requirements to compliance measures or some other component of the Reliability Standards. This is a high priority along with eliminating duplicative requirements, making existing requirements more clear, and securing the nation's electric system from attacks.

Although the reliability of the electric system in the United States and Canada is one of the most (if not THE most) reliable system in the world, it is always good to keep improving. However, NERC projects aimed at adding requirements to try to improve the reliability of the system are a lower priority at this time than the high priorities listed above. Fixing the existing standards is the best way to improve reliability and improve the monitoring and enforcement of the essential requirements. Adding more requirements to try to improve reliability should be pursued only as time and available resources allow.

NERC Response:

In response to your recommendation (as well as similar recommendations from others) we have added Project 2010-06 Results-based Reliability Standards to the *Reliability Standards Development Plan: 2010-2012* for a project focused on:

- triaging the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all,
- developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis,
- promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and
- revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability.

Comment 17

Name: Phillip R. Kleckley

Organization: SERC EC Planning Standards Subcommittee (PSS)

Standard: FAC-001-0 - Facility Connection Requirements

Element(s) (i.e., Requirement R1.2., Measure M2., etc.): R1.3. End-user facilities

Suggestion or Comment: add a definition of "end user" to the NERC Glossary

Project: 2010-02 Facility Connection Requirements

Additional Information: The recommendation was received as part of the comments on Question 3 of the comments form for the "Draft Revision 6 of the SERC Facility Connection Requirements (FCR) Guideline".

NERC Response:

Due to your comment above the following item has been added to the Issues Database to be addressed by the standard drafting team responsible for revising the standard:

Source: Phillip R. Kleckley (SERC EC Planning Standards Subcommittee (PSS)) as input to the Reliability Standards Development Plan:2010-2012

Project No.: 2010-02 Facility Connection Requirements

Language: Consider adding a definition of "end user" to the NERC Glossary. (Note: This recommendation was received as part of the comments on Question 3 of the comments form for

the “Draft Revision 6 of the SERC Facility Connection Requirements (FCR) Guideline”.)

Comment 18

Name: John Ciufo

Organization: NERC System Protection and Control Subcommittee (SPCS)

Standards:

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations
- PRC-012-0 — Special Protection System Review Procedure
- PRC-016-0.1 — Special Protection System Misoperations

Suggestion or Comment: The NERC System Protection and Control Subcommittee (SPCS) recommends creation of a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016

Consistent with the attached Standard Authorization Request (see Attachment 1) and Technical Review of Standards Prepared by the System Protection and Controls Subcommittee of the NERC Planning Committee dated May 2009 (see Attachment 2).

NERC Response:

In response to your comment we have modified Project 2010-05 Protection Systems in to the *Reliability Standards Development Plan: 2010-2012* to consider the recommendations of the NERC System Protection and Control Subcommittee as identified in the Technical Review of Standards Prepared by the System Protection and Controls Subcommittee of the NERC Planning Committee dated May 2009.

Comment 19

Name: Wayne E. Guthrie

Organization: Construction Specialty Services, Inc. & Critical Systems, LLC

Standard: ANSI NFPA 850: Recommended Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations

Reliability Issue: Physical fire and blast protection of electrical transformers and other essential equipment, buildings and people located in power generation, transmission or distribution system locations.

Suggestion or Comment: Adopt a NFPA-850, which is a recommended fire protection practice for the power generation industry.

Example: If there is a catasthrophic failure of a transformer it can shut down a site for an indefinite period of time for repairs or replacement of equipment and facility. In the US there exists an aging fleet of transformers that are becoming more unreliable everyday because of age and lack of maintenance. In addition, many power companies build new facilities without thought to protection of their assets. As an example, it requires between 24 and 48 months to receive a new replacement transformer, if it fails beyond repair. In addition, placing fire & blast rated barriers between transformers and also have in place a functioning transformer oil collection and containment system in accordance with FM Global recommendations can mean the difference between a single transformer failure incident and a catasthrophic incident. There are also issues with where the generation transformers sit relative to the turbine building, that if a fire and or fire and blast event initiated could potentially preclude population of the building and control room in order to shut down the unit (s).

Recommendation for improvement: Consider adopting existing standards of performance so that a committee would not have to be formed to write something that already exists.

Suggestion or Comment: NERC may want to consider inviting professionals involved in the fire and blast protection engineering and assessments fields to assist in development of standards of performance or protection in accordance with readily obtainable existing recommendations, standards and codes.

Example: Go to NFPA and ask for assistance or I could put NERC in contact with individuals that could place NERC in contact.

Recommendation for improvement: As I understand the only reference to physical protection is that NERC states that utility entities are obligated to physically protect critical equipment and is not specific in reference to the measures that should be considered to improve or provide protection. Unfortunately in the utility industry many companies have eliminated or otherwise do not possess within their ranks individuals educated in the realm of physical fire and blast protection methodologies that exist, or even have the knowledge base to self assess and identify the potential need for protection.

Additional information: If further information or discussion is required, please contact the writer:

Wayne E. Guthrie

Construction Specialty Services, Inc. & Critical Systems, LLC

502-231-2402

wguthrie@cssi.win.net

NERC Response:

In response to your comment we have added Project 2012-02 Physical Protection to the *Reliability Standards Development Plan: 2010-2012* for a project to consider the development of a NERC Reliability Standard related to physical protection of essential equipment, buildings and people located in power generation, transmission or distribution system locations.

Comment 20

Name: Barry Lawson

Organization: National Rural Electric Cooperative Association (NRECA)

Suggestion or Comment: The industry cannot continue, without an end in sight, to support the development of the number of standards included in the current Reliability Standards Development

Plan. During the past year there has been an average of 30 to 40 Standard Drafting Teams (SDTs) functioning all at the same time. With this many SDTs in place, the expertise in the industry that voluntarily staffs these teams is spread too thin. NRECA believes that at any one time there should be an average of 10-15 SDTs in place. These SDTs should be focused on standards that are the most critical the enhancing the reliability of the Bulk Power System (BPS). Reducing the number of SDTs in place at one time will help to ensure that the best quality standards are developed by:

-- helping to ensure the best quality SDTs by increasing the number of available industry stakeholders; and

-- helping to ensure that the right industry experts are reviewing the posted standards they are most knowledgeable about.

The bottomline is that not every standard can be a top priority. There is not an endless supply of industry resources to staff SDTs and to review proposed/revised standards, and therefore, the present pace of an average of 30-40 SDTs in place at one time is not sustainable without the possibility of negative impacts on standards development activities. To address this a significant and urgent effort needs to be expended to determine the most critical standards development activities that are needed to enhance the reliabilty of the BPS. From this effort, the 10-15 most critical standards should be determined and these should be the standards that SDTs are formed to address in a particular year.

In addition, there should be particular attention placed on completing the fill-in-the-blank standards since many of the approved standards refer to the fill-in-the-blank standards that have not been approved.

Finally, several months ago the NERC Standards Committee approved a "Roles and Responsibilities" document which addressed the appropriate roles for SDT members, NERC and FERC staff regarding standards development activities. NRECA supported the development of this important document and is not yet confident that NERC and FERC staff are consistently operating under the roles identified in the document. We see a need to ensure that all parties involved clearly understand their appropriate roles and responsibilities and that they work in such a manner.

We look forward to working with you to make sure these issues are fully addressed.

NERC Response: With respect to your comments regarding the industry's ability to support the development of the number of standards included in the current Reliability Standards Development Plan, NERC understands the amount of resources required (both industry and NERC specific resources) for the development of quality standards and is cognizant of the fact that industry resources are not limitless. NERC staff coordinates all standards development activities through the NERC Standards Committee whose membership consists of industry representatives. In compliance with the NERC Reliability Standards Development Procedure, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. NERC staff facilitation of the standards development process in coordination with the Standards Committee takes into consideration the potential impact on industry resources when planning standards related projects and activities.

With respect to your comment regarding fill-in-the-blank standards NERC staff is working with staff representing each of the Regional Entities to develop a plan to address the issues with the fill-in-the-blank standards in the interim prior to the completion of the continent-wide revision of the standards. The interim plan for addressing the fill-in-the-blank standards will not replace the projects already identified in Volume II of this plan but rather will propose a solution to address the shortcomings of the existing fill-in-the-blank standards until the continent-wide revision of the standards can take place. It is anticipated that the interim plan will involve the use the standards development process in order that industry stakeholders will be able to participate in the process as it evolves.

With respect to your comments regarding the "Roles and Responsibilities" document, NERC staff does adhere to the document as it applies to the development of standards using the Reliability Standards

Development Process.

Comment 21

Name: Ben Li

Organization: IRC Standards Review Committee (Group)

Suggestion or Comment: We applaud the staff and the Standards Committee for taking a new approach to developing the 2010-2011 standards development work plan. We see changes that are a positive first step toward arriving at a consolidated set of reliability standards of good quality all of which contribute to reliability. In particular, we are encouraged by some of the objectives listed:

• Addressing quality issues to ensure each reliability standard has a clear statement of purpose, and has outcome-focused requirements that are clear and measurable.

• Ensuring measures and compliance elements are aligned to support the requirements within the reliability standards and follow definitions outlined in the reliability standards template.

• Reorganizing the reliability standards based on topic.

• Eliminating requirements that do not have an impact on bulk power system reliability; retiring redundant requirements; retiring or converting (into guidelines) lower-level "facilitating" requirements that are already measured through compliance with higher level requirements; and moving basic "capability" requirements that are routinely used for the certification processes.

We wish to express our strong support for the proposal to move toward developing the performance-based reliability standards. This work, together with improved standard quality, will give rise to a set of sustainable reliability standards which in our view will meet with FERC's acceptance and reduce the revision/maintenance requirements, reduce the number of requests for interpretation and even eliminate a good number of assessed violations owing to lack of clarity.

We are also pleased to see some general reduction in the number of projects planned for future years. However, recognizing that some existing standards are still being revised and some of them may be remanded by FERC when they are submitted for approval (as evidenced in past performance), we suggest the number of planned projects to be further reduced to provide a much needed "buffer" to respond to the FERC directives - not just for the remanded standards but also for any proposed new standards as initiated by the FERC and the industry. We suggest a reduction of the amount of standards in the plan based upon the historical increased workload from FERC remands of proposed standards so that the 3 year Work Plan schedule can be more closely adhered to.

NERC Response:

Thank you for your support of Project 2010-06 Performance-based Reliability Standards (recently renamed to Project 2010-06 Results-based Reliability Standards).

With respect to your comment regarding reducing the number of projects in the plan, at this point in time it is not practical to do so for the reasons stated in the "Priority of Projects" section of this report which begins on page 9 of Volume I. Certain projects are required to be initiated in 2010 pursuant to the Rules of Procedure of the North American Electric Reliability Corporation which state in part "each reliability standard shall be reviewed at least once every five years from the effective date of the

standard or the latest revision to the standard, whichever is later." Making a conscious decision to ignore these projects would cause NERC to violate the Rules of Procedure which NERC staff is not willing to do. NERC staff will continue to work with the Standards Committee to coordinate the initiation of future standards development projects.

Comment 22

Name: John Brockhan

Organization: CenterPoint Energy

Project Number(s): 2012-01 / 2012-02

Project Title(s): Equipment Monitoring and Diagnostic Devices / Physical Protection

Suggestion or Comment: CenterPoint Energy appreciates the efforts of the NERC Standards Program in recognizing the need to focus efforts and prioritize projects having the greatest impact on reliability. To that end, we believe that the two projects currently scheduled to begin in 2012 should be further delayed indefinitely or at least until the next Standards Development Plan cycle so that projects currently underway and those projects scheduled to begin later this year and in 2010 may be farther along (or completed) before additional projects are initiated.

Recommendation for improvement: CenterPoint Energy recommends delaying Projects 2012-01 and 2012-02 indefinitely or into 2013 or later and re-evaluating the need to begin these projects during the drafting of the 2011-2013 Reliability Standards Development Plan. The assessment of any new proposed standards should emphasize whether there is a true reliability need, or is simply a business growth opportunity. Furthermore, we recommend that no new projects be added to future Standards Development Plans until already identified projects are completed.

NERC Response:

The concept of project prioritization is paramount to a successful reliability standards development plan. NERC staff coordinates all standards development activities through the NERC Standards Committee. NERC staff works with the NERC Standards Committee to identify the projects of highest overall industry importance before working on lower priority projects. The Standards Committee Process Subcommittee is also currently discussing methodologies for prioritizing standards development projects. Consideration of delaying the initiation of Projects 2012-01 and 2012-02 will be given as other higher priority projects are completed and new projects are identified.

Reliability Issue: A. Proposed 2010-2012 Standards Development Plan / Developing Results-Based Standards as presented by the Ad Hoc Group on Results-Based Standards

B. Load Serving Entity/Distribution Provider Issue

Suggestion or Comment:

A. CenterPoint Energy shares the views of many previous commentors that the number of existing reliabiltiy standards and requirements should be reduced to only those that truly impact the reliability of the Bulk Electric System (BES). CenterPoint Energy also agrees that new projects should be prioritized and only those that truly improve the reliability of the BES should be included in the Standards Development Plan and initiated.

CenterPoint Energy supports efforts to alter (or, move away from) the current environment of prescriptive and unnecessary process-based reliability standards and requirements. As presented in the

webinar on September 17, the Ad Hoc Group proposal is promising in that results-based standards would be more likely to improve the reliability of the Bulk Electric System. In the current environment, the standards include many requirements that are overly prescriptive and are not necessary for the reliable operation of the BES.

B. CenterPoint Energy is concerned that there appears to be a lack of interest in resolving the Load Serving Entity (LSE)/Distribution Provider (DP) issue. The Functional Model SDT remarked that the LSE/DP issue is not a Functional Model issue but one of registration and commented that NERC was to begin a project to resolve this issue. NERC indicated it would begin a project to address this issue through the Reliablity Standards Development Plan. CenterPoint Energy failed to see such a project in this draft and believes it is an important issue with impacts to many entities.

Example: A. Underfrequency load shedding (UFLS) is an example of overly prescriptive requirements. PRC-007 requires consistency with Regional Reliability Organization's UFLS program requirements. There is also standard PRC-008 requiring preventive maintenance of UFLS components. If PRC-007 contained results-based requirements it would be sufficient to address the reliability need. As an entity worked to meet the performance criteria, concerns such as design, maintenance, testing, etc. would be addressed with a single standard.

Recommendation for improvement: A. Focus NERC and industry resources by accelerating Project 2010-06 Performance-Based Reliability Standards in the que. The work of the Ad Hoc Group on Results-based Standards could serve as a foundation for the Project team's efforts.

B. Add an accelerated project in the 2010-2012 Standards Development Plan to resolve the LSE/DP issue.

NERC Response:

A) Thank you for your support of Project 2010-06 Performance-based Reliability Standards (recently renamed to Project 2010-06 Results-based Reliability Standards).

B) As stated in last year's plan regarding this issue:

The following description has been incorporated into the scope for affected projects in this revised *Reliability Standards Development Plan* that includes a standard applicable to Load Serving Entities:

> **Source:** FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000
>
> **Issue:** In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see:
>
> - FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf)
> - NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf),
> - FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-

040408.pdf), and

- NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

This issue is best addressed on a case-by-case basis when an affected standard is opened for revision.

Comment 23

Name: Denise Koehn

Organization: Bonneville Power Administration

Project Number(s): 2008-12

Project Title(s): Coordinate Interchange Standards

Suggestion or Comment: BPA supports the consolidation effort currently underway in the drafting team's workload. BPA believes the consolidation described thus far will yield a more efficient demonstration of compliance with each requirement. The existing Standards require considerable duplication of explanation and documentation to prove compliance.

Recommendation for improvement: Continue with current effort.

NERC Response:

Thank you for your support of Project 2008-12 Coordinate Interchange Standards.

Suggestion or Comment: BPA agrees with the recommendations from other stakeholders that the industry should focus existing reliability standards and reliability standards development on areas that will lead to the greatest improvement in bulk power system reliability. BPA fully supports the suggestions that the industry should:

(1) focus the development of new reliability standards on those that will lead to the greatest improvement in reliability; i.e., address the greatest risks of widearea cascading outages;

(2) reduce the number of existing reliability standards to just those that have a critical impact on reliability of the bulk power system and convert the remaining reliability standards to guidelines; and

(3) develop a more systematic process for prioritizing new reliability standards development projects based on risks to the bulk power system.

However, BPA feels that it is an aggressive schedule and will require considerable effort to accomplish as many items per year as scheduled. The industry needs improved, clear, concise Standards asap, but it is the same staff that is needed to work on the improvements for nearly each of the revisions. Really tough balancing acts to get everything accomplished within the timeframes.

NERC Response:

Thank you for your support of Project 2010-06 Performance-based Reliability Standards (recently renamed to Project 2010-06 Results-based Reliability Standards).

We also appreciate your comment relative to the challenge we face for coordinating the implementation of Project 2010-06 Results-based Reliability Standards with the other standards development activities. It will be a challenge but one I'm sure NERC working with industry will be able to overcome.

Comment 24

Name: Ed Skiba, Co-chair, Narinder Saini, Co-chair

Organization: North American Energy Standard Board Wholesale Electric Quadrant Standards Review Subcommittee

Suggestion or Comment: Project 2006-08 Transmission Loading Relief - The Related NAESB Projects should be updated to reference the NAESB WEQ 2009 Annual Plan and the Annual Plan Item 1.b "Continuous support of TLR Procedure in alignment with NERC efforts on TLR Phase II and Phase III development." Additionally the reference to Annual Plan Item 1.d should be changed to 1.b under the section labeled SRS recommendation.

Project 2007-05 Balancing Authority Controls - The related NAESB Projects should be updated to reference the NAESB WEQ 2009 Annual Plan and the Annual Plan Items listed should include 1.d and 1.e. Under the SRS recommendation it should be noted that there is ongoing coordination between the BAC Standards Drafting Team and the NAESB WEQ Time and Inadvertent Management Task Force.

Project 2007-18 Reliability-based Control - Related NAESB projects should be updated to reference the NAESB WEQ 2009 Annual Plan and the Annual Plan Item listed should be 3.a.viii. Under the SRS Recommendation the language should be changed to indicate that the NERC/NAESB JESS has reviewed EOP-002-2 and identified that there is potential coordination opportunities.

Project 2008-01 Voltage and Reactive Control - The Related NAESB Projects should be updated to reference the NAESB WEQ 2009 Annual Plan. There is no need to change the Annual Plan Item Number. Under SRS Recommendation, the last sentence should be deleted since the project is now included on the NERC Standards Under Development webpage.

Project 2008-12 Coordinate Interchange Standards - The Related NAESB Projects should be updated to reference the NAESB WEQ 2009 Annual Plan. Additionally, the Annual Plan Items currently listed should be deleted and Annual Plan Item 3.a.viii should be added. Under the SRS recommendation it should state that the NERC/NAESB JESS was assigned an annual plan to "Review and correct WEQ-004 Coordinate Interchange Business Practice Standard as needed based on activities in NERC Project 2008-12, Coordinate Interchange Standards Revisions and supporting EOP-002-2 R4 and R6."

2009-03 Emergency Operations - The Related NAESB Projects should be updated to reference the NAESB 2009 WEQ Annual Plan. Additionally, the Annual Plan Item listed should be 3.a.viii.

Project 2010-02 Connecting NeW Facilities to the Grid - The Related NAESB Projects should be updated to reference the NAESB 2009 WEQ Annual Plan.

Project 2010-Demand Data - Suggest the following language be added:

Coordination with NAESB:

The NAESB WEQ Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual Plan_:

Annual Plan Item

Justification for NAESB Consideration

NAESB has developed Demand Response Measurement and Verification standards and have additional annual plan items related to Demand Response.

SRS Recommendation

Since this project has not started the WEQ will add this project to its watch list.

NERC Response:

Thank you for your comments. Volume II of the *Reliability Standards Development Plan: 2010-2012* has been modified to reflect the suggested changes.

Comment 25

Name: Jack Cashin

Organization: EPSA

Project Number(s): 2010-06

Project Title(s): Performance Based Reliability Standards

Suggestion or Comment: Based on the presentation by Gerry Cauley during the webinar on Sept. 17th, it appears that a great deal of work related to this project is currently underway. What is not clear is the sectoral composition of the ad hoc group carrying out this work to be presented to the Standards Committee in November 2009.

Recommendation for improvement: While EPSA is generally supportive of the direction in which this ad hoc group appears to be headed, we are concerned about the lack of broad stakeholder representation. It would be our expectation, that once this work product is presented to the Standards Committee and before it is used in any standard development work, there will be an opportunity for substantive stakeholder review and comment.

NERC Response:

In August 2009 an ad-hoc group was organized made up of representatives from the Standards Committee, Regional Entity staff, and NERC standards staff for developing a plan for transitioning the exiting set of NERC reliability standards into a set of revised reliability standards. As of the middle of September the ad hoc group consisted of:

- Gerry Cauley, SERC
- Ben Li*, Consultant
- Terry Bilke*, MISO
- Pete Heidrick, FRCC
- Carter Edge, SERC
- Gerry Adamski, NERC
- Dave Taylor, NERC
- Steve Rueckert*, WECC
- Pat Huntley, SERC
- Allen Mosher*, APPA

Since then others have either officially joined or are observing the activities of the group. It is not the intent to exclude participation on this group; however, it is desired that the group remain a manageable

size so that work can be performed quickly and efficiently. The intent is to turn over all aspects of implementing the project (including substantive stakeholder review and comment) to the Standards Committee once the NERC BOT considers the plan during their November 4, 2009 meeting.

Reliability Issue: Work of the GO/TO Team

Recommendation for improvement: At the May 2009 Board of Trustees meeting, a Task Force was established to review the applicability of a number of Transmission Owner/Operator standards to Generator Owners and Operators with respect to Generator Interconnections to the Transmission System. While the work of this group is still proceeding, it can be anticipated that their recommendations will necessitate standard development and the Standards Development Plan should take this into account. Given that this Task Force resulted from action of the Board of Trustees, this work should receive high priority.

NERC Response:

The work of the Ad Hoc Group for Transmission Requirements at the Generator Interface expects to complete its work in Fall 2009. In its report, the team expects to include a proposed SAR and associated standards changes to address the recommendations of the team. As such, Project 2010-07 Transmission Requirements at the Generator Interface has been added to reflect this expectation.

Suggestion or Comment: Review of standards related to Generator Relaying

Recommendation for improvement: The general subject of generator relaying has been the subject of numerous technical reviews over the last several months. The list of such reviews would include, FERC NOPR on PRC-023 issued May 21st, NERC Technical Reference on Power Plant and Transmission System Protection Coordination issued Sept. 2009 referencing PRC-001, Reliability of Protection Systems (Project 2009-07) and possibly others. EPSA would recommend that there be greater coordination of all of the work underway reviewing generator protection generally so that generator owners and operators may more rationally contribute to the development of any new or revised standards

NERC Response:

There continues to be a great interest in properly evaluating and if necessary developing reliability standards that address relaying and control aspects for generators. This work is largely been under the custody of the System Protection and Control Subcommittee. We agree that a consolidated approach is most efficient and effective in this regard and are awaiting further input regarding the expected availability of additional technical guidance upon which future standards development work will be based.

Comment 26

Name: Dan Rochester

Organization: Independent Electricity System Operator

Suggestion or Comment: Our comments are of a general nature and address the important issues of prioritization and scheduling. We commend the NERC Reliability Standards Program for their efforts to respond to industry comment and to develop a more realistic overall project schedule. By my count, there are 8 project scheduled for completion in 2010 with numerous others either continuing or being initiated. It is left to be seen whether or not this "aggressive" schedule will be met, given the unpredictable impact of requests for interpretation and SARs.

We support the effort to develop Perfformance-based reliability standards and believe this will produce standards that ultimately achieve their desired end.

NERC Response:

Thank you for your comments regarding the "aggressive" nature of the overall standards development effort. We have made a concerted effort over the past year to analyze the time it takes for a standards development project along with the timing of tasks for coordinating the projects more efficiently. Using the information we collected we adjusted all the project schedules in an attempt to provide the industry a more accurate representation of expectations. Even though not perfect, the revised schedules are a better representation of future expectations. We hope to continue to work closely with the industry to drive the projects to a timely and successful completion.

Thank you for your support of Project 2010-06 Performance-based Reliability Standards (recently renamed to Project 2010-06 Results-based Reliability Standards).

Comment 27

Name: Laura Lee

Organization: Duke Energy

Project Number(s): 2010-06

Project Title(s): Performance-based Reliability Standards

Suggestion or Comment: Duke would like to commend NERC for initiation of this project in response to industry input. It is vital that the industry concentrate its resources and attention on requirements that preserve BES reliability. We also appreciate the fact that no projects are currently scheduled to start in 2011 to facilitate concentration on this project and the others that will still be in progress.

Suggestion or Comment: No new standards should be initiated until completion of Project 2010-06. It is likely that the work on this project will result in a clearer consensus of what type of requirements and standards are truly essential for ensuring reliability of the BES, so it seems premaure to initiate development of new standards until this work is nearing completion. This would defer commencement of Projects 2009-04 and 2010-01.

Addition of a section expicitlyspecifying the alignment of the projects to NERC's priority initiatives (i.e., System Protection Initiative, System Modeling Improvement Initiative, etc.) would enhance the report - perhaps expand the last paragraph of "Other modifications" in the Summary section with additional specific details.

Another enhancement to the report would be an additional header in the Summary section explaining how reliability issues surrounding emerging technologies such as smart grid, energy efficiency, renewable resources, etc. are being addressed.

NERC Response:

Your suggestion that no new standards be initiated until completion of Project 2010-06 is not practical for the reasons stated in the "Priority of Projects" section of this report which begins on page 9 of Volume I. Certain projects are required to be initiated in 2010 pursuant to the Rules of Procedure of the North American Electric Reliability Corporation which state in part "each reliability standard shall be reviewed at least once every five years from the effective date of the standard or the latest revision to the standard, whichever is later." Making a conscious decision to ignore these projects would cause

NERC to violate the Rules of Procedure which NERC staff is not willing to do. NERC staff will continue to work with the Standards Committee to coordinate the initiation of future standards development projects.

With respect to your suggestions to add a section explicitly specifying the alignment of the projects to NERC's priority initiatives and to add an additional header in the Summary section explaining how reliability issues surrounding emerging technologies such as smart grid, energy efficiency, renewable resources, etc. are being addressed, we will consider these suggestion during next year's annual revision to the *Reliability Standards Development Plan*.

Comment 28

Name: Guy Zito

Organization: Northeast Power Coordinating Council

Suggestion or Comment: The document is primarily informational. The timelines for project development cannot be firm, given the statement on p. 10 in Volume I that the six projects anticipated to be started in 2010 will be worked on when "appropriate NERC staff and industry resources are freed up from other projects".

On p 16--It is stated "Reliability Standards Development Plan: 2009-2012." Shouldn't this be 2010-2012?

For project prioritization,on p. 10 (Volume I) it is stated that there are projects to have existing projects revised while there are high priority reliability projects still waiting to be developed. Projects important for system reliability that haven't been developed yet should be given priority over existing projects.

Recommendation for improvement: Add the criteria for determining the priority of projects. If this information is in another document, it should be repeated in the Reliability Standards Development Plan for ease of reference.

NERC Response:

Your comment that the document "document is primarily informational" is accurate and is consistent with the second sentence of the first paragraph in the "Purpose" section of this Volume I which states "The plan serves as the management tool that guides, prioritizes, and coordinates revision or retirement of existing reliability standards and the development of new reliability standards for the immediate 3-year time horizon." This is a dynamic document and is meant to change as circumstances change.

With respect to your comment regarding page 16 of this volume, the typographical error has been corrected.

With respect to your suggesting for adding the criteria for determining the priority of projects, once the Standards Committee Process Subcommittee and/or Communications and Planning Subcommittee finalize the criteria we can include it in a future revision to the plan.

Comment 29

Name: Martin Bauer

Organization: US Bureau of Reclamation

Reliability Issue: Report from the Ad Hoc Group for Generator Requirements at the Transmission

Interface
Suggestion or Comment: The report addresses a serious problem in the construction of the existing reliability standards. The recommendations in the report should be incorporated into the various projects currently underway. A new project should be initiated for those standards who have already been vetted and balloted. The recommendations should be added to the project description for all other standards.
Suggestion or Comment: This comment is reference to the lack of bilateral communication or coordination evident in the standards between the TO/TOP and GO/GOP entities. In most of the standards the communication or coordination requirement is from the GO/GOP to the TO/TOP. This unilateral requirement does not promote reliability and can result in the exclusion of the GO/GOP in critical system operation decisions or planning functions. In the cases cited below, there is no consideration that Transmission facilities could affect the Generator facilities.
Example: FAC008 R2, FAC 009 R2, PRC 001 R 2.1, R2.2, R3.1, R3.2, R5.1, R5.2, TOP 001 R7.2, R7.3, and TOP 003 R1.1
Recommendation for improvement: Review the listed standards and develop an appropriate requirements for communication and coordination for the TO/TOP with the GO/GOP entities.
NERC Response: The work of the Ad Hoc Group for Generator Requirements at the Transmission Interface expects to complete its work in the Fall 2009. In its report, the team expects to include a proposed SAR and associated standards changes to address the recommendations of the team. As such, a new project 2010-07 has been added to reflect this expectation. To the point regarding bilateral communication relative to the listed requirements, NERC will forward these comments to the ad hoc team for their consideration prior to completion of their activities.

Comment 30 **Name:** Wayne Pourciau **Organization:** Georgia System Operations Corp.
Suggestion or Comment: Project 2010-06 Performance-based Reliability Standards is the most important project for the 2010 to 2012 development period.
Recommendation for improvement: Implement the plan for improving the set of NERC reliability standards to be more focused on reliability performance with a direct relation to bulk power system reliability.
Project Number(s): Project 2010-06
Project Title(s): Performance-based Reliability Standards
Suggestion or Comment: Project 2010-06 Performance-based Reliability Standards is the most important project for the 2010 to 2012 development period.
Recommendation for improvement: Implement the plan for improving the set of NERC reliability

standards to be more focused on reliability performance.
Reliability Issue: Existing standards are unclear and confusing. Many requirements are repeated throughtout the set of standards. There are many requirements that are administrative in nature or are simply explanatory text and which do not appear to contribute directly to meeting reliability objectives. The resources of NERC, the Regional Entities, and the Registered Entities are wasted on duplicate and unnessary requirements.
Suggestion or Comment: Implement the Project 2010-06 Performance-based Reliability Standards for improving the set of NERC reliability standards to be more focused on reliability performance with a direct relation to bulk power system reliability. Failing to address this issue at this time in the standards development work plan serves to perpetuate the current course of adding requirements and detail to a set of requirements that has no discernable distinction between bulk power system performance-based outcomes and the other types of requirements. This current approach will continue to dilute resources needed for standards development, compliance monitoring and enforcement, and the compliance resources at registered entities across a spectrum of requirements that have mixed value for ensuring reliability. A plan is needed to shift the standards, and the efforts needed to develop and implement them, toward performance-based requirements that have a clear beneficial impact on reliability of the bulk power system. The same public interest that is served by having reliability standards is best served if the standards have a direct and material impact on the reliability of the bulk power system.
Recommendation for improvement: Implement the Project 2010-06 Performance-based Reliability Standards for improving the set of NERC reliability standards to be more focused on reliability performance with a direct relation to bulk power system reliability.
Additional information: A lack of clarity and direction with regard to some of the reliability standards has resulted in confusion. Where we once used language somewhat loosly in a voluntary environment and everyone had a general idea of what was meant, now sactions and penalties are dependent on the exact meaning of the words. Under the mandatory enforceable environment, words which were generally used are now being scrutinized and called into question. This is a result of the environment of exactly following prescribed actions. A change to a focus on the end result would change the environment from a legalistic, "letter of the law" environment to a more techincal, reliability-based, "intent of the law" environment. Additionally, this project should include an effort to develop at least one objective measurement for each requirement.
NERC Response: Thank you for your support of Project 2010-06 Performance-based Reliability Standards (recently renamed to Project 2010-06 Results-based Reliability Standards). Noting your apparent intense interest in the project we look forward to your active participation in the project.

Attachment 1

Standard Authorization Request Form

Title of Proposed Standard: Protection Misoperations Revisions to PRC-003, PRC-004, PRC-012, and PRC-016
Request Date: June 10, 2009

SAR Requester Information		**SAR Type** (*Check a box for each one that applies.*)	
Name:	System Protection and Control Subcommittee	☐	New Standard
Primary Contact:	John Ciufo, Chairman	X	Revision to existing Standard
Telephone:	(416) 345-5258	X	Withdrawal of existing Standard (PRC-016)
Fax:	(416) 345-5406		
E-mail:	john.ciufo@HydroOne.com	☐	Urgent Action

Purpose (Describe what the standard action will achieve in support of bulk power system reliability.)

A key element of bulk power system reliability is the performance of the Protection Systems. To properly gage Protection System performance, is necessary to have a consistent set of metrics on Protection System Misoperations. Current PRC standards and definitions related to Protection System Misoperations are confusing and do not support a good metric for measurement of Protection System performance.

Industry Need (Provide a justification for the development or revision of the standard, including an assessment of the reliability and market interface impacts of implementing or not implementing the standard action.)

Current PRC standards and definitions related to Protection System Misoperations are confusing and do not support a good metric for measurement of Protection System performance.

Brief Description (Provide a paragraph that describes the scope of this standard action.)

SPCS recommends creation of a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012

- Retire PRC-016.

Detailed Description (Provide a description of the proposed project with sufficient details for the standard drafting team to execute the SAR.)

Standard PRC-003 is intended to ensure that all System Protection Misoperations are analyzed and mitigated according to guidelines established by the regions. The FERC, in Order 693, dated March 16, 2007, declared this standard as a "fill in the blank" type of standard that does not merit approval unless it is modified to make it more specific and consistent for all Regions. The SPCS concurs with the FERC order and provides recommendations on how the standard can be rewritten.

Because the procedures for analyzing and mitigating Misoperations were to be established by the regions, there is significant dissimilarity between the Misoperation data reported by each region, resulting in a virtually unusable misoperation metric for North America. SPCS recommends a change to the definition of Misoperation (Reportable Protection Misoperation) to provide uniformity to the misoperation data reported to the regions and NERC.

Protection System elements used for Special Protection Systems (SPS) or Remedial Action Schemes (RAS) are no different from those used for non Special Protection Systems. The revision to Standard PRC-003 should therefore apply to all Protection Systems, including SPS and RAS.

The SPCS also recommends that Standard PRC-016-0 – Special Protection System Misoperations, be requirements, merging its SPS/RAS Misoperation reporting, Corrective Action Plans, and tracking requirements into PRC-004 – Analysis and Mitigation of Transmission and Generation Protection System Misoperations.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and is coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should be modified to refer to that review process.

SPCS recommends creation of a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016.

See attached Technical Review document for additional details.

Reliability Functions

The Standard will Apply to the Following Functions *(Check box for each one that applies.)*		
☐	Reliability Coordinator	Responsible for the real-time operating reliability of its Reliability Coordinator Area in coordination with its neighboring Reliability Coordinator's wide area view.
☐	Balancing Authority	Integrates resource plans ahead of time, and maintains load-interchange-resource balance within a Balancing Authority Area and supports Interconnection frequency in real time.
☐	Interchange Authority	Ensures communication of interchange transactions for reliability evaluation purposes and coordinates implementation of valid and balanced interchange schedules between Balancing Authority Areas.
☐	Planning Coordinator	Assesses the longer-term reliability of its Planning Coordinator Area.
☐	Resource Planner	Develops a >one year plan for the resource adequacy of its specific loads within a Planning Coordinator area.
☐	Transmission Planner	Develops a >one year plan for the reliability of the interconnected Bulk Electric System within its portion of the Planning Coordinator area.
☐	Transmission Service Provider	Administers the transmission tariff and provides transmission services under applicable transmission service agreements (e.g., the pro forma tariff).
X	Transmission Owner	Owns and maintains transmission facilities.
☐	Transmission Operator	Ensures the real-time operating reliability of the transmission assets within a Transmission Operator Area.
X	Distribution Provider	Delivers electrical energy to the End-use customer.
X	Generator Owner	Owns and maintains generation facilities.
☐	Generator Operator	Operates generation unit(s) to provide real and reactive power.
☐	Purchasing-Selling Entity	Purchases or sells energy, capacity, and necessary reliability-related services as required.
☐	Market Operator	Interface point for reliability functions with commercial functions.
☐	Load-Serving Entity	Secures energy and transmission service (and reliability-related services) to serve the End-use Customer.

Reliability and Market Interface Principles

Applicable Reliability Principles *(Check box for all that apply.)*	
X	1. Interconnected bulk power systems shall be planned and operated in a coordinated manner to perform reliably under normal and abnormal conditions as defined in the NERC Standards.
☐	2. The frequency and voltage of interconnected bulk power systems shall be controlled within defined limits through the balancing of real and reactive power supply and demand.
☐	3. Information necessary for the planning and operation of interconnected bulk power systems shall be made available to those entities responsible for planning and operating the systems reliably.
☐	4. Plans for emergency operation and system restoration of interconnected bulk power systems shall be developed, coordinated, maintained and implemented.
☐	5. Facilities for communication, monitoring and control shall be provided, used and maintained for the reliability of interconnected bulk power systems.
☐	6. Personnel responsible for planning and operating interconnected bulk power systems shall be trained, qualified, and have the responsibility and authority to implement actions.
X	7. The security of the interconnected bulk power systems shall be assessed, monitored and maintained on a wide area basis.
☐	8. Bulk power systems shall be protected from malicious physical or cyber attacks.
Does the proposed Standard comply with all of the following Market Interface Principles? *(Select 'yes' or 'no' from the drop-down box.)*	
1. A reliability standard shall not give any market participant an unfair competitive advantage. Yes	
2. A reliability standard shall neither mandate nor prohibit any specific market structure. Yes	
3. A reliability standard shall not preclude market solutions to achieving compliance with that standard. Yes	
4. A reliability standard shall not require the public disclosure of commercially sensitive information. All market participants shall have equal opportunity to access commercially non-sensitive information that is required for compliance with reliability standards. Yes	

Related Standards

Standard No.	**Explanation**
PRC-003	Revise
PRC-004	Revise
PRC-012	Revise

PRC-016	Retire

Related SARs

SAR ID	Explanation

Regional Variances

Region	Explanation
ERCOT	
FRCC	
MRO	
NPCC	
SERC	
RFC	
SPP	
WECC	

NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

NERC SPCS Assessment of Standards:

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations
- PRC-016-1 — Special Protection System Misoperations

A Technical Review of Standards Prepared by the System Protection and Controls Subcommittee of the NERC Planning Committee

May 2009

to ensure the reliability of the bulk power system

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Table of Contents

This report was approved by the Planning Committee on June 10, 2009, for forwarding to the Standards Committee.

Introduction

When the original scope for the System Protection and Control Task Force (SPCTF, now the System Protection and Control Subcommittee – SPCS) was developed, one of the assigned items was to review all of the existing PRC-series of Reliability Standards, to advise the Planning Committee, and to develop Standards Authorization Requests, as appropriate, to address any perceived deficiencies.

This report presents the SPCS' assessment of three of the PRC standards pertaining to relay misoperations:

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations
- PRC-016-1 — Special Protection System Misoperations

This report serves as a precursor for a Standards Authorization Request (SAR) for modifications to PRC-003 that will be submitted by the SPCS.

Executive Summary

Standard PRC-003 is intended to ensure that all System Protection Misoperations are analyzed and mitigated according to guidelines established by the regions. The FERC, in Order 693, dated March 16, 2007, declared this standard as a "fill in the blank" type of standard that does not merit approval unless it is modified to make it more specific and consistent for all Regions. The SPCS concurs with the FERC order and provides recommendations on how the standard can be rewritten.

Because the procedures for analyzing and mitigating Misoperations were to be established by the regions, there is significant dissimilarity between the Misoperation data reported by each region, resulting in a virtually unusable misoperation metric for North America. SPCS recommends a change to the definition of Misoperation (Reportable Protection Misoperation) to provide uniformity to the misoperation data reported to the regions and NERC.

Protection System elements used for Special Protection Systems (SPS) or Remedial Action Schemes (RAS) are no different from those used for non Special Protection Systems. The revision to Standard PRC-003 should therefore apply to all Protection Systems, including SPS and RAS.

The SPCS also recommends that Standard PRC-016-0 — Special Protection System Misoperations, be requirements, merging its SPS/RAS Misoperation reporting, Corrective Action Plans, and tracking requirements into PRC-004 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and is coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should be modified to refer to that review process.

A Standards Authorization Request (SAR) will be submitted by the SPCS calling for a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016.

Assessment of PRC-003-1

PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems requires the regions to establish procedures for analysis of Misoperations. This has resulted in significant and substantive differences in regional procedures and this was noted in FERC's recommendation for "greater uniformity."

SPCS proposes updating the PRC-003-1 standard to be applicable to all regions based on following tenets:

1. **Applicability** — The existing standard says that the Protection Systems shall be reviewed but does not specify which systems apply to this standard.

   It is necessary for the new standard to define the protections systems to which the standard applies:

   - Transmission Protection Systems which trip:
     a. Transmission system elements 200-kV and above
     b. Operationally significant system elements 100-kV to 200-kV
     c. Transformers with 100-kV or higher on the low side
     d. GSU transformers with high side voltages of 100-kV or higher
   - Generation Protection Systems which trip:
     a. Transmission system elements 200-kV and above
     b. Operationally significant system elements 100-kV to 200-kV
     c. Transformers with 100-kV or higher on the low side
     d. GSU transformers with high side voltages of 100-kV or higher
     e. Generators connected through GSU transformers with high side voltages of 100-kV or higher
   - Protection Systems that trip aggregate generation of 75 MW or more (such as wind farms, geothermal, or solar) connected to the transmission system at 100-kV or higher.

2. **Definitions** — The NERC Glossary of Terms currently defines Misoperation as:

   Misoperation (current definition)

   - Any failure of a Protection System element to operate within the specified time when a fault or abnormal condition occurs within a zone of protection.
   - Any operation for a fault not within a zone of protection (other than operation as backup protection for a fault in an adjacent zone that is not cleared within a specified time for the protection for that zone).
   - Any unintentional Protection System operation when no fault or other abnormal condition has occurred unrelated to on-site maintenance and testing activity

   The existing definition does not address what are reportable and non-reportable misoperations. Reportable misoperations should be redefined in terms of both dependability and security, as a function of the impact of the Protection Systems on the electric system performance. SPCS recommends the following definition:

   Reportable Protection Misoperation (proposed definition)

Dependability (failure to operate):

- Failure of the composite Protection System to initiate the isolation of a faulted power system Element as designed or within its designed operating time.
- Failure of the composite Protection System to operate as intended for a non-fault condition, such as out-of-step, overload, etc., within its designed operating time.
- Failure of an SPS/RAS, UVLS system, or UFLS system to operate for an intended condition or within its designed operating time.

Security (false or undesirable operations):

- Improper operation of a Protection System in absence of a fault on the power system Element it is designed to protect.
- Improper operation of a Protection System during a fault on any other power system Element it is not designed to protect.
- Improper operation of an SPS/RAS, UVLS system, or UFLS system in absence of its designed trigger conditions.
- Over-response of an SPS/RAS, UVLS system, or UFLS system

Notes to the proposed definition:

A. The composite Protection System in the context of this standard is the total complement of protection for a system Element (line, bus, transformer, generator, etc). Primary and secondary protection of a given Element is considered as the composite Protection System, not two separate Protection Systems.

B. Delayed clearing, where a high-speed system is employed and is essential for transmission system performance, is considered a reportable misoperation of the high-speed system.

C. Lack of targeting of the high-speed system, such as when it is beat out by a high-speed zone, is not considered a reportable misoperation.

D. Multiple misoperations of a Protection System before it can be reasonably investigated and remedied should be considered as a single misoperation.

E. Failure to automatically reclose after a fault is not a reportable misoperation.

F. Human errors made in protection settings either as calculated or as installed, or wiring errors, which result in a misoperation are reportable.

G. Protection System operations related to on-site maintenance, testing, construction and or commissioning activities for that Protection System, when no fault or other abnormal condition has occurred, are not considered reportable Protection System misoperations.

H. Operations which are initiated by control systems (not by the Protection Systems), such as those associated with generator controls or turbine/boiler controls, SVCs, FACTS, HVDC, circuit breaker mechanism, or insulation media, or other facility control systems, are not reportable Protection System misoperations.

I. Protection System operations which occur with the protected element already out of service, that do not trip any in-service elements, are not reportable Protection System misoperations.

3. **Reporting of Misoperations** — Because the current PRC-003 calls for regional procedures and reporting requirements, there is a wide variation in those requirements from region to region, making comparison of misoperations metrics at the NERC level virtually impossible. Since any

assessment of the success or failure of the NERC protection-related standards to maintain or improve reliability depends on those metrics, it is important to provide for uniformity. The variations in definitions can be corrected by the adoption of the Reportable Protection Misoperation definition above. Uniform reporting can be addressed by following proposed reporting requirements:

- Transmission Owner or Generation Owners that own Protection Systems shall submit a quarterly report of the total number of events , the number of Protection System misoperations, and the number of events still under analysis, in a prescribed format (to be part of the revised PRC-003 standard) no later than two calendar months after each quarter.
- The regions shall, in turn, submit a quarterly report to NERC – consolidated data for the Region in a prescribed format (also part of the revised PRC-003 standard).
- The regions shall provide any additional information on misoperations to NERC as requested.

4. **Peer Review of Misoperations —** Peer review of misoperations and tracking of mitigation plans is an important part of improving Protection System performance. Logically, that function should be done by the Regional Entities. However, since standards requirements cannot be placed on the Regional Entities, the following suggestions are made but the mechanics are left open.

   - The regions, through their appropriate committees or subcommittee, shall review the misoperation reports. This review should determine whether further analysis, data, or other documentation is required, and it will confirm that appropriate mitigation is defined and scheduled.
   - The regions should maintain records of the quarterly reports and confirm the implementation of any proposed mitigation plan.
   - The regions should track the mitigation of reported misoperations to avoid further occurrences.

Assessment of PRC-004 and PRC-016-0

NERC standards PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations, and PRC-016 – Special Protection System Misoperations both require that Protection System misoperations are analyzed and reported, and that corrective actions are taken where necessary. However, PRC-016 exclusively applies to special protection systems (SPS) also know as remedial action schemes (RAS). Since analysis and reporting of protection system misoperations is the same regardless of whether or not a SPS/RAS is involved; there is no need for a separate standard. Standard PRC-004-1 should be revised to include SPS/RAS, and PRC-016 should be retired.

SPS Corrective Action Plan Review

PRC-012-0 — Special Protection System Review Procedure is intended to provide a review procedure to ensure that all SPS/RAS are properly designed, meet performance requirements, and are coordinated with other Protection Systems.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and are coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should refer to that review process.

Proposed PRC-004-1 Revisions

SPCS recommends the following revisions to PRC-004-1 requirements to encompass those of PRC-016:

R1. The Transmission Owner and any Distribution Provider that owns a transmission Protection System or SPS shall each analyze its transmission Protection System or SPS Misoperations and shall develop and implement a Corrective Action Plan to avoid future Misoperations of a similar nature in accordance with Standard PRC-003 (revised).

R2. The Generator Owner shall analyze its generator Protection System or SPS Misoperations, and shall develop and implement a Corrective Action Plan to avoid future Misoperations of a similar nature in accordance with Standard PRC-003 (revised).

R3. The Transmission Owner, Generator Owner, and Distribution Provider that owns a transmission Protection System or an SPS shall provide documentation of the misoperation analyses and the Corrective Action Plans to its Regional Reliability Organization and NERC upon request (within 90 calendar days).

R4. All Corrective Action Plans for SPS shall be subject to SPS Review Procedures in accordance with Standard PRC-012.

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NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Reliability Standards Development Plan: 2010–2012

Volume I — Overview

to ensure the reliability of the bulk power system

~~August 28~~October 7, 2009

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Acknowledgement

The NERC Reliability Standards Program would like to thank all the individuals who invest their time and expertise in the development of NERC Reliability Standards and in the annual revision of this *Reliability Standards Development Plan*. The plan reflects comments and input from stakeholders, staff, the NERC technical community, and government agencies with oversight for electric reliability. Through collaboration and industry consensus, we expect to develop NERC Reliability Standards that are technically accurate, clear, enforceable, and provide an Aadequate Llevel of Rreliability for the North American bulk power system.

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Introduction

Purpose

The North American Electric Reliability Corporation (NERC) is committed to developing reliability standards that deliver an Adequate Level of Reliability for the North American bulk power system. The NERC *Reliability Standards Development Plan* serves as the foundation for reliability standards development efforts. The plan serves as the management tool that guides, prioritizes, and coordinates revision or retirement of existing reliability standards and the development of new reliability standards for the immediate 3-year time horizon.

The initial 3-year plan was developed in 2006 and has been since updated annually. ~~The initial *Reliability Standards Development Plan*plan focused primarily on modifications to NERC's initial set of Version 0 Reliability Standards. Beginning in 2007, the plan's focus was expanded to proactively identify projects needed to address reliability gaps. While the initial plan was developed by the NERC Standards Program staff, beginning in 2007 Standards made a concerted effort to~~ In doing so, NERC seeks input from the other program areas within NERC, as well as from NERC's technical committees and industry groups, on the ~~-~~need for and prioritization of new or revised reliability standards.

The objectives of the plan include but are not limited to:

- Addressing the ~~remaining~~ recommendations for new or revised reliability standards ~~resulting from~~ identified in the *U.S.-Canada Power System Outage Task Force Final Report on the August 14, 2003 Blackout in the United States and Canada: Causes and Recommendations*~~investigation of the August 14, 2003 blackout~~.
- Addressing comments from industry, the Federal Energy Regulatory Commission (FERC), and others suggesting improvements to each reliability standard, including those comments received from industry stakeholders during public comment periods.
- Addressing quality issues to ensure each reliability standard has a clear statement of purpose, and has ~~outcome-focused~~results-based requirements that are clear and measurable.
- Ensuring measures and compliance elements are aligned to support the requirements within the reliability standards and follow definitions outlined in the reliability standards template.

~~•Reorganizing the reliability standards based on topic.~~

- Eliminating requirements that do not have an impact on bulk power system reliability; retiring redundant requirements; retiring or converting (into guidelines) lower-level "facilitating" requirements that are already measured through compliance with higher-level requirements; and moving basic "capability" requirements that are routinely used into~~for~~ the NERC certification process~~es~~.

~~•Addressing other proposals for new reliability standards.~~

- Improving reliability standard requirements by incorporating approved interpretations.

- Incorporating feedback from other NERC program areas such as compliance monitoring and enforcement, reliability assessments, and event analysis.

~~•Identifying other issues and variables that may require additional reliability standard development activities in the *Reliability Standards Development Plan* timeframe.~~

- Satisfying the requirement in section 300 of the Rules of Procedure of the North American Electric Reliability Corporation for a five-year review of all reliability standards.

~~•Addressing the "fill-in-the-blank" reliability standards.~~

Developing excellent reliability standards is a long-term effort. This plan best supports the effort in that it is flexible and can be continuously adapted to circumstances and changing priorities~~, as demonstrated in this revision of the plan~~. The plan ~~will be~~is reviewed and maintained by the NERC Standards Committee and ~~NERC S~~standards ~~program~~ staff, and ~~will be~~is updated on an annual basis~~,~~ or more frequently if necessary.

Summary

This revised *Reliability Standards Development Plan: 2010-2012* identifies a total of 36 continent-wide standards development projects. These projects are:

Projects initiated in 2006:
2006-02 Assess Transmission Future Needs
2006-04 Backup Facilities
2006-06 Reliability Coordination
2006-08 Transmission Loading Relief

Projects initiated in 2007:
2007-01 Underfrequency Load Shedding
2007-02 Operating Personnel Communications Protocols
2007-03 Real-time Operations
2007-04 Certifying System Operators
2007-05 Balancing Authority Controls
2007-06 System Protection Coordination
2007-07 Vegetation Management
2007-09 Generator Verification
2007-11 Disturbance Monitoring
2007-12 Frequency Response
2007-17 Protection System Maintenance and Testing
2007-18 Reliability-based Control

Projects initiated in 2008:
2008-01 Voltage and Reactive Control
2008-02 Undervoltage Load Shedding
2008-06 Cyber Security — Order 706
2008-12 Coordinate Interchange Standards

Projects initiated in 2009:
2009-01 Disturbance and Sabotage Reporting
2009-02 Real-time Tools
2009-03 Emergency Operations
2009-04 Phasor Measurements Units
2009-05 Resource Adequacy Assessments
2009-06 Facility Ratings
2009-07 Reliability of Protection Systems
2009-18 Withdraw Three Midwest ISO Waivers

Projects anticipated commencing in 2010:
2010-01 Support Personnel Training
2010-02 Connecting New Facilities to the Grid
2010-03 Modeling Data
2010-04 Demand Data
2010-05 Protection Systems
2010-06 ~~Performance-based Reliability Standards~~Results-based Reliability Standards
2010-07 Generator Requirements at the Transmission Interface

Projects anticipated commencing in 2011:
~~–~~None ~~-~~

Projects anticipated commencing in 2012:
2012-01 Equipment Monitoring and Diagnostic Devices

Projects within this Plan:

The number of projects proposed in this plan decreased to 3~~6~~7 from the 39 listed in the 2009-2011 version of the plan:

- ~~.~~The following seven projects identified in the 2009-2011 plan have been completed and removed from this revised plan:

Projects initiated in 2006:
2006-01 System Personnel Training
2006-03 System Restoration and Blackstart
2006-07 Transfer Capabilities: ATC, TTC, CBM, and TRM
2006-09 Facility Ratings

2007-14 Permanent Changes to CI Timing Table
2007-23 Violation Severity Levels

Projects initiated in 2008:
2008-08 EOP Violation Severity Levels Revisions

Projects initiated in 2007:

- Project 2008-05 Credible Multiple Element Contingencies which was identified in the 2009-2011 plan was removed from this revised plan as the requester of the Standard Authorization Request (SAR) for the project withdrew the SAR from further development and consideration by the industry.

- The following ~~five~~ six projects are new to the Reliability Standards Development Plan:

Projects initiated in 2009:
2009-06 Facility Ratings
2009-07 Reliability of Protection Systems
2009-18 Withdraw Three Midwest ISO Waivers

Projects anticipated commencing in 2010:
2010-06 ~~Performance-based Reliability Standards~~Results-based Reliability Standards
2010-07 Generator Requirements at the Transmission Interface

Projects anticipated commencing in 2012:
2012-02 Physical Protection

To summarize, the *Reliability Standards Development Plan: 2009-2011* identified a total of 39 continent-wide standards development projects. Seven of those 39 projects have been completed and one was withdrawn leaving 31 currently active projects from the 2009-2011 plan. ~~Five~~ Six new projects have been added to the 2010-2012 plan, three of which were unanticipated but initiated in 2009 and three new projects, bringing to a total of 3~~6~~7 continent-wide standards development projects in this Reliability Standards Development Plan: 2010-2012.

Focus on Impact to Reliability

As part of the process employed in 2009 for revising the *Reliability Standards Development Plan,* NERC staff reached out to all stakeholders and asked for input on the plan. Similar to the last two years, several stakeholders indicated a concern that too many projects were under development concurrently which is stretching the industry resources available to work on

standards development to their limits. They recommended that the ~~work~~ plan focus industry resources on the projects having the greatest impact on reliability in the near-term, while deferring those of less immediate reliability benefit.

In addition, during the development of NERC's Three-year Assessment of its performance as the electric reliability organization, several stakeholders recommended that the industry ~~should~~ focus existing reliability standards and reliability standards development on areas that will lead to the greatest improvement in bulk power system reliability. Suggestions included: (1) focus the development of new reliability standards on those that will lead to the greatest improvement in reliability; i.e., address the greatest risks of wide-area cascading outages; (2) reduce the number of existing reliability standards to just those that have a critical impact on reliability of the bulk power system and convert the remaining reliability standards to guidelines; and (3) develop a more systematic process for prioritizing new reliability standards development projects based on risks to the bulk power system.

Accordingly, this version of the plan establishes a new project (Project 2010-06 ~~Performance-based Reliability Standards~~Results-based Reliability Standards) aimed at focusing ~~for improving the set of~~ NERC R~~r~~eliability S~~s~~tandards to be more focused on reliability performance. This version of the plan also realigns one project, Project 2012-01 Equipment Monitoring and Diagnostic Devices, from 2011 to 2012 ~~(Project 2011-01 Equipment Monitoring and Diagnostic Devices was moved to 2012 as 2012-01 Equipment Monitoring and Diagnostic Devices thus removing the proposed initiation of any project in 2011)~~ in order to ensure NERC and industry resources are available to devote the needed level of expertise to Project 2010-06 ~~Performance-based Reliability Standards~~Results-based Reliability Standards. There are no other projects planned for initiation in 2011 as a result.

Fill-in-the-blank Standards

The phrase "fill-in-the-blank standards" refers to standards that require a bulk power system user, owner, or operator to implement regional criteria that are not specifically part of a NERC Reliability Standard. While an acceptable practice, the regional criteria needs regulatory approval for proper evaluation in support of the NERC Reliability Standards or needs to be replaced with mandatory and enforceable standards that incorporate the needed reliability aspects.

NERC recognized this issue at the time it applied to become the ERO. Working with the Regional Entities, NERC provided dedicated staff to coordinate the development of regional standards and address the "fill-in-the-blank" issue . As a result, the action plans and schedules to resolve each "fill-in-the-blank" standard were provided in Volume III of the original 2007-2009 plan and has since been wholly incorporated into the projects identified in Volume II of each of the succeeding work plans. ~~Fill-in-the-blank Standards~~

~~The phrase "fill-in-the-blank" standards" has~~ve been coined to refer to those standards that require a bulk power system user, owner, or operator to follow regional criteria that are not part of a NERC Reliability Standard. The practice of using "fill-in-the-blank" standards was

acceptable historically when standards were voluntary, but not with standards that are mandatory and enforceable under statutory authority.

NERC recognized this issue early in the process of developing its application to become the ERO. NERC formed and staffed a program to coordinate the development of regional standards and to address the "fill-in-the-blank" issue. A team with representation from each region was formed and reviewed these particular standards to prepare recommendations for a course of action. The action plans and schedules to resolve each "fill-in-the-blank" standard were provided in Volume III of the original 2007-2009 plan and has since been wholly incorporated into the projects identified in Volume II of each of the succeeding work plans.

The previously identified 24 fill-in-the-blank standards are currently in various stages of development. Eight of the 24 were addressed in Project 2006-07 Transfer Capabilities: ATC-TTC-CBM-TRM and have already been filed with the Commission for approval:

- MOD-001-0 — Documentation of TTC and ATC Calculation Methodologies,MOD-001-0,
- MOD-002-0 — Review of TTC and ATC Calculations and ResultsMOD-002-0,,
- MOD-003-0 — Procedure for Input on TTC and ATC Methodologies and ValuesMOD-003-0,,
- MOD-004-0 — Documentation of Regional CBM MethodologiesMOD-004-0,,
- MOD-005-0 — Procedure for Verifying CBM ValuesMOD-005-0,,
- MOD-008-0 — Documentation and Content of Each Regional TRM MethodologyMOD-008-0,,
- MOD-009-0 — Procedure for Verifying TRM ValuesMOD-009-0,, and
- FAC-012-1 — Transfer Capability MethodologyFAC-012-1.

Two standards:,

- EOP-007-0 — Establish, Maintain, and Document a Regional Blackstart Capability Plan (included in Project 2006-03 System Restoration and Blackstart) EOP-007-0 and
- PRC-002-1 — Define Regional Disturbance Monitoring and Reporting (included in Project 2007-11 Disturbance Monitoring)PRC-002-1,

are expected to be completed by year end or shortly thereafter. Four standards:

- , MOD-024-1 — Verification of Generator Gross and Net Real Power Capability (included in Project 2007-09 Generator Verification)MOD-024-1,
- MOD-025-1 — Verification of Generator Gross and Net Reactive Power Capability (included in Project 2007-09 Generator Verification)MOD-025-1,
- TPL-005-0 — Regional and Interregional Self-Assessment Reliability Reports TPL-005-0(included in Project 2006-02 Assess Transmission and Future Needs), and
- TPL-006-0 — Assessment Data from Regional Reliability Organizations TPL-006-0(included in Project 2006-02 Assess Transmission and Future Needs),

are expected to be completed within the first quarter of 2010. The remaining ten standards:,

- MOD-011-0 — Regional Steady-State Data Requirements and Reporting Procedures (targeted for Project 2010-03 Modeling Data)MOD-011-0,
- MOD-013-1 — RRO Dynamics Data Requirements and Reporting ProceduresMOD-013-1 (targeted for Project 2010-03 Modeling Data), ,
- MOD-014-0 — Development of Interconnection-Specific Steady State System Models MOD-014-0(targeted for Project 2010-03 Modeling Data), ,

- MOD-015-0 — Development of Interconnection-Specific Dynamics System Models
- MOD-015-0(targeted for Project 2010-03 Modeling Data), ,
- PRC-002-1,
- PRC-003-1,
- PRC-012-0,
- PRC-013-0,
- PRC-014-0, and
- PRC-020-1,

are expected to be revised in projects to either begin in 2010 or be completed after 2010.

With regard to the remaining ten standards, the issues remain that certain requirements require the regional reliability organizations to develop criteria for use by users, owners, or operators within the region. The FERC staff preliminary assessment recognized that the fill-in-the-blank standards raise two principal concerns: (i) some are not enforceable against users, owners, and operators of the Bulk-Power System, but rather only provide broad direction to regional reliability organizations, and (ii) the specific implementing standards adopted by the regional reliability organizations have not undergone an approval process under section 215 and, thus cannot be enforced by the Commission or the ERO. as written.

While the *Reliability Standards Development Plan* includes a plan to address the remaining ten fill-in-the-blank standards in various standards projects as stated above, these projects will be addressed sometime in the future and in some cases the projects to do so will not be initiated until 2010. As a result, NERC staff is working with staff representing each of the Regional Entities to developing a plan to address the issues with the fill-in-the-blank standards with the ten remaining standards in the interim prior to the completion of the continent-wide revision of the standards. The interim plan for addressing the fill-in-the-blank standards will not replace the projects already identified in Volume II of this plans but rather will propose a solution to address the shortcomings of the existing fill- in- the- blank standards until the continent-wide revision of the standards can take place. It is anticipated that the interim plan will involve the use the standards development process in order that industry stakeholders will be able to participate in the process as it evolves.

Priority of Projects

All currently active projects are consideredhave already been deemed to be a high priority projects meriting continuationas a prerequisite for initiation. Once initiated it is the role of the industry-based standard drafting team working with the assigned NERC Standards Development Coordinator to ensure the project is completed in a timely fashion.

With respect to the priority for initiating theFor future proposed standards development projects identified in the *Reliability Standards Development Plan*, the NERC Standards Committee, comprised of industry representatives, assists NERC staff in prioritizing the initiation of these projects. Among other things, the Standards Committee ensures that each standard drafting team has the technical resources and capabilities required to develop technically sound standards that will gain industry support and whether SARs submitted by interested persons and entities should be pursued for development.

~~With respect to the specific projects identified in this plan, the~~Those projects anticipated to be started in 2010 ~~are~~ represent the next highest priority set of projects. Each will be initiated in 2010 as determined by the NERC Standards Committee in coordination with NERC staff as other projects are concluded and coordinator and drafting team resources become available:

- Project 2010-01 Support Personnel Training is a priority project as it was proposed in support of a 2003 blackout recommendation.
- The following projects ~~all~~ involve ~~the first set of revisions to the associated standards. All of the associated standards were initially approved as part of~~ the original "Version 0" standards originally approved in 2005. They~~and~~ all are required to be reviewed in 2010 pursuant to the Rules of Procedure of the North American Electric Reliability Corporation~~NERC's ERO Rules of Procedure~~ which state in part "each reliability standard shall be reviewed at least once every five years from the effective date of the standard or the latest revision to the standard, whichever is later."
    - Project 2010-02 Connecting New Facilities to the Grid involves revisions to FAC-001 and FAC-002.
    - Project 2010-03 Modeling Data involves revisions to MOD-010, MOD-011, MOD-012, MOD-014, PRC-013, and PRC-015.
    - Project 2010-04 Demand Data involves revisions to MOD-018, MOD-020, and MOD-021
    - Project 2010-05 Protection Systems involves revisions to PRC-012 and PRC-014.
    - ~~oProject 2010-04 Demand Data involves revisions to MOD-018, MOD-020, and MOD-021~~
    - ~~oProject 2010-05 Protection Systems involves revisions to PRC-012 and PRC-014~~
- Project 2010-06 ~~Performance-based Reliability Standards~~Results-based Reliability Standards is a priority project as discussed in the "Focus on Impact to Reliability" section above~~-~~. The project~~and~~ provides for improving the set of NERC R~~r~~eliability S~~s~~tandards to be more focused on reliability performance.
- Project 2010-07 Generator Requirements at the Transmission Interface is a priority project as it will add greater specificity and clarity to the expectations of those responsible for owning and operating the interconnection facilities that connect generators to the transmission grid.

~~Each of the six projects anticipated to be initiated in 2010 will be initiated as appropriate NERC staff and industry resources are freed up from other projects. NERC staff will work with the Standards Committee to formalize the initiation of each of these projects.~~

As noted earlier, the single project anticipated to commence in 2011 pursuant to the 2009-2011 plan has been moved to 2012 in this revised plan to ensure industry and NERC staff resources are available to devote to Project 2010-06 ~~Performance-based Reliability Standards~~Results-based Reliability Standards, identified as a higher priority in the plan. ~~Thus the two projects identified in this plan anticipated to commence in 2012 are inherently identified as lower priority projects as compared to those projects anticipated to be initiated in 2010.~~

Other modifications

As part of the process employed in 2009 for revising the *Reliability Standards Development Plan*, NERC staff reached out to the stakeholder community ~~asking for~~seeking input on how to improve and update the plan. In so doing, NERC received a number of comments that led to various modifications and improvements to the plan. Appendix A to this Volume I summarizes the comments received and NERC's response to the comments.

In conjunction with this year's project to revise the plan, NERC staff ~~took the opportunity to~~ reviewed ~~all~~ the items in what is termed the "NERC Standards Issues Database (Issues Database)." The Issues Database is used by the NERC Standards program staff to track the issues and concerns identified with a~~ny~~ particular standard. These 'issues" are then used to populate the "Issues to be Considered by the Standard Drafting Team" tables included for each project in Volume II of this plan. As such, ~~the vast majority of~~projects in Volume II ~~was written to capture the essence of all~~ include the "issues" identified to date.

The update to this year's plan also includes a~~A~~another improvement ~~implemented as part of the update to this year's plan is~~in the form of a set of ~~much~~ more detailed ~~the~~ project schedules. The revised project schedules ~~include a more detailed list of that includes both major and minor~~ tasks needed to be undertaken as part of the~~a~~ standards development ~~cycle~~ project and has been modified based on "lessons learned" f~~F~~rom ~~the work completed on~~ prior projects. ~~In the end, the granularity of the tasks included as part of each of the project schedules was increased. Each of the project schedules (for the projects currently under development) posted on-line has been revised to account for all major and minor tasks.~~ In doing so the timeline for the majority of projects has been extended, but at the same time provides a better estimate for the completion of each of the projects. Further, a link to each of the project schedules (for the projects currently under development) has been posted on the "Related Files" page on the NERC website ~~for each of the projects~~.

NERC has also developed specific initiatives related to compliance monitoring and enforcement, reliability assessment and performance analysis, and event analysis to identify possible "high impact" reliability standard development projects that may have significant impact on the reliability of the bulk power system. For example, lessons learned and trends identified ~~in disturbance elements~~ from system events tracked for the last three years that have been causal or contributory to the severity of system disturbances are helping NERC focus efforts and provide the technical foundation for standards development and modification efforts on issues that are most critical to bulk power system reliability. NERC has developed a broad-based reliability initiative that addresses issues in the area of system protection and control which is the basis for Project 2010-05 System Protection and a number of other ongoing standards development projects in the area of system protection and control. That initiative identified a compendium of system protection and control issues that have contributed to many system events. This ongoing collaborative effort between the Event Analysis program and Standards development will continue to be used to identify specific changes to reliability standards to ensure an A~~a~~dequate ~~l~~Level of ~~r~~Reliability of the North American bulk power system.~~For example, NERC has developed a broad-based reliability initiative that addresses lessons learned from event analysis activities in the area of system protection and control which is the basis for Project 2010-05~~

~~System Protection. This initiative identifies a compendium of system protection and control issues that have contributed to many system events. The analysis of these events is providing the technical foundation for new reliability standards development activities. These initiatives focus efforts on issues that have been known to cause bulk power system events and are therefore directly related to the improvement of reliability. Further, information from these initiatives will be used to evaluate which reliability standards and standards requirements are most critical to bulk power system reliability. The end result of these initiatives will be used to identify specific changes to reliability standards to ensure an adequate level of reliability of the North American bulk power system.~~

Organization of the Plan

The *Reliability Standards Development Plan: 2010-2012* is organized into three volumes:

- Volume I provides an overview of the plan and the modifications made to the plan as compared to the prior year. ~~, including the history of the current status of standards development activities related to the development and approval of standards.~~
- Volume II provides ~~the details of~~project descriptions for current and planned ~~each~~ standards development project.
- Volume III summarizes the regional reliability standards development activity anticipated over the next three years ~~period covered by the plan~~.

~~A significant portion of Volume II of the *Reliability Standards Development Plan* is dedicated to projects for revising the existing reliability standards to incorporate improvements. The plan groups the existing standards into projects based on content. Standards with related content are grouped together into a single project to allow a team of experts to consolidate the requirements, to eliminate redundancies, and to ensure consistency of all the requirements in all the standards. This approach makes the most efficient use of industry resources used in the standards development process.~~

Background

Authority

Through the enactment of the Energy Policy Act of 2005, Congress created Section 215 of the Federal Power Act (FPA). Section 215 assigns to the Commission the responsibility and authority for overseeing the reliability of the bulk power systems in the United States, including the setting and enforcing of mandatory reliability standards. In February 2006, the Commission issued Order No. 672 establishing its requirements for certifying an industry, self-regulating ERO, as envisioned in the legislation. On the basis of that order, NERC filed its application to become the ERO in the United States on April 4, 2006. NERC concurrently filed for similar recognition with the federal and provincial governments in Canada.

On July 20, 2006, the Commission issued its *Order Certifying the North American Electric Reliability Corporation as the Electric Reliability Organization and Ordering Compliance Filing*, finding that NERC met the requirements of Order No. 672. ~~Since then, NERC has provided the requisite compliance filings and the Commission has issued several orders as a result to address the remaining issues with NERC's application and certification.~~ NERC's filings with FERC[1] and the Commission's orders[2] can be found on the NERC Web site.[3]

NERC has been similarly acknowledged to be the international electric reliability organization in many of the provinces in Canada and by the National Energy Board. NERC continues to formalize these relationships through ~~On September 15, 2006, the National Energy Board of Canada announced a~~ Memorand~~um~~a of Understanding (MOU) recognizing NERC as the ERO in Canada and hopes to achieve this status in all provinces by 2010.~~.~~ ~~NERC also signed MOUs with Ontario, Quebec, and Nova Scotia in 2006. An interim MOU has been signed with Manitoba pending possible changes in its legislative regime for reliability. MOUs have been drafted and are expected to be concluded shortly with New Brunswick and Saskatchewan. NERC is working with the remaining Canadian provinces to accomplish the same understanding.~~

~~*Standards Filings and Approvals*~~

~~NERC has filed with the regulatory authorities in the U.S. and Canada petitions to approve numerous reliability standards that were proposed as new, modified, or retired reliability standards, as well as several interpretations; in the U.S., the Commission has taken action on a majority of these standards and interpretations. NERC has filed petitions for approval of 120 standards as mandatory and enforceable in the United States. The following summarizes the status of reliability standards filings in the U.S.:~~

- ~~In March, 2007, the Commission issued Order No. 693, *Mandatory Reliability Standards for the Bulk Power System*. In this final rule, the Commission approved 83 reliability standards and directed improvements to 56 of these standards. The work plan addresses~~

[1] NERC filings to FERC, http://www.nerc.com/page.php?cid=1|8|170
[2] Commission orders, http://www.nerc.com/page.php?cid=1|8|170
[3] NERC Web site, http://www.nerc.com/

these improvements as well as the 24 standards that the Commission neither approved nor remanded, which are referred to as the "fill-in-the-blank" regional standards.

- In December 2007, the Commission issued its final rule in Order No. 705 approving Facilities Design, Connections, and Maintenance (FAC-010-1, FAC-011-1, and FAC-014-1) reliability standards.
- In January 2008, the Commission issued Order No. 706 that approved cyber security standards, CIP-002-1 through CIP-009-1.
- In July 2008, the Commission approved modifications to five reliability standards (INT-001, INT-004, INT-005-2, INT-006-2, and INT-008-2) from the Interchange family of NERC standards.
- NERC filed the following proposed reliability standards for regulatory authority approval but has yet to receive disposition of the requests for approval: PRC-023-1 — Transmission Relay Loadability; IRO-006-4 — Transmission Loading Relief; NUC-001-1 — Nuclear Plant Interface Coordination; MOD-001-1 — Available Transmission System Capability; MOD-008-1 — Transmission Reliability Margin Calculation Methodology; MOD-028-1 — Area Interchange Methodology; MOD-029-1 — Rated System Path Methodology; and MOD-030-1 — Flowgate Methodology.

At the regional level, the Commission also approved eight regional standards submitted by the Western Electricity Coordinating Council and approved by NERC for filing with the Commission and the Canadian regulatory authorities.

Detail on these and all filings and orders are found as links on the home page of NERC's Web site.

Standards Development Process

NERC uses a process for refining, developing, and approving reliability standards that has received national, formal accreditation and approval by federal regulators in the United States. A key element of the ~~work~~ development plan is to review and upgrade all the existing standards based on the directives in the ~~Commission's~~ FERC's final rules on standards, previous industry comments, and actual experience gathered from using the standards. Additionally, NERC's rules and a condition of accreditation by the American National Standards Institute (ANSI)[4] require that each standard be reviewed at least every five years. NERC received ANSI accreditation on March 24, 2003. Through the remaining projects in 2010, NERC anticipates completing its review and upgrade of standards identified in this ~~work~~ development plan ~~over several years~~ in support of these accreditation requirements.

The *Reliability Standards Development Procedure*[5] provides a systematic approach to improve the standards and to document the basis for those improvements, and it will serve as the mechanism for achieving the improvements detailed in this plan. The standards development process includes active involvement of industry experts and stakeholders tasked with developing excellent standards.

[4] ANSI accreditation, http://www.nerc.com/filez/ansi.html
[5] Reliability Standards Development Procedure, http://www.nerc.com/fileUploads/File/Standards/RSDP_V6_1_12Mar07.pdf

In its April 2006 application to be certified as the ERO, NERC proposed to develop reliability standards in accordance with Section 300 (Reliability Standards Development) of its Rules of Procedure[6] and the *Reliability Standards Development Procedure*[7], which was incorporated into the Rules of Procedure as Appendix A. In its June 2006 ERO Certification Order, the Commission found that NERC's proposed rules provide for reasonable notice and opportunity for public comment, due process, openness, and a balance of interests in developing reliability standards. The Commission noted that NERC's procedure calls for notifying and involving the public in developing a reliability standard. The development process is open to any person or entity with a legitimate interest in the reliability of the bulk power system. NERC considers the comments of all stakeholders, and a vote of stakeholders is required to approve a reliability standard before it is submitted for NERC Board action and regulatory approval.

Furthermore, NERC also coordinates its reliability standards development activities with the business practices developed by the North American Energy Standards Board[8] (NAESB).

~~Background on Standards Development~~

~~The initial stage in the establishment of mandatory reliability standards began with the translation of the historical operating policies, planning standards, and compliance templates into a baseline set of working standards, referred to as Version 0 reliability standards.~~

~~This iteration of the work plan continues to focus attention on improving the baseline set of Version 0 reliability standards. Since the inaugural installation of the work plan was published, the Commission approved 94 reliability standards as mandatory and enforceable in the United States, although it directed modifications to 56 of those standards. The Commission held an additional 24 reliability standards as pending and NERC has proposed six additional standards for approval.~~

~~In Orders No. 693 and 693-A, *Mandatory Reliability Standards for the Bulk Power System*, and Order No. 890, *Preventing Undue Discrimination and Preference in Transmission Service*, the Commission built upon the information it provided in May 11, 2006 *Federal Energy Regulatory Commission Staff Preliminary Assessment of Proposed Reliability Standards* and the October 20, 2006 *Notice of Proposed Rulemaking — Mandatory Reliability Standards for the Bulk Power System*. In that Staff report, and then in the Commission's proposed rule, the FERC Staff initially, and then the Commission, stated that certain proposed standards are (1) ambiguous; (2) insufficient to ensure an adequate level of reliability; (3) fail to contain adequate "measures and compliance;" (4) may have an undue impact on competition; and (5) are "fill-in-the-blank" standards. The report and notice of proposed rulemaking (NOPR) also pointed out that NERC has not completed standards addressing all recommendations made following the August 2003 Northeast blackout. The work plan enclosed here is intended to address these issues, as well as previous comments and issues noted by industry in the initial development of the standards.~~

[6] NERC Rules of Procedure, http://www.nerc.com/files/NERC_Rules_of_Procedure_EFFECTIVE_20080321.pdf
[7] Reliability Standards Development Procedure, http://www.nerc.com/fileUploads/File/Standards/RSDP_V6_1_12Mar07.pdf
[8] NAESB http://www.nerc.com/page.php?cid=2|247|248

~~Order No. 672[9] provides guidance on the factors the Commission will consider when determining whether proposed reliability standards meet the statutory criteria. For example, the Commission states that a proposed reliability standard must be designed to achieve a specified reliability goal and be clear and unambiguous regarding what is required and who is required to comply. In addition, while a proposed reliability standard does not have to reflect the "best practice," it cannot be based on the "lowest common denominator," if such a standard would not efficiently and effectively achieve its reliability goal.~~

Strategy for Project Resources

Reliability Standards Development Plan: 2010~~09~~–2012 ~~has been~~is designed ~~to~~ recognize~~e~~ing there are limited~~s to~~ available staff and industry resources to complete the projects immediately and concurrently. While the volume of work and schedules are aggressive, they are manageable because the work is being extended over several years, and because much of the work involves~~is~~ revising and improving existing standards for which the issues are already well-defined. However, the development of regional standards, the influx of formal interpretation requests, and the progress of the existing projects has impacted the deliverables noted in the plan and has been reflected in the proposed projects for 2010, 2011, and 2012. In 2009, NERC Standards Program staff includes seven project coordinators in support of the development plan activities, supported by various support and management resources, as well as consulting resources in support of the fast-track Order 706 Cyber Security project team.

~~The NERC Standards Program staff has grown since 2006 from a staff of seven to a complement of fourteen. There are sufficient standards development coordinators to manage the number of projects included in the *three-year Reliability Standards Development Plan* on a forward-looking basis, although in its revised budget for 2009, NERC has provided for additional consulting resources to support expedited completion of certain standards projects, including projects involving revisions to Critical Infrastructure Protection Standards. Two additional standards development coordinators are required to manage, in a timely manner, the significant number of interpretation requests NERC has received and expects to continue to receive for the foreseeable future. These two positions, as well as an additional standards process manager, are tentatively included in the 2010 NERC Business Plan and Budget. Additionally, one vacant position was transformed into and filled as a regulatory filing support position to ensure more timely filings of new or revised reliability standards.~~

~~The sequence of projects has been adjusted to spread the use of industry expertise over several years in the project. For example, system protection experts are a limited resource, as such each project requiring that expertise was spread out from the other for that reason. This same approach was used in sequencing most of the projects.~~

[9] Order 672, http://www.nerc.com/files/final_rule_reliability_Order_672.pdf

Global Improvements

The standard drafting team for each of the projects identified in this plan is expected to review the assigned standards and modify the standards to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure as described in this "Global Improvements" section.

Statutory Criteria

In accordance with Section 215 of the Federal Power Act, FERC may approve, by rule or order, a proposed reliability standard or modification to a reliability standard if it determines that "the standard is just, reasonable, not unduly discriminatory or preferential, and in the public interest."

The first three of these criteria can be addressed in large part by the diligent adherence to NERC's *Reliability Standards Development Procedure*, which has been certified by the ANSI as being open, inclusive, balanced, and fair. Users, owners, and operators of the bulk power system that must comply with the standards, as well as the end-users who benefit from a reliable supply of electricity and the public in general, gain some assurance that standards are just, reasonable, and not unduly discriminatory or preferential because the standards are developed through an ANSI-accredited procedure.

The remaining portion of the statutory test is whether the standard is "in the public interest." Implicit in the public-interest test is that a standard is technically sound and ensures a level of reliability that should be reasonably expected by end-users of electricity. Additionally, each standard must be clearly written, so that bulk power system users, owners, and operators are put on notice of the expected behavior. Ultimately, the standards should be defensible in the event of a governmental authority review or court action that may result from enforcing the standard and applying a financial penalty.

The standards must collectively provide a comprehensive and complete set of technically sound requirements that establish an acceptable threshold of performance necessary to ensure the reliability of the bulk power system. "An adequate level of reliability" would argue for both a complete set of standards addressing all aspects of bulk power system design, planning, and operation that materially affect reliability, and for the technical efficacy of each standard. The Commission directed NERC to define the term, "adequate level of reliability" as part of its January 18, 2007 Order on Compliance Filing. Accordingly, NERC's Operating and Planning Committees prepared the definition and the NERC Board approved it at its February 2008 meeting for filing with regulatory authorities. The NERC Standards Committee was then tasked to integrate the definition into the development of future reliability standards.

Quality Objectives

To achieve the goals outlined above, NERC has developed 10 quality objectives for the development of reliability standards. Drafting teams working on assigned projects are charged to ensure their work adheres to the following quality objectives:

1. **Applicability** — Each reliability standard shall clearly identify the functional classes of entities responsible for complying with the reliability standard, with any specific additions or exceptions noted. Such functional classes[10] include: ERO, Regional Entities, reliability coordinators, balancing authorities, transmission operators, transmission owners, generator operators, generator owners, interchange authorities, transmission service providers, market operators, planning coordinators, transmission planners, resource planners, load-serving entities, purchasing-selling entities, and distribution providers. Each reliability standard that does not apply to the entire North American bulk power system shall also identify the geographic applicability of the standard, such as an interconnection, or within a regional entity area. The applicability section of the standard should also include any limitations on the applicability of the standard based on electric facility characteristics, such as a requirement that applies only to the subset of distribution providers that own or operate underfrequency load shedding systems.
2. **Purpose** — Each reliability standard shall have a clear statement of purpose that shall describe how the standard contributes to the reliability of the bulk power system.
3. **Performance Requirements** — Each reliability standard shall state one or more performance requirements, which if achieved by the applicable entities, will provide for a reliable bulk power system, consistent with good utility practices and the public interest. Each requirement is not a "lowest common denominator" compromise, but instead achieves an objective that is the best approach for bulk power system reliability, taking account of the costs and benefits of implementing the proposal.
4. **Measurability** — Each performance requirement shall be stated so as to be objectively measurable by a third party with knowledge or expertise in the area addressed by that requirement. Each performance requirement shall have one or more associated measures used to objectively evaluate compliance with the requirement. If performance results can be practically measured quantitatively, metrics shall be provided within the requirement to indicate satisfactory performance.
5. **Technical Basis in Engineering and Operations** — Each reliability standard shall be based upon sound engineering and operating judgment, analysis, or experience, as determined by expert practitioners in that particular field.
6. **Completeness** — Each reliability standard shall be complete and self-contained. The standards shall not depend on external information to determine the required level of performance.

[10] These functional classes of entities are derived from NERC's Reliability Functional Model. When a standard identifies a class of entities to which it applies, that class must be defined in the Glossary of Terms Used in Reliability Standards.

7. **Consequences for Noncompliance** — Each reliability standard shall make clearly known to the responsible entities the consequences of violating a standard, in combination with guidelines for penalties and sanctions, as well as other ERO and Regional Entity compliance documents.
8. **Clear Language** — Each reliability standard shall be stated using clear and unambiguous language. Responsible entities, using reasonable judgment and in keeping with good utility practices, are able to arrive at a consistent interpretation of the required performance.
9. **Practicality** — Each reliability standard shall establish requirements that can be practically implemented by the assigned responsible entities within the specified effective date and thereafter.
10. **Consistent Terminology** — Each reliability standard, to the extent possible, shall use a set of standard terms and definitions that are approved through the NERC Reliability Standards Development Process.

In addition to these factors, standard drafting teams also contemplate the following factors the Commission uses to approve a proposed reliability standard as outlined in Order No. 672. A standard proposed to be approved:

1. **Must be designed to achieve a specified reliability goal**
   "321. The proposed Reliability Standard must address a reliability concern that falls within the requirements of section 215 of the FPA. That is, it must provide for the reliable operation of bulk power system facilities. It may not extend beyond reliable operation of such facilities or apply to other facilities. Such facilities include all those necessary for operating an interconnected electric energy transmission network, or any portion of that network, including control systems. The proposed Reliability Standard may apply to any design of planned additions or modifications of such facilities that is necessary to provide for reliable operation. It may also apply to cyber security protection."

   "324. The proposed Reliability Standard must be designed to achieve a specified reliability goal and must contain a technically sound means to achieve this goal. Although any person may propose a topic for a Reliability Standard to the ERO, in the ERO's process, the specific proposed Reliability Standard should be developed initially by persons within the electric power industry and community with a high level of technical expertise and be based on sound technical and engineering criteria. It should be based on actual data and lessons learned from past operating incidents, where appropriate. The process for ERO approval of a proposed Reliability Standard should be fair and open to all interested persons."

2. **Must contain a technically sound method to achieve the goal**
   "324. The proposed Reliability Standard must be designed to achieve a specified reliability goal and must contain a technically sound means to achieve this goal.

   Although any person may propose a topic for a Reliability Standard to the ERO, in the ERO's process, the specific proposed Reliability Standard should be developed initially

by persons within the electric power industry and community with a high level of technical expertise and be based on sound technical and engineering criteria. It should be based on actual data and lessons learned from past operating incidents, where appropriate. The process for ERO approval of a proposed Reliability Standard should be fair and open to all interested persons."

3. **Must be applicable to users, owners, and operators of the bulk power system, and not others**
   "322. The proposed Reliability Standard may impose a requirement on any user, owner, or operator of such facilities, but not on others."

4. **Must be clear and unambiguous as to what is required and who is required to comply**
   "325. The proposed Reliability Standard should be clear and unambiguous regarding what is required and who is required to comply. Users, owners, and operators of the Bulk-Power System must know what they are required to do to maintain reliability."

5. **Must include clear and understandable consequences and a range of penalties (monetary and/or non-monetary) for a violation**
   "326. The possible consequences, including range of possible penalties, for violating a proposed Reliability Standard should be clear and understandable by those who must comply."

6. **Must identify clear and objective criterion or measure for compliance, so that it can be enforced in a consistent and non-preferential manner**
   "327. There should be a clear criterion or measure of whether an entity is in compliance with a proposed Reliability Standard. It should contain or be accompanied by an objective measure of compliance so that it can be enforced and so that enforcement can be applied in a consistent and non-preferential manner."

7. **Should achieve a reliability goal effectively and efficiently - but does not necessarily have to reflect "best practices" without regard to implementation cost**
   "328. The proposed Reliability Standard does not necessarily have to reflect the optimal method, or "best practice," for achieving its reliability goal without regard to implementation cost or historical regional infrastructure design. It should however achieve its reliability goal effectively and efficiently."

8. **Cannot be "lowest common denominator," i.e., cannot reflect a compromise that does not adequately protect bulk power system reliability**
   "329. The proposed Reliability Standard must not simply reflect a compromise in the ERO's Reliability Standard development process based on the least effective North American practice — the so-called "lowest common denominator"—if such practice does not adequately protect Bulk-Power System reliability. Although the Commission will give due weight to the technical expertise of the ERO, we will not hesitate to remand a proposed Reliability Standard if we are convinced it is not adequate to protect reliability."

9. **Costs to be considered for smaller entities but not at consequence of less than excellence in operating system reliability**
"330. A proposed Reliability Standard may take into account the size of the entity that must comply with the Reliability Standard and the cost to those entities of implementing the proposed Reliability Standard. However, the ERO should not propose a "lowest common denominator" Reliability Standard that would achieve less than excellence in operating system reliability solely to protect against reasonable expenses for supporting this vital national infrastructure. For example, a small owner or operator of the Bulk-Power System must bear the cost of complying with each Reliability Standard that applies to it."

10. **Must be designed to apply throughout North American to the maximum extent achievable with a single reliability standard while not favoring one area or approach**
"331. A proposed Reliability Standard should be designed to apply throughout the interconnected North American Bulk-Power System, to the maximum extent this is achievable with a single Reliability Standard. The proposed Reliability Standard should not be based on a single geographic or regional model but should take into account geographic variations in grid characteristics, terrain, weather, and other such factors; it should also take into account regional variations in the organizational and corporate structures of transmission owners and operators, variations in generation fuel type and ownership patterns, and regional variations in market design if these affect the proposed Reliability Standard."

11. **No undue negative effect on competition or restriction of the grid**
"332. As directed by section 215 of the FPA, the Commission itself will give special attention to the effect of a proposed Reliability Standard on competition. The ERO should attempt to develop a proposed Reliability Standard that has no undue negative effect on competition. Among other possible considerations, a proposed Reliability Standard should not unreasonably restrict available transmission capability on the Bulk-Power System beyond any restriction necessary for reliability and should not limit use of the Bulk-Power System in an unduly preferential manner. It should not create an undue advantage for one competitor over another."

12. **Implementation time**
"333. In considering whether a proposed Reliability Standard is just and reasonable, the Commission will consider also the timetable for implementation of the new requirements, including how the proposal balances any urgency in the need to implement it against the reasonableness of the time allowed for those who must comply to develop the necessary procedures, software, facilities, staffing or other relevant capability."

13. **Whether the reliability standard process was open and fair**
"334. Further, in considering whether a proposed Reliability Standard meets the legal standard of review, we will entertain comments about whether the ERO implemented its Commission-approved Reliability Standard development process for the development of the particular proposed Reliability Standard in a proper manner, especially whether the process was open and fair. However, we caution that we will not be sympathetic to

arguments by interested parties that choose, for whatever reason, not to participate in the ERO's Reliability Standard development process if it is conducted in good faith in accordance with the procedures approved by the Commission."

14. Balance with other vital public interests

"335. Finally, we understand that at times development of a proposed Reliability Standard may require that a particular reliability goal must be balanced against other vital public interests, such as environmental, social and other goals. We expect the ERO to explain any such balancing in its application for approval of a proposed Reliability Standard."

15. Any other relevant factors

"323. In considering whether a proposed Reliability Standard is just and reasonable, we will consider the following general factors, as well as other factors that are appropriate for the particular Reliability Standard proposed."

"337. In applying the legal standard to review of a proposed Reliability Standard, the Commission will consider the general factors above. The ERO should explain in its application for approval of a proposed Reliability Standard how well the proposal meets these factors and explain how the Reliability Standard balances conflicting factors, if any. The Commission may consider any other factors it deems appropriate for determining if the proposed Reliability Standard is just and reasonable, not unduly discriminatory or preferential, and in the public interest. The ERO applicant may, if it chooses, propose other such general factors in its ERO application and may propose additional specific factors for consideration with a particular proposed reliability standard."

Issues Related to the Applicability of a Standard

In Order No. 672, the Commission states that a proposed reliability standard should be clear and unambiguous regarding what is required and who is required to comply. Users, owners, and operators of the bulk power system must know what they are required to do to maintain reliability. Section 215(b) of the FPA requires all "users, owners and operators of the bulk power system" to comply with Commission-approved reliability standards.

The term "users, owners, and operators of the bulk power system" defines the statutory applicability of the reliability standards. NERC's Reliability Functional Model (Functional Model) further refines the set of users, owners, and operators by identifying categories of functions that entities perform so the applicability of each standard can be more clearly defined. Applicability is clear if a standard precisely states the applicability using the functions an entity performs. For example, "Each generator operator shall verify the reactive power output capability of each of its generating units" states clear applicability compared with a standard that states "a bulk power system user shall verify the reactive power output capability of each generating unit." The use of the Functional Model in the standards narrows the applicability of the standard to a particular class or classes of bulk power system users, owners, and operators. A standard is more clearly enforceable when it narrows the applicability to a specific class of

entities than if the standard simply references a wide range of entities, e.g., all bulk power system users, owners, and operators.

In determining the applicability of each standard and the requirements within a standard, the drafting team should follow the definitions provided in the NERC Glossary of Terms Used in Reliability Standards and should also be guided by the Functional Model.

In addition to applying definitions from the Functional Model, the revised standards must address more specific applicability criteria that identify only those entities and facilities that are material to bulk power system reliability with regard to the particular standard.

The drafting team should review the registration criteria provided in the NERC Statement of Compliance Registry Criteria, which is the criteria for applicability. The registration criteria identify the criteria NERC uses to identify those entities responsible for compliance to the reliability standards. Any deviations from the criteria used in the Statement of Compliance Registry Criteria must be identified in the applicability section of the. It is also important to note that standard drafting teams cannot set the applicability of reliability standards to extend to entities beyond the scope established by the criteria for inclusion on NERC's Compliance Registry. This is expressly prohibited by Commission Order No. 693-A.

The goal is to place obligations on the entities whose performance will impact the reliability of the bulk power system, but to avoid painting the applicability with such a broad brush that entities are obligated even when meeting a requirement will make no material contribution to bulk power system reliability.

Every entity class described in the Functional Model performs functions that are essential to the reliability of the bulk power system. This point is best highlighted with the example that might be the most difficult to understand, the inclusion of distribution providers. Section 215 of the FPA specifically excludes facilities used in the local distribution of electric energy. Nonetheless, some of the NERC standards apply to a class of entities called distribution providers. Distribution providers are covered because, although they own and operate facilities in the local distribution of electric energy, they also perform functions affecting and essential to the reliability of the bulk power system. With regard to these facilities and functions that are material to the reliability of the bulk power system, a distribution provider is a bulk power system user. For example, requirements for distribution providers in the reliability standards apply to the underfrequency load shedding relays that are maintained and operated within the distribution system to protect the reliability of the bulk power system. There are also requirements for distribution providers to provide demand forecast information for the planning of reliable operations of the bulk power system.

A similar line of thinking can apply to every other entity in the Functional Model, including load-serving entities and purchasing-selling entities, which are users of the bulk power system to the extent they transact business for the use of transmission service or to transfer power across the bulk power system. NERC has specific requirements for these entities based on how these uses may impact the reliability of the bulk power systems. Other functional entities are more obviously bulk power system owners and operators, such as reliability coordinators, transmission

owners and operators, generator owners and operators, planning coordinators, transmission planners, and resource planners. It is the extent to which these entities provide for a reliable bulk power system or perform functions that materially affect the reliability of the bulk power system that these entities fall under the jurisdiction of Section 215 of the FPA and the reliability standards. The use of the Functional Model simply groups these entities into logical functional areas to enable the standards to more clearly define the applicability.

Issues Related to Regional Entities and Reliability Organizations

Because of the transition from voluntary reliability standards to mandatory reliability standards, confusion has occurred over the distinction between Regional Entities and Regional Reliability Organizations. The regional councils have traditionally been the owners and members of NERC. They have been referred to as Regional Reliability Organizations in the Functional Model and in the reliability standards. In an era of voluntary standards and guides, it was acceptable that a number of the standards included requirements for Regional Reliability Organizations to develop regional criteria, procedures, and plans, and included requirements for entities within the region to follow those requirements. Section 215 of the FPA introduced a new term, called "Regional Entity." Regional Entities have specific delegated authorities, under agreements with NERC, to propose and enforce reliability standards within the region, and to perform other functions in support of the electric reliability organization. The former Regional Reliability Organizations have entered into delegation agreements with NERC to become Regional Entities for this purpose.

With regard to distinguishing between the terms Regional Reliability Organizations and Regional Entities, the following guidance should be used. The corporations that provide regional reliability services on behalf of their members are Regional Reliability Organizations. NERC may delegate to these entities a set of regional entity functions. The Regional Reliability Organizations perform delegated regional entity functions much like NERC is the organization that performs the ERO function. Regional Reliability Organizations may do things other than their statutory or delegated regional entity functions.

With the regions having responsibility for enforcement, it is no longer appropriate for the regions to be named as responsible entities within the standards. The work plan calls for removing requirements from the standards that refer to Regional Reliability Organizations, either by deleting the requirements or redirecting the responsibilities to the most applicable functions in the Functional Model, such as planning coordinators, reliability coordinators, or resource planners. In instances where a regional standard or criteria are needed, the ERO may direct the Regional Entities to propose a regional standard in accordance with ERO Rule 312.2, which states NERC, may "direct regional entities to develop regional reliability standards." There is no need to have a NERC standard that directs the regions to develop a regional standard. NERC standards should only include requirements for Regional Entities in those rare instances where the regions have a specific operational, planning, or security responsibility. In this case, Regional Entities (or NERC) may be noted as the applicable entity. However, these Regional Entities (or NERC) are held accountable for compliance to these requirements through NERC's rules of procedure that, by delegation agreement, extend to the Regional Entities. The Regional Entities are not users, owners, or operators of the bulk power system and cannot be held

responsible for compliance through the compliance monitoring and enforcement program. However, NERC and the Regional Entities can be held by the Commission to be in violation of its rules of procedure for failing to comply with the standards requirements to which it is assigned.

Issues Related to Ambiguity

Drafting teams should strive to remove all potential ambiguities in the language of each standard, particularly in the performance requirements. Redundancies should also be eliminated.

Specifically, each performance requirement must be written to include four elements:

- **Who** — defines which functional entity or entities are responsible for the requirements, including any narrowing or qualifying limits on the applicability to or of an entity, based on material impact to reliability.
- **Shall do what —** describes an action the responsible entity must perform.
- **To what outcome** — describes the expected, measurable outcome from the action.
- **Under what conditions** — describes specific conditions under which the action must be performed. If blank, the action is assumed to be required at all times and under all conditions.

Each requirement should identify a product or activity that makes a definite contribution to reliability.

Drafting teams should focus on defining measurable outcomes for each requirement, and not on prescribing *how* a requirement is to be met. While being more prescriptive may provide a sense of being more measurable, it does not add reliability benefits and may be inefficient and restrict innovation.

Issues Related to Technical Adequacy

In May 2006, the Commission Staff issued an assessment on the then proposed reliability standards. The Staff noted under a "technical adequacy" section that requirements specified in some standards may not be sufficient to ensure an adequate level of reliability. While Order No. 672 notes that "best practice" may be an inappropriately high standard, it also warns that a "lowest common denominator" approach will not be acceptable if it is not sufficient to ensure system reliability.

Each standard should clearly meet the statutory test of providing an adequate level of reliability to the bulk power system. Each requirement should be evaluated and the bar raised as needed, consistent with good practice and as supported by consensus.

Issues Related to Compliance Elements

Each reliability standard includes a section to address measures and a section to address compliance. Most of the major changes made to the template for reliability standards over the past year have been focused on re-aligning the content of standards to include the various elements needed to support mandatory compliance. The Uniform Compliance Enforcement Guidelines, ERO Sanctions Guidelines, and Compliance Registry Criteria have been modified and have been approved by the Commission. As each standard is revised, or as new standards are developed, drafting teams need to familiarize themselves with these documents to ensure that each standard proposed for ballot is in a format that includes all the elements needed to support reliability and to ensure that the standard can be enforced for compliance.

The compliance-related elements of standards that may need to be modified to meet the latest approved versions of the various compliance documents noted above include the following:

- Each requirement must have an associated Violation Risk Factor.
- Each requirement must have an associated Time Horizon.
- The term, "Compliance Monitor" has been replaced with the term, "Compliance Enforcement Authority." Either the Regional Entity or the ERO may serve as the compliance enforcement authority. For most standards, the Regional Entity will serve as the compliance enforcement authority. In the situation where a Regional Entity has authority over a reliability coordinator, for example, the ERO will serve as the compliance enforcement authority to eliminate any conflict of interest.
- The eight processes used to monitor and enforce compliance have been assigned new names.
    - Compliance Audits
    - Self-Certifications
    - Spot Checking
    - Compliance Violation Investigations
    - Self-Reporting
    - Periodic Data Submittals
    - Exception Reporting
    - Complaints
- The audit cycles for various entities have been standardized so that the Reliability Coordinator, Transmission Operator, and Balancing Authority will undergo a routine audit to assess compliance with each applicable requirement once every three years while all other responsible entities will undergo a routine audit once every six years.
- Levels of Non-compliance have been replaced with "Violation Severity Levels."

All requirements are subject to compliance audits, self-certification, spot checking, compliance violation investigations, self-reporting and complaints. Only a subset of requirements is subject to monitoring through periodic data submittals and exception reporting.

Measures: While a measure can be used for more than one requirement, there must be at least one measure for each requirement. A measure states what a responsible entity must have or do to demonstrate compliance to a third party, i.e., the compliance enforcement authority. Measures are "yardsticks" used to evaluate whether required performance or outcomes have been achieved. Measures do not add new requirements or expand the details of the requirements. Each measure shall be tangible, practical, and objective. A measure should be written so that achieving full compliance with the measure provides the compliance monitor with the necessary and sufficient information to demonstrate that the associated requirement was met by the responsible entity. Each measure should clearly refer to the requirement(s) to which it applies.

Violation Severity Levels: The Violation Severity Levels (formerly known as Levels of Non-Compliance) indicate how severely an entity violated a requirement. ~~For example, in the Commission-approved standard on vegetation management (FAC-003-1 Vegetation Management Program), there are three Levels of Non-Compliance. The levels range from whether or not a respective program has all necessary documentation to meet the requirements to the number of transmission outages due to tree contacts.~~ Historically, there has been confusion about Levels of Non-Compliance. Some of the previously existing Levels of Non-Compliance incorporate reliability-related risk impacts or consequences. Going forward, the risk or consequences component should be addressed only by the Violation Risk Factor, while the Violation Severity Levels should only be used to categorize how badly the requirement was violated. A set of Commission-approved VSLs exists for each of the original 83 reliability standards as a result of the work of the Project 2007-23 drafting team.
~~The Commission directed NERC to submit Violation Severity Levels for each of these 83 standards by March 1, 2008. Project 2007-23 in this updated work plan is the project team tasked with this effort. The drafting team should indicate a set of Violation Severity Levels that can be applied for the requirements within a standard. Violation Severity Levels replace the existing Levels of Non-Compliance. Each requirement must have at least one VSL.~~

Criteria for determining which VSL to use:
It is preferable to have four VSLs representing a spectrum of performace, but where that does ~~n't~~ not work, the VSLs should be defensible in supporting the criteria in the table below.

Lower VSL	Moderate VSL	High VSL	Severe VSL
The performance or product measured almost meets the full intent of the requirement.	The performance or product measured meets the majority of the intent of the requirement.	The performance or product measured does not meet the majority of the intent of the requirement, but does meet some of the intent.	The performance or product measured does not substantively meet the intent of the requirement.

Violation Risk Factors: Each drafting team is also instructed to develop a Violation Risk Factor for each requirement in a standard in accordance with the following definitions:

- **High Risk Requirement** — A requirement that, if violated, could directly cause or contribute to bulk power system instability, separation, or a cascading sequence of failures, or could place the bulk power system at an unacceptable risk of instability, separation, or cascading failures; or a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly cause or contribute to bulk power system instability, separation, or a cascading sequence of failures, or could place the bulk power system at an unacceptable risk of instability, separation, or cascading failures, or could hinder restoration to a normal condition.
- **Medium Risk Requirement** — A requirement that, if violated, could directly affect the electrical state or the capability of the bulk power system, or the ability to effectively monitor and control the bulk power system. However, violation of a medium risk requirement is unlikely to lead to bulk electric system instability, separation, or cascading failures; or a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly and adversely affect the electrical state or capability of the bulk power system, or the ability to effectively monitor, control, or restore the bulk power system. However, violation of a medium risk requirement is unlikely, under emergency, abnormal, or restoration conditions anticipated by the preparations, to lead to bulk power system instability, separation, or cascading failures, nor to hinder restoration to a normal condition.
- **Lower Risk Requirement** — A requirement that is administrative in nature and, a requirement that, if violated, would not be expected to affect the electrical state or capability of the bulk power system, or the ability to effectively monitor and control the bulk power system. A requirement that is administrative in nature; or a requirement in a planning time frame that, if violated, would not, under the emergency, abnormal, or restorative conditions anticipated by the preparations, be expected to affect the electrical state or capability of the bulk power system, or the ability to effectively monitor, control, or restore the bulk power system.

Time Horizons: The drafting team must also indicate the time horizon available for mitigating a violation to the requirement:

- **Long-term planning** — a planning horizon of one year or longer.
- **Operations planning** — operating and resource plans from day ahead up to and including seasonal.
- **Same-day operations** — routine actions required within the timeframe of a day, but not real time.
- **Real-time operations** — actions required within one hour or less to preserve the reliability of the bulk electric system.
- **Operations assessment** — follow-up evaluations and reporting of real time operations.

Note that some requirements occur in multiple time horizons, and it is acceptable to have more than one time horizon for a single requirement.

The drafting team should seek input and review of all measures and compliance information from the compliance elements drafting team members assigned to support each standard drafting team or from the NERC compliance staff.

Coordination with NAESB

Many of the existing NERC standards are related to business practices, although their primary purpose is to support reliability. Reliability standards, business practices, and commercial interests are inextricably linked. An example of an existing standard that is both a reliability standard and a business practice is the Transmission Loading Relief (TLR) Procedure currently used as an interconnection-wide congestion management method in the Eastern Interconnection.

It would be safe to conclude that every reliability standard has some degree of commercial impact and therefore impacts competition. The statutory test to be applied by the Commission is whether the reliability standard has an "undue adverse effect" on competition.

NERC has taken several steps to ensure its reliability standards do not have any undue, adverse impact on business practices or competition. First, NERC coordinates the development of all standards with the North American Energy Standards Board (NAESB). In addition to this formal process, drafting teams work with NAESB groups to ensure effective coordination of wholesale electric business practice standards and reliability standards. NERC and NAESB follow their procedure for the joint development of standards in areas that have both reliability and business practice elements. This procedure is being implemented for all standards in which the reliability and business practice elements are closely related, thereby making joint development a more efficient approach.

This work plan includes several projects that require close coordination and joint development with NAESB:

- Project 2006-08 — Transmission Loading Relief
- Project 2007-05 — Balancing Authority Controls
- Project 2007-18 — Reliability Based Control
- Project 2008-01 — Voltage and Reactive Control
- Project 2008-12 — Coordinate Interchange Standards
- Project 2009-03 — Emergency Operations
- Project 2010-02 — Connecting New Facilities to the Grid
- Project 2010-04 — Demand Data

To ensure each reliability standard does not have an undue adverse effect on competition, NERC requires that each standard meet the following criteria:

- Competition — A reliability standard shall not give any market participant an unfair competitive advantage.

- Market Structures — A reliability standard shall neither mandate nor prohibit any specific market structure.
- Market Solutions — A reliability standard shall not preclude market solutions to achieve compliance with that standard.
- Commercially Sensitive Information — A reliability standard shall not require the public disclosure of commercially sensitive information. All market participants shall have equal opportunity to access commercially non-sensitive information that is required for compliance with reliability standards.

During the standards development process, each Standards Authorization Request (SAR) drafting team asks the following question to determine if there is a need to develop a business practice associated with the proposed standard:

- Are you aware of any associated business practices that we should consider with this SAR?

Each standard drafting team also asks the following question to determine if there is a potential conflict between a reliability standard and business practice:

- Are you aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement? If yes, please identify the conflict.

Additional Considerations

Drafting teams should consider the following in reviewing and revising their assigned standards:

- **Title**: In general, the title should be concise and to the point. Care should be taken not to try to fully describe a standard through its title. The title should fit a single line in both the header and in the body of the standard.
- **Purpose**: Current purpose statements are inconsistent. The purpose should clearly state a benefit to the industry (value proposition) in fulfilling the requirements. The purpose should not simply state "the purpose is to develop a standard to…" The purpose should be tied to one or more of the reliability principles.
- **References**: Section (F) provides a place to list associated references that support implementation of the standard. Drafting teams may develop or reference supporting documents with approval of the Standards Committee.
- **Version histories**: Version histories should be expanded to include complete listings of what has been changed from version to version so that end-users can easily keep track of changes to standards. This will also serve as a type of audit trail for changes.

Resource Documents Used

NERC used several references when preparing this plan. These references provide detailed descriptions of the issues and comments that need to be considered by the drafting teams, which

are included in the second volume of the work plan, as they work on the standards projects defined in the plan. The references include:

- FERC NOPR on Reliability Standards, October 20, 2006.
- FERC Staff Preliminary Assessment of Proposed Reliability Standards, May 11, 2006.
- FERC Order No. 693 Mandatory Reliability standards for the Bulk Power System, March 16, 2007.
- FERC Order No. 693-A Mandatory Reliability Standards for the Bulk Power System, July 19, 2007.
- FERC Order No. 890 Preventing Undue Discrimination and Preference in Transmission Service, February 16, 2007.
- Comments of the North American Electric Reliability Council and North American Electric Reliability Corporation on Staff Preliminary Assessment of Reliability Standards, June 26, 2006.
- Comments of the North American Electric Reliability Corporation on Staff Preliminary Assessment of NERC Standards CIP-002 through CIP-009, February 12, 2007.
- Comments of the North American Electric Reliability Corporation on the Notice of Proposed Rulemaking for Facilities Design, Connections and Maintenance Reliability standards, September 19, 2007.
- Comments received during the development of Version 0 reliability standards.
- Consideration of comments of the Missing Compliance Elements drafting team.
- Consideration of comments of the Violation Risk Factors drafting team.
- Consideration of comments in the Phase III–IV standards.
- Comments received during industry comment period on work plan.
- Q&A for Standards and Compliance.

Appendix A — Summary of Industry Comments

Reliability Standards Development Plan 2010-2012
As of September 29, 2009

Comment 1
Name: Carol Gerou
Organization: Midwest Reliability Organization

Suggestion or Comment: NERC should sponsor an industry triage of the standards to identify the core requirements and flag those that are minutia. This will allow all of industry (NERC, Regional Entities and Registered Entities) to focus resources on what will support reliability rather than push paper to demonstrate compliance with requirements that don't support realiability.

Example: A simple example is the DCS. The true core requirements are to recover from all reportable events in 15 minutes and replentish reserves in 90 minutes thereafter. The rest of the Rs are an explanation of what that means, how it's handled in a Reserve Sharing Group and also the procedural reporting items. However, we are now moving down a path to assign measures and sanctions to 20 different things in this standard.

Recommendation for improvement: A first step for any standards improvement effort would be the creation of a database companion to the standards. This would not only be a platform to capture the triage comments, the database could be used by registered entities to identify all the requirements that apply to them. Presently it is impossible to say with assurance you have found all applicable requirements. For example, there are several cases where an entity is mentioned in a requirement, but that entity is not identified in the "applicability" section of the standards.

Once you have the triage complete, format changes are just a matter of programming.

If you look at the present V0 and V1 standards, many things labled as requirements are actually criteria, procedures, administrative directions and explanitory text.

As an example of what can be done to improve the final format after the triage, refer to Europe's Policy 1 at: http://www.ucte.org/resources/publications/ophandbook/

The bullets in their policies are broken into a few categories:

- C for Criteria (goals and background of the standard)
- R for Requirements (generally attributes that are yes/no go/no-go)
- S for Standards (things measured on a scale)
- P for Procedures (administrative information)
- G for guides (while we have moved away from guides, the issue still remains what to do with the good practices that are being lost from institutional memory)

If there is information beyond this, it is likely reference information and should be moved to an appendix in the standard (using A for paragraph numbers).

The benefit in making such a format change is that the industry can focus on those things that are important for reliability. It also allows NERC and the Regions to focus on the important things.

Compliance elements would be applied to the requirements and standards. There still could be notification to regulatory bodies on procedural deficiencies.

This is not a suggestion for any change to content in the standards, just a reformatting.

NERC Response:

In response to your recommendation (as well as similar recommendations from others) we have added Project 2010-06 ~~Performance-based Reliability Standards~~Results-based Reliability Standards to the *Reliability Standards Development Plan: 2010-2012* for a project focused on:

- triaging the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all,
- developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis,
- promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and
- revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability.

Note that the "applicability" section of each standard doesn't identify all functional entities mentioned in a standard – the "applicability" section of the standard identifies just those functional entities with responsibility for compliance with one or more requirements in the standard.

There is an effort underway to put the standards into a relational database, until this is ready for stakeholder use, we have published a list of all requirements in all standards that have been approved by FERC that can be sorted by functional entity. This excel spreadsheet is posted at the following site:

http://www.nerc.com/docs/standards/rs/VRF_Standards_Applicability_Matrix_2009June25.xls

Project Number(s): 2007-09

Project Title(s): Generation Verification

Suggestion or Comment: In Volume 2, Reliability Standards Development Plan Overall Project Schedules, the Generation Verification project looks like it's mislabeled as Project 2007-08.

Recommendation for improvement: Update Overall Project Schdeules or connect hyperlink to current project summary calendar (called "Standards Under Development Anticipated Posting Calendar") provided on the NERC sStandards Under Deveopment webpage.

NERC Response:

The label for Project 2007-09 Generator Verification in the Overall Project Schedules in Volume II of the Reliability Standards Development Plan: 2010-2012 has been corrected.

Reliability Issue: List of projects

Suggestion or Comment: The plan lists several projects but it indicates that limited resources exist, it would seem partical to pick a set of projects which have a high priority and complete that set and then move on to less priority projects. Plus, in the plan Volume 1 mentions that some project have a higher proirity then other. The plan even expresses the objectives for determining the priority (Volume 1, page 5, and section titled "Objectives as Part of the Goal") but the actual projects are not priortized.

Example: A set of projects would be the fill-in-the-blank standards. If the industry could take an approach on this set alone, it would not be spinning it wheels so to speak. The technical expertise used to develop both regional and continental wide standards could be free to work on other standards.

Recommendation for improvement: Pick a set of projects which have a high priority and complete

that set then work on less priority projects.

NERC Response:

You touch upon two distinct concepts in your comments above. The first being the need to work on high priority projects before moving on to lower priority projects. With respect to this issue, what might be a high priority project in the eyes of one entity might not be in the eyes of another entity. NERC staff coordinates all standards development activities through the NERC Standards Committee. In compliance with the *NERC Reliability Standards Development Procedure*, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. NERC staff works with the NERC Standards Committee to identify the projects of highest overall industry importance before working on lower priority projects. In some cases a high priority project is delayed while waiting for research or analysis needed to develop a set of technically-based requirements. This was the case with the Voltage and VAR Control project, the Real-time Tools project, and others. As we move forward, we are trying to have the technical foundation for each standard clearly identified before the SAR is initiated.

The second concept you touch upon in your comments above is the statement that actual projects are not prioritized. It might not obviously appear that projects in the *Reliability Standards Development Plan*: 2009-2011 are prioritized but in actuality the structure of the *Reliability Standards Development Plan: 2009-2011* as well as this revised plan is such that the projects are positioned in the plan so that the "higher priority" projects are designated to be initiated in the immediate year and the "lower priority" projects are designated to be initiated in the later years of the plan.

Suggestion or Comment: The plan should be updated to show actual status of the projects. Only show last major milestone.

Example: Starting from the Reliability Standards Development Plan Overall Project Schedule housed in the plan (Volume 2) add a diamond symbol to show latest milestone in the project. Milestones would be last posting for ballots or comments.

NERC Response:

Links to the current project schedule for each of the active projects are provided at the end of each project description in Volume II of the Reliability Standards Development Plan. The on-line project schedules are updated monthly and should provide the level of detail you suggest in your comment above.

Comment 2
Name: Denise Koehn
Organization: Bonneville Power Administration

Suggestion or Comment: BPA has no dispute regarding the revision needs; however, this is an aggressive schedule and will require considerable effort to accomplish as many items per year as scheduled. The schedule seems a little aggressive. Otherwise, plan looks good.

NERC Response:

We appreciate your comment relative to the "aggressiveness" of the schedules indicated in the *Reliability Standards Development Plan*. The standards development process continues to evolve as does the establishment of realistic project schedules to complement the process. With the publication of this *Reliability Standards Development Plan: 2010-2012* NERC staff, working in conjunction with the

individual drafting teams, has attempted to publish more realistic schedules for each project. ~~One of the requirements of the Reliability Standards Development Process is to review each standard at least once every five years, and we are facing the "five-year" anniversary of the initial effective date for the "Version 0" standards.~~

Comment 3 **Name:** Dora Moreno **Organization:** Southern California Edison Company
Standard Title(s): NERC Reliability Standards Development Plan 2009-2011
Suggestion or Comment: Southern California Edison Company ("SCE") hereby submits its comments on the North American Electric Reliability Corporation's ("NERC") annual revision to the NERC Reliability Standards Development Plan (Plan). SCE greatly appreciates the work that went into developing the Plan, and commends NERC for the extensive overview and depth it provides with respect to the development of reliability standards. This being said, SCE is generally supportive of the document and goals NERC has set for the development of reliability standards. The timelines identified in the Plan, like the Plan itself, are too dynamic (non-static/ever changing) to be used as targets, and may need to be modified as projects are launched and the drafting teams proceed forward with them.
NERC Response: NERC staff appreciates you comments and concurs with your specific comment that the timelines identified in the plan, like the plan itself, is dynamic. NERC staff will continue to coordinate all standards development activities through the NERC Standards Committee and be responsive to industry needs and will publish more realistic schedules for each project in the future.

Comment 4 **Name:** Doug Hohlbaugh **Organization:** FirstEnergy
Project Number(s): 2009-03
Project Title(s): Emergency Operations (Covers standards EOP-001 "Emergency Operations Planning", EOP-002 "Capacity & Energy Emergencies", EOP-003 "Load Shedding Plans" and IRO-001 "Reliability Coordinator - Responsibilities and Authorities"
Suggestion or Comment Consider advancing project 2009-03 and including it in a list of High Priority projects that need addressed within NERC 3-year Work Plan. See FE comment 4B below stating a need to establish a list of High Priority projects and suggestions on how such a list may be compiled.

Project 2009-03 is an example project that addresses core real-time operations requirements that should be considered for advancement in NERC's work plan. This project has yet to start and there are reliability and compliance ambiguities that require mitigation. For example, in EOP-003, R5 states the following "A Transmission Operator or Balancing Authority shall implement load shedding in steps established to minimize the risk of further uncontrolled separation, loss of generation, or system shutdown" This is a HIGH Violation Risk Factor requirement that should not lack clarity in compliance certainty related to who has the authority to shed load.

The purpose statement of the EOP-003 standard indicates that the BA and TOP must have the capability and authority to shed load. It is unclear what is meant by capability. Capability could range from ability to direct action to open breakers or an expectation to open breakers and drop load. However, the standard is not written clearly related to the expectations of the TOP and BA in regard to load shed. Within the EOP-003 standard, 50% of the requirements include a statement "A Transmission Operator or Balancing Authority shall …" and should be revised on a more expeditious schedule to improve reliability and compliance certainty.

Recommendation for improvement: Consider advancing project 2009-03 and including it in a list of High Priority projects that need addressed within NERC 3-year Work Plan. See FE comment 4B below stating a need to establish a list of High Priority projects and suggestions on how such a list may be compiled.

NERC Response:

NERC staff agrees with FirstEnergy's suggestion of the importance of Project 2009-03 Emergency Operations. As of this writing, Project 2009-03 has not been initiated; however, it is one of the next projects waiting to be initiated once one of the currently active projects has completed and the appropriate resources are made available.

Suggestion or Comment:

A) The industry -BES users, owners and operators as well as regulatory enforcement staff - is overwhelmed with compliance enforcement actions based on little or no BES reliability gap related to violations that are largely documentation related. This inefficiency is wasting valuable resources with no measured improvement in NERC's vision of Adequate Level of Reliability which the standards collectively aim to achieve. Requirements that are largely administrative should not be subjected to the compliance Sanctions Matrix and should be partitioned within the standards.

B) We are concerned with the large volume of work within the NERC work plan and the stress placed on its limited staff and industry resources. NERC needs to re-assess its projects and develop a short list of key High Priority projects that will drive the greatest reliability improvements within the industry. These select projects should receive detailed attention and priority by NERC staff, NERC SC and industry as they move through the standards development process.

The key projects should be held to greater scrutiny from a project management view. It should be expected that team members on these teams are held to a higher level of accountability, committed to providing significant time and energy to advance the industry in the key areas that will raise the adequate level of reliability. One example where this has been used is the CIP project.

c) Interpretation Request - NERC should allow sufficient bandwidth in their schedule to address interpretation requests which seem to be on the rise. It should be understood that the use of existing drafting teams to respond to interpretation requests causes delays in standard development work progress.

D) The NERC Work plan should cast a clear picture of the ERO/industry vision that clearly articulates a future target for the reliability standards and the core BES reliability goals they aim to achieve.

Recommendation for improvement:

A) The standards should be scrubbed to remove or re-classify administrative and documentation related requirements that do not serve a reliability related goal. To the extent retained, two levels of requirements should exist within the standard 1) Reliability Requirements and 2) Administrative Requirements. For example many requirements direct entities to provide some sort of documentation within X calendar days, upon a request to do so. These types of requirements, if violated, should not bog the industry down in paperwork moving through the normal compliance enforcement process and should only be subject to a penalty for repeat offenders. When a penalty is warranted for Administrative Requirements, it should have a separate expedited process and the fine should escalate for repeat offenders with some consideration of the length of time between repeat violations.

B) We suggest a leadership team with representative members of each of the NERC Standing Committees (SC, PC, OC, CCC and CIPC) direct a working group aimed at developing a methodical review of the existing standards to develop the High Priority list of reliability standards that require sharp focus from industry. The prioritization should be based on a number of different aspects such as: 1) frequency of interpretation requests for a given standard - this could point to lack of clear requirement language; 2) the frequency of violations for a given standard - could point to a need to re-evaluate the metrics used to gauge compliance and determine if the proper industry expectations regarding a particular reliability target is being achieved. The standards should not expect perfection as their goal.; 3) requirement redundancy - this should remain a focus of the Work Plan to remove potential for multiple violations, the standards should remain clear and concise; 4) Clear expectations - many of the standards still lack measures. It's not clear why the industry is putting forth time and energy on developing both measures and Reliability Standards Audit Worksheets (RSAWs). It seems that clear written measures along with the requirements should suffice in providing a responsible entity the information needed to ensure compliance. The RSAWs should not be an on-going expecatation of the standards and the Work Plan should clearly cast this vision. Creating both RSAWs and measures creates unnecessary effort to maintain two sets of information serving the same function.

A presentation was made by the NERC Standards Process Subcommittee (a subcommittee of the SC) at the April 15-16, 2009 NERC Standards Committee meeting that describe a potential method for establishing a list of criteria for evaluating the standards, prioritizing the work needed with a focused effort of trimming down the requirements to core reliability requirements aimed at a particular reliability goal. It's suggested that the work of the NERC Process Subcommittee form the basis of establishing the High Priority list of standards which should ultimately rise to the top of NERC's Work Plan.

C) FE well understands the benefits of utilizing an already formed standards drafting team (SDT) to expedite a response to a standard interpretation request as the team already assembles the SMEs to address a particular subject matter. The SDT also benefits from the experience by being made acutely aware of confusion that exists within an existing standard it is addressing for improvement.

A potential downside to using SDT personnel is the distraction created by the interpretation request and a delay in the standards development work. NERC should closely monitor the workload placed on SDT's being asked to respond to interpretation requests and poll the SDT members to see if they believe there would be any benefit in an alternative approach for interpretation responses.

One potential alternative would be to form a separate sub-committee or work group under the CIPC, OC and PC that would address all interpretation requests related to various class of standards that each of these standing committees would be expected to address. This would allow the SDTs to remain focused on their work in developing new/revised reliability requirements.

D) The Work Plan should set the vision of what the ERO/industry will achieve as a 5-year target. This vision should foretell a 5-year plan of a strong, self supporting industrial model that will triage the standards to separate critical core reliability requirements from the lesser administrative tasks, a dedicated focus of reducing the reliability requirements to those that support NERC's Adequate Level of Reliability and clearly identify the High Priority projects being addressed on a expedited schedule. The

5-year target should seek to continuously improve and adjust as needed to raise the BES reliability where warranted by clear metrics and should not anticipate perfect reliability.

NERC Response:

A and B) In response to your recommendation (as well as similar recommendations from others) we have added Project 2010-06 ~~Performance-based Reliability Standards~~Results-based Reliability Standards to the *Reliability Standards Development Plan: 2010-2012* for a project focused on:

- triaging the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all,
- developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis,
- promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and
- revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability.

C) We appreciate your concern related to the process used for~~of~~ developing interpretations. This topic is one of many topics currently being vetted by the members of the NERC Standards Committee and your concerns are more appropriately addressed in that venue.

D) The Reliability Standards Development Plan is a short-term forward looking three-~~-~~year plan for reliability standard development and not necessarily a master plan that sets the long-term ~~vision~~ goals of the standards program. NERC staff coordinates all standards development activities through the NERC Standards Committee whose membership consists of industry representatives. In compliance with the NERC Reliability Standards Development Procedure, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. The Standards Committee protects the integrity and credibility of the standards development process. NERC staff facilitation of the standards development process in coordination with the Standards Committee takes into consideration the potential impact on industry resources when planning standards related projects and activities.

Comment 5
Name: Frank Gaffney
Organization: Florida Municipal Power Agency

Standard Number(s): EOP-001-1, EOP-003-1, IRO-008-1, IRO-009-1, IRO-010-1, PRC-006-0, PRC-007-0, TOP-001-1, TOP-002-2a, TOP-003-1, TOP-006-2, VAR-001-1a

Standard Title(s): Emergency Operations Planning, Load Shedding Plans, Reliability Coordinator Operational Analyses and Real-Time Assessments, Reliability Coordinator Actions to Operate Within IROLs, Reliability Coordinator Data Specifications and Collection, Development and Documentation of Regional UFLS Programs, Assuring Consistency with Regional UFLS Programs, Reliability Responsibilities and Authorities, Monitoring System Conditions, Voltage and Reactive Control

Suggestion or Comment: The current standards are inconsistent with each other in certain areas and confuse the roles of a Balancing Authority (BA), Transmission Operator (TOP), Reliability Coordinator (RC), Regional Entity (RE), Generation Operator (GOP) and Transmission Planner (TP). The confusion manifests in a few ways. First, it causes the BA to be responsible for requirements that ought to be only applicable to the TOP (such as managing transmission line outages), and visa versa (such as managing fuel supply), probably thinking that most BAs are also TOPs. However, there are BAs that are not TOPs and visa versa. Secondly, it causes redundancy in roles and confusion in leadership in causing certain activities to happen. For instance, both the TOP and RC are responsible for managing IROLs without clear leadership between the two. Also, if a Load Serving Entity (LSE) or GOP receives directives from both the RC and the TOP that conflict with each other, what should the LSE or GOP do?

Example: The NERC Glossary of terms defines a BA as: "The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time." In other words, responsible for supply and demand balance in the operating horizon. With this definition in mind, why is the BA responsible for EOP-001-1 R2.2 "Develop, maintain, and implement a set of plans to mitigate operating emergencies on the transmission system"? Similarly, the TOP is defined as: "(t)he entity responsible for the reliability of its 'local' transmission system, and that operates or directs the operations of the transmission facilities." With this definition in mind, why is the TOP made responsible for EOP-001-1 R2.1: "(d)evelop, maintain, and implement a set of plans to mitigate operating emergencies for insufficient generating capacity"? There are more examples of this, and other inconsistencies between the BA, TOP, RC, RE, GOP and TP, as summarized below:

In EOP-001-1 R4, Appendix A includes items that are not applicable to the TOP and are only applicable to the BA, e.g., why is a TOP responsible for fuel supply? Why is a TOP responsible for R6.2 concerning emergency energy? Why is a TOP responsible for fuel supply in R6.4, and why is the TOP responsible for arranging energy delivery?

In EOP-003-1 R2, why is the BA responsible for Under Frequency Load Shedding (UFLS) when PRC-006-0 and PRC-007-0 make it the responsibility of the Regional Entities, the TOPs, the Distribution Providers and the LSEs? Why is the BA responsible for Under Voltage Load Shedding (UVLS) when the responsibility should probably be just the TOP's? Isn't this requirement redundant with PRC-006-0 and PRC-007-0?

IRO-008-1 and IRO-009-1 requires RCs to operationally plan for and operate within IROLs. TOP-004-2 and VAR-001-1a R10 requires the TOPs to do the same, yet there is no discussion in the standards of coordination between the RC and TOPs in the standards. Note that VAR-001-1a R10 and R12 are dedundant with TOP standards such as TOP-004-2.

TOP-001-1 R8, the requirement ought to clearly delineate that the BA is responsible for restoring real power balance, and the TOP reactive power balance.

TOP-002-2a, the standard is for Transmission Operations Planning yet there are numerous requirements for the BA that should probably be set apart as separate requirements under a new BAL standard for operational planning for supply and demand balance, contingency reserves, and regulation service, which are not related to Transmission Operations Planning.

TOP-002-2a R8, why is it the BA's responsibility to meet voltage or reactive reserves, isn't that the role of the TOP, as spelled out in the VAR standards? If the issue is to ensure enough generation is on-line in specific areas that might need reactive support, isn't that still the TOP's responsibility to coordinate with the BA and issue direction if necessary?

TOP-003-1 R1.2, why is the TOP responsible for providing generator outage information? Isn't that the BA's or GOP's responsibility and isn't this redundant with IRO-010-1?

TOP-006-2 R1, R1.2, why are BAs responsible for information regarding transmission resources available for use? Isn't that the role of the TOP?

TOP-006-2 R2, why is the BA responsible for monitoring transmission line status, voltage, load tap changer settings, and reactive power in general? Monitoring and managing reactive resources, voltage and tap settings is clearly made the responsibility of the TOP in VAR-001-1a.

TOP-006-2 R3 why does the BA need to understand protective relaying? Isn't that the role of the TOP and GOP?

VAR-001-1a R2 requires the TOP to acquire sufficient reactive resources. The statement probably ought to clearly delineate that this requirement is applicable to the operating horizon only and that the TP is responsible for adequate reactive resources in the planning horizon.

Recommendation for improvement: Revise the standards to clearly delineate the responsibilities of the various entities and clear up the redundancy and inconsistencies between the standards. The examples provided include some suggestions for changes to help make roles and responsibilities more clear.

NERC Response:

There are some inconsistencies in identifying the responsible entity – during the development of the Version 0 standards, the drafting team sometimes converted~~ing~~ the term, "control area" to "Balancing Authority and Transmission Operator" when the conversion should have clearly assigned the requirement to either the Transmission Operator or the Balancing Authority, but not to both. We are trying to correct these applicability errors as we modify the standards.

Several of the recommended modifications have already been addressed, including deletion of TOP-001-1, Requirement R8; removal of BA requirements from TOP-002; deletion of TOP-003 Requirement R1.2;removal of BA from TOP-006; IRO-008 and IRO-009 require the RC to develop action plans for preventing and mitigating instances of exceeding IROLs and require sharing this information with the entities that need to take these actions – so there is coordination between the IRO standards and the TOP standards.

The following items have been added to the Issues Database to be addressed by the standard drafting team responsible for revising the standard:

Source: Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan:2010-2012

EOP-001-1	Project 2009-03	The NERC Glossary of terms defines a BA as: "The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time." In other words, responsible for supply and demand balance in the operating

		horizon. With this definition in mind, why is the BA responsible for EOP-001-1 R2.2 "Develop, maintain, and implement a set of plans to mitigate operating emergencies on the transmission system"?
EOP-001-1	Project 2009-03	The NERC Glossary of terms defines a TOP as: "(t)he entity responsible for the reliability of its 'local' transmission system, and that operates or directs the operations of the transmission facilities." With this definition in mind, why is the TOP made responsible for EOP-001-1 R2.1: "(d)evelop, maintain, and implement a set of plans to mitigate operating emergencies for insufficient generating capacity"?
EOP-001-1	Project 2009-03	Requirement R4 (and by reference Attachment 1-EOP-001-0) is applicable to both the Transmission Operator and Balancing Authority but includes items that are not applicable to the TOP and are only applicable to the BA, e.g., why is a TOP responsible for fuel supply? Why is a TOP responsible for R6.2 concerning emergency energy? Why is a TOP responsible for fuel supply in R6.4, and why is the TOP responsible for arranging energy delivery?
EOP-003-1	Project 2009-03	With regard to requirement R2, why is the BA responsible for Under Frequency Load Shedding (UFLS) when PRC-006-0 and PRC-007-0 make it the responsibility of the Regional Entities, the TOPs, the Distribution Providers and the LSEs? Why is the BA responsible for Under Voltage Load Shedding (UVLS) when the responsibility should probably be just the TOP's? Isn't this requirement redundant with PRC-006-0 and PRC-007-0?
EOP-003-1	Project 2007-01	Requirement R2 of EOP-003-1 states: “Each Transmission Operator and Balancing Authority shall establish plans for automatic load shedding for underfrequency or undervoltage conditions.” The standards drafting team for Project 2007-01 Underfequency Load Shedding should consider modifying this requirement as part of their project.
VAR-001-1a	Project 2008-01	Requirement R2 requires the TOP to acquire sufficient reactive resources. The statement probably ought to clearly delineate that this requirement is applicable to the operating horizon only and that the TP is responsible for adequate reactive resources in the planning horizon.
VAR-001-1a	Project 2008-01	VAR-001-1a R10 and R12 are redundant with TOP standards such as TOP-004-2.

Comment 6
Name: Guy Zito
Organization: Northeast Power Coordinating Council

Suggestion or Comment: The initial draft of the intended "final" version of the document should be posted for comment. "Fill in the blank" projects versus blackout recommendation projects should be appropriately prioritzed.

Recommendation for improvement: The Reliability Standards Development Plan: 2010-2012 version should be the version that is posted for comments. Having the 2009-2011 version posted is contributing to industry confusion over what information to submit for comments.

NERC Response:

Thank you for your comment. We will consider incorporating your suggestion into next year's project for revising the *Reliability Standards Development Plan.*

Comment 7
Name: Hugh Francis
Organization: Southern Company

Suggestion or Comment: Page 9 of Appendix A has a list of projects that will be initiated each year. At the bottom of page 10 there is a strategy for project resources that addresses the resources needed to complete the standards projects in the project list. There are about the same number of projects in each year. What is not addressed is how these new projects are going to be started/completed without additional resources. This plan does not address the resources needed to keep the earlier projects revised and current. At this time there are 95 nation-wide standards and only 35 or less than 37% have not been revised.

Recommendation for improvement: The new Standards Development Plan needs to address current manpower requirements as well as future needs for manpower. Adjust the project list in the future years to levelize manpower needed to initiate new standards as well as keep the current standards up to date and revised as needed.

NERC Response:

NERC understands the amount of resources required (both industry and NERC specific resources) for the development of quality standards and is cognizant of the fact that industry resources are not limitless. NERC staff coordinates all standards development activities through the NERC Standards Committee whose membership consists of industry representatives. In compliance with the NERC Reliability Standards Development Procedure, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. NERC staff facilitation of the standards development process in coordination with the Standards Committee takes into consideration the potential impact on industry resources when planning standards related projects and activities.

One of the requirements of the Rules of Procedure of the North American Electric Reliability Corporation~~Reliability Standards Development Process~~ is to review each standard at least once every five years, and we are facing the "five-year" anniversary of the initial effective date for the "Version 0" standards. The majority of projects slated to commence in 2010 in this revised plan will enable NERC to meet this requirement as it relates to the initial set of reliability standards.

Comment 8

Name: Jalal Babik

Organization: Dominion Resources Inc.

Project Number(s): 2007-01-RE, 2007-05-RE, 2007-11-RE, 2008-04-RE.
Project Title(s): Underfrequency Load Shedding, Balancing Authority Contols, Disturbance Monitoring, Protection System
Suggestion or Comment: NERC must place more priority on fill-in the blank standards in its Reliability Standards Development Plan. Since several of these standards, have not gotten priority attention, Regional Councils are moving ahead with Regional Standards development on these standards, while a national standard would be more appropriate and prevent the development of unnecesary regional differences in standards that ultimately make standards compliance more difficult for registered entities operating in more then one Region. Further, a national standard on these important compliance topics would set the threshold and hence, regional differences or variences could be minimized. Without this prioritization, registered entities could face very different compliance requirements on simliar equipment in their fleet, based soley on what Region the equipment resides; making compliance management more difficult, yet for little to no benefit to the bulk power system and compliance costs. Additionally, given several of these projects were started in 2007, that reason alone should move these projects into the highest priority on NERC Development Plan.
Recommendation for improvement: These fill-in-the-blank standards should review top priority from NERC staff until they are balloted. Regional Standards that address then same compliance subjects should be put on hold until the national standard on the same compliance objective is addressed by ballot body. It is after that national balloting that Regions will know what regional differences are truly needed based on unique characteristics of their regional bulk electric system.
NERC Response: The projects in question relative to the above comments are: • Project 2007-01-RE — Underfrequency Load Shedding, • Project 2007-05-RE — Balancing Authority Controls, • Project 2007-11-RE — Disturbance Monitoring, and • Project 2008-04-RE — Protection Systems as described in Volume III of the *Reliability Standards Development Plan: 2009-2011* and the corresponding continent-wide projects currently underway or planned. Three of the four corresponding continent-wide projects are well underway (those being Project 2007-01 Underfrequency Load Shedding, Project 2007-05 Balancing Authority Controls, and Project 2007-11 Disturbance Monitoring) and are subject to the schedule established by the associated standard drafting team. The fourth continent-wide project was identified in Volume II of the Reliability Standards Development Plan: 2009-2011 as Project 2010-05 Protection Systems. The work being performed in parallel by any particular region is subject to the oversight of the regional standards organization for that region and is not controlled by NERC staff. NERC standards staff is in regular contact with the individuals at each of the Regional Entities responsible for developing regional reliability standards. Coordination of the four projects referenced above is ongoing. In many instances, the Regional Entity has decided to commence work on the four 'fill-in-the blank' standards in order to able to better coordinate the development of the regional standard with the development of the continent-wide standard. This actually is to the benefit of those entities in the region affected by the standard. Each Regional Entity has a FERC-approved regional standard development procedure. Embedded in the regional standard development process, a region seeking approval of a regional reliability standard must justify the need for the standard. It is incumbent on those that participate in the regional standards development process to determine the need to expend resources on developing a standard

as they deem appropriate. Each of the regional standards development procedures mandates a fair and open process for the development of standards. As such any interested party in the region should have a voice in which standards development projects are pursued and which standards are not. NERC cannot require a Regional Entity to justify a regional standard before it is developed.

Also, please see the "Fill-in-the-blank Standards" section of this Volume I for additional information related to fill-in-the-blank standards.

With respect to your comment regarding regional differences, we respectfully disagree with the assertion that only after national balloting will the need for a regional difference be known. It is optimal for all regional differences to be identified whether as part of the continent-wide standards development process or as part of a regional standards development effort prior to the continent-wide standard being balloted.

Comment 9

Name: Jason Marshall

Organization: Midwest ISO

Suggestion or Comment: NERC should sponsor an industry triage of the standards to identify the core requirements and flag those that are minutia. This will allow all of industry (NERC, Regional Entities and Registered Entities) to focus resources on what will support reliability rather than push paper to demonstrate compliance with requirements that don't support reliability.

Example: A simple example is the DCS. The true core requirements are to recover from all reportable events in 15 minutes and replenish reserves in 90 minutes thereafter. The rest of the Requirements are an explanation of what that means, how it's handled in a Reserve Sharing Group and also the procedural reporting items. However, we are now moving down a path to assign measures and sanctions to 20 different things in this standard.

Recommendation for improvement: A first step for any standards improvement effort would be the creation of a database companion to the standards. This would not only be a platform to capture the triage comments, the database could be used by registered entities to identify all the requirements that apply to them. Presently, it is impossible to say with assurance you have found all applicable requirements. For example, there are several cases where an entity is mentioned in a requirement, but that entity is not identified in the "applicability" section of the standards. In addition, the database would help to identify where there are redundant requirements in multiple standards and help to eliminate these redundancies and streamline the standards.

Once you have the triage complete, format changes are just a matter of programming.

If you look at the present V0 and V1 standards, many things labeled as requirements are actually criteria, procedures, administrative directions and explanatory text.

As an example of what can be done to improve the final format after the triage, refer to Europe's Policy 1 at: http://www.ucte.org/resources/publications/ophandbook/

The bullets in their policies are broken into a few categories:

- C for Criteria (goals and background of the standard)
- R for Requirements (generally attributes that are yes/no go/no-go)
- S for Standards (things measured on a scale)

- P for Procedures (administrative information)
- G for guides (while we have moved away from guides, the issue still remains what to do with the good practices that are being lost from institutional memory)

If there is information beyond this, it is likely reference information and should be moved to an appendix in the standard (using A for paragraph numbers).

The benefit in making such a format change is that the industry can focus on those things that are important for reliability. It also allows NERC and the Regions to focus on the important things.

Compliance elements would be applied to the requirements and standards. There still could be notification to regulatory bodies on procedural deficiencies.

This is not a suggestion for any change to content in the standards, just a reformatting.

NERC Response:

In response to your recommendation (as well as similar recommendations from others) we have added Project 2010-06 ~~Performance-based Reliability Standards~~Results-based Reliability Standards to the *Reliability Standards Development Plan: 2010-2012* for a project focused on:

- triaging the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all,
- developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis,
- promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and
- revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability.

Project Number(s): Project 2009-04, Project 2011-01

Project Title(s): Phasor Measurement Units, Equipment Monitoring and Diagnostic Services

Suggestion or Comment: Project 2009-04 Phasor Measurement Units - While Midwest ISO supports continued and expanded use of PMUs, we believe that any standard developed should be a technical standard that facilitates a common implementation.

Project 2011-01 Equipment Monitoring and Diagnostic Services - While this project has some merit, it needs to be prioritized among all of the existing on-going standards work. There does not appear to be an overwhelming industry need to implement this standard to prevent the next system disturbance. One could even argue this standard is not about improving BES reliability because the BES must already be operated to withstand the next contingency.

Recommendation for improvement: Ensure the SAR for Project 2009-04 proposes to develop a technical standard only. Delay Project 2011-01 indefinitely until all version 0 standards have been approved by FERC with no additional revisions required. Then evaluate to determine if it is needed for reliability.

NERC Response:

With respect to your comment regarding Project 2009-04 Phasor Measurement Units the following item has been added to the Issues Database to be addressed by the standard drafting team responsible for revising the standard:

Source: Jason Marshall (Midwest ISO) as input to the Reliability Standards Development Plan:2010-2012

Project No.: 2009-04 Phasor Measurement Units

Language: While Midwest ISO supports continued and expanded use of Phasor Measurement Units, we believe that any standard developed should be a technical standard that facilitates a common implementation. Ensure the SAR for Project 2009-04 proposes to develop a technical standard only.

With respect to your comment regarding Project 2011-01 Equipment Monitoring and Diagnostic Services, the priority of this particular project remains relatively low in the revised Reliability Standards Development Plan.

Comment 10

Name: Jianmei Chai

Organization: Consumers Energy Company

Suggestion or Comment: When there are revisions to the NERC Glossary of Terms (Glossary), NERC should notify stakeholders of the change. New or revised terms are not added to the Glossary until they are approved by the NERC Board of Trustees. However, due to the volume of standards that go through the Standard Development Process, providing notice to stakeholders when the Glossary is revised provides the opportunity to validate that stakeholders are, in fact, adhering to the appropriate definitions. This is especially important with regard to revised terms. Currently, NERC provides notice to stakeholders for ballot results and when Standard Authorization Requests (SARs) and proposed Standards have been posted for comment. However, to our knowledge, no notice is provided when the Glossary is revised.

With regard to the Glossary itself, we offer the following suggestions:

1) Glossary terms should reference the Standards to which they apply. Not only would this be helpful in identifying how stakeholders should revise their compliance process, it would assist the Standards Drafting Teams, because they are required to determine if any existing Standards would be affected by a revision.

2) Clean and redline versions of the Glossary should be posted to allow stakeholders to more accurately track revisions.

3) Regional terms should state the region(s) to which they apply. This is especially important with respect to terms that subsequently may be incorporated into another region's Standards or into national Standards, particularly since stakeholders outside the region associated with the specific term(s) generally would not have had an opportunity to comment, except when the Regional Standard is posted for ballot at NERC.

4) Each Glossary term should appear in at least one Standard. We have identified terms that are not associate with any Standard.

5) When a term is revised, an effective date should be noted, as well as a termination date for the old definition.

6) Historical versions of the Glossary should be readily available on the NERC web site.

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In addition, we suggest that Requirements NOT include reporting data for compliance monitoring (this

should be in Measures), but only include data reporting where the data is used by the recipient for other reliability purposes. In other words, providing data to the RE periodically to demonstrate compliance should be a measure, but providing data to the RE periodically for RE model development should be a requirement.

NERC Response:

With regard to your first suggestion that NERC should notify the industry when a change is made to the NERC Glossary of Terms Used in Reliability Standards, NERC staff appreciates your concern and has begun revising our internal process by modifying our announcements to notify stakeholders when the NERC Board of Trustees approves a new/revised/retired definition.

With regard to your additional suggestions:

1. While this would be "nice" it is not "necessary." Each time a defined term is used in a reliability standard, the term is capitalized to indicate that the term uses the definition found in the glossary. If a drafting team proposes revising a standard, then the team must search all standards approved by the Board of Trustees and determine, with stakeholder feedback, if the modification to the term would adversely impact any of the already approved requirements. (You can see an example of this with the current posting for Project 2007-17 - Protection System Maintenance and Testing - the team is proposing to change the definition of Protection System and has provided a table with every instance where the term is used in an approved standard.)
2. While this would be "nice" it is not "necessary." The value of tracking past versions isn't clear.
3. We agree. The current version of the Glossary of Terms in Reliability Standards does not embed any regional definitions in the set of continent-wide definitions. In the future, additional sections may be added to the Glossary of Terms in Reliability Standards to provide a place to identify definitions that were developed and approved through a regional standards development process and approved by the NERC Board of Trustees.
4. We agree. We are unaware of any terms that aren't in any standards. Please forward the terms that you have discovered are no longer needed.
5. This is a good suggestion and can be adopted moving forward - however making this retroactive to provide the initial date for all terms would be labor intensive and isn't "necessary."
6. Because the glossary is updated after most Board of Trustee meetings, this would require retaining many versions of the glossary, and the benefit isn't clear.

Comment 11
Name: James H. Sorrels, Jr.
Organization: American Electric Power

Reliability Issue: With the addition of increasing volumes of new generation types and the current use of fossil fuel generation characteristics for such units, the accuracy of state estimator models are being adversely impacted.

Suggestion or Comment: Establish a Standards Drafting Team to address this reliability concern.

Example: Wind generators do not follow the typical reactive curves attributed to fossil fuel generator units. In fact, some types of wind units do not produce reactive support, while the state estimator model is reflecting that it does produce reactive support. Fossil fuel units produce dynamic reactor capability, while wind generators can be a combination of dynamic and static capability.

Recommendation for improvement: The developed standard, when effective, will improve the accuracy of state estimator models.

NERC Response:

Project 2009-02 Real-time Tools was initiated this year the Purpose of which states:

> "The new standard or standards will establish requirements for the functionality, performance, and management of Real-time tools for Reliability Coordinators, Transmission Operators, and Balancing Authorities for use by their System Operators in support of reliable System operations."

Please monitor and/or participate in this project to the extent possible with respect to the issue raised above. To encourage the drafting team to consider your concern we have added your issue to our Issues Database associated with the project.

Comment 12

Name: Laura Lee
Organization: Duke Energy

Suggestion or Comment:

#1 There are requirements in standards, and standards themselves, that do not clearly ensure the reliability of the bulk power system. Unnecessary requirements are detrimental to the reliability of the BES because they divert entities' resources from focusing on the core actions that are truly essential to maintaining reliability. In addition, there are so many standards development projects currently active that entities are devoting resources to, the industry has little time to reflect and identify what gaps may exist in the reliability standards or formulate recommendations for eliminating those gaps. The Reliability Standards Development Plan: 2009-2011 does not clearly identify the top few priorities and how the projects in the plan support those priorities.

#2 Development of regional standards in parallel with development of a continent wide standard on the same subject results in inefficency.

#3 There appear to have been more interpretation requests than were anticipated in the past year, and it is reasonable to expect this trend to continue.There is currently not a process to control the amount of resources that are devoted to developing reliability standards interpretations.

Recommendation for improvement:

#1 Duke advocates pausing non-essential standard development activity in order for NERC to engage the industry in an effort to identify the standards and requirements that are truly essential for maintaining an adequate level of reliability of the BES. This could take the form of a "clean slate" approach, similar to the effort underway prior to development of the version 0 standards to define about 13 core standards, or a stop/start/continue review of the current slate of standards and requirements. The Standards Committee would be a logical lead for this effort, providing directional definition in addition to their process leadership. The result should be a clearly articulated vision of where the reliability standards development efforts need to be applied, a plan to achieve that vision and an explanation of how each project in the plan supports that vision.

#2 Regional standard development needs to be more closely coordinated with continent wide standard development.

#3 Either more allawance needs to be given in the subsequent Reliability Standards Development Plan

for the actual and anticipated increase in reliability standards interpretation requests by defering the commencement of projects that have not been started or the process needs to be streamlined while still including industry input. A prioritization/classification effort as proposed in recommendation #1 above that resulted in fewer and more focused requirements would have the added benefit of reducing the volume of interpretation requests.

NERC Response:

#1 In response to your recommendation (as well as similar recommendations from others) we have added Project 2010-06 ~~Performance-based Reliability Standards~~Results-based Reliability Standards to the Reliability Standards Development Plan: 2010-2012 for a project focused on:

- triaging the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all,
- developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis,
- promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and
- revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability.

#2 There are currently four continent-wide projects which may or may not require each regional entity to develop companion regional standards:

- Project 2007-01 Underfrequency Load Shedding
- Project 2007-05 Balancing Authority Controls
- Project 2007-11 Disturbance Monitoring
- Project 2010-05 Protection Systems (as identified in Volume II of *Reliability Standards Development Plan: 2009-2011*)

Three of the four corresponding continent-wide projects are well underway (those being Project 2007-01 Underfrequency Load Shedding, Project 2007-05 Balancing Authority Controls, and Project 2007-11 Disturbance Monitoring) and at this point in time may not even require regional standards. The fourth continent-wide project (Project 2010-05 Protection Systems) has yet to be initiated and it is unknown to what degree regional standards will need to be developed.

NERC standards staff is in regular contact with the individuals at each of the Regional Entities responsible for developing regional reliability standards. Coordination of the four projects referenced above is ongoing. In many instances, the Regional Entity has decided to commence work on the four 'fill-in-the blank' standards in order to able to better coordinate the development of the regional standard with the development of the continent-wide standard. This actually is to the benefit of those entities in the region affected by the standard.

Each Regional Entity has a FERC-approved regional standard development procedure. Embedded in the regional standard development process, a region seeking approval of a regional reliability standard must justify the need for the standard. It is incumbent on those that participate in the regional standards development process to determine the need to expend resources on developing a standard as they deem appropriate. Each of the regional standards development procedure mandates a fair and open process for the development of standards. As such any interested party in the region should have a voice in which standards development projects are pursued and which standards are not. NERC cannot require a Regional Entity to justify a regional standard before it is developed.

#3 We appreciate your concern related to the process of developing interpretations. This topic is one of many topics currently being vetted by the members of the NERC Standards Committee and your

concerns are more appropriately addressed in that venue.

Comment 13

Name: Michelle Rheault

Organization: Manitoba Hydro

Suggestion or Comment:

Over the past few years, there has been a modest improvement in the quality of some reliability standards. Manitoba Hydro would like to encourage NERC to continue its efforts at improving existing standards.

Manitoba Hydro is not satisfied with the Standards Under Development (SUD) 2009-2011 Plan. Many of our comments below mirror those previously provided to NERC from industry participants (Appendix A of the 2009-2011 plan). The fact that comments from previous years have not been addressed seems to indicate that the commenting process is a formality that consumes scarce entity resources with little reward for the effort. Nevertheless, we feel it is important to continue voicing our concerns.

We believe that the three issues outlined below are key to improving the SUD plan.

1. Standard Quality

   Manitoba Hydro feels that standard quality is vital to the reliability of the BES. More standards do not lead to better reliability; rather, this is achieved by fewer high-quality standards that focus on essentials for reliability.

   As per the Standard Development Plan (Volume I, page 8), "Order No. 672 provides guidance on the factors the Commission will consider when determining whether proposed reliability standards meet the statutory criteria." It states that standards must be "clear and unambiguous." We recommend that this guidance be used to develop a method to measure the quality attributes of a standard. This would allow industry and NERC to determine when they are satisfied with a standard and can move on to allocating resources to create new standards. The number of Requests for Interpretation put forth by industry is an indication that there are many standards which are neither clear nor unambiguous.

2. Project Prioritization

   Manitoba Hydro believes that in order to best improve the reliability of the BES, NERC needs to change the way it prioritizes projects.

   New projects are questionable given the greater need to improve the clarity of existing standards that are already auditable. Some proposed projects may be a good idea, but are not an immediate necessity for BES reliability and dilute the resources available to more critical projects. Some examples from the 2009-2011 plan include:

   - Project 2009-04 Phasor Measurement Units
   - Project 2010-01 Support Personnel Training
   - Project 2011-01 Equipment Monitoring and Diagnostic Devices
   - Project 2009-02: Real-time Tools

   Prioritization can be improved by developing a priority ranking tool. The Blackout report is getting stale as a source of priority in a changing environment. In developing the ranking tool, Manitoba Hydro has several suggestions to improve the prioritization of projects:

   - Survey the industry to obtain an indication of the greatest need for the reliability standards.

Focus on value added projects where deficiencies clearly exist today.

- Focus on cleaning up existing standards, rather than merging multiple standards, which requires significantly more effort to achieve a "clear and unambiguous" result.
- Limit the number of standards involved in the standards under development process: This type of limit would prevent the plan from using too many resources. Unless there is a high priority for it, new projects should not be added to the plan or started until old projects are finished. As an example, there are still nine projects initiated in 2006 which have not been completed, while limited NERC and industry resources are assigned to the start of 2009 projects.
- Do not create new standards which duplicate what is already found in other standards and only serve to prescribe the method to meet the original requirement. If requirements are clear and unambiguous, any method used by entities to comply with the standards will be appropriate and mitigate risk to the BES.
- Low-priority projects should not be scheduled for future years, but rather put on a to-do list which can be reviewed when resources are available.

o• Develop a risk profile for the entirety of NERC Standards. NERC needs a more holistic approach to risk management. While VRFs identify risk for each requirement and are used for enforcement purposes, they do not lend themselves to a "big picture" assessment of risk and comparison of standards on a risk basis. Selecting projects for the current work plan based on the associated risk to the BES is very difficult using the VRFs. The Standards Committee should develop a risk profile that effectively compares standards on a risk basis and facilitates the targeting of activities on those key standards that mitigate the greatest risk to the reliability of the BES.

3. Management of the Plan

Like any project, the Standard Under Development plan must be properly managed. This includes three components as outlined below:

o• Resourcing

There are currently too many projects drawing on limited industry resources for both participation on drafting teams as well as commenting and voting on standards under development. An excessive number of projects may result in industry fatigue in the standards development process. If fewer requests for comments were sent out, the quality of the feedback received would be higher, which would lead to better quality standards.

The SUD Plan must reflect the need for resources to focus on interpretation requests which come up during the year. The number of interpretations will not decrease until existing standards are updated to improve clarity and measures of compliance. Hence, this should be the focus of activities in the short term.

o• Cost

NERC should publish the cost of the SUD program implementation, so that industry can weigh the benefits of new projects versus the cost of implementing them.

o• Metrics

There is a need for metrics to evaluate the standards development process in order to understand how long it takes to complete a project and how many can be completed per year in order to better plan future work. Past performance is an indication of future performance; therefore, plans should not encompass more work than has been shown to be completed in the past. For example, only one project identified in the 2008-2010 plan has been completed, but four projects have been added. The concern is that as more projects are added than completed,

the plan will become unachievable and projects that actually improve reliability will not be completed.

These metrics should be published in the Standards Development Plan in an easy to understand format (tables, graphs, etc) to demonstrate what is achieved from year to year and predict what is achievable for future years. Possible metrics include:

- Number of projects completed each year
- Number of projects added each year
- Number of projects failed/withdrawn each year
- Number of projects rescheduled to future years
- Average time to complete a project
- Number of new requests for interpretations each year
- Summary of what phase the projects are at (i.e. percent started, percent voted on, percent waiting for BOT approval, etc)

NERC Response:

1. Standard Quality

In response to your recommendation (as well as similar recommendations from others) we have added Project 2010-06 ~~Performance-based Reliability Standards~~Results-based Reliability Standards to the Reliability Standards Development Plan: 2010-2012 for a project focused on:

- triaging the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all,
- developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis,
- promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and
- revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability.

2. Project Prioritization

The concept of project prioritization is paramount to a successful reliability standards development plan. A high priority project in the eyes of one entity might not be in the eyes of another entity. NERC staff coordinates all standards development activities through the NERC Standards Committee. In compliance with the *NERC Reliability Standards Development Procedure*, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. NERC staff works with the NERC Standards Committee to identify the projects of highest overall industry importance before working on lower priority projects. In fact, the Standards Committee Process Subcommittee is currently discussing methodologies for prioritizing standards development projects. We encourage your company's participation on that subcommittee.

3. Management of the Plan

- Resourcing

  NERC appreciates the industry resources necessary for the development of quality standards and is cognizant of the fact that industry resources are not limitless. NERC staff coordinates all standards development activities through the NERC Standards Committee whose membership consists of industry representatives. In compliance with the NERC Reliability Standards

Development Procedure, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. NERC staff facilitation of the standards development process in coordination with the Standards Committee takes into consideration the potential impact on industry resources when planning standards related projects and activities. Specific comments in how this Reliability Standards Development Plan could be modified to more effectively use industry resources are welcome.

- Costs

The costs of the NERC Standards program are detailed in the NERC Business Plan and Budget.

- Metrics

A ~~revised~~ set of metrics related to the length if time to complete a standards development process was ~~has been~~ provided in ~~Volume I of the *Reliability Standards Development Plan: 2010-2012.*~~Appendix A to Attachment 1 of the Three-Year Electric Reliability Organization Performance Assessment Report.

Comment 14

Name: Standards Review Subcommittee

Organization: North American Energy Standards Board

Suggestion or Comment:

2006-07 Transfer Capabilities - (ATC, TTC, CBM, TRM)

Comment - NAESB completed its original work under FERC Order 890 for ATC, TTC, CBM, and TRM, which was coordinated with NERC. In the NERC NOPR related to this project there was the identification of potential for additional work. NAESB requests that NERC continue to coordinate and notify NAESB if there are any addition changes to the NERC standards affected under this project which could have an impact on the NAESB Business Practice Standards.

A potential area of additional coordination between the NERC drafting team and NAESB's WEQ ESS/ITS may arise in the handling of designation and undesignation of network resources under NAESB WEQ 2009 Annual Plan item 3.a.i "Group 3: Network Service On OASIS." The ESS/ITS is developing business practice standards for Network Service on OASIS, that include OASIS formats and requirements for capturing information on designation and undesignation of network resources. The information captured in the NAESB standards may provide useful data for inter-BA communication of resource allocations.

2006-08 Transmission Loading Relief

Comment - This project has ongoing coordination with NAESB since it directly impact the NAESB Business Practice Standard WEQ-008 (Transmission Loading Relief - Eastern Interconnection). NAESB expects this coordination will continue as the project moves forward.

2007- 05 Balancing Authority Control

This project is currently being coordindated with the NAESB Time and Inadvertent Management Task Force. Changes to the NERC standards may have an impact on the NAESB Business Practice Standards WEQ-006 (Time Error Correction) and WEQ-007 (Inadvertent Interchange Payback). We request that the Reliability Standards Development Plan continue to reflect that the project be coordinated with NAESB and reference the NAESB WEQ 2009 Annual Plan Items:

1.d Time Error and Indavertent (BAL-004 and BAL-006) Coordination with NERC

1.e DCS and AGC (BAL-002 and BAL-005) Coordination with NERC

2007-18 Reliability Based Controls

Comment - The Joint Interchange Scheduling Working Group in first quarter 2009 reviewed EOP-002 and determined that there should be some level of coordination between NERC and NAESB. As a result of this review the NAESB WEQ 2009 Annual Plan item (3.a.viii) "Review and correct WEQ-004 Coordinate Interchange Business Practice Standard as needed based on activities in NERC Project 2008-12, Coordinate Interchange Standards Revisions and supporting EOP-002-2 R4 and R6" was added. We request that this project reference that coordination between NERC and NAESB needs to occur and the cross reference to the NAESB WEQ 2009 Annual Plan item be added in the 2010-2012 Reliability Standards Development Plan.

2008-12 Coordinate Interchange

Comment - The Joint Interchange Scheduling Working Group in first quarter 2009 reviewed EOP-002 and determined that there should be some level of coordination between NERC and NAESB. As a result of this review the NAESB WEQ 2009 Annual Plan item (3.a.viii) "Review and correct WEQ-004 Coordinate Interchange Business Practice Standard as needed based on activities in NERC Project 2008-12, Coordinate Interchange Standards Revisions and supporting EOP-002-2 R4 and R6" was added. We request that this project reference that coordination between NERC and NAESB needs to occur and the cross reference to the NAESB WEQ 2009 Annual Plan item be included in the 2010-2012 Reliability Standards Development Plan.

2009-03 Emergency Operations

Comment - This project indicates that it will affect EOP-002-2. As a result of the Joint Interchange Scheduling Working Group's review of EOP-002-2 R4 and R6 and the issues noted in the project could affect R6 this project should be coordinated with NAESB and reference the NAESB WEQ 2009 Annual Plan item (3.a.viii) "Review and correct WEQ-004 Coordinate Interchange Business Practice Standard as needed based on activities in NERC Project 2008-12, Coordinate Interchange Standards Revisions and supporting EOP-002-2 R4 and R6."

2009-05 Resource Adequacy

Comment - NAESB created Provisional Item 1 "Develop and or modify business practices related to support of NERC effort on the NERC Resources and Transmission Adequacy (Project 2009-05 Resource Adequacy Assessment)" in its NAESB WEQ 2009 Annual Plan. We are requesting that this project be noted as one which may require coordination with NAESB.

Reliability Issue: Gas/Electric Coordination

Suggestion or Comment: Coordinate with NAESB to determine if some or all of the requirements contained in the NAESB Business Practice Standards WEQ-011 (Gas/Electric Coordination) should be transitioned to NERC.

Example: Refer to WEQ-011-1.3 through WEQ-011-1.6

Recommendation for improvement: The WEQ-011 was developed so that entities received critical notices from gas Transportation Service Providers, such that the Power Plant Operators were notified of material changes in circumstances that may impact hourly flow rates. The ISO/RTOS and/or BAs, and/or Power Plant Operators are to develop procedures when extreme conditions occur. These NAESB standards appear to be of a reliability nature rather than commercial. NERC and NAESB should review the standards to determine if all or part of WEQ-011 should be transitioned to NERC.

NERC Response:

NERC believes that continued coordination with NAESB is an important component of bulk power operations, and remains committed to work with NAESB as needed.

With regard to project 2006-07 Transfer Capabilities, NERC will work with NAESB to ensure that any changes to these standards, directed by the Commission in its final rule or otherwise, will be coordinated between the two organizations. NERC will add a statement to this effect in our Plan.

With regard to projects 2006-08 Transmission Loading Relief, 2007-05 Balancing Authority Controls, and 2008-12 Coordinate Interchange, NERC will add statements to our Annual Work Plan about NERC/NAESB Coordination.

Regarding Projects 2007-18 Reliability Based Controls, 2009-03 Emergency Operations, and 2009-05 Resource Adequacy, NERC agrees that continued coordination with NAESB is important and work with NAESB as needed to ensure our work products are complementary. Should any changes to standards occur related to these projects that have business practice implications, NERC will work to coordinate with NAESB. If the NAESB SRS is aware of proposed changes that they feel would impact business practices, please advise the NERC Manager of Business Practice Coordination.

As far as Gas/Electric Coordination, NERC appreciates this suggestion, and welcomes further discussion related to this item. NERC suggests that one or more members of the NAESB SRS develop a NERC Standards Authorization Request that proposes this transfer, at which point NERC can establish a team of industry representatives to work with the requester(s) and discuss this item in depth.

Comment 15

Name: Stephanie Monzon - Regional Reliability Standards Working Group
Organization: NERC, RFC, MRO, WECC, NPCC, SPP, TRE, SERC, FRCC

Suggestion or Comment:

- The process for updating the NERC Workplan should begin with industry input prior to posting the workplan. The current process posts the existing, approved version of the work plan to solicit industry input. Instead, NERC staff should conduct an industry webinar to collect initial thoughts followed by a posting of the revised version of the workplan.

- A status of the existing approved projects in the workplan should be provided as reference material to the industry either during the webinar or before the posting to faciliate the commenting process. The status of the existing projects will provide the industry with an understanding of how many projects are still open, nearing completion, or completed.

- In 2006 the RRSWG assisted in the development of the original Work Plan by performing a sweeping assessment of the "fill in the blank" standards. It provided as input to the Plan recommendations on how the "fill in the blank" characteristics could be eliminated by modifying then existing standards and set forth the possibility of the need for stand-alone regional standards or regional standards in support of continent wide standards. Since that time the UFLS and DM SDTs have been formed and posted at least one draft of the respective standards. Both drafting teams are proposing continent wide requirements/ standards in these subject areas. Given the evolution of standards development the original RRSWG recommendations should be deleted from the Work Plan. Regarding the remaining fill in the blank standards (SPS and BAL) the NERC standards projects are either in the infancy stages of development or have not commenced. The RRSWG recommendations to create regional standards in these areas should be considered "on hold" until the drafting efforts have matured and a technical determination can be made for the need of regional standards that includes consideration by the Regions and NERC.

Recommendation for improvement: - Conduct a webinar or other similar activity to get initial suggestions for the next version of the workplan instead of posting the existing version of the workplan. This should be followed by the first posting of a revised workplan.

- Provide the industry with a status of the existing projects in the work plan

- Remove the RRSWG recommendations for the UFLS and DME standards and place "on hold" the recommendations for SPS and BAL fill in the blank standards.

NERC Response:

- Conduct a webinar…

Thank you for your comment. We will consider incorporating your suggestion into next year's project for revising the *Reliability Standards Development Plan.*

- Provide the industry with a status …

Links to the current project schedule for each of the active projects are provided at the end of each project description in Volume II of the Reliability Standards Development Plan. The on-line project schedules are updated monthly and should provide the level of detail you suggest in your comment above.

- Remove the RRSWG recommendations for the UFLS and DME standards and place "on hold" the recommendations for SPS and BAL fill in the blank standards.

The recommendations of the RRSWG are noted in the Issues Database and do not need to be removed

at this time. The recommendations will be treated as any other recommendation in the database in that the standard drafting team working on the applicable standard will consider the recommendation but is not obligated to implement the recommendation. Maintaining it in the Issues database ensures that the recommendation is tracked and not lost in the standards development process.

Comment: 16

Name: Wayne Pourciau

Organization: Georgia System Operations Corp.

Reliability Issue: Interfering with compliance and enforcement of requirements essential for reliability

Suggestion or Comment: There are a number of requirements that are not essential to the reliability of the bulk power system (e.g., needed to prevent cascading outages). These requirements interfer with compliance by reliability entities with requirements essential to reliability and interfer with compliance enforcement by regional entities of those essential requirements. There is a need to place primary focus on the essential requirements. Reporting and other lesser requirements should be a secondary focus and only as long as they do not take away the focus on the essential requirements.

Example: BAL-006-1, R5: "Adjacent Balancing Authorities that cannot mutually agree upon their respective Net Actual Interchange or Net Scheduled Interchange quantities by the 15th calendar day of the following month shall, for the purposes of dispute resolution, submit a REPORT to their respective Regional Reliability Organization Survey Contact. The REPORT shall describe the nature and the cause of the dispute as well as a process for correcting the discrepancy."

This reporting is not a reliability requirement. A reliability requirement is one that focuses on operating the elements of the BES within system thermal, voltage, and stability limits so that instability, uncontrolled separation, or cascading failures of such system will not occur as a result of a sudden disturbance or unanticipated failure of system elements. A reliability requirement deals with the operation and maintenance of BES facilities and the design of planned additions or modifications to such facilities to the extent necessary to provide for reliable operation of the BES. The example above is an administrative requirement. It does not deal with current or future operation of the BES.

The reporting requirements of EOP-004, other than those relating to physical and cyber threats and attacks, are some more examples. These deal with information on past events (water under the bridge) and do not deal with operating the BES. This reporting is needed by NERC to investigate incidents, collect statistics on incidents, and other purposes relating to overseeing reliability (but such reporting is not needed for operating the BES).

Another example is TOP-005-1.1, R2 "As a condition of receiving data from the Interregional Security Network (ISN), each ISN data recipient shall sign the NERC Confidentiality Agreement for “Electric System Reliability Data.” " This is not a reliability requirement.

Recommendation for improvement: Review all existing FERC approved Reliability Standards to eliminate Reliability Standards that are not essential to the reliability of the bulk power system (e.g., needed to prevent cascading outages). Reduce less significant Reliability Standards to a lesser category, such as operating guides, policies or criteria and remove documentation related requirements from the requirements of Reliability Standards. Move documentation related requirements to compliance measures or some other component of the Reliability Standards. This is a high priority along with eliminating duplicative requirements, making existing requirements more clear, and securing the nation's electric system from attacks.

Although the reliability of the electric system in the United States and Canada is one of the most (if not THE most) reliable system in the world, it is always good to keep improving. However, NERC projects aimed at adding requirements to try to improve the reliability of the system are a lower priority at this time than the high priorities listed above. Fixing the existing standards is the best way to improve reliability and improve the monitoring and enforcement of the essential requirements. Adding more requirements to try to improve reliability should be pursued only as time and available resources allow.
NERC Response: In response to your recommendation (as well as similar recommendations from others) we have added Project 2010-06 Results-based Reliability Standards to the *Reliability Standards Development Plan: 2010-2012* for a project focused on: • triaging the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all, • developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis, • promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and • revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability. ~~**NERC Respon**You identify two important concepts in your comments above. The first being the perceived need of a focused project to triage the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all. In response to your recommendation (as well as the recommendation of many others) we have added a project to the *Reliability Standards Development Plan: 2010-2012* for such a project. The second concept you touch upon in your comments above goes beyond the project for "triaging" the current set of standards and focuses more on the overall content and structure of the full set of NERC reliability standards. This as well is an extremely important concept and one which the Standards Committee Process Subcommittee (SCPC) is considering. It is anticipated that the SCPS will make a recommendation for a long term project for transforming the standards to meet industry desires. If and when the NERC Standards Committee accepts the recommendation of the SCPS NERC staff will work with the SCPS in developing an appropriate project for inclusion in the *Reliability Standards Development Plan*.~~

Comment 17 **Name:** Phillip R. Kleckley **Organization:** SERC EC Planning Standards Subcommittee (PSS)
Standard: FAC-001-0 - Facility Connection Requirements
Element(s) (i.e., Requirement R1.2., Measure M2., etc.): R1.3. End-user facilities
Suggestion or Comment: add a definition of "end user" to the NERC Glossary
Project: 2010-02 Facility Connection Requirements
Additional Information: The recommendation was received as part of the comments on Question 3 of the comments form for the "Draft Revision 6 of the SERC Facility Connection Requirements (FCR)

Guideline".

NERC Response:

Due to your comment above the following item has been added to the Issues Database to be addressed by the standard drafting team responsible for revising the standard:

Source: Phillip R. Kleckley (SERC EC Planning Standards Subcommittee (PSS)) as input to the Reliability Standards Development Plan:2010-2012

Project No.: 2010-02 Facility Connection Requirements

Language: Consider adding a definition of "end user" to the NERC Glossary. (Note: This recommendation was received as part of the comments on Question 3 of the comments form for the "Draft Revision 6 of the SERC Facility Connection Requirements (FCR) Guideline".)

Comment 18

Name: John Ciufo

Organization: NERC System Protection and Control Subcommittee (SPCS)

Standards:

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations
- PRC-012-0 — Special Protection System Review Procedure
- PRC-016-0.1 — Special Protection System Misoperations

Suggestion or Comment: The NERC System Protection and Control Subcommittee (SPCS) recommends creation of a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016

Consistent with the attached Standard Authorization Request (see Attachment 1) and Technical Review of Standards Prepared by the System Protection and Controls Subcommittee of the NERC Planning Committee dated May 2009 (see Attachment 2).

NERC Response:

In response to your comment we have modified Project 2010-05 Protection Systems in to the *Reliability Standards Development Plan: 2010-2012* to consider the recommendations of the NERC System Protection and Control Subcommittee as identified in the Technical Review of Standards Prepared by the System Protection and Controls Subcommittee of the NERC Planning Committee dated May 2009.

Comment 19

Name: Wayne E. Guthrie **Organization:** Construction Specialty Services, Inc. & Critical Systems, LLC
Standard: ANSI NFPA 850: Recommended Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations
Reliability Issue: Physical fire and blast protection of electrical transformers and other essential equipment, buildings and people located in power generation, transmission or distribution system locations.
Suggestion or Comment: Adopt a NFPA-850, which is a recommended fire protection practice for the power generation industry.
Example: If there is a catasthrophic failure of a transformer it can shut down a site for an indefinite period of time for repairs or replacement of equipment and facility. In the US there exists an aging fleet of transformers that are becoming more unreliable everyday because of age and lack of maintenance. In addition, many power companies build new facilities without thought to protection of their assets. As an example, it requires between 24 and 48 months to receive a new replacement transformer, if it fails beyond repair. In addition, placing fire & blast rated barriers between transformers and also have in place a functioning transformer oil collection and containment system in accordance with FM Global recommendations can mean the difference between a single transformer failure incident and a catasthrophic incident. There are also issues with where the generation transformers sit relative to the turbine building, that if a fire and or fire and blast event initiated could potentially preclude population of the building and control room in order to shut down the unit (s).
Recommendation for improvement: Consider adopting existing standards of performance so that a committee would not have to be formed to write something that already exists.
Suggestion or Comment: NERC may want to consider inviting professionals involved in the fire and blast protection engineering and assessments fields to assist in development of standards of performance or protection in accordance with readily obtainable existing recommendations, standards and codes.
Example: Go to NFPA and ask for assistance or I could put NERC in contact with individuals that could place NERC in contact.
Recommendation for improvement: As I understand the only reference to physical protection is that NERC states that utility entities are obligated to physically protect critical equipment and is not specific in reference to the measures that should be considered to improve or provide protection. Unfortunately in the utility industry many companies have eliminated or otherwise do not possess within their ranks individuals educated in the realm of physical fire and blast protection methodologies that exist, or even have the knowledge base to self assess and identify the potential need for protection.
Additional information: If further information or discussion is required, please contact the writer: Wayne E. Guthrie Construction Specialty Services, Inc. & Critical Systems, LLC 502-231-2402 wguthrie@cssi.win.net
NERC Response:

In response to your comment we have added Project 2012-02 Physical Protection to the *Reliability Standards Development Plan: 2010-2012* for a project to consider the development of a NERC Reliability Standard related to physical protection of essential equipment, buildings and people located in power generation, transmission or distribution system locations.

Comment 20

Name: Barry Lawson

Organization: National Rural Electric Cooperative Association (NRECA)

Suggestion or Comment: The industry cannot continue, without an end in sight, to support the development of the number of standards included in the current Reliability Standards Development Plan. During the past year there has been an average of 30 to 40 Standard Drafting Teams (SDTs) functioning all at the same time. With this many SDTs in place, the expertise in the industry that voluntarily staffs these teams is spread too thin. NRECA believes that at any one time there should be an average of 10-15 SDTs in place. These SDTs should be focused on standards that are the most critical the enhancing the reliability of the Bulk Power System (BPS). Reducing the number of SDTs in place at one time will help to ensure that the best quality standards are developed by:

-- helping to ensure the best quality SDTs by increasing the number of available industry stakeholders; and

-- helping to ensure that the right industry experts are reviewing the posted standards they are most knowledgeable about.

The bottomline is that not every standard can be a top priority. There is not an endless supply of industry resources to staff SDTs and to review proposed/revised standards, and therefore, the present pace of an average of 30-40 SDTs in place at one time is not sustainable without the possibility of negative impacts on standards development activities. To address this a significant and urgent effort needs to be expended to determine the most critical standards development activities that are needed to enhance the reliabilty of the BPS. From this effort, the 10-15 most critical standards should be determined and these should be the standards that SDTs are formed to address in a particular year.

In addition, there should be particular attention placed on completing the fill-in-the-blank standards since many of the approved standards refer to the fill-in-the-blank standards that have not been approved.

Finally, several months ago the NERC Standards Committee approved a "Roles and Responsibilities" document which addressed the appropriate roles for SDT members, NERC and FERC staff regarding standards development activities. NRECA supported the development of this important document and is not yet confident that NERC and FERC staff are consistently operating under the roles identified in the document. We see a need to ensure that all parties involved clearly understand their appropriate roles and responsibilities and that they work in such a manner.

We look forward to working with you to make sure these issues are fully addressed.

NERC Response: With respect to your comments regarding the industry's ability to support the development of the number of standards included in the current Reliability Standards Development Plan, NERC understands the amount of resources required (both industry and NERC specific resources) for the development of quality standards and is cognizant of the fact that industry resources are not limitless. NERC staff coordinates all standards development activities through the NERC Standards Committee whose membership consists of industry representatives. In compliance with the NERC Reliability Standards Development Procedure, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. NERC staff

facilitation of the standards development process in coordination with the Standards Committee takes into consideration the potential impact on industry resources when planning standards related projects and activities.

With respect to your comment regarding fill-in-the-blank standards NERC staff is working with staff representing each of the Regional Entities to develop a plan to address the issues with the fill-in-the-blank standards in the interim prior to the completion of the continent-wide revision of the standards. The interim plan for addressing the fill-in-the-blank standards will not replace the projects already identified in Volume II of this plan but rather will propose a solution to address the shortcomings of the existing fill-in-the-blank standards until the continent-wide revision of the standards can take place. It is anticipated that the interim plan will involve the use the standards development process in order that industry stakeholders will be able to participate in the process as it evolves.

With respect to your comments regarding the "Roles and Responsibilities" document, NERC staff does adhere to the document as it applies to the development of standards using the Reliability Standards Development Process.

Comment 21

Name: Ben Li

Organization: IRC Standards Review Committee (Group)

Suggestion or Comment: We applaud the staff and the Standards Committee for taking a new approach to developing the 2010-2011 standards development work plan. We see changes that are a positive first step toward arriving at a consolidated set of reliability standards of good quality all of which contribute to reliability. In particular, we are encouraged by some of the objectives listed:

• Addressing quality issues to ensure each reliability standard has a clear statement of purpose, and has outcome-focused requirements that are clear and measurable.

• Ensuring measures and compliance elements are aligned to support the requirements within the reliability standards and follow definitions outlined in the reliability standards template.

• Reorganizing the reliability standards based on topic.

• Eliminating requirements that do not have an impact on bulk power system reliability; retiring redundant requirements; retiring or converting (into guidelines) lower-level "facilitating" requirements that are already measured through compliance with higher level requirements; and moving basic "capability" requirements that are routinely used for the certification processes.

We wish to express our strong support for the proposal to move toward developing the performance-based reliability standards. This work, together with improved standard quality, will give rise to a set of sustainable reliability standards which in our view will meet with FERC's acceptance and reduce the revision/maintenance requirements, reduce the number of requests for interpretation and even eliminate a good number of assessed violations owing to lack of clarity.

We are also pleased to see some general reduction in the number of projects planned for future years. However, recognizing that some existing standards are still being revised and some of them may be remanded by FERC when they are submitted for approval (as evidenced in past performance), we

suggest the number of planned projects to be further reduced to provide a much needed "buffer" to respond to the FERC directives - not just for the remanded standards but also for any proposed new standards as initiated by the FERC and the industry. We suggest a reduction of the amount of standards in the plan based upon the historical increased workload from FERC remands of proposed standards so that the 3 year Work Plan schedule can be more closely adhered to.
NERC Response: Thank you for your support of Project 2010-06 Performance-based Reliability Standards (recently renamed to Project 2010-06 Results-based Reliability Standards). With respect to your comment regarding reducing the number of projects in the plan, at this point in time it is not practical to do so for the reasons stated in the "Priority of Projects" section of this report which begins on page 9 of Volume I. Certain projects are required to be initiated in 2010 pursuant to the Rules of Procedure of the North American Electric Reliability Corporation which state in part "each reliability standard shall be reviewed at least once every five years from the effective date of the standard or the latest revision to the standard, whichever is later." Making a conscious decision to ignore these projects would cause NERC to violate the Rules of Procedure which NERC staff is not willing to do. NERC staff will continue to work with the Standards Committee to coordinate the initiation of future standards development projects.

Comment 22 **Name:** John Brockhan **Organization:** CenterPoint Energy
Project Number(s): 2012-01 / 2012-02
Project Title(s): Equipment Monitoring and Diagnostic Devices / Physical Protection
Suggestion or Comment: CenterPoint Energy appreciates the efforts of the NERC Standards Program in recognizing the need to focus efforts and prioritize projects having the greatest impact on reliability. To that end, we believe that the two projects currently scheduled to begin in 2012 should be further delayed indefinitely or at least until the next Standards Development Plan cycle so that projects currently underway and those projects scheduled to begin later this year and in 2010 may be farther along (or completed) before additional projects are initiated.
Recommendation for improvement: CenterPoint Energy recommends delaying Projects 2012-01 and 2012-02 indefinitely or into 2013 or later and re-evaluating the need to begin these projects during the drafting of the 2011-2013 Reliability Standards Development Plan. The assessment of any new proposed standards should emphasize whether there is a true reliability need, or is simply a business growth opportunity. Furthermore, we recommend that no new projects be added to future Standards Development Plans until already identified projects are completed.
NERC Response: The concept of project prioritization is paramount to a successful reliability standards development plan. NERC staff coordinates all standards development activities through the NERC Standards Committee. NERC staff works with the NERC Standards Committee to identify the projects of highest overall industry importance before working on lower priority projects. The Standards Committee Process Subcommittee is also currently discussing methodologies for prioritizing standards development projects. Consideration of delaying the initiation of Projects 2012-01 and 2012-02 will be given as other

higher priority projects are completed and new projects are identified.
Reliability Issue: A. Proposed 2010-2012 Standards Development Plan / Developing Results-Based Standards as presented by the Ad Hoc Group on Results-Based Standards B. Load Serving Entity/Distribution Provider Issue
Suggestion or Comment: A. CenterPoint Energy shares the views of many previous commentors that the number of existing reliabiltiy standards and requirements should be reduced to only those that truly impact the reliability of the Bulk Electric System (BES). CenterPoint Energy also agrees that new projects should be prioritized and only those that truly improve the reliability of the BES should be included in the Standards Development Plan and initiated. CenterPoint Energy supports efforts to alter (or, move away from) the current environment of prescriptive and unnecessary process-based reliability standards and requirements. As presented in the webinar on September 17, the Ad Hoc Group proposal is promising in that results-based standards would be more likely to improve the reliability of the Bulk Electric System. In the current environment, the standards include many requirements that are overly prescriptive and are not necessary for the reliable operation of the BES. B. CenterPoint Energy is concerned that there appears to be a lack of interest in resolving the Load Serving Entity (LSE)/Distribution Provider (DP) issue. The Functional Model SDT remarked that the LSE/DP issue is not a Functional Model issue but one of registration and commented that NERC was to begin a project to resolve this issue. NERC indicated it would begin a project to address this issue through the Reliablity Standards Development Plan. CenterPoint Energy failed to see such a project in this draft and believes it is an important issue with impacts to many entities.
Example: A. Underfrequency load shedding (UFLS) is an example of overly prescriptive requirements. PRC-007 requires consistency with Regional Reliability Organization's UFLS program requirements. There is also standard PRC-008 requiring preventive maintenance of UFLS components. If PRC-007 contained results-based requirements it would be sufficient to address the reliability need. As an entity worked to meet the performance criteria, concerns such as design, maintenance, testing, etc. would be addressed with a single standard.
Recommendation for improvement: A. Focus NERC and industry resources by accelerating Project 2010-06 Performance-Based Reliability Standards in the que. The work of the Ad Hoc Group on Results-based Standards could serve as a foundation for the Project team's efforts. B. Add an accelerated project in the 2010-2012 Standards Development Plan to resolve the LSE/DP issue.
NERC Response: A) Thank you for your support of Project 2010-06 Performance-based Reliability Standards (recently renamed to Project 2010-06 Results-based Reliability Standards). B) As stated in last year's plan regarding this issue: The following description has been incorporated into the scope for affected projects in this revised *Reliability Standards Development Plan* that includes a standard applicable to Load Serving Entities: **Source:** FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000 **Issue:** In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance

Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject. This issue is best addressed on a case-by-case basis when an affected standard is opened for revision.

Comment 23 **Name:** Denise Koehn **Organization:** Bonneville Power Administration
Project Number(s): 2008-12
Project Title(s): Coordinate Interchange Standards
Suggestion or Comment: BPA supports the consolidation effort currently underway in the drafting team's workload. BPA believes the consolidation described thus far will yield a more efficient demonstration of compliance with each requirement. The existing Standards require considerable duplication of explanation and documentation to prove compliance.
Recommendation for improvement: Continue with current effort.
NERC Response: Thank you for your support of Project 2008-12 Coordinate Interchange Standards.
Suggestion or Comment: BPA agrees with the recommendations from other stakeholders that the industry should focus existing reliability standards and reliability standards development on areas that will lead to the greatest improvement in bulk power system reliability. BPA fully supports the suggestions that the industry should: (1) focus the development of new reliability standards on those that will lead to the greatest improvement in reliability; i.e., address the greatest risks of widearea cascading outages; (2) reduce the number of existing reliability standards to just those that have a critical impact on reliability of the bulk power system and convert the remaining reliability standards to guidelines; and (3) develop a more systematic process for prioritizing new reliability standards development projects

based on risks to the bulk power system.

However, BPA feels that it is an aggressive schedule and will require considerable effort to accomplish as many items per year as scheduled. The industry needs improved, clear, concise Standards asap, but it is the same staff that is needed to work on the improvements for nearly each of the revisions. Really tough balancing acts to get everything accomplished within the timeframes.

NERC Response:

Thank you for your support of Project 2010-06 Performance-based Reliability Standards (recently renamed to Project 2010-06 Results-based Reliability Standards).

We also appreciate your comment relative to the challenge we face for coordinating the implementation of Project 2010-06 Results-based Reliability Standards with the other standards development activities. It will be a challenge but one I'm sure NERC working with industry will be able to overcome.

Comment 24

Name: Ed Skiba, Co-chair, Narinder Saini, Co-chair

Organization: North American Energy Standard Board Wholesale Electric Quadrant Standards Review Subcommittee

Suggestion or Comment: Project 2006-08 Transmission Loading Relief - The Related NAESB Projects should be updated to reference the NAESB WEQ 2009 Annual Plan and the Annual Plan Item 1.b "Continuous support of TLR Procedure in alignment with NERC efforts on TLR Phase II and Phase III development." Additionally the reference to Annual Plan Item 1.d should be changed to 1.b under the section labeled SRS recommendation.

Project 2007-05 Balancing Authority Controls - The related NAESB Projects should be updated to reference the NAESB WEQ 2009 Annual Plan and the Annual Plan Items listed should include 1.d and 1.e. Under the SRS recommendation it should be noted that there is ongoing coordination between the BAC Standards Drafting Team and the NAESB WEQ Time and Inadvertent Management Task Force.

Project 2007-18 Reliability-based Control - Related NAESB projects should be updated to reference the NAESB WEQ 2009 Annual Plan and the Annual Plan Item listed should be 3.a.viii. Under the SRS Recommendation the language should be changed to indicate that the NERC/NAESB JESS has reviewed EOP-002-2 and identified that there is potential coordination opportunities.

Project 2008-01 Voltage and Reactive Control - The Related NAESB Projects should be updated to reference the NAESB WEQ 2009 Annual Plan. There is no need to change the Annual Plan Item Number. Under SRS Recommendation, the last sentence should be deleted since the project is now included on the NERC Standards Under Development webpage.

Project 2008-12 Coordinate Interchange Standards - The Related NAESB Projects should be updated to reference the NAESB WEQ 2009 Annual Plan. Additionally, the Annual Plan Items currently listed should be deleted and Annual Plan Item 3.a.viii should be added. Under the SRS recommendation it should state that the NERC/NAESB JESS was assigned an annual plan to "Review and correct WEQ-004 Coordinate Interchange Business Practice Standard as needed based on activities in NERC Project 2008-12, Coordinate Interchange Standards Revisions and supporting EOP-002-2 R4 and R6."

2009-03 Emergency Operations - The Related NAESB Projects should be updated to reference the NAESB 2009 WEQ Annual Plan. Additionally, the Annual Plan Item listed should be 3.a.viii.

Project 2010-02 Connecting NeW Facilities to the Grid - The Related NAESB Projects should be updated to reference the NAESB 2009 WEQ Annual Plan.

Project 2010-Demand Data - Suggest the following language be added:

Coordination with NAESB:

The NAESB WEQ Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual Plan_:

_Annual Plan Item

Justification for NAESB Consideration

_NAESB has developed Demand Response Measurement and Verification standards and have additional annual plan items related to Demand Response.

SRS Recommendation

_Since this project has not started the WEQ will add this project to its watch list.

NERC Response:

Thank you for your comments. Volume II of the *Reliability Standards Development Plan: 2010-2012* has been modified to reflect the suggested changes.

Comment 25

Name: Jack Cashin

Organization: EPSA

Project Number(s): 2010-06

Project Title(s): Performance Based Reliability Standards

Suggestion or Comment: Based on the presentation by Gerry Cauley during the webinar on Sept. 17th, it appears that a great deal of work related to this project is currently underway. What is not clear is the sectoral composition of the ad hoc group carrying out this work to be presented to the Standards Committee in November 2009.

Recommendation for improvement: While EPSA is generally supportive of the direction in which this ad hoc group appears to be headed, we are concerned about the lack of broad stakeholder representation. It would be our expectation, that once this work product is presented to the Standards Committee and before it is used in any standard development work, there will be an opportunity for substantive stakeholder review and comment.

NERC Response:

In August 2009 an ad-hoc group was organized made up of representatives from the Standards Committee, Regional Entity staff, and NERC standards staff for developing a plan for transitioning the exiting set of NERC reliability standards into a set of revised reliability standards. As of the middle of

September the ad hoc group consisted of:

- Gerry Cauley, SERC
- Ben Li*, Consultant
- Terry Bilke*, MISO
- Pete Heidrick, FRCC
- Carter Edge, SERC
- Gerry Adamski, NERC
- Dave Taylor, NERC
- Steve Rueckert*, WECC
- Pat Huntley, SERC
- Allen Mosher*, APPA

Since then others have either officially joined or are observing the activities of the group. It is not the intent to exclude participation on this group; however, it is desired that the group remain a manageable size so that work can be performed quickly and efficiently. The intent is to turn over all aspects of implementing the project (including substantive stakeholder review and comment) to the Standards Committee once the NERC BOT considers the plan during their November 4, 2009 meeting.

Reliability Issue: Work of the GO/TO Team

Recommendation for improvement: At the May 2009 Board of Trustees meeting, a Task Force was established to review the applicability of a number of Transmission Owner/Operator standards to Generator Owners and Operators with respect to Generator Interconnections to the Transmission System. While the work of this group is still proceeding, it can be anticipated that their recommendations will necessitate standard development and the Standards Development Plan should take this into account. Given that this Task Force resulted from action of the Board of Trustees, this work should receive high priority.

NERC Response:

The work of the Ad Hoc Group for Transmission Requirements at the Generator Interface expects to complete its work in Fall 2009. In its report, the team expects to include a proposed SAR and associated standards changes to address the recommendations of the team. As such, Project 2010-07 Transmission Requirements at the Generator Interface has been added to reflect this expectation.

Suggestion or Comment: Review of standards related to Generator Relaying

Recommendation for improvement: The general subject of generator relaying has been the subject of numerous technical reviews over the last several months. The list of such reviews would include, FERC NOPR on PRC-023 issued May 21st, NERC Technical Reference on Power Plant and Transmission System Protection Coordination issued Sept. 2009 referencing PRC-001, Reliability of Protection Systems (Project 2009-07) and possibly others. EPSA would recommend that there be greater coordination of all of the work underway reviewing generator protection generally so that generator owners and operators may more rationally contribute to the development of any new or revised standards

NERC Response:

There continues to be a great interest in properly evaluating and if necessary developing reliability standards that address relaying and control aspects for generators. This work is largely been under the custody of the System Protection and Control Subcommittee. We agree that a consolidated approach is most efficient and effective in this regard and are awaiting further input regarding the expected availability of additional technical guidance upon which future standards development work will be based.

Comment 26 **Name:** Dan Rochester **Organization:** Independent Electricity System Operator
Suggestion or Comment: Our comments are of a general nature and address the important issues of prioritization and scheduling. We commend the NERC Reliability Standards Program for their efforts to respond to industry comment and to develop a more realistic overall project schedule. By my count, there are 8 project scheduled for completion in 2010 with numerous others either continuing or being initiated. It is left to be seen whether or not this "aggressive" schedule will be met, given the unpredictable impact of requests for interpretation and SARs. We support the effort to develop Perfformance-based reliability standards and believe this will produce standards that ultimately achieve their desired end.
NERC Response: Thank you for your comments regarding the "aggressive" nature of the overall standards development effort. We have made a concerted effort over the past year to analyze the time it takes for a standards development project along with the timing of tasks for coordinating the projects more efficiently. Using the information we collected we adjusted all the project schedules in an attempt to provide the industry a more accurate representation of expectations. Even though not perfect, the revised schedules are a better representation of future expectations. We hope to continue to work closely with the industry to drive the projects to a timely and successful completion. Thank you for your support of Project 2010-06 Performance-based Reliability Standards (recently renamed to Project 2010-06 Results-based Reliability Standards).

Comment 27 **Name:** Laura Lee **Organization:** Duke Energy
Project Number(s): 2010-06
Project Title(s): Performance-based Reliability Standards
Suggestion or Comment: Duke would like to commend NERC for initiation of this project in response to industry input. It is vital that the industry concentrate its resources and attention on requirements that preserve BES reliability. We also appreciate the fact that no projects are currently scheduled to start in 2011 to facilitate concentration on this project and the others that will still be in progress.
Suggestion or Comment: No new standards should be initiated until completion of Project 2010-06. It is likely that the work on this project will result in a clearer consensus of what type of requirements and standards are truly essential for ensuring reliability of the BES, so it seems premaure to initiate development of new standards until this work is nearing completion. This would defer commencement of Projects 2009-04 and 2010-01. Addition of a section expicitlyspecifying the alignment of the projects to NERC's priority initiatives (i.e., System Protection Initiative, System Modeling Improvement Initiative, etc.) would enhance the report -

perhaps expand the last paragraph of "Other modifications" in the Summary section with additional specific details.

Another enhancement to the report would be an additional header in the Summary section explaining how reliability issues surrounding emerging technologies such as smart grid, energy efficiency, renewable resources, etc. are being addressed.

NERC Response:

Your suggestion that no new standards be initiated until completion of Project 2010-06 is not practical for the reasons stated in the "Priority of Projects" section of this report which begins on page 9 of Volume I. Certain projects are required to be initiated in 2010 pursuant to the Rules of Procedure of the North American Electric Reliability Corporation which state in part "each reliability standard shall be reviewed at least once every five years from the effective date of the standard or the latest revision to the standard, whichever is later." Making a conscious decision to ignore these projects would cause NERC to violate the Rules of Procedure which NERC staff is not willing to do. NERC staff will continue to work with the Standards Committee to coordinate the initiation of future standards development projects.

With respect to your suggestions to add a section explicitly specifying the alignment of the projects to NERC's priority initiatives and to add an additional header in the Summary section explaining how reliability issues surrounding emerging technologies such as smart grid, energy efficiency, renewable resources, etc. are being addressed, we will consider these suggestion during next year's annual revision to the *Reliability Standards Development Plan*.

Comment 28

Name: Guy Zito

Organization: Northeast Power Coordinating Council

Suggestion or Comment: The document is primarily informational. The timelines for project development cannot be firm, given the statement on p. 10 in Volume I that the six projects anticipated to be started in 2010 will be worked on when "appropriate NERC staff and industry resources are freed up from other projects".

On p 16--It is stated "Reliability Standards Development Plan: 2009-2012." Shouldn't this be 2010-2012?

For project prioritization,on p. 10 (Volume I) it is stated that there are projects to have existing projects revised while there are high priority reliability projects still waiting to be developed. Projects important for system reliability that haven't been developed yet should be given priority over existing projects.

Recommendation for improvement: Add the criteria for determining the priority of projects. If this information is in another document, it should be repeated in the Reliability Standards Development Plan for ease of reference.

NERC Response:

Your comment that the document "document is primarily informational" is accurate and is consistent with the second sentence of the first paragraph in the "Purpose" section of this Volume I which states "The plan serves as the management tool that guides, prioritizes, and coordinates revision or retirement of existing reliability standards and the development of new reliability standards for the immediate 3-year time horizon." This is a dynamic document and is meant to change as circumstances change.

With respect to your comment regarding page 16 of this volume, the typographical error has been corrected. With respect to your suggesting for adding the criteria for determining the priority of projects, once the Standards Committee Process Subcommittee and/or Communications and Planning Subcommittee finalize the criteria we can include it in a future revision to the plan.

Comment 29 **Name:** Martin Bauer **Organization:** US Bureau of Reclamation
Reliability Issue: Report from the Ad Hoc Group for Generator Requirements at the Transmission Interface
Suggestion or Comment: The report addresses a serious problem in the construction of the existing reliability standards. The recommendations in the report should be incorporated into the various projects currently underway. A new project should be initiated for those standards who have already been vetted and balloted. The recommendations should be added to the project description for all other standards.
Suggestion or Comment: This comment is reference to the lack of bilateral communication or coordination evident in the standards between the TO/TOP and GO/GOP entities. In most of the standards the communication or coordination requirement is from the GO/GOP to the TO/TOP. This unilateral requirement does not promote reliability and can result in the exclusion of the GO/GOP in critical system operation decisions or planning functions. In the cases cited below, there is no consideration that Transmission facilities could affect the Generator facilities.
Example: FAC008 R2, FAC 009 R2, PRC 001 R 2.1, R2.2, R3.1, R3.2, R5.1, R5.2, TOP 001 R7.2, R7.3, and TOP 003 R1.1
Recommendation for improvement: Review the listed standards and develop an appropriate requirements for communication and coordination for the TO/TOP with the GO/GOP entities.
NERC Response: The work of the Ad Hoc Group for Generator Requirements at the Transmission Interface expects to complete its work in the Fall 2009. In its report, the team expects to include a proposed SAR and associated standards changes to address the recommendations of the team. As such, a new project 2010-07 has been added to reflect this expectation. To the point regarding bilateral communication relative to the listed requirements, NERC will forward these comments to the ad hoc team for their consideration prior to completion of their activities.

Comment 30 **Name:** Wayne Pourciau **Organization:** Georgia System Operations Corp.
Suggestion or Comment: Project 2010-06 Performance-based Reliability Standards is the most

important project for the 2010 to 2012 development period.
Recommendation for improvement: Implement the plan for improving the set of NERC reliability standards to be more focused on reliability performance with a direct relation to bulk power system reliability.
Project Number(s): Project 2010-06
Project Title(s): Performance-based Reliability Standards
Suggestion or Comment: Project 2010-06 Performance-based Reliability Standards is the most important project for the 2010 to 2012 development period.
Recommendation for improvement: Implement the plan for improving the set of NERC reliability standards to be more focused on reliability performance.
Reliability Issue: Existing standards are unclear and confusing. Many requirements are repeated throughtout the set of standards. There are many requirements that are administrative in nature or are simply explanatory text and which do not appear to contribute directly to meeting reliability objectives. The resources of NERC, the Regional Entities, and the Registered Entities are wasted on duplicate and unnessary requirements.
Suggestion or Comment: Implement the Project 2010-06 Performance-based Reliability Standards for improving the set of NERC reliability standards to be more focused on reliability performance with a direct relation to bulk power system reliability. Failing to address this issue at this time in the standards development work plan serves to perpetuate the current course of adding requirements and detail to a set of requirements that has no discernable distinction between bulk power system performance-based outcomes and the other types of requirements. This current approach will continue to dilute resources needed for standards development, compliance monitoring and enforcement, and the compliance resources at registered entities across a spectrum of requirements that have mixed value for ensuring reliability. A plan is needed to shift the standards, and the efforts needed to develop and implement them, toward performance-based requirements that have a clear beneficial impact on reliability of the bulk power system. The same public interest that is served by having reliability standards is best served if the standards have a direct and material impact on the reliability of the bulk power system.
Recommendation for improvement: Implement the Project 2010-06 Performance-based Reliability Standards for improving the set of NERC reliability standards to be more focused on reliability performance with a direct relation to bulk power system reliability.
Additional information: A lack of clarity and direction with regard to some of the reliability standards has resulted in confusion. Where we once used language somewhat loosly in a voluntary environment and everyone had a general idea of what was meant, now sactions and penalties are dependent on the exact meaning of the words. Under the mandatory enforceable environment, words which were generally used are now being scrutinized and called into question. This is a result of the environment of exactly following prescribed actions. A change to a focus on the end result would change the environment from a legalistic, "letter of the law" environment to a more techincal, reliability-based, "intent of the law" environment. Additionally, this project should include an effort to develop at least one objective measurement for each requirement.
NERC Response:

Thank you for your support of Project 2010-06 Performance-based Reliability Standards (recently renamed to Project 2010-06 Results-based Reliability Standards). Noting your apparent intense interest in the project we look forward to your active participation in the project.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Attachment 1

Standard Authorization Request Form

Title of Proposed Standard: Protection Misoperations Revisions to PRC-003, PRC-004, PRC-012, and PRC-016
Request Date: June 10, 2009

SAR Requester Information	**SAR Type** (*Check a box for each one that applies.*)	
Name: System Protection and Control Subcommittee	☐	New Standard
Primary Contact: John Ciufo, Chairman	X	Revision to existing Standard
Telephone: (416) 345-5258 Fax: (416) 345-5406	X	Withdrawal of existing Standard (PRC-016)
E-mail: john.ciufo@HydroOne.com	☐	Urgent Action

Purpose (Describe what the standard action will achieve in support of bulk power system reliability.)

A key element of bulk power system reliability is the performance of the Protection Systems. To properly gage Protection System performance, is necessary to have a consistent set of metrics on Protection System Misoperations. Current PRC standards and definitions related to Protection System Misoperations are confusing and do not support a good metric for measurement of Protection System performance.

Industry Need (Provide a justification for the development or revision of the standard, including an assessment of the reliability and market interface impacts of implementing or not implementing the standard action.)

Current PRC standards and definitions related to Protection System Misoperations are confusing and do not support a good metric for measurement of Protection System performance.

Brief Description (Provide a paragraph that describes the scope of this standard action.)

SPCS recommends creation of a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012

- Retire PRC-016.

Detailed Description (Provide a description of the proposed project with sufficient details for the standard drafting team to execute the SAR.)

Standard PRC-003 is intended to ensure that all System Protection Misoperations are analyzed and mitigated according to guidelines established by the regions. The FERC, in Order 693, dated March 16, 2007, declared this standard as a "fill in the blank" type of standard that does not merit approval unless it is modified to make it more specific and consistent for all Regions. The SPCS concurs with the FERC order and provides recommendations on how the standard can be rewritten.

Because the procedures for analyzing and mitigating Misoperations were to be established by the regions, there is significant dissimilarity between the Misoperation data reported by each region, resulting in a virtually unusable misoperation metric for North America. SPCS recommends a change to the definition of Misoperation (Reportable Protection Misoperation) to provide uniformity to the misoperation data reported to the regions and NERC.

Protection System elements used for Special Protection Systems (SPS) or Remedial Action Schemes (RAS) are no different from those used for non Special Protection Systems. The revision to Standard PRC-003 should therefore apply to all Protection Systems, including SPS and RAS.

The SPCS also recommends that Standard PRC-016-0 – Special Protection System Misoperations, be requirements, merging its SPS/RAS Misoperation reporting, Corrective Action Plans, and tracking requirements into PRC-004 – Analysis and Mitigation of Transmission and Generation Protection System Misoperations.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and is coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should be modified to refer to that review process.

SPCS recommends creation of a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016.

See attached Technical Review document for additional details.

Reliability Functions

The Standard will Apply to the Following Functions *(Check box for each one that applies.)*		
☐	Reliability Coordinator	Responsible for the real-time operating reliability of its Reliability Coordinator Area in coordination with its neighboring Reliability Coordinator's wide area view.
☐	Balancing Authority	Integrates resource plans ahead of time, and maintains load-interchange-resource balance within a Balancing Authority Area and supports Interconnection frequency in real time.
☐	Interchange Authority	Ensures communication of interchange transactions for reliability evaluation purposes and coordinates implementation of valid and balanced interchange schedules between Balancing Authority Areas.
☐	Planning Coordinator	Assesses the longer-term reliability of its Planning Coordinator Area.
☐	Resource Planner	Develops a >one year plan for the resource adequacy of its specific loads within a Planning Coordinator area.
☐	Transmission Planner	Develops a >one year plan for the reliability of the interconnected Bulk Electric System within its portion of the Planning Coordinator area.
☐	Transmission Service Provider	Administers the transmission tariff and provides transmission services under applicable transmission service agreements (e.g., the pro forma tariff).
X	Transmission Owner	Owns and maintains transmission facilities.
☐	Transmission Operator	Ensures the real-time operating reliability of the transmission assets within a Transmission Operator Area.
X	Distribution Provider	Delivers electrical energy to the End-use customer.
X	Generator Owner	Owns and maintains generation facilities.
☐	Generator Operator	Operates generation unit(s) to provide real and reactive power.
☐	Purchasing-Selling Entity	Purchases or sells energy, capacity, and necessary reliability-related services as required.
☐	Market Operator	Interface point for reliability functions with commercial functions.
☐	Load-Serving Entity	Secures energy and transmission service (and reliability-related services) to serve the End-use Customer.

Reliability and Market Interface Principles

Applicable Reliability Principles *(Check box for all that apply.)*	
X	1. Interconnected bulk power systems shall be planned and operated in a coordinated manner to perform reliably under normal and abnormal conditions as defined in the NERC Standards.
☐	2. The frequency and voltage of interconnected bulk power systems shall be controlled within defined limits through the balancing of real and reactive power supply and demand.
☐	3. Information necessary for the planning and operation of interconnected bulk power systems shall be made available to those entities responsible for planning and operating the systems reliably.
☐	4. Plans for emergency operation and system restoration of interconnected bulk power systems shall be developed, coordinated, maintained and implemented.
☐	5. Facilities for communication, monitoring and control shall be provided, used and maintained for the reliability of interconnected bulk power systems.
☐	6. Personnel responsible for planning and operating interconnected bulk power systems shall be trained, qualified, and have the responsibility and authority to implement actions.
X	7. The security of the interconnected bulk power systems shall be assessed, monitored and maintained on a wide area basis.
☐	8. Bulk power systems shall be protected from malicious physical or cyber attacks.
Does the proposed Standard comply with all of the following Market Interface Principles? *(Select 'yes' or 'no' from the drop-down box.)*	
1. A reliability standard shall not give any market participant an unfair competitive advantage. Yes	
2. A reliability standard shall neither mandate nor prohibit any specific market structure. Yes	
3. A reliability standard shall not preclude market solutions to achieving compliance with that standard. Yes	
4. A reliability standard shall not require the public disclosure of commercially sensitive information. All market participants shall have equal opportunity to access commercially non-sensitive information that is required for compliance with reliability standards. Yes	

Related Standards

Standard No.	**Explanation**
PRC-003	Revise
PRC-004	Revise
PRC-012	Revise

PRC-016	Retire

Related SARs

SAR ID	Explanation

Regional Variances

Region	Explanation
ERCOT	
FRCC	
MRO	
NPCC	
SERC	
RFC	
SPP	
WECC	

NERC

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NERC SPCS Assessment of Standards:

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations
- PRC-016-1 — Special Protection System Misoperations

A Technical Review of Standards Prepared by the System Protection and Controls Subcommittee of the NERC Planning Committee

May 2009

to ensure the reliability of the bulk power system

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Table of Contents

This report was approved by the Planning Committee on June 10, 2009, for forwarding to the Standards Committee.

Introduction

When the original scope for the System Protection and Control Task Force (SPCTF, now the System Protection and Control Subcommittee – SPCS) was developed, one of the assigned items was to review all of the existing PRC-series of Reliability Standards, to advise the Planning Committee, and to develop Standards Authorization Requests, as appropriate, to address any perceived deficiencies.

This report presents the SPCS' assessment of three of the PRC standards pertaining to relay misoperations:

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations
- PRC-016-1 — Special Protection System Misoperations

This report serves as a precursor for a Standards Authorization Request (SAR) for modifications to PRC-003 that will be submitted by the SPCS.

Executive Summary

Standard PRC-003 is intended to ensure that all System Protection Misoperations are analyzed and mitigated according to guidelines established by the regions. The FERC, in Order 693, dated March 16, 2007, declared this standard as a "fill in the blank" type of standard that does not merit approval unless it is modified to make it more specific and consistent for all Regions. The SPCS concurs with the FERC order and provides recommendations on how the standard can be rewritten.

Because the procedures for analyzing and mitigating Misoperations were to be established by the regions, there is significant dissimilarity between the Misoperation data reported by each region, resulting in a virtually unusable misoperation metric for North America. SPCS recommends a change to the definition of Misoperation (Reportable Protection Misoperation) to provide uniformity to the misoperation data reported to the regions and NERC.

Protection System elements used for Special Protection Systems (SPS) or Remedial Action Schemes (RAS) are no different from those used for non Special Protection Systems. The revision to Standard PRC-003 should therefore apply to all Protection Systems, including SPS and RAS.

The SPCS also recommends that Standard PRC-016-0 — Special Protection System Misoperations, be requirements, merging its SPS/RAS Misoperation reporting, Corrective Action Plans, and tracking requirements into PRC-004 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and is coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should be modified to refer to that review process.

A Standards Authorization Request (SAR) will be submitted by the SPCS calling for a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016.

Assessment of PRC-003-1

PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems requires the regions to establish procedures for analysis of Misoperations. This has resulted in significant and substantive differences in regional procedures and this was noted in FERC's recommendation for "greater uniformity."

SPCS proposes updating the PRC-003-1 standard to be applicable to all regions based on following tenets:

1. **Applicability** — The existing standard says that the Protection Systems shall be reviewed but does not specify which systems apply to this standard.

   It is necessary for the new standard to define the protections systems to which the standard applies:

   - Transmission Protection Systems which trip:
     a. Transmission system elements 200-kV and above
     b. Operationally significant system elements 100-kV to 200-kV
     c. Transformers with 100-kV or higher on the low side
     d. GSU transformers with high side voltages of 100-kV or higher
   - Generation Protection Systems which trip:
     a. Transmission system elements 200-kV and above
     b. Operationally significant system elements 100-kV to 200-kV
     c. Transformers with 100-kV or higher on the low side
     d. GSU transformers with high side voltages of 100-kV or higher
     e. Generators connected through GSU transformers with high side voltages of 100-kV or higher
   - Protection Systems that trip aggregate generation of 75 MW or more (such as wind farms, geothermal, or solar) connected to the transmission system at 100-kV or higher.

2. **Definitions** — The NERC Glossary of Terms currently defines Misoperation as:

   Misoperation (current definition)

   - Any failure of a Protection System element to operate within the specified time when a fault or abnormal condition occurs within a zone of protection.
   - Any operation for a fault not within a zone of protection (other than operation as backup protection for a fault in an adjacent zone that is not cleared within a specified time for the protection for that zone).
   - Any unintentional Protection System operation when no fault or other abnormal condition has occurred unrelated to on-site maintenance and testing activity

   The existing definition does not address what are reportable and non-reportable misoperations. Reportable misoperations should be redefined in terms of both dependability and security, as a function of the impact of the Protection Systems on the electric system performance. SPCS recommends the following definition:

   Reportable Protection Misoperation (proposed definition)

Dependability (failure to operate):

- Failure of the composite Protection System to initiate the isolation of a faulted power system Element as designed or within its designed operating time.
- Failure of the composite Protection System to operate as intended for a non-fault condition, such as out-of-step, overload, etc., within its designed operating time.
- Failure of an SPS/RAS, UVLS system, or UFLS system to operate for an intended condition or within its designed operating time.

Security (false or undesirable operations):

- Improper operation of a Protection System in absence of a fault on the power system Element it is designed to protect.
- Improper operation of a Protection System during a fault on any other power system Element it is not designed to protect.
- Improper operation of an SPS/RAS, UVLS system, or UFLS system in absence of its designed trigger conditions.
- Over-response of an SPS/RAS, UVLS system, or UFLS system

Notes to the proposed definition:

A. The composite Protection System in the context of this standard is the total complement of protection for a system Element (line, bus, transformer, generator, etc). Primary and secondary protection of a given Element is considered as the composite Protection System, not two separate Protection Systems.

B. Delayed clearing, where a high-speed system is employed and is essential for transmission system performance, is considered a reportable misoperation of the high-speed system.

C. Lack of targeting of the high-speed system, such as when it is beat out by a high-speed zone, is not considered a reportable misoperation.

D. Multiple misoperations of a Protection System before it can be reasonably investigated and remedied should be considered as a single misoperation.

E. Failure to automatically reclose after a fault is not a reportable misoperation.

F. Human errors made in protection settings either as calculated or as installed, or wiring errors, which result in a misoperation are reportable.

G. Protection System operations related to on-site maintenance, testing, construction and or commissioning activities for that Protection System, when no fault or other abnormal condition has occurred, are not considered reportable Protection System misoperations.

H. Operations which are initiated by control systems (not by the Protection Systems), such as those associated with generator controls or turbine/boiler controls, SVCs, FACTS, HVDC, circuit breaker mechanism, or insulation media, or other facility control systems, are not reportable Protection System misoperations.

I. Protection System operations which occur with the protected element already out of service, that do not trip any in-service elements, are not reportable Protection System misoperations.

3. **Reporting of Misoperations** — Because the current PRC-003 calls for regional procedures and reporting requirements, there is a wide variation in those requirements from region to region, making comparison of misoperations metrics at the NERC level virtually impossible. Since any

assessment of the success or failure of the NERC protection-related standards to maintain or improve reliability depends on those metrics, it is important to provide for uniformity. The variations in definitions can be corrected by the adoption of the Reportable Protection Misoperation definition above. Uniform reporting can be addressed by following proposed reporting requirements:

- Transmission Owner or Generation Owners that own Protection Systems shall submit a quarterly report of the total number of events , the number of Protection System misoperations, and the number of events still under analysis, in a prescribed format (to be part of the revised PRC-003 standard) no later than two calendar months after each quarter.
- The regions shall, in turn, submit a quarterly report to NERC – consolidated data for the Region in a prescribed format (also part of the revised PRC-003 standard).
- The regions shall provide any additional information on misoperations to NERC as requested.

4. **Peer Review of Misoperations —** Peer review of misoperations and tracking of mitigation plans is an important part of improving Protection System performance. Logically, that function should be done by the Regional Entities. However, since standards requirements cannot be placed on the Regional Entities, the following suggestions are made but the mechanics are left open.

   - The regions, through their appropriate committees or subcommittee, shall review the misoperation reports. This review should determine whether further analysis, data, or other documentation is required, and it will confirm that appropriate mitigation is defined and scheduled.
   - The regions should maintain records of the quarterly reports and confirm the implementation of any proposed mitigation plan.
   - The regions should track the mitigation of reported misoperations to avoid further occurrences.

Assessment of PRC-004 and PRC-016-0

NERC standards PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations, and PRC-016 – Special Protection System Misoperations both require that Protection System misoperations are analyzed and reported, and that corrective actions are taken where necessary. However, PRC-016 exclusively applies to special protection systems (SPS) also know as remedial action schemes (RAS). Since analysis and reporting of protection system misoperations is the same regardless of whether or not a SPS/RAS is involved; there is no need for a separate standard. Standard PRC-004-1 should be revised to include SPS/RAS, and PRC-016 should be retired.

SPS Corrective Action Plan Review

PRC-012-0 — Special Protection System Review Procedure is intended to provide a review procedure to ensure that all SPS/RAS are properly designed, meet performance requirements, and are coordinated with other Protection Systems.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and are coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should refer to that review process.

Proposed PRC-004-1 Revisions

SPCS recommends the following revisions to PRC-004-1 requirements to encompass those of PRC-016:

R1. The Transmission Owner and any Distribution Provider that owns a transmission Protection System or SPS shall each analyze its transmission Protection System or SPS Misoperations and shall develop and implement a Corrective Action Plan to avoid future Misoperations of a similar nature in accordance with Standard PRC-003 (revised).

R2. The Generator Owner shall analyze its generator Protection System or SPS Misoperations, and shall develop and implement a Corrective Action Plan to avoid future Misoperations of a similar nature in accordance with Standard PRC-003 (revised).

R3. The Transmission Owner, Generator Owner, and Distribution Provider that owns a transmission Protection System or an SPS shall provide documentation of the misoperation analyses and the Corrective Action Plans to its Regional Reliability Organization and NERC upon request (within 90 calendar days).

R4. All Corrective Action Plans for SPS shall be subject to SPS Review Procedures in accordance with Standard PRC-012.

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NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Reliability Standards Development Plan: 2010–2012

Volume II — List of Projects

to ensure the reliability of the bulk power system

October 7, 2009

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Table of Contents:

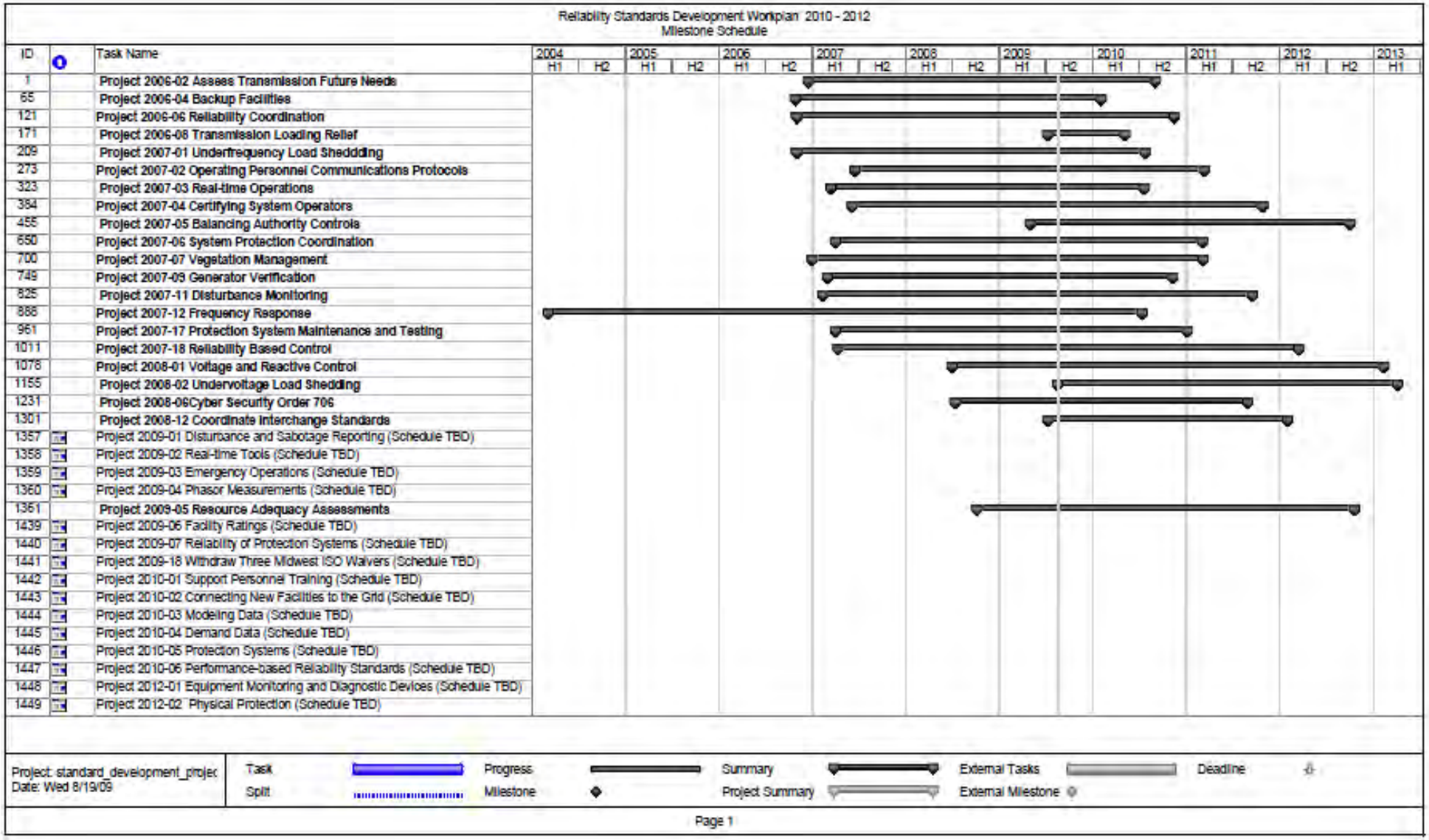
Introduction

This Volume II of the *Reliability Standards Development Plan* contains the project descriptions for each of the currently opened and planned reliability standards development projects. There are 37 projects in this plan. For each project, a description is provided that outlines the general overview and scope of improvements to be considered in conjunction with the project.

The three charts and tables on the pages which immediately follow have been provided as additional information for helping better understand each project:

- The first chart provides an overall Gantt chart for all currently open projects. More detailed project schedules are posted on the "Related Files" of each project. The intent of this overall Gantt chart is to provide a quick reference of the overall project schedule for each project.
- The next table provides a quick reference identifying which project is associated with a particular standard and is sorted by standard number.
- The final table provides a quick reference identifying which standards are associated with each project and is sorted by project number for those projects that have specifically identified standards to be included in their scope.

Reliability Standards Development Plan Overall Project Schedules



Reference Identifying the Standard in each Project Sorted by Standard Number

Standard	Standard Name	Project Number
Resource and Demand Balancing (BAL) Standards		
BAL-001-0a	Real Power Balancing Control Performance	Project 2007-18
BAL-002-0	Disturbance Control Performance	Project 2007-05, Project 2009-02, and Project 2007-18
BAL-003-0a	Frequency Response and Bias	Project 2007-12
BAL-004-0	Time Error Correction	Project 2007-05
BAL-004-1	Time Error Correction	Project 2007-05
BAL-005-0b	Automatic Generation Control	Project 2007-05 and Project 2009-02
BAL-006-1	Inadvertent Interchange	Project 2007-05
Critical Infrastructure Protection (CIP) Standards		
CIP-001-1	Sabotage Reporting	Project 2009-01
CIP-002-2	Critical Cyber Asset Identification	Project 2008-06
CIP-003-2	Security Management Controls	Project 2008-06
CIP-004-2	Personnel and Training	Project 2008-06
CIP-005-2	Electronic Security Perimeter(s)	Project 2008-06
CIP-006-2	Physical Security	Project 2008-06
CIP-006-1a	Cyber Security — Physical Security	Project 2008-06
CIP-007-2	Systems Security Management	Project 2008-06
CIP-008-2	Incident Reporting and Response Planning	Project 2008-06
CIP-009-2	Recovery Plans for Critical Cyber Assets	Project 2008-06
Communications (COM) Standards		
COM-001-1	Telecommunications	Project 2006-06 and Project 2009-02
COM-002-2	Communications and Coordination	Project 2006-06 and Project 2007-02
Emergency Preparedness and Operations (EOP) Standards		
EOP-001-0	Emergency Operations Planning	Project 2006-04, Project 2008-08 (VSLs only), and Project 2009-03
EOP-002-2	Capacity and Energy Emergencies	Project 2007-18, Project 2008-08 (VSLs only) and Project 2009-03
EOP-003-1	Load Shedding Plans	Project 2008-08 (VSLs only), Project 2009-02, and Project 2009-03
EOP-004-1	Disturbance Reporting	Project 2008-08 (VSLs only) and Project 2009-01
Facilities Design, Connections, and Maintenance (FAC) Standards		
FAC-001-0	Facility Connection Requirements	Project 2010-02

Standard	Standard Name	Project Number
FAC-002-0	Coordination of Plans for New Facilities	Project 2010-02
FAC-003-1	Transmission Vegetation Management Program	Project 2007-07
FAC-008-1	Facility Ratings Methodology	Project 2009-06
FAC-009-1	Establish and Communicate Facility Ratings	Project 2009-06
FAC-010-2	System Operating Limits Methodology for the Planning Horizon	Project 2008-04
FAC-011-1	System Operating Limits Methodology for the Operations Horizon	Project 2008-05
FAC-011-2	System Operating Limits Methodology for the Operations Horizon	Project 2008-05 and Project 2008-04
FAC-012-1	Transfer Capability Methodology	Project 2006-07
FAC-013-1	Establish and Communicate Transfer Capabilities	Project 2006-07
FAC-014-2	Establish and Communicate System Operating Limits	Project 2008-04
Interchange Scheduling and Coordination (INT) Standards		
INT-001-3	Interchange Information	Project 2008-12
INT-003-2	Interchange Transaction Implementation	Project 2008-12
INT-004-1	Dynamic Interchange Transaction Modifications	Project 2008-12
INT-005-1	Interchange Authority Distributes Arranged Interchange	Project 2008-12 and Project 2010-03
INT-005-2	Interchange Authority Distributes Arranged Interchange	Project 2008-12
INT-006-2	Response to Interchange Authority	Project 2008-12
INT-007-1	Interchange Confirmation	Project 2008-12
INT-008-1	Interchange Authority Distributes Status	Project 2008-12
INT-008-2	Interchange Authority Distributes Status	Project 2008-12
INT-009-1	Implementation of Interchange	Project 2008-12
INT-010-1	Interchange Coordination Exemptions	Project 2008-12
Interconnection Reliability Operations and Coordination (IRO) Standards		
IRO-001-1	Reliability Coordination — Responsibilities and Authorities	Project 2006-06 and Project 2009-03
IRO-002-1	Reliability Coordination — Facilities	Project 2006-06 and Project 2009-02
IRO-003-2	Reliability Coordination — Wide-Area View	Project 2009-02
IRO-004-1	Reliability Coordination — Operations Planning	Project 2009-02
IRO-005-2	Reliability Coordination — Current-Day Operations	Project 2006-06, Project 2007-18, and Project 2009-02
IRO-006-4	Reliability Coordination — Transmission Loading Relief	Project 2006-08
IRO-014-1	Procedures, Processes, or Plans to Support Coordination Between Reliability Coordinators	Project 2006-06
IRO-015-1	Notifications and Information Exchange Between Reliability Coordinators	Project 2006-06
IRO-016-1	Coordination of Real-time Activities Between Reliability Coordinators	Project 2006-06
Modeling, Data, and Analysis (MOD) Standards		
MOD-010-0	Steady-State Data for Transmission System Modeling and Simulation	Project 2010-03
MOD-011-0	Regional Steady-State Data Requirements and Reporting Procedures	Project 2010-03

Standard	Standard Name	Project Number
MOD-012-0	Dynamics Data for Transmission System Modeling and Simulation	Project 2010-03
MOD-013-1	RRO Dynamics Data Requirements and Reporting Procedures	Project 2010-03
MOD-014-0	Development of Interconnection-Specific Steady State System Models	Project 2010-03
MOD-015-0	Development of Interconnection-Specific Dynamics System Models	Project 2010-03
MOD-016-1	Actual and Forecast Demands, Net Energy for Load, Controllable DSM	Project 2010-04
MOD-017-0	Aggregated Actual and Forecast Demands and Net Energy for Load	Project 2010-04
MOD-018-0	Reports of Actual and Forecast Demand Data	Project 2010-04
MOD 019-0	Forecasts of Interruptible Demands and DCLM Data	Project 2010-04
MOD-020-0	Providing Interruptible Demands and DCLM Data	Project 2010-04
MOD-021-0	Accounting Methodology for Effects of Controllable DSM in Forecasts	Project 2010-04
MOD-024-1	Verification of Generator Gross and Net Real Power Capability	Project 2007-09
MOD-025-1	Verification of Generator Gross and Net Reactive Power Capability	Project 2007-09
MOD-026-1	Verification of Models and Data for Generator Excitation System Functions	Project 2007-09
MOD-027-1	Verification of Generator Unit Frequency Response	Project 2007-09
Personnel Performance, Training, and Qualifications (PER) Standards		
PER-001-0	Operating Personnel Responsibility and Authority	Project 2007-03
PER-003-0	Operating Personnel Credentials	Project 2007-04
Protection and Control (PRC) Standards		
PRC-001-1	System Protection Coordination	Project 2007-06 and Project 2009-02
PRC-002-1	Define Regional Disturbance Monitoring and Reporting Requirements	Project 2007-11
PRC-003-1	Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems	Project 2010-05
PRC-004-1	Analysis and Mitigation of Transmission and Generation Protection System Misoperations	Project 2010-05
PRC-005-1	Transmission and Generation Protection System Maintenance and Testing	Project 2007-17
PRC-006-0	Development and Documentation of Regional UFLS Programs	Project 2007-01
PRC-007-0	Assuring Consistency with Regional UFLS Program Requirements	Project 2007-01
PRC-008-0	Underfrequency Load Shedding Equipment Maintenance Programs	Project 2007-17
PRC-009-0	UFLS Performance Following an Underfrequency Event	Project 2007-01
PRC-010-0	Assessment of the Design and Effectiveness of UVLS Program	Project 2008-02
PRC-011-0	UVLS System Maintenance and Testing	Project 2007-17
PRC-012-0	Special Protection System Review Procedure	Project 2010-05
PRC-013-0	Special Protection System Database	Project 2010-03
PRC-014-0	Special Protection System Assessment	Project 2010-05
PRC-015-0	Special Protection System Data and Documentation	Project 2010-03
PRC-016-0	Special Protection System Misoperations	Project 2010-05
PRC-017-0	Special Protection System Maintenance and Testing	Project 2007-17

Standard	Standard Name	Project Number
PRC-018-1	Disturbance Monitoring Equipment Installation and Data Reporting	Project 2007-11
PRC-019-1	Coordination of Generator Voltage Regulator Controls with Unit Capabilities and Protection	Project 2007-09
PRC-020-1	Under-Voltage Load Shedding Program Database	Project 2010-03
PRC-021-1	Under-Voltage Load Shedding Program Data	Project 2010-03
PRC-022-1	Under-Voltage Load Shedding Program Performance	Project 2008-02
PRC-024-1	Generator Performance During Frequency and Voltage Excursions	Project 2007-09
Transmission Operations (TOP) Standards		
TOP-001-1	Reliability Responsibilities and Authorities	Project 2007-03
TOP-002-2	Normal Operations Planning	Project 2007-03
TOP-003-0	Planned Outage Coordination	Project 2007-03
TOP-004-2	Transmission Operations	Project 2007-03
TOP-005-1	Operational Reliability Information	Project 2007-03
TOP-006-1	Monitoring System Conditions	Project 2007-03
TOP-007-0	Reporting SOL and IROL Violations	Project 2007-03
TOP-008-1	Response to Transmission Limit Violations	Project 2007-03
Transmission Planning (TPL) Standards		
TPL-001-0	System Performance Under Normal Conditions	Project 2006-02
TPL-002-0	System Performance Following Loss of a Single BES Element	Project 2006-02
TPL-003-0	System Performance Following Loss of Two or More BES Elements	Project 2006-02
TPL-004-0	System Performance Following Extreme BES Events	Project 2006-02
TPL-005-0	Regional and Interregional Self-Assessment Reliability Reports	Project 2006-02
TPL-006-0	Assessment Data from Regional Reliability Organizations	Project 2006-02
Voltage and Reactive (VAR) Standards		
VAR-001-1a	Voltage and Reactive Control	Project 2008-01 and Project 2009-02
VAR-002-1a	Generator Operation for Maintaining Network Voltage Schedules	Project 2008-01

Reference Identifying the Standard in each Project Sorted by Project Number

Project 2006-02 Assess Transmission Future Needs

- TPL-001-0 — System Performance Under Normal Conditions
- TPL-002-0 — System Performance Following Loss of a Single BES Element
- TPL-003-0 — System Performance Following Loss of Two or More BES Elements
- TPL-004-0 — System Performance Following Extreme BES Events
- TPL-005-0 — Regional and Interregional Self-Assessment Reliability Reports
- TPL-006-0 — Assessment Data from Regional Reliability Organizations

Project 2006-06 Reliability Coordination

- COM-001-1 — Telecommunications
- COM-002-2 — Communications and Coordination
- IRO-001-1 — Reliability Coordination — Responsibilities and Authorities
- IRO-002-1 — Reliability Coordination — Facilities
- IRO-005-2 — Reliability Coordination — Current-Day Operations
- IRO-014-1 — Procedures, Processes, or Plans to Support Coordination Between Reliability Coordinators
- IRO-015-1 — Notifications and Information Exchange Between Reliability Coordinators
- IRO-016-1 — Coordination of Real-time Activities Between Reliability Coordinators

Project 2006-08 Transmission Loading Relief

- IRO-006-3 — Reliability Coordination — Transmission Loading Relief
- IRO-006-4 — Reliability Coordination — Transmission Loading Relief

Project 2007-01 Underfrequency Load Shedding

- PRC-006-0 — Development and Documentation of Regional UFLS Programs
- PRC-007-0 — Assuring Consistency with Regional UFLS Program Requirements
- PRC-009-0 — UFLS Performance Following an Underfrequency Event

Project 2007-02 Operating Personnel Communications Protocols

- COM-003-1 — Operating Personnel Communications Protocols

Project 2007-03 Real-time Operations

- PER-001-0 — Operating Personnel Responsibility and Authority
- TOP-001-1 — Reliability Responsibilities and Authorities
- TOP-002-2 — Normal Operations Planning
- TOP-003-0 — Planned Outage Coordination
- TOP-004-1 — Transmission Operations
- TOP-004-2 — Transmission Operations
- TOP-005-1 — Operational Reliability Information
- TOP-006-1 — Monitoring System Conditions
- TOP-007-0 — Reporting SOL and IROL Violations
- TOP-008-1 — Response to Transmission Limit Violations

Project 2007-04 Certifying System Operators

- PER-003-0 — Operating Personnel Credentials

Project 2007-05 Balancing Authority Controls

- BAL-002-0 — Disturbance Control Performance
- BAL-004-0 — Time Error Correction
- BAL-004-1 — Time Error Correction
- BAL-005-0 — Automatic Generation Control
- BAL-005-0b — Automatic Generation Control
- BAL-006-1 — Inadvertent Interchange

Project 2007-06 System Protection Coordination

- PRC-001-1 — System Protection Coordination

Project 2007-07 Vegetation Management

- FAC-003-2 — Transmission Vegetation Management Program

Project 2007-09 Generator Verification

- MOD-024-1 — Verification of Generator Gross and Net Real Power Capability
- MOD-025-1 — Verification of Generator Gross and Net Reactive Power Capability
- MOD-026-1 — Verification of Models and Data for Generator Excitation System Functions
- MOD-027-1 — Verification of Generator Unit Frequency Response
- PRC-019-1 — Coordination of Generator Voltage Regulator Controls with Unit Capabilities and Protection
- PRC-024-1 — Generator Performance During Frequency and Voltage Excursions

Project 2007-11 Disturbance Monitoring

- PRC–002-1 — Define Regional Disturbance Monitoring and Reporting Requirements
- PRC–018-1 — Disturbance Monitoring Equipment Installation and Data Reporting

Project 2007-17 Protection System Maintenance and Testing

- PRC–005-1 — Transmission and Generation Protection System Maintenance and Testing
- PRC–008-0 — Underfrequency Load Shedding Equipment Maintenance Programs
- PRC–011-0 — UVLS System Maintenance and Testing
- PRC–017-0 — Special Protection System Maintenance and Testing

Project 2007-18 Reliability-based Control

- BAL–001-0 — Real Power Balancing Control Performance
- BAL–001-0a — Real Power Balancing Control Performance
- BAL–003-0a — Frequency Response and Bias
- EOP–002-2 — Capacity and Energy Emergencies
- IRO–005-2 — Reliability Coordination — Current-Day Operations

Project 2008-01 Voltage and Reactive Control

- VAR–001-1 — Voltage and Reactive Control
- VAR–001-1a — Voltage and Reactive Control
- VAR–002-1 — Generator Operation for Maintaining Network Voltage Schedules
- VAR–002-1a — Generator Operation for Maintaining Network Voltage Schedules

Project 2008-02 Undervoltage Load Shedding

- PRC–010-0 — Assessment of the Design and Effectiveness of UVLS Program
- PRC–022-1 — Under-Voltage Load Shedding Program Performance

Project 2008-06 Cyber Security — Order 706

- CIP–002–2 — Critical Cyber Asset Identification
- CIP–003–2 — Security Management Controls
- CIP–004–2 — Personnel and Training
- CIP–005–2 — Electronic Security Perimeter(s)
- CIP–006-2a — Cyber Security — Physical Security
- CIP–007–2 — Systems Security Management
- CIP–008–2 — Incident Reporting and Response Planning
- CIP–009–2 — Recovery Plans for Critical Cyber Assets

Project 2008-08 EOP VSL Revisions

- EOP-001-0 — Emergency Operations Planning
- EOP-002-2 — Capacity and Energy Emergencies
- EOP-003-1 — Load Shedding Plans

Project 2008-12 Coordinate Interchange Standards

- INT-001-3 — Interchange Information
- INT-003-2 — Interchange Transaction Implementation
- INT-004-1 — Dynamic Interchange Transaction Modifications
- INT-005-2 — Interchange Authority Distributes Arranged Interchange
- INT-006-2 — Response to Interchange Authority
- INT-007-1 — Interchange Confirmation
- INT-008-2 — Interchange Authority Distributes Status
- INT-009-1 — Implementation of Interchange
- INT-010-1 — Interchange Coordination Exemptions

Project 2009-01 Disturbance and Sabotage Reporting

- CIP-001-1 — Sabotage Reporting
- EOP-004-1 — Disturbance Reporting

Project 2009-02 Real-time Tools

- BAL-002-0 — Disturbance Control Performance
- BAL-005-0 — Automatic Generation Control
- BAL-005-0b — Automatic Generation Control
- COM-001-1 — Telecommunications
- EOP-003-1 — Load Shedding Plans
- EOP-005-1 — System Restoration Plans
- IRO-002-1 — Reliability Coordination — Facilities
- IRO-003-2 — Reliability Coordination — Wide-Area View
- IRO-004-1 — Reliability Coordination — Operations Planning
- IRO-005-2 — Reliability Coordination — Current-Day Operations
- PRC-001-1 — System Protection Coordination
- TOP-001-1 — Reliability Responsibilities and Authorities
- TOP-002-2 — Normal Operations Planning
- TOP-003-0 — Planned Outage Coordination
- TOP-004-1 — Transmission Operations
- TOP-004-2 — Transmission Operations
- TOP-005-1 — Operational Reliability Information

- TOP-006-1 — Monitoring System Conditions
- VAR-001-1 — Voltage and Reactive Control
- VAR-001-1a — Voltage and Reactive Control

Project 2009-05 Resource Adequacy Assessments

- New Standard

Project 2009-06 Facility Ratings

- FAC-008-1 — Facility Ratings Methodology

FAC-009-1 — Establish and Communicate Facility Ratings

Project 2010-02 Connecting New Facilities to the Grid

- FAC-001-0 — Facility Connection Requirements
- FAC-002-0 — Coordination of Plans for New Facilities

Project 2010-03 Modeling Data

- MOD-010-0 — Steady-State Data for Transmission System Modeling and Simulation
- MOD-011-0 — Regional Steady-State Data Requirements and Reporting Procedures
- MOD-012-0 — Dynamics Data for Transmission System Modeling and Simulation
- MOD-013-1 — RRO Dynamics Data Requirements and Reporting Procedures
- MOD-014-0 — Development of Interconnection-Specific Steady State System Models
- MOD-015-0 — Development of Interconnection-Specific Dynamics System Models
- PRC-013-0 — Special Protection System Database
- PRC-015-0 — Special Protection System Data and Documentation

Project 2010-04 Demand Data

- MOD-016-1 — Actual and Forecast Demands, Net Energy for Load, Controllable DSM
- MOD-017-0 — Aggregated Actual and Forecast Demands and Net Energy for Load
- MOD-018-0 — Reports of Actual and Forecast Demand Data
- MOD-019-0 — Forecasts of Interruptible Demands and DCLM Data
- MOD-020-0 — Providing Interruptible Demands and DCLM Data
- MOD-021-0 — Accounting Methodology for Effects of Controllable DSM in Forecasts

Project 2010-05 Protection Systems

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations
- PRC-012-0 — Special Protection System Review Procedure
- PRC-014-0 — Special Protection System Assessment
- PRC-016-0 — Special Protection System Misoperations

Project Descriptions

The following pages contain the project descriptions for each of the currently opened or planned Reliability Standards development projects. Each project description includes a cover page that provides an overview of the project, including the project number, title, list of affected reliability standards, hyperlinks to associated portions of the NERC standards web pages, and a brief description of the project. The cover page is followed by the drafting team roster for the project (if one exists – future/planned projects will not have a roster) and a list of "Issues to be Considered by Drafting Team" for each reliability standard associated with the specific project.

The standard drafting team for each of these projects will be expected to review the assigned standards and modify the standards to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure as described in the "Global Improvements" section of Volume I of this *Reliability Standards Development Plan*.

Each list of "Issues to be Considered by Drafting Team" identifies the FERC directives from various orders, items from the Issues Database, and also includes comments provided by:

- The team working on identifying the "fill-in-the-blank" characteristics of the NERC reliability standards,
- Industry stakeholders,
- NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS),
- Version 0, Phase III & IV, Violation Risk Factors (VRFs), and Missing Measures and Compliance Elements drafting teams and others as noted.

The majority of comments provided by these entities can be found in the following references:

- FERC Order 693 Mandatory Reliability Standards for the Bulk-Power System
- FERC Order 693 — A, Order on Rehearing
- FERC Order 706 Mandatory Reliability Standards for Critical Infrastructure Protection
- FERC Order 706–A Mandatory Reliability Standards for Critical Infrastructure Protection
- FERC Order 890 Preventing Undue Discrimination and Preference in Transmission Service
- FERC NOPR Mandatory Reliability Standards for Critical Infrastructure Protection
- FERC NOPR — Mandatory Reliability Standards for the Bulk-Power System, dated October 20, 2006 — *Explanatory comments from NERC staff's discussion with FERC personnel on the NOPR are indicated in italic text contained within parenthesis*
- Summary of Comments for Addressing Fill-in-the-Blank Aspects of Reliability Standards, October 24, 2006
- Comments received during the development of Version 0 reliability standards
- Consideration of comments of the Missing Compliance Elements drafting team.
- Consideration of comments of the Violation Risk Factors drafting team

- Consideration of comments in the Phase III-IV standards
- SAR on Planning Authority (The requester agreed to not proceed with this SAR.) SAR on Applicability

Note that no value judgments have been made about the technical merits of any of the items included in each list of "Issues to be Considered by Drafting Team." Each standard drafting team for the specific project is expected to further investigate and properly address each of the issues listed.

Project 2006-02 Assess Transmission and Future Needs

Standards Involved:
TPL-001-0 — System Performance under Normal Conditions
TPL-002-0 — System Performance Following Loss of a Single BES Element
TPL-003-0 — System Performance Following Loss of Two or More BES Elements
TPL-004-0 — System Performance Following Extreme BES Events
TPL-005-0 — Regional and Interregional Self-Assessment Reliability Reports
TPL-006-0 — Assessment Data from Regional Reliability Organizations

Research Needed:
None

Brief Description:
The proposed work effort will establish requirements where requirements do not exist, and verify and clarify the existing standards for assessing and reporting the performance of planned bulk electric systems and the requirements for documenting plans to remedy any inadequacies identified in the process of conducting such assessments.

Consideration will be given to the many proposed improvements identified in the 'Issues' list for each of the above standards.

The drafting team will also work to incorporate the interpretation on TPL-002 Requirement R1.3.12 and Requirement R1.32 and the interpretation on TPL-003 Requirement R1.3.12 and Requirement R1.32.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2006-02 Assess Transmission and Future Needs Web Page

Project Schedule:
Project 2006-02 Schedule

Standard Drafting Team Roster:

Chairman	John E. Odom, Jr.	Florida Reliability Coordinating Council
Vice Chairman	Douglas Hohlbaugh	FirstEnergy Corp.
	D. Darrin Church	Tennessee Valley Authority
	William Harm	PJM Interconnection, L.L.C.
	Julius Horvath	Lower Colorado River Authority
	Robert A. Jones	Southern Company Services, Inc.
	R. W. Mazur	Manitoba Hydro
	Thomas C. Mielnik	MidAmerican Energy Co.
	Bernie Pasternack, P.E.	American Electric Power
	Bob Pierce	Duke Energy
	Chifong L. Thomas	Pacific Gas and Electric Company
	James Useldinger	Kansas City Power & Light Co.
	Dana Walters	National Grid
NERC Staff	Edward J. Dobrowolski	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
TPL Family	
FERC Order 693	• 1692 — Consider integrating TPL-001 through TPL-004 into one standard. • 1694, 1704, & 1706 — Consider the full range of variables when determining critical system conditions but only those deemed to be significant need to be assessed and documentation provided that explain the rational for selection. • 1716 — System performance should be assessed based on contingencies that mimic what happens in real-time. • 1719 — Consider appropriate revisions to the reliability standards to deal with cyber security events.
	Submit an informational filing, in addition to regional criteria, all utility and RTO/ISO differences in transmission planning criteria that are more stringent than those specified by the TPL standards.
TPL-001-0 — System Performance Under Normal (No Contingency) Conditions (Category A)	
FERC Order 693	• 1694, 1704, & 1706 — Determine critical system conditions and study years by conducting sensitivity analysis with due consideration of the factors outlined by the Commission. • 1751 — Require a peer review of planning assessments with neighboring entities • 1759 — Modify requirement R1.3 to substitute the reference to regional reliability organization with regional entity. • 1797 — Address concerns with footnote (a) of Table 1 with regard to applicability of emergency ratings and consistency of normal ratings and voltages with values obtained from other reliability standards and concerns raised by International Transmission with regard to the footnotes in Table 1 • 1786 — Require assessments of outages of critical long lead time equipment, consistent with an entity's spare equipment strategy • 1719 — Consider appropriate revisions to the reliability standards to deal with cyber security events. • Entities that have planned and designed their systems on the basis of a different approach to single contingencies should work with NERC in developing plans to transition to this new approach. • 1716 — System performance should be assessed based on contingencies that mimic what happens in real-time. • 1694, 1704, & 1706 — Consider the full range of variables when determining critical system conditions but only those deemed to be significant need to be assessed and documentation provided that explain the rational for selection. • 1693 — Submit an informational filing, in addition to regional criteria, all utility and RTO/ISO differences in transmission planning criteria that are more stringent than those specified by the TPL standards. • Consider integrating TPL-001 through TPL-004 into one standard.
Fill in the Blank Team	No action needed

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Phase III/IV Team	• Add a requirement to identify where UVLS should be installed • Add a requirement to verify that there are sufficient reactive resources
Team Comments	• Provide clarity where the Planning Authority is mentioned
Version 0 Team	• Table 1 — C.5 goes beyond double circuit outage criteria • Table 1, items 6, 7, 8 & 9 need footnote stating that they do not apply to generator breaker failure • What is a major load center? • Need to include multiple time frames • Does planned facilities include just those under construction? • Having all projected firm transfers modeled may not be practical to achieve in a single shapshot of a powerflow model. The requirement should allow engineering judgment to determine the appropriate level of system utilization to assess reliability considering all projected firm uses. • Define critical system conditions • Need to address deliverability to load • Clarify use of applicable ratings in Table 1, note 'a' • Clarify timing for submittal of corrective plan • Several semantic issues • Table 1, note 'b' — clarify when to curtail firm deliveries
VRFs Team	R1 — time horizon should be long-term planning
TPL-002-0 — System Performance Following Loss of a Single Bulk Electric System Element (Category B)	
FERC Order 693	• 1694, 1704, & 1706 — Determine critical system conditions in the same manner as proposed in TPL-001. • 1787 — Requires all generators to ride through the same set of category B and C contingencies as required by wind generators in Order No. 661, or to simulate without this capability as tripping. • 1786 — Requires assessment of planned outages of long lead time critical equipment consistent with the entity's spare equipment strategy. • 1789 — Document the load models used in system studies and the rationale for their use. • 1773 — Clarify the phrase "permit operating steps necessary to maintain system control" in the footnote (a) and the use of emergency ratings. • 1773 — Clarifies footnote (b) in regard to load loss following a single contingency specifying the amount and duration of consequential load loss and system adjustments permitted after the first contingency to return the system to a normal operating state. NERC should consider this through its standard development process. • 1773 — Footnote (b) should not allow for firm load shedding or curtailment of firm transfers as part of the system adjustments. • 1788 — Consider NRC's comments regarding clarifying the N-1 state as being always

Source	Language
	applicable to the current conditions as part of the standards development process. • 1794 — Standard should be clarified to not allow an entity to plan for the loss of non-consequential load in the event of a single contingency.
Phase III/IV Team	• Add a requirement to verify that there are sufficient reactive resources • Add a requirement to identify where UVLS should be installed
Team Comments	• Provide clarity where the Planning Authority is mentioned
Version 0 Team	• Don't include planning outage • Don't include generation runback or redispatch • Address deliverability of generation to load • Clarify timing for corrective plan • Define critical system conditions • Single terminals are not included • Must study all contingencies and multiple demand levels & time frames • Clarify applicable ratings in Table 1, note 'a'
Other	Incorporate approved formal interpretation
VRFs Team	Time horizon should be long-term planning and R2.2 — redundant with R1.3.8
TPL-003-0 — System Performance Following loss of Two or More Bulk Electric System Elements (Category C)	
FERC Order 693	• 1769 — Address LPPA's concerns on changes to footnotes of Table 1 through the standard development process. • 1788 — Address NRC concerns as described in TPL-002 through the standards development process. • 1824 — Consider the comments on major load pockets as part of the standards development process. • 1821 — Tailor the purpose statement to reflect the specific goal of the standard. • 1820 — Applicable entities must define and document the proxies necessary to simulate cascading outages. • 1765 — Determine critical system conditions in the same manner as proposed in TPL-001. • 1806 — Clarify the term "controlled load interruption".
Fill in the Blank Team	No action required
Phase III/IV Team	• Add a requirement to identify where UVLS should be installed • Add a requirement to verify that there are sufficient reactive resources • Add a requirement to identify where UVLS should be installed
Team Comments	Provide clarity where the Planning Authority is mentioned
Version 0 Team	• Development of mitigation plans requires subsequent studies, and may actually be done by a different entity than the entity performing the assessment (the TO instead of the RTO who may have done the assessment) • Clearly identify outages

Source	Language
	• Use NERC Compliance Reporting Process • Don't base penalties on low probability, low consequence events • TO should provide plan of action • Same as TPL-001 & 002
VRFs Team	• R2.2 — lack of consistency with TPL-001 & TPL-007 • R2.1.3 — lack of consistency with TPL-001 & TPL-006 • R2.1.2 — lack of consistency with TPL-001 & TPL-005 • R2.1.1 — lack of consistency with TPL-001 & TPL-004 • R2.1 — lack of consistency with TPL-001 • R2 — lack of consistency with TPL-001 & TPL-002 • Time horizon should be long-term planning
TPL-004-0 — System Performance Following Extreme Events Resulting in the Loss of Two or More Bulk Electric System Elements (Category D)	
FERC Order 693	• 1835 — Tailor the purpose statement to reflect the specific goal of the standard. • 1765 — Determine critical system conditions in the same manner as proposed in TPL-001. • 1836 — Identify options for reducing the probability or impacts of extreme events that cause cascading. • 1836 — Expand the list of category D events to include recent actual events.
Fill in the Blank Team	No action required
Phase III/IV Team	• Add a requirement to identify where UVLS should be installed • Add a requirement to verify that there are sufficient reactive resources
Team Comments	Provide clarity where the Planning Authority is mentioned
Version 0 Team	• R1.3.9 — remove from extreme events • TO should determine which events to study • Perform analysis on credible contingency • Same as TPL-001
TPL-005-0 — Regional and Interregional Self-Assessment Reliability Reports	
FERC Order 693	1841 — Encourages NERC to utilize input from the Commission's technical conferences on regional planning as directed in Order No. 890 to improve this standard.
Fill in the Blank Team	New SAR needed
Version 0 Team	• An RRO can't make a mandatory request for another RRO to perform a study • Define fuel adequacy
TPL-006-0 — Assessment Data from Regional Reliability Organizations	
Fill in the Blank Team	No action required

Project 2006-04 Backup Facilities

Standards Involved:
EOP-008-0 — Plans for Loss of Control Center Functionality

Research Needed:
A study of backup capabilities needed to support reliable operations is required.

Brief Description:
The requirements in EOP-008 need additional specificity. The development revision to EOP-008 may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards. In addition, the efforts of the OC Backup Control Center Task Force will be used as one of the inputs to the revision of EOP-008. Also, there may be backup facility requirements in some other standards, and those requirements should be considered for movement into this standard.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2006-04 Backup Facilities Web page

Project Schedule:
Project 2006-04 Schedule

Standard Drafting Team Roster:

Chairman	Samuel Brattini	KEMA Consulting
Vice Chairman	Michael Schiavone	Niagara Mohawk Power Corp.
	Tom Bowe	PJM Interconnection, L.L.C.
	Blaine R. Dinwiddie	Omaha Public Power District
	Charles W. Jenkins	Oncor Electric Delivery
	Glenn Kaht	ReliabilityFirst Corporation
	Barry R. Lawson	National Rural Electric Cooperative Association
	Sara McCoy	SRP
	Melinda K. Montgomery	Entergy Services, Inc.
	Keith Porterfield	Georgia Systems Operations Corporation
	John Procyk	Hydro One, Inc.
	James Vermillion	Associated Electric Cooperative, Inc.
NERC Staff	Edward J. Dobrowolski	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
EOP-008-0 — Plans for Loss of Control Center Functionality	
FERC Order 693	• 672 — Provide for backup capabilities that, at a minimum, must include a requirement that all reliability coordinators have full backup control centers; • Include a requirement that provides for backup capabilities that, at a minimum, must: • 672 — Provide for backup capabilities that, at a minimum, must provide that the extent of the backup capability be consistent with the impact of the loss of the entity's primary control center on the reliability of the bulk power system. • 651 — Provide for backup capabilities that, at a minimum, must provide for a minimum functionality to replicate the critical reliability functions of the primary control center. • Provide for backup capabilities that, at a minimum, must be independent of the primary control center • 672 — Provide for backup capabilities that, at a minimum, must require transmission operators and balancing authorities that have operational control over significant portions of generation and load to have minimum backup capabilities discussed above but may do • 651 — Provide for backup capabilities that, at a minimum, must be capable of operating for a prolonged period of time, generally defined by the time it takes to restore the primary control center.
Fill in the Blank Team	No comments
NERC Audit Observation Team	Compliance levels don't align with the measures or requirements
Version 0 Team	• Max. time to restore capabilities • How is backup control achieved? • How does staff know control center is lost? (Note — A system health monitor concept or equivalent functionality is what is desired here.)
VRFs Team	• R1.1 — Not having a written plan is unlikely, under emergency, abnormal, or restoration conditions anticipated by the preparations, to lead to bulk electric system instability, separation, or cascading failures, nor to hinder restoration to a normal condition. • R1 — Not having a written plan does not directly cause or contribute to bulk electric system instability, separation, or a cascading sequence of failures, or could place the bulk electric system at an unacceptable risk of instability, separation, or cascading

Project 2006-06 Reliability Coordination

Standards Involved:
COM-001-1 — Telecommunications
COM-002-2 — Communications and Coordination
IRO-001-1 — Reliability Coordination — Responsibilities and Authorities
IRO-002-1 — Reliability Coordination — Facilities
IRO-005-2 — Reliability Coordination — Current-Day Operations
IRO-014-1 — Procedures to Support Coordination between Reliability Coordinators
IRO-015-1 — Notifications and Information Exchange Between Reliability Coordinators
IRO-016-1 — Coordination of Real-time Activities between Reliability Coordinators

Research Needed:
None

Brief Description
Most of the requirements in this set of standards were translated from Operating Policies as part of the Version 0 process. There have been suggestions for improving these requirements, and the drafting team will consider comments submitted by stakeholders, drafting teams and FERC in determining what changes should be proposed to stakeholders.

The drafting team will review all of the requirements in this set of standards and make a determination, with stakeholders, on whether to:

- Modify the requirement to improve its clarity and measureability while removing abiguity Move the requirement (into another SAR or Standard or to the certification process or standards)
- Eliminate the requirement (either because it is redundant or because it doesn't support bulk power system reliability).

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2006-06 Reliability Coordination Web page

Project Schedule:
Project 2006-06 Schedule

Standard Drafting Team Roster:

Chairman	Mike Hardy	Southern Company Services, Inc.
	Earl A. Barber	National Grid
	Timothy A. Beach	American Transmission Company, LLC
	Paul Bleuss	California/Mexico Reliability Coordinator (CMRC)
	James S. Case	Entergy Services, Inc.
	Albert DiCaprio	PJM Interconnection, L.L.C.
	Anthony Jankowski	We Energies
	Allan D. Miller	Independent Electricity System Operator
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Robert C. Rhodes, Jr.	Southwest Power Pool
NERC Staff	Stephen Crutchfield	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
COM-001-1 — Telecommunications	
FERC Order 693	"Include generator operators and distribution providers in the list of applicable entities and create appropriate requirements for them. Paragraph 487. The Commission reaffirms its position that generator operators and distribution providers should be included as applicable entities in COM-001-1 to ensure there is no reliability gap during normal and emergency operations. For example, during a blackstart when normal communications may be disrupted, it is essential that the transmission operator, balancing authority and reliability coordinator maintain communications with their distribution providers and generator operators. However, the current version of Reliability Standard COM-001-1 does not require this because it does not include generator operators and distribution providers as applicable entities. We clarify that the NOPR did not propose to require redundancy on generator operators' or distribution providers' telecommunication facilities or that generator operators or distribution providers be trained on anything not related to their functions during normal and emergency conditions. We expect the telecommunication requirements for all applicable entities will vary according to their roles and that these requirements will be developed under the Reliability Standards development process."
	"Specify requirements for using telecommunication facilities during normal and emergency conditions that reflect the roles of the applicable entities and their impact of reliable operation, and include adequate flexibility. Paragraph 490. In response to SDG&E, the Commission's intent is not to subject generator operators and distribution providers to the same requirements placed on transmission operators. As part of the modification of this Reliability Standard or development of a new Reliability Standard to include the appropriate telecommunications facility requirements for generator operators and distribution providers, the ERO should take into account what would be required of generator operators and distribution providers in terms of telecommunications for the Reliable Operation of the Bulk-Power System, instead of applying the same requirements as are placed on other reliability entities such as reliability coordinators, balancing authorities and transmission operators."
	Address TAPS, Entergy, Six Cities, and FirstEnergy concerns through the standard development process. TAPS Paragraph 483. TAPS states that Requirement R1.4 has an ambiguous requirement that, if applied to distribution providers and generator operators, would impose redundancy requirements well beyond what is reasonably necessary for Bulk-Power System reliability. Further it asserts that the NOPR provides no basis for expanding the Reliability Standard to small entities, such as a 2-MW distribution provider or generator, much less than one that has no connection to the bulk transmission system. Finally, TAPS contends that, in making this proposal, the Commission is "over-stepping its bounds" by not leaving it to the ERO's expert judgment whether COM-001-1 has sufficient coverage to protect Bulk-Power System reliability and states that, in any event, applicability should be limited through NERC's registry criteria and definition of bulk electric system.
	"Address TAPS, Entergy, Six Cities, and FirstEnergy concerns through the standard development process. Entergy Paragraph 499. Entergy states that it is unclear what cyber assets are covered by COM-001-0. Entergy believes that the Reliability Standard should focus on telecommunications that support the operation of critical assets. Entergy also believes that COM-001-0 should be expanded to include advances in communications technology. It states that NERC should consider addressing the following in a way that will

Source	Language
	facilitate an understanding of the Reliability Standards' requirements: (1) voice communications; (2) command and control data communications; (3) security coordination data communications; (4) digital messaging communications; (5) human linguistic convention and (6) other types of communications, including video conferencing and communications with remote security cameras. Entergy believes that this could be accomplished through an enhancement to the definition of communications in the NERC glossary and recasting COM-001-0 to improve the specificity of requirements for each form of communication. Finally, Entergy believes that Requirement R4 of COM-001-0, which requires reliability coordinators, transmission operators and balancing authorities to use English in all types of communications, should apply only to verbal and written communications."
	Address TAPS, Entergy, Six Cities, and FirstEnergy concerns through the standard development process. Six Cities Paragraph 501. Six Cities is concerned that the scope of improper conduct under the "NERCNet security policy" in Attachment 1 is virtually limitless. Six Cities recognizes that it would be difficult to provide a comprehensive and detailed list of all conduct that might be considered a misuse of NERCNet data, but that difficulty does not justify exposing NERCNet users to the risk of monetary penalties based on amorphous and unbounded descriptions of potentially violative conduct. Six Cities states that one solution would be to limit the imposition of monetary penalties for misuse of NERCNet data to instances where such misuse is intentional or grossly egligent. According to Six Cities, it would be appropriate to exact a monetary penalty where a NERCNet user deliberately uses NERCNet data for unauthorized or unreasonable purposes. Six Cities asks that it be modified to provide for a warning for the improper disclosure of NERCNet data where the disclosure was not intentional or grossly negligent.
	Address TAPS, Entergy, Six Cities, and FirstEnergy concerns through the standard development process. First Energy Paragraph 500. FirstEnergy asserts that the Requirement R2 is unclear because it does not specify whether the phrase "telecommunication facilities" covers both voice and data facilities in the context of alarms. It states that, although the word "telecommunications facilities" is generally understood to mean both voice and data facilities, the current practice is to display alarms only for data facilities. Requirement R2 could be misinterpreted to require alarms on voice facilities as well, which would be impractical.
NERC Standards DT Coordinators Meeting 20080520	COM-001-1 Telecommunications is being reviewed and revised under Project 2006-06 Reliability Coordination; however, it has been agreed that all requirements of COM-001-1 except R4 will be addressed by the SDT for Project 2006-06 and that requirement R4 will be addressed by the SDT for Project 2007-02 Operating Personnel Communications Protocols. If either part of this agreement is not maintained, COM-001-1 will need revisited.
Version 0 Team	• Apply R1 to all but smallest entities • Many players missing • Redundant with Policy 5A, R1
VRFs Team	R6 — administrative requirement
COM-002-2 — Communications and Coordination	
NERC Standards DT Coordinators Meeting 20080520	COM-002-2 Communication and Coordination is being reviewed and revised under both Project 2006-06 Reliability Coordination and Project 2007-02 Operating Personnel Communications Protocols; however, it has been agreed that: •Requirement R1will be addressed by the SDT for Project 2006-06 and •Requirement R2 will be addressed by the SDT for Project 2007-02 Operating Personnel Communications Protocols. If either part of this agreement is not maintained, COM-002-2 will need revisited.

Source	Language
IRO-001-1 — Reliability Coordination — Responsibilities and Authorities	
FERC Order 693	Consider commenter's' suggestions as part of the standards development process. 895. California Cogeneration comments that the Reliability Standard fails to address the operational limitations of QFs because they have contractual obligations to provide thermal energy to their industrial hosts. It contends that a QF can be directed to change operations only in the case of a system emergency, pursuant to 18 CFR § 292.307.
	Consider adding measures and levels of non-compliance. Paragraph 897. While APPA, FirstEnergy and California Cogeneration suggest possible changes to IRO-001-1, they do not suggest that the proposed Reliability Standard should not be approved. The ERO should consider the commenter's' suggestions when modifying the Reliability Standard pursuant to its Reliability Standards development process. Further, the Commission directs the ERO to consider adding Measures and Levels of Non-Compliance in the Reliability Standard as requested by APPA.
	Consider commenter's' suggestions as part of the standards development process. Paragraph 892. APPA supports the approval of the Reliability Standard but expresses concern that the Version 1 standard does not include Measures that correspond to Requirements R2 and R9. APPA emphasizes the need for Measures corresponding to Requirement R9, which requires the reliability coordinator to act in the interests of reliability for the overall reliability coordinator area and the Interconnection before the interests of any other entity. APPA supports Requirement R8 with the extended applicability, provided that applicability is determined by reference to the NERC compliance registry. APPA agrees that the regional reliability organization should be eliminated as an applicable entity and suggests it be replaced with Regional Entities.
	Eliminate the references to the regional reliability organization as an applicable entity. Paragraph 896. In the NOPR, the Commission proposed to approve the Reliability Standard as mandatory and enforceable. In addition, as a separate action under section 215(d)(5), the NOPR proposed to direct the ERO to develop modifications to Requirement R1291 to substitute "Regional Entity" for "regional reliability organization" and reflect NERC's Rules of Procedure for registering, certifying and verifying entities, including reliability coordinators. Commenter's do not raise any concerns regarding the proposed action. Accordingly, for the reasons stated in the NOPR, the Commission approves IRO-001-1 as mandatory and enforceable. In addition, for the reasons discussed in the NOPR, the Commission directs the ERO to develop modifications to the Reliability Standard through the Reliability Standards development process that reflect the process set forth in the NERC Rules of Procedures and eliminate the regional reliability organization as an applicable entity.
	Consider commenter's' suggestions as part of the standards development process. 893. FirstEnergy suggests that NERC clarify whether Requirement R8, which requires entities to comply with a reliability coordinator directive "unless such actions would violate safety, equipment or regulatory or statutory requirements," refers to personnel safety, equipment safety or both. In addition, it suggests the establishment of a chain of command so that, for example, if a generator receives conflicting instructions from a balancing authority and a transmission operator, it can determine which instruction governs.
	Consider commenter's' suggestions as part of the standards development process. 894. Requirement R3 provides that a reliability coordinator "shall have clear decision making authority to act and direct actions to be taken" by applicable entities to "preserve the integrity and reliability of the Bulk Electric System and these actions shall be taken without delay but no longer than 30 minutes." Santa Clara contends that some actions would require driving to a remote site and therefore, mandating completion of the required action within 30 minutes would be unreasonable. Thus, it recommends that NERC modify Requirement R3 to provide

Source	Language
	that “actions shall commence without delay, but in any event shall commence within 30 minutes.”
FERC’s December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC’s December 20, 2007 Order, the Commission reversed NERC’s Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a “reliability gap” if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC’s December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC’s March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC’s April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC’s July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Fill in the Blank Team	• Remove ", sub-region, or interregional coordinating group" from R1 • Consider removing "Standards of conduct are necessary to ensure the Reliability Coordinator does not act in a manner that favors one market participant over another." from the Purpose section of the standard.
NERC Audit Observation Team	All applicable registered functions shall comply with RC directives unless such actions would violate safety, equipment or regulatory or statutory requirements. Inform the RC immediately of the inability to perform such directives. For audit purposes, what is acceptable evidence?
Version 0 Team	• Inability to perform needs to be communicated • What is meant by ‘interest of other entity’? • What is meant by ‘interest of other entity’?
VRFs Team	• R6 - Since the RC must be NERC certified, it stands to reason that anyone performing RC tasks should be certified. However, since the RC still retains the accountability for actions, and requirement 4 handles the agreements, this requirement is a medium risk. • R6 - Since the RC must be NERC certified, it stands to reason that anyone performing RC tasks should be certified. However, since the RC still retains the accountability for actions, and requirement 4 handles the agreements, this requirement is a medium risk.
IRO-002-1 — Reliability Coordination — Facilities	
FERC Order 693	"Require a minimum set of tools that must be made available to the reliability coordinator. Paragraph 905. Further, consistent with the NOPR, the Commission directs the ERO to modify IRO-002-1 to require a minimum set of tools that must be made available to the reliability coordinator. We believe that this requirement will ensure that a reliability coordinator has the tools it needs to perform its functions. Further, as noted by Dominion, such a requirement promotes a more proactive approach to maintaining reliability."

Source	Language
Version 0 Team	• Words such as 'easily understood' and 'particular emphasis' need to be tightened • R7 — define 'adequate' tools and 'wide-area' • R5 — define synchronized information system
IRO-005-1 — Reliability Coordination — Current-Day Operations	
FERC Order 693	Include measures and levels of non-compliance.
	"Conduct a survey on IROL practices and actual operating experiences by requiring reliability coordinators to report any violations of IROLS, their causes, the date and time, the durations and magnitudes in which actual operations exceeds IROLs to NERC. Paragraph 951. Accordingly, the Commission approves Reliability Standard IRO-005-1 as mandatory and enforceable. Further, because IRO-005-1 has no Measures or Levels of Non-Compliance, pursuant to section 215(d)(5) of the FPA and § 39.5(f) of our regulations, the Commission directs the ERO to develop a modification to IRO-005-1 through the Reliability Standards development process that includes Measures and Levels of Non-Compliance. The Commission further directs that the Measures and Levels of Non-Compliance specific to IROL violations must be commensurate with the magnitude, duration, frequency and causes of the violations and whether these occur during normal or contingency conditions. Finally, the Commission directs the ERO to conduct a survey on IROL practices and actual operating experiences by requiring reliability coordinators to report any violations of IROL, their causes, the date and time, the durations and magnitudes in which actual operations exceeds IROLs to the ERO on a monthly basis for one year beginning two months after the effective date of the Final Rule. We may propose further modifications to IRO-005-1 based on the survey results."
	"Measures and levels of non-compliance specific to IROL violations must be commensurate with the magnitude, duration, frequency, and causes of the violations and whether these occur during normal or contingency conditions. Paragraph 951. Accordingly, the Commission approves Reliability Standard IRO-005-1 as mandatory and enforceable. Further, because IRO-005-1 has no Measures or Levels of Non-Compliance, pursuant to section 215(d)(5) of the FPA and § 39.5(f) of our regulations, the Commission directs the ERO to develop a modification to IRO-005-1 through the Reliability Standards development process that includes Measures and Levels of Non-Compliance. The Commission further directs that the Measures and Levels of Non-Compliance specific to IROL violations must be commensurate with the magnitude, duration, frequency and causes of the violations and whether these occur during normal or contingency conditions. Finally, the Commission directs the ERO to conduct a survey on IROL practices and actual operating experiences by requiring reliability coordinators to report any violations of IROL, their causes, the date and time, the durations and magnitudes in which actual operations exceeds IROLs to the ERO on a monthly basis for one year beginning two months after the effective date of the Final Rule. We may propose further modifications to IRO-005-1 based on the survey results."
	"Provide further clarification that reliability coordinators and transmission operators direct control actions, not LSEs as part of the standard development process. Paragraph 950. We do not share TAPS' concern regarding LSEs initiating load shedding as their own control action to respect IROLs or SOLs. The appropriate control actions to respect IROLs and SOLs are the responsibilities of a reliability coordinator and transmission operator. If load shedding is required, it is the responsibility of a reliability coordinator or a transmission operator to direct the appropriate entities including LSEs to carry it out. However, we urge the ERO to provide further clarification in this regard and include TAPS' concern in developing the modification of this Reliability Standard."
Fill in the Blank Team	R14 has regional reference

Source	Language
Version 0 Team	R10, 11 & 12 — RA not empowered to do this
IRO-016-1 — Coordination of Real-Time Activities Between Reliability Coordinators	
VRFs Team	R1.2.1 & R2 — ambiguous

Project 2006-08 Transmission Loading Relief

Standards Involved:
IRO-006-4 — Reliability Coordination — Transmission Loading Relief

Research Needed:
None

Brief Description:
This is a project that is carried over from 2006. This project involves a coordinated effort with NAESB to clarify and refine the requirements in the standard and identify which requirements are needed to support reliability and which requirements are needed to support a business practice. Related to this project, NERC's IDC Working Group (IDCWG) is in the process of identifying changes to the Interchange Distribution Calculator such that it will accept market data, thus eliminating the need for the existing regional differences and to make other necessary modifications as identified by stakeholders. NAESB and the IDCWG are working collaboratively with the NERC Reliability Coordinator Working Group in order to ensure both commercial needs and reliability needs are met.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual plan):
Annual Plan Item 1.b
Justification for NAESB consideration:
FERC Order 890

SRS Recommendation:
This project is already covered by current NAESB WEQ projects. NERC should take into consideration WEQ Annual Plan Item 1.b in the development of the NERC Standard. Coordination between NERC and NAESB is in progress.

Standard Development Status:
Project 2006-08 Transmission Loading Relief Web page

Project Schedule:
Project 2006-08 Schedule

Standard Drafting Team Roster:

Chairman	P.S. (Ben) Li	Ben Li Associates, Inc.
	Daryn Barker	E.ON-US Energy Services Inc.
	Bill Blevins	Electric Reliability Council of Texas, Inc.
Vice Chair	James Busbin	Southern Company Services, Inc.
	James Eckelkamp	Progress Energy
	Robert Paul Humberson	Western Area Power Administration - Rocky Mountain Region
	Frank J. Koza	PJM Interconnection, L.L.C.
	David F. Lemmons	Xcel Energy, Inc.
	Thomas J Mallinger, P.E.	Midwest ISO, Inc.
	Dave Marton	FirstEnergy Solutions
	Narinder K. Saini	Entergy Services, Inc.
	Don Shipley	Southwest Power Pool
NERC Staff	Andrew J. Rodriquez	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
NAESB Standards Review Subcommittee	NAESB Standards Review Subcommittee as input to the Reliability Standards Development Plan: 2010-2012: NAESB requests that NERC continue its coordination with NAESB on this project.
IRO-006-3 — Reliability Coordination — Transmission Loading Relief	
FERC Order 693	Regional Difference to IRO-006: PJM/MISO/SPP Enhanced Congestion Management: Allow the NERC Operating Committee to address the technical merits of netting flow impacts in the interchange distribution calculator.
	Regional Difference to IRO-006: PJM/MISO/SPP Enhanced Congestion Management: Instructs the RTOs to continue working with the non-market regions to develop revised seams agreements that allow for equitable and feasible treatment of market flows in the NERC TLR/redispatch process.
	Regional Difference to IRO-006: PJM/MISO/SPP Enhanced Congestion Management: Commission will allow the twelve-month PJM/MISO/SPP field test to conclude before taking further action on the variance.
	Include a clear warning that TLR procedures are not appropriate and not effective to mitigate an actual IROL violation.
	Modify the WECC and ERCOT load relief procedures to ensure consistency with the standard form of the reliability standard including requirements, measures, and levels of non-compliance.
	Identifies the available alternatives to mitigate an IROL violation other than the use of the TLR procedure. Consider the suggestions of MidAmerican and Xcel when developing the modification.
FERC Order 890	659 This is consistent with our determination that conditional firm service when it is conditional is curtailable only to maintain reliable operation of the transmission system.
	660 We are cognizant that daily and hourly operations to change the tags for conditional firm customers likely involve the need for control room coordination and development of an appropriate tracking process. As the Commission described in the NOPR, new tracking and tagging business practices for this service must be developed by each transmission provider. Thus, we are allowing a sufficient period for the development of these business practices, i.e., 180 days from the date of publication of this Final Rule in the Federal Register. As directed above, transmission providers must coordinate with other transmission providers in their regions to develop these tracking and tagging business practices.
	1074. We adopt a secondary network curtailment priority to apply for the hours or specific system conditions when conditional firm service is conditional. During non-conditional periods, conditional firm service is subject to pro rata curtailment consistent with curtailment of other long-term firm service. Thus, secondary network service and conditional firm service when it is conditional will share the same curtailment priority. Also, there is no conflict with reliability standards because conditional firm service will be subject to pro rata curtailment with all other firm uses of the system once conditional curtailment hours, if that is the option selected, are exhausted.
	1075. The secondary network curtailment priority is appropriate because the customer is

Source	Language
	paying the long-term firm point-to-point rate and thus should receive the highest non-firm curtailment priority during the conditional curtailment hours or during specified system conditions. Adoption of this curtailment priority overcomes what could otherwise be significant implementation hurdles. It allows for implementation of the service without changes to existing NERC TLR practices. NERC and members of the industry need not undertake the time-consuming and expensive process of establishing a new curtailment priority that is between firm and non-firm service as some commenter's requested. Use of this curtailment priority also avoids attendant decisions relating to the method of curtailment that should apply, i.e., pro rata or transactional curtailment, for a quasi-firm curtailment priority. It is also consistent with existing interruption provisions of the pro forma OATT which provide that secondary service cannot be interrupted for economic reasons.
	1076. We reject EEI's argument that the curtailment priority for conditional firm service is inconsistent with Commission precedent regarding priority non-firm service only for network customers. EEI's argument is inapposite. Long-term firm point-to-point customers taking fully firm service without the conditional firm option do not need access to priority non-firm service as EEI suggests. They have assurance that their service will not be interrupted for economic reasons and will only be curtailed on a comparable basis with network service. This would not be the case for conditional firm customers. We also find that EEI has failed to explain the connection between the conditional firm transmission service and the availability of reliability redispatch options ,i.e., generators on its system that can ramp up or down in response to a curtailment. We reject Powerex's request that transmission providers be required to show that existing long-term rights are protected. Each addition of a new long-term firm transaction impacts the rights of existing firm customers to some extent.
	1077. We disagree with commenter's' suggestion that the NERC IDC must be changed to accommodate conditional firm service. We reiterate that we are not creating a new curtailment priority in this Final Rule. We also disagree that new tags that combine a firm and non-firm priority must be developed in order to implement the conditional firm option. The curtailment priority in a tag can be changed ahead of the operating hour based on a near-term forecast of system conditions.660 We are cognizant that daily and hourly operations to change the tags for conditional firm customers likely involve the need for control room coordination and development of an appropriate tracking process. As the Commission described in the NOPR, new tracking and tagging business practices for this service must be developed by each transmission provider. Thus, we are allowing a sufficient period for the development of these business practices, i.e., 180 days from the date of publication of this Final Rule in the Federal Register. As directed above, transmission providers must coordinate with other transmission providers in their regions to develop these tracking and tagging business practices.
	1077. We disagree with commenter's' suggestion that the NERC IDC must be changed to accommodate conditional firm service. We reiterate that we are not creating a new curtailment priority in this Final Rule. We also disagree that new tags that combine a firm and non-firm priority must be developed in order to implement the conditional firm option. The curtailment priority in a tag can be changed ahead of the operating hour based on a near-term forecast of system conditions.
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT should review the definition of the following term and coordinate with NAESB so that the definition is consistent between NERC and NAESB: Reallocation
Version 0 Team	• Usage of TLR log questioned • Some inconsistencies with current usage

Source	Language
VRFs Team	• R2.1, .2 & .3 — not a requirement, just a suggested instruction • R6 — redundant
TLR Family	
Other	Gerry, Hey, I was looking something up in the standards and I couldn't find a definition for "TLR." I ended up downloading the whole set of standards and doing a search. I finally found it. Should TLR be included in the glossary? Kevin J. Conway NERC Reliability Readiness Evaluator North American Electric Reliability Corporation 116-390 Village Blvd. Princeton, NJ 08540-5721 Cellular Phone: 509-750-5441 kevin.conway@nerc.net

Project 2007-01 Underfrequency Load Shedding

Standards Involved:
PRC-006-0 — Development and Documentation of Regional ULS Program Requirements
PRC-007-0 — Assuring Consistency with Regional UFLS Programs
PRC-009-0 — UFLS Performance Following an Underfrequency Event

Research Needed:
None

Brief Description:
PRC-006 is one of the few reliability standards identified by the Regional Reliability Standards Working Group as a standard that has some requirements that need to be defined by each regional entity in a regional standard.

The standard drafting team (SDT) will work with stakeholders to review PRC-006 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the UFLS program documentation. The SDT shall determine which requirements should be continent-wide requirements and which requirements should be included in regional standards.

PRC-007 and PRC-009 have some 'fill-in-the-blank' characteristics, as identified in the Regional Reliability Standards Working Group work plan, which need to be removed. These standards shall be included with PRC-006 for consideration as one or more revised standards as necessary for consistency and clarity of overall program requirements and any other associated programs and/or requirements that affect or impact the UFLS program.

The standard drafting team may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standard Development Status:
Project 2007-01 Underfrequency Load Shedding Web page

Project Schedule:
Project 2007-01 Schedule

Standard Drafting Team Roster:

Chairman	Philip J. Tatro, P.E.	National Grid USA
	Paul Attaway	Georgia Transmission Corporation
	Brian D. Bartos	Bandera Electric Cooperative
	Scott Berry	Indiana Municipal Power Agency
	Brian Evans-Mongeon	Utility Services LLC
	Frank Gaffney	Florida Municipal Power Agency
	Jonathan Glidewell	Southern Company Transmission Company
	Gerald Keenan	Northwest Power Pool Corporation
	Robert W. Millard	ReliabilityFirst Corporation
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Mak Nagle	Southwest Power Pool
	Robert J. O'Keefe	American Electric Power
	Si Truc Phan	Hydro-Québec TransEnergie
	Tony Rodrigues, P.E.	PacifiCorp
NERC Staff	Robert W Cummings	North American Electric Reliability Corporation
NERC Staff	Stephanie Monzon	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
PRC-006-0 — Development and Documentation of Regional ULS Program Requirements	
FERC Order 693	Transfer responsibility from the regional reliability organization to the regional entity.
Fill in the Blank Team	• Modify R1 to require each Region to develop a regional standard, and • Development of regional standards needs to be coordinated with Regional entities. Regional entities should begin process for developing regional standards once the drafting team for the North American standard has determined what elements of UFLS should be included in the continent-wide standard and what elements should be included in the regional standards. • Determine what elements (if any) of UFLS should be included in the North American standard and what elements should be included in the regional standards. • Related PRC-007, PRC-008, and 009. • PRC-006 will be a continent-wide standard supported by Regional Reliability Standards.
Version 0 Team	• Not a standalone standard • Who do you submit compliance material to? • Need to define evidence
PRC-007-0 — Assuring Consistency with Regional UFLS Programs	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Fill in the Blank Team	• The regional procedures need to be converted to a standard to implement this. • Change "program" to "standard" in R1. • Coordinated with PRC-006.
Version 0 Team	• Need to refine levels of non-compliance • Need to include RA

PRC-009-0 — UFLS Performance Following an Underfrequency Event	
Fill in the Blank Team	• See notes for PRC-007. • Change "program" to "standard'.
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Version 0 Team	• Exemptions for those with shunt reactors who don't shed load • 90 days vs. 30 days • Define evidence

Project 2007-02 Operating Personnel Communications Protocols

Standards Involved:
COM-002-2 — Communications and Coordination

Research Needed:
None

Brief Description:
This is a new project that was identified in support of a blackout recommendation #26. This standard will require the use of specific communication protocols, especially for communications during alerts and emergencies. The standard will be applicable to transmission operators, balancing authorities, reliability coordinators, generator operators and distribution providers.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standard Development Status:
Project 2007-02 Operating Personnel Communications Protocols Web page

Project Schedule:
Project 2007-02 Schedule

Standard Drafting Team Roster:

Chairman	Lloyd S. Snyder	Georgia Systems Operations Corporation
	Alan N. Allgower	Electric Reliability Council of Texas, Inc.
	Harvie D. Beavers	Colmac Clarion/Piney Creek LP
	Mark L. Bradley	ITC Transmission
	Mike Brost	JEA
	William D Ellard	California ISO
	Ronald Goins	Midwest ISO, Inc.
	Leanne Harrison	PJM Interconnection, L.L.C.
	Tom Irvine	Hydro One Networks, Inc.
	James McGovern	ISO New England, Inc.
	Wayne Mitchell	Entergy Corporation
	John Stephens	City Utilities of Springfield
	Fred Waites	Southern Company
NERC Staff	Larry J. Kezele	North American Electric Reliability Corporation
NERC Staff	Harry Tom	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
COM-001-1 — Telecommunications	
NERC Standards DT Coordinators Meeting 20080520	COM-001-1 Telecommunications is being reviewed and revised under Project 2006-06 Reliability Coordination; however, it has been agreed that all requirements of COM-001-1 except R4 will be addressed by the SDT for Project 2006-06 and that requirement R4 will be addressed by the SDT for Project 2007-02 Operating Personnel Communications Protocols. If either part of this agreement is not maintained, COM-001-1 will need revisited.
COM-002-2 — Communications and Coordination	
FERC Order 693	• Address APPA's concern through the standard development process. • Address Santa Clara, FirstEnergy, and Six Cities concerns in the reliability standards development process. • Consider Xcel's suggestion that the entity taking operating actions should not be held responsible for the delays caused by the reliability coordinator's assessment and approval. • Establish tightened communication protocols, especially for communications during alerts and emergencies. Establish uniformity to the extent practical on a continent-wide basis. • Include a requirement for the reliability coordinator to assess and approve only those actions that have impacts beyond the area views of the transmission operators and balancing authorities. Include how to determine whether an action needs to be assessed by the reliability coordinator. • Include APPA's suggestions to complete the measures and levels of non-compliance. • Include distribution providers in the list of applicable entities.
NERC Standards DT Coordinators Meeting 20080520	• "COM-002-2 Communication and Coordination is being reviewed and revised under both Project 2006-06 Reliability Coordination and Project 2007-02 Operating Personnel Communications Protocols; however, it has been agreed that: •Requirement R1will be addressed by Project 2006-06" • Requirements R1, R3, R4, and R5 (for coordination in planning time frame) of PRC-001-1 System Protection Coordination are better addressed in COM-002 Communications and Coordination. (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.)
Version 0 Team	• R1 — include reliability authority • R2 — include sabotage and security • R4 — clarify repeat back requirement with regard to emergency • Voice with generators not required
Version 1 Team	• R1 — include reliability authority • R2 — include sabotage and security • R4 — clarify repeat back requirement with regard to emergency • Voice with generators not required

Project 2007-03 Real-time Operations

Standards Involved:
TOP-001-1 — Reliability Responsibilities and Authorities
TOP-002-2 — Normal Operations Planning
TOP-003-0 — Planned Outage Coordination
TOP-004-1 — Transmission Operations
TOP-005-1 — Operational Reliability Information
TOP-006-1 — Monitoring System Conditions
TOP-007-0 — Reporting SOL and IROL Violations
TOP-008-1 — Response to Transmission Limit Violations
PER-001-0 — Operating Personnel Responsibility and Authority

Research Needed:
Operating Committee study of situational awareness tools

Brief Description:
Most of the requirements in this set of standards were translated from Operating Policies as part of the Version 0 process. There have been suggestions for improving these requirements, and the drafting team will consider comments submitted by stakeholders, drafting teams and FERC in determining what changes should be proposed to stakeholders.

The drafting team will review all of the requirements in this set of standards and make a determination, with stakeholders, on whether to:

- Move the requirement (into another SAR or Standard or to the certification process or standards)
- Eliminate the requirement (either because it is redundant or because it does not support bulk power system reliability).
- Improve clarity of, improve measurability of, and remove ambiguity from the remaining requirements
- Bring the set of standards into conformance with the latest version of the Reliability Standards Development Procedure and the ERO Sanctions Guidelines.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standard Development Status:
Project 2007-03 Real-time Operations Web page

Project Schedule:
Project 2007-03 Schedule

Standard Drafting Team Roster:

Chairman	James S. Case	Entergy Services, Inc.
	Paul Bleuss	California/Mexico Reliability Coordinator
	Albert DiCaprio	PJM Interconnection, L.L.C.
	Ryan Johnson	NRG Energy Power Marketing, Inc.
	Phillip Lavallee	National Grid USA
	Jason L. Marshall, P.E.	Midwest ISO, Inc.
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Paul Olson	Sacramento Municipal Utility District
	Gregory Van Pelt	California ISO
	Jim Useldinger	KCP&L
NERC Staff	Edward J. Dobrowolski	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
PER-001-0 — Operating Personnel Responsibility and Authority	
Version 0 Team	Data retention should be 1 year
TOP-001-1 — Reliability Responsibilities and Authorities	
FERC Order 693	• Consider adding other measures and levels of non-compliance. • 1589 — Includes measures and levels of non-compliance for requirement R8 • 1588 — Consider Santa Clara's comments on requirements R7.2 and R7.3 on transmission operator notification requirements as part of the standards development process. • 1585 — Clarify the definition of "emergency" and define the criteria for entering into the various states. Also define the authority for declaring these states.
NERC Audit Observation Team	Does this imply that a GOP can call another GOP and request an output change without going through the RC, BA or TOP?
Version 0 Team	• Define emergency • Need to expand included entities • What is 'clear decision making authority'? • Need to define single, central communications point during emergencies • Some emergencies will require follow up notification as opposed to immediate
TOP-002-1 — Normal Operations Planning	
Fill in the Blank Team	Remove "in accordance with NERC, Regional Reliability Organization, sub regional, and local reliability requirements" from R6 and "in accordance with filed tariffs and/or regional Total Transfer Capability and Available Transfer Capability calculation processes" from R12 .
Version 0 Team	• Limit of 2 tests per year • Coordination of planning required • Define N-1 • Define 'without intentional delay' • Reliability should 'trump' confidentiality
VRFs Team	• R2 — administrative in nature, not a real requirement • R9 — related to INT-003 • R14 & 14.1 — ambiguous
TOP-002-2 — Normal Operations Planning	

Source	Language
FERC Order 693	• 1607 — Consider the comments of ISO-NE and the NRC with respect to requirement R12 and measure M7 as part of the standard development process. • 1608 — Requires simulation contingencies to match what will actually happen in the field. • 1608 — Requires next-day analysis of minimum voltages at nuclear power plants auxiliary power buses. • 1608 — Next-day analysis for all IROLs must identify and communicate control actions to system operators that can be implemented within 30 minutes following a contingency. • 1608 — Delete references to confidentiality in requirements R3 and R4. • 1608 — Address critical energy infrastructure confidentiality as part of the routine standard development process. • 1603 — Inform the nuclear plant operator in real-time if the auxiliary power bus voltages cannot be maintained.
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
NERC Standards DT Coordinators Meeting 20080520	Requirements R2, R5, and R6 (for coordination in real-time) of PRC-001-1 System Protection Coordination are better addressed in the TOP family of standards: Consider putting R5 of PRC-001-1 in: TOP-002 R1, R3, R4, or R5 or TOP-003 — R1, R3, R4 (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.)
TOP-003-0 — Planned Outage Coordination	

Source	Language
FERC Order 693	• 1622 — Consider TVA's suggestion for including breaker outages within the meaning of facilities that are subject to advance notice for planned outages. • 1624 — Require any facility, that in the opinion of the reliability coordinator, balancing authority, or transmission operator, will have a direct impact on the reliability of the bulk power system be subject to the requirement R1 for planned outage coordination • 1626 — Incorporate an appropriate lead time for planned outages using suggestions from the various commenter's. • 1626 — Communicate scheduled outages to all affected entities well in advance to ensure reliability and accuracy of ATC calculations.
Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan: 2010-2012	With respect to requirement R1.2, why is the TOP responsible for providing generator outage information? Isn't that the BA's or GOP's responsibility and isn't this redundant with IRO-010-1?
NERC Standards DT Coordinators Meeting 20080520	Requirements R2, R5, and R6 (for coordination in real-time) of PRC-001-1 System Protection Coordination are better addressed in the TOP family of standards: •Consider putting R5 of PRC-001-1 in: TOP-002 R1, R3, R4, or R5 or TOP-003 — R1, R3, R4 •Consider putting R6 of PRC-001-1 in: TOP-003 R5 or TOP-006 (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.)
Version 0 Team	• Submit outage data ASAP but no later than noon day ahead • RA can't request outage cancellation • Outage information needed sooner than 1 day prior
VRFs Team	R4 — poorly written
TOP-004-1 — Transmission Operations	
FERC Order 693	• 1630 - Modify requirement R4 to state that the system should be restored to respect proven limits as soon as possible taking no more than 30 minutes. • 1628 - NERC should report the results of the survey to the Commission within 18 months of the effective date of this rule. • 1641 - Reliability coordinators should report any IROL violations to NERC on a monthly basis for one year beginning August 2, 2007. • 1628 - Perform a survey of the prevailing operating practices and actual operating experiences surrounding IROL limits. • 1640 - Defines high risk conditions under which the system must be operated to respect multiple outages in requirement R3. • 1634 - Consider Santa Clara's comments regarding changes to requirement R2 in the standards development process.
Fill in the Blank Team	No action required
NERC Audit Observation Team	Transmission operator enters an unknown state. What does this mean?

Source	Language
Version 0 Team	• Define (or remove) practical • Define SOL & IROL • Specify disconnection as acceptable in R5 • Clarify roles • Vagueness in application of IROL limits • Operations should conform to planning standards
TOP-005-1 — Operational Reliability Information	
FERC Order 693	• 1644 & 1646 — Consider FirstEnergy's modifications to Attachment 1 and ISO-NE's recommended revision to requirement R4 in the standards development process. • 1649 — Delete references to confidentiality agreements but ensure critical energy infrastructure confidentiality is addressed in the standards development process. • 1651 — Include information about the operational status of special protection systems and power system stabilizers in Attachment 1.
NERC Standards DT Coordinators Meeting 20080520	Requirements R2, R5, and R6 (for coordination in real-time) of PRC-001-1 System Protection Coordination are better addressed in the TOP family of standards: •Consider putting R2 of PRC-001-1 in TOP-005 (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.)
Version 0 Team	• Generator data should include voltage control & stabilizers • Data update is too slow • Need to include GO & LSE • GO needs to supply data to BA & TO
TOP-006-1 — Monitoring System Conditions	
FERC Order 693	• 1653 — Add requirement related to the provision of minimum capabilities that are necessary to enable operators to deal with real-time situations and to ensure reliable operation of the bulk power system. • 1653 — Clarify the meaning of "appropriate technical information" concerning protective relays. • 1658 — Consider APPA's comments regarding missing measures in the standards development process.
Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan: 2010-2012	• With respect to requirements R1 and R1.2, why are BAs responsible for information regarding transmission resources available for use? Isn't that the role of the TOP? • With respect to requirement R2, why is the BA responsible for monitoring transmission line status, voltage, load tap changer settings, and reactive power in general? Monitoring and managing reactive resources, voltage and tap settings is clearly made the responsibility of the TOP in VAR-001-1a. • With respect to requirement R3 why does the BA need to understand protective relaying? Isn't that the role of the TOP and GOP?
NERC Standards DT Coordinators Meeting	Requirements R2, R5, and R6 (for coordination in real-time) of PRC-001-1 System Protection Coordination are better addressed in the TOP family of standards: •Consider

Source	Language
20080520	putting R6 of PRC-001-1 in: TOP-003 R5 or TOP-006 (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.)
Version 0 Team	• Monitor frequency at multiple points • GO needs to provide normal & emergency data • Load forecasting data required • Need to match roles with FM
VRFs Team	• R3 — define appropriate • R1, 1.1, 1.2 — 'available in emergency situation' may be needed • R4 — What information is required and what is a load pattern?
TOP-007-0 — Reporting System Operating Limit (SOL) and Interconnection Reliability Operating Limit (IROL) Violations	
FERC Order 693	• 1671 — Consider the NRC's comments on voltage requirements as part of the standards development process. • 1668 — Eliminate overlapping matters in TOP-007 and TOP-008.
Version 0 Team	• Not enforceable with current criteria • Need to tighten the non-compliance terms • Need to define evidence of evaluation • More of a compliance issue than an true standard • RA should be included
TOP-008-1 — Response to Transmission Limit Violations	
FERC Order 693	1678 — Consider APPA's comments regarding missing measures in the standards development process.

Project 2007-04 Certifying System Operators

Standards Involved:
PER-003-0 — Operating Personnel Credentials

Research Needed:
None

Brief Description:
This Version 0 Standard requires the Reliability Coordinator, Balancing Authority and Transmission Operator to staff its real-time operating positions with personnel that have a NERC certification credential.

The standard will be revised to address the directives from FERC Order 693 and industry comments from Version 0.

The standard will also be revised to conform to the latest version of the Reliability Standards Development Procedure and the ERO Sanctions Guidelines. The standard drafting team will apply the Reliability Standard Review Guidelines when modifying the standard.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2007-04 Certifying System Operators Web page

Project Schedule:
Project 2007-04 Schedule

Standard Drafting Team Roster:

Chairman	David J. Carlson	Commonwealth Edison Co.
	Brad E. Calhoun	CenterPoint Energy
	William D Ellard	California ISO
	David L. Folk	FirstEnergy Corp.
	Jeff Gooding	Florida Power & Light Co.
	Mike Gough	Western Area Power Administration
	Raymond C. Gross	PJM Interconnection, L.L.C.
	Mark A. Heimbach	Pennsylvania Power & Light Company
	Lauri Jones	Pacific Gas and Electric Company
	Rob MacDonald	Hydro One, Inc.
	Tom McKenrick	Midwest ISO, Inc.
	Patricia E. Metro	National Rural Electric Cooperative Association
	Ed Seddon	Orlando Utilities Commission
	Fred Waites	Southern Company
NERC Staff	Darrel Richardson	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
PER-003-0 — Operating Personnel Credentials	
FERC Order 693	• Consider grandfathering certification requirements for transmission operator personnel as part of the standards development process. • Identify the minimum competencies operating personnel must demonstrate to be certified. • Specify the minimum competencies that must be demonstrated to become and remain a certified operator.
NERC Audit Observation Team	Who needs to be certified?
Version 0 Team	• Problem with wording change from 'both' to 'either' • Need to define critical tasks • Staffing plan is out of scope • Non-compliance levels missing • Need to specify exact position titles and match to credentials • Need to define 'current'
PER-004-1 — Reliability Coordination — Staffing	
FERC Order 693	Include requirements pertaining to personnel credentials for reliability coordinators similar to PER-003.

Project 2007-05 Balancing Authority Controls

Standards Involved:
BAL-002-0 — Disturbance Control Performance
BAL-004-0 — Time Error Correction
BAL-005-0 — Automatic Generation Control
BAL-006-1 — Inadvertent Interchange

Research Needed:
None

Brief Description:
The standard drafting team will:

- Work collaboratively with NAESB to ensure that the elements of these standards that are need to support reliability are include in the revised standard
- Consider comments receive during the initial development of this set of standards and other comments received from ERO regulatory authorities and stakeholders
- Bring the standards into conformance with the latest version of the Reliability Standards Development Procedure and the ERO Rules of Procedures
- Incorporate language to eliminate two interpretations (BAL-005, Requirement 17)
- Incorporate language to make permanent the Urgent Action removal of some of the reliability coordinator's requirements in BAL-004
- Review all of the requirements in the standards listed above.

For each existing requirement, the standard drafting team will also work with NAESB and stakeholders to:

- Eliminate redundancy (or overlap) in the requirements and associated business practices
- Identify requirement that should be moved into other SARs, standards, or business practices
- Eliminate requirements that do not support bulk power reliability
- Improve clarity of, improve measurability of, and remove ambiguity from the remaining requirements

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual plan):
Annual Plan Item 1.d
Annual Plan Item 1.e
Justification for NAESB consideration:
FERC Order 693
Project Description

SRS Recommendation:
During initial discussions (REF: Rae McQuade's letter to Gerry Adamski dated February 11, 2008), there was no identified need for business practices related to this project. NERC should point out any areas where they see a need for a business practice. This is being coordinated with the WEQ on current project Annual Plan Items 1.d and 1.e, and there is ongoing coordination between the BAC Standards Drafting Team and the NAESB WEQ Time and Inadvertent Management Task Force.

Standards Development Status:

Project 2007-05 Balancing Authority Controls Web page

Project Schedule:

Project 2007-05 Schedule

Standard Drafting Team Roster:

Chairman	Larry Akens	Tennessee Valley Authority
	Thomas Artau	Progress Energy Florida
	Harvie D. Beavers	Colmac Clarion/Piney Creek LP
	Gerald D Beckerle	Ameren Corp.
	David L. Folk	FirstEnergy Corp.
	William Franklin	Xcel Energy, Inc.
	Steve Gillespie	California ISO
	Howard F. Illian	Energy Mark, Inc.
	Ken McIntyre	Electric Reliability Council of Texas, Inc.
	Sydney Niemeyer	NRG Texas LP
	Guy Quintin	Hydro-Québec TransEnergie
	Kris Ruud	Midwest ISO, Inc.
	Mark Thomas	Entergy Transmission
	Raymond L. Vice	Southern Company Services, Inc.
NERC Staff	Andrew J. Rodriquez	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
NAESB Standards Review Subcommittee	NAESB Standards Review Subcommittee as input to the Reliability Standards Development Plan: 2010-2012: NAESB requests that NERC continue its coordination with NAESB on this project as it relates to item 1.d and 1.e in the NAESB WEQ 2009 Annual Plan.
Other	Incorporate approved formal interpretation
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
BAL-002-0 — Disturbance Control Performance	
FERC Order 693	• Include a frequency response requirement. • Measures should be available in real-time to balancing authorities. • Substitute regional entity for regional reliability organization • Include a continent-wide contingency reserve policy, which should include uniform elements (definitions and requirements) • Modify to make requirements R4.2 and R6.2 refer to NERC rather than the NERC Operating Committee. • Define a significant (frequency) deviation and a reportable event, taking into account all events that have an impact on frequency, and how balancing authorities should respond. • Include a requirement that explicitly provides that DSM may be used as a resource for contingency reserves. • DSM should be treated on a comparable basis and must meet similar technical requirements as other resources providing this service • Policy can allow for regional differences, but should include procedures to determine the appropriate mix of operating reserves, spinning and non-spinning, as well as requirements pertaining to the specific amounts of operating reserves based on the load characteristics and magnitude, topology, and mix of resources in the region. • Address Commission concerns about having enough contingency reserves to respond to an event on the system in requirement 3.1 and how such reserves are measured. • Requires any single reportable disturbance that has a recovery time of 15 minutes or longer be reported as a violation.
Fill in the Blank Team	• Modify R2 to remove reference to "sub-Regional Reliability Organization or Reserve Sharing Group", and • Determine what elements of contingency reserve should be included in the North American standard and what elements should be included in the regional standard. • Development of regional standards needs to be coordinated with Regional entities. Regional entities should begin process for developing regional standards once the drafting team for the North American standard has determined what elements of contingency reserve should be included in the continent-wide standard and what elements should be included in the regional standards. • Regional reliability standards will be developed in support of North American standard BAL-002. • Each RRO will need to create a regional standard specifying its Contingency Reserve policy.
NERC Audit Observation Team	• Should the reserve sharing group be audited or the members? This should be tied to

Source	Language
	registration for consistency. • What is a sub-region
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Frequency Bias Setting Time Error Time Error Correction
Version 0 Team	• Need regional standards in support of N. American • Modify R2 • Determine N. America vs. regional elements
BAL-004-0 — Time Error Correction	
FERC Order 693	• Include levels of non-compliance and additional measures for requirement R3. • In the five-year review cycle of the standard, perform research that would provide a technical basis for the present or any alternative approach that is more effective and helps reduce inadvertent interchange.
NERC/NAESB Coordination	NERC/NAESB Coordination The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Frequency Bias Setting Time Error Time Error Correction
BAL-005-0 — Automatic Generation Control	
FERC Order 693	• Develop a process to calculate the minimum regulating reserve for a balancing authority, taking into account expected load and generation variation and transactions being ramped in and out. • Change title to be neutral as to the source of regulating reserves and allows the inclusion of technically qualified DSM. • Address comments of Xcel and FirstEnergy when the standard is revisited in the work plan. • If regulation is being provided over non-firm transmission service, the entity receiving the regulation must have a back-up plan to include the loss of the non-firm transmissions service as referenced in requirement R5. • Include a measure that provides for a verification process over the required automatic generation control, or regulating reserves a balancing authority maintains
Fill in the Blank Team	No comments
NERC Audit Observation Team	What the difference between this and BAL-005-1?
Version 0 Team	• Re-order & re-word requirements • Define data requirements • Non-compliance missing • Purpose statement
VRFs Team	• R14 — Check for redundancy of second statement. This seems to be a real-time requirement - not planning. Is this for archival data requirements? • R12.3 — redundant • R12 — sub-requirements should be separate requirements

Source	Language
BAL-005-0 — Automatic Generation Control	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Frequency Bias Setting Time Error Time Error Correction
BAL-006-1 — Inadvertent Interchange	
FERC Order 693	• Regional Differences to BAL-006-1: Inadvertent Interchange Accounting and Financial Inadvertent Settlement: Explore FirstEnergy's request to define the function of a waiver in the reliability standard development process. • Regional Differences to BAL-006-1: Inadvertent Interchange Accounting and Financial Inadvertent Settlement: Reference the current reliability standards and are in the standard form, which includes requirements, measures, and levels of non-compliance. • Add measures concerning the accumulation of large inadvertent interchange balances and levels of non-compliance. • Examine the WECC time error correction procedure as a possible guide.
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Frequency Bias Setting Time Error Time Error Correction
Version 0 Team	• Wording in R4 • Split requirements • Requirements mixed in Compliance • Non-compliance missing • Purpose/Requirement contradiction

Project 2007-06 System Protection Coordination

Standards Involved:
PRC-001-1 — System Protection Coordination

Research Needed:
Identification of criteria for determining where to install protection systems

Brief Description:
The existing PRC-001 Standard has been identified in the Reliability Standards Development Plan as requiring revision, within the FERC Order 693 as requiring revisions, and by a SPCTF report (attached) which identified a number of issues with the existing standard (the SPCTF report, which precedes FERC Order 693, also includes observations from the preceding FERC NOPR on RM-06-16-000). This revision of PRC-001 should address concerns from these sources and should include upgrades to bring the revised standard into conformance with the latest version of the ERO Rules of Procedure.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2007-06 System Protection Web page

Project Schedule:
Project 2007-06 Schedule

Standard Drafting Team Roster:

Chairman	Arthur J. Buanno	FirstEnergy Corp.
	David Cirka	National Grid
	Aaron Cooperberg	Hydro One Networks, Inc.
	Samuel Francis	Oncor Electric Delivery
	Jeffrey Iler	American Electric Power
	Bill Middaugh	Tri-State G & T Association Inc.
	Richard P. Quest	Xcel Energy, Inc.
	William Waudby	Consumers Energy
	Kevin Wempe	Kansas City Power & Light Co.
	Philip Winston	Georgia Power Company
NERC Staff	Al Calafiore	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
PRC-001-1 — System Protection Coordination	
FERC Order 693	• Upon detection of failures in relays or protection system elements on the bulk power system that threaten reliability, relevant transmission operators must be informed promptly, but within a specified period of time. -- (2) a requirement that transmission and generator operators be informed immediately upon the detection of failures in relays or protection system elements on the Bulk-Power System that would threaten reliable operation, so that these entities could carry out appropriate corrective control actions consistent with those used in mitigating IROL violations. • Once informed, transmission operators must carry out corrective control actions that return the system to a stable state that respects system requirements as soon as possible and no longer than 30 minutes. "[t]he transmission operator shall take corrective action as soon as possible" refers to transmission operators taking operator control actions. It does not refer to troubleshooting, repairing or replacing failed relays or equipment, etc., since these time-consuming corrective actions would prolong the risk of cascading failures to the Bulk-Power System. • Clarify the term "corrective action". 1440. We believe that "[t]he transmission operator shall take corrective action as soon as possible" refers to transmission operators taking operator control actions. It does not refer to troubleshooting, repairing or replacing failed relays or equipment, etc., since these time-consuming corrective actions would prolong the risk of cascading failures to the Bulk-Power System. 1441…. We direct the ERO to clarify the term "corrective action" consistent with this discussion when it modifies PRC-001-1 in the Reliability Standards development process. • Consider FirstEnergy's and the California PUC's comments about the maximum time for corrective actions in the standards development process. 1428. California PUC contends that imposing a time restriction for returning a system to a stable state may cause more harm than good since additional information and options may be available as time elapses. It repeats its suggestion from its earlier comments on the Staff Preliminary Assessment and proposes the following alternative language: "Transmission or generation operators shall carry out corrective control actions, i.e., returning the system to a stable state that respects system requirements as soon as possible, and no longer than 30 minutes, except where a longer response time is feasible, or where a longer response is demonstrated to produce a better ultimate solution without unacceptable interim risk." 1431. FirstEnergy contends that Requirement R2.1 essentially requires generator operators to report all protective relay or equipment failures, since generator operators may not be able to tell which failures will reduce system reliability. FirstEnergy suggests that R2.1 should be revised to require generator operators to report all equipment failures or outages. FirstEnergy further suggests that PRC-001-1 be revised to provide that if a company performs reasonable testing procedures, undiscoverable equipment failures will not be violations of R2.1. • Measures and levels of non-compliance incorrectly reference non-existent requirements.
Version 0 Team	• Consistent terminology as to neighbor vs. affected • Effects on reliability may not be known • Not all criteria moved over from policies

Project 2007-07 Vegetation Management

Standards Involved:
FAC-003-1 — Vegetation Management Program

Research Needed:
None

Brief Description:
This is a Version 1 standard that was approved in 2006. It has some 'fill-in-the-blank' components to eliminate. In addition, the following comments submitted by FERC and stakeholders need to be addressed in the refinement of the standard:

FERC Order 693 items
Address the issue regarding applicability:

- Work with the reliability entities and the ERO to collect and make available to the FERC, a list of critical lower voltage transmission lines. (Refer to Applicability 4.3 section of the standard.)
- Consider other criteria in determining applicability of the standard to sub 200kV lines.
- Address the issue of clearances for lines on both federal and non-federal lands:
- Review and analyze outage data (collected by the ERO) then consider defining clearances needed to avoid sustained vegetation-related outages that would apply to transmission lines crossing both federal and non-federal land.
- Consider revising the definition of right of way to encompass required clearance areas.
- Review the suitability of IEEE 516-2003 standard for minimum vegetation clearance.

Procedural items

- Re-format standard to bring it into conformance with the latest version of the Reliability Standard Development Procedure and the ERO Sanctions Guidelines.
- Remove references to RRO in the standard and substitute a responsible entity.
- Add newly developed compliance elements such as time horizons, violation risk factors, violation severity levels, etc.

Stakeholder items

- Prepare technical reference material such as a "white paper" to aid in understanding the technical basis for the standard.
- Review reporting criteria for Category 3 outages in the proposed technical reference material and may remove the reporting requirement of Category 3 outages in R.3 and R.4.
- Consider deleting requirement R.4.
- Review the reporting exemptions to include all category outages under major disasters in Requirement R3.2.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project 2007-07 Vegetation Management Web page

Project Schedule:

Project 2007-07 Schedule

Standard Drafting Team Roster:

Chairman	Richard E. Dearman	Tennessee Valley Authority
	Ron A. Adams	Duke Energy Carolina
	Tom Anderson	Lincoln Electric System
	Paul S. Beaulieu	Finley Engineering
	Stephen R. Cieslewicz	CN Utility Consulting LLC
	Randall F. Gann	Alabama Power Company
	Stephen Genua	Pepco Holdings, Inc.
	Jeff Hackman	Ameren Corp.
	Edward Mennella	Orange & Rockland Utilities
	Randall H. Miller	PacifiCorp
	David Morrell	New York State Department of Public Service
	John Pinney	Progress Energy
	John E. Schechter	American Electric Power
	John Tamsberg	Florida Power & Light Co.
	Stephen Tankersley	Pacific Gas and Electric Company
	Ron Turley	Western Area Power Administration
	Gary White	Oncor Electric Delivery
	Philip H. Whitmer	Georgia Power Company
	Ken Wright	Tucson Electric Power Co.
NERC Staff	Harry Tom	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
FAC-003-1 — Vegetation Management Program	
FERC Order 693	• …We recognize that many commenter's would like a more precise definition for the applicability of this Reliability Standard, and we direct the ERO to develop an acceptable definition that covers facilities that impact reliability but balances extending the applicability of this standard against unreasonably increasing the burden on transmission owners…
	• Evaluate suggestions by LPPC, APPA, and Avista in the standards development process.
	• Develop compliance audit procedures, using industry experts, which would identify appropriate inspection cycles based on local factors.
	• Define the minimum clearance needed to avoid sustained vegetation-related outages that apply to line crossing federal and non-federal lands.
	• Address issues that develop in the interim on a case-by-case basis
	• Incorporate suggestions to include facilities at lower voltages that are associated with IROLs.
	• We will not direct NERC to submit a modification to the general limitation on applicability as proposed in the NOPR. However, we will require the ERO to address the proposed modification through its Reliability Standards development process. As explained in the NOPR, the Commission is concerned that the bright-line applicability threshold of 200 kV will exclude a significant number of transmission lines that could impact Bulk-Power System reliability. Although the regional reliability organizations are given discretion to designate lower voltage lines under the proposed Reliability Standard, none have designated any operationally significant lines even though there are lower voltage lines involving IROL as suggested by Progress and SERC. We continue to be concerned that this approach will not prospectively result in the inclusion of all transmission lines that could impact Bulk-Power System reliability. In proposing to require the ERO to modify the Reliability Standard to apply to Bulk-Power System transmission lines that have an impact on reliability as determined by the ERO, we did not intend to make this Reliability Standard applicable to fewer facilities than it currently is with the 200 kV bright line applicability, but to extend the applicability to lower-voltage facilities that have an impact on reliability. We support the suggestions by Progress Energy, SERC and MISO to limit applicability to lower voltage lines associated with IROL and these suggestions should be part of the input to the Reliability Standards development process. Similarly, the ERO should evaluate the suggestions proposed by LPPC, APPA and Avista…..
	• Consider a phase-in timeframe if lower voltage facilities are included as applicable to this standard.
	• …. FirstEnergy and Xcel suggest that if the applicability of this Reliability Standard is expanded, the Commission should allow flexibility in complying with this Reliability Standard for lower-voltage facilities, or allow lower-voltage facilities one year before the Reliability Standard is implemented. The ERO should consider these comments when determining when it would request that the modification of this Reliability Standard to go into effect…..
	• Accordingly, the Commission directs the ERO to develop compliance audit procedures, using relevant industry experts, which would identify appropriate inspection cycles based on local

Source	Language
	factors. These inspection cycles are to be used in compliance auditing of FAC-003-1 by the ERO or Regional Entity to ensure such inspection cycles and vegetation management requirements are properly met by the responsible entities.
	• Accordingly, the Commission directs the ERO to develop a Reliability Standard that defines the minimum clearance needed to avoid sustained vegetation-related outages that would apply to transmission lines crossing both federal land and non-federal land. While this consensus is developed, the Commission directs the ERO to address any potential issues regarding mitigation measures needed to assure these minimum clearances on Forest Service lands are appropriate on a case-by-case basis. The Commission also directs the ERO to collect outage data for transmission outages of lines that cross both federal and non-federal lands, analyze it, and use the results of this analysis and information to develop a Reliability Standard that would apply to transmission lines crossing both federal and non-federal land.
	• FirstEnergy suggests that rights-of-way be defined to encompass the required clearance areas instead of the corresponding legal rights, and that the standards should not require clearing the entire right-of-way when the required clearance for an existing line does not take up the entire right-of-way. The Commission believes this suggestion is reasonable and should be addressed by the ERO. Accordingly, the Commission directs the ERO to address this suggestion in the Reliability Standards development process.
	• Address FirstEnergy's suggestion to clarify the definition of "rights-of-way" as part of the standards development process.
	• Collect outage data for transmission outages of lines that cross both federal and non-federal lands, analyze it, and use the results to develop a standard that would apply to both federal and non-federal lands.
	• Ensure inspection cycles and vegetation management requirements are properly met by the responsible entities.
	• Address the issue of "bright-line" applicability of 200 kV and above through the standards development process.
NERC Audit Observation Team	• It was pointed out that an entity did not need to be registered as a TO for FAC-003-1 to apply to them, only that they have transmission lines operated at 200 kV and above. This could include radial lines as well as generation leads at the 200kV and above level. This could mean functions other than TO would require FAC-003-1 to be in the audit scope. How are you looking at the applicability of FAC-003-1 as it applies to DPs, LSEs, and GOs etc. This could be applicable to many entities registered in multiple regions • TO's shall demonstrate compliance through self certification. Compliance monitoring shall conduct an on-site audit every five years or more frequently as deemed appropriate. Does this over-ride the six year audit cycle for TO's? • With regards to the vegetation management standard, what type of event would trigger a compliance investigation?
Version 0 Team	• RA vs. RRO • Too weak on compliance • Format inconsistencies

Project 2007-09 Generator Verification

Standards Involved:

PRC-019-1 — Coordination of Generator Voltage Regulator Controls with Unit Capabilities and Protection

PRC-024-1 — Generator Performance During Frequency and Voltage Excursions

MOD-024-1 — Verification of Generator Gross and Net Real Power Capability

MOD-025-1 — Verification of Generator Gross and Net Reactive Power Capability

MOD-026-1 —Verification of Models and Data for Generator Excitation System Functions

MOD-027-1 — Verification of Generator Unit Frequency Response

Research Needed:

None

Brief Description:

The scope of this project includes:

- Modifying the six standards associated with this project so they conform to the latest version of NERC's Reliability Standards Development Procedure and the ERO Rules of Procedure,
- Replacing the "fill-in-the-blank" requirements assigned to the Regional Reliability Organization with requirements that can be applied on a continent-wide basis and are assigned to users, owners or operators of the bulk power system,
- Considering and addressing issues identified in FERC orders, including the modifications to MOD-024-1 and MOD-025-1 as proposed in FERC Order 693, and
- Considering and addressing issues identified during Phase III & IV field testing.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project 2007-09 Generator Verification Web page

Project Schedule:

Project 2007-09 Schedule

Standard Drafting Team Roster:

Chairman	Robert W. Millard	ReliabilityFirst Corporation
Vice Chairman	Lee Y. Taylor	Southern Company Services, Inc.
	Baj Agrawal	Arizona Public Service Co.
	Thomas J. Bradish	RRI Energy
	Donald G. Davies	Western Electricity Coordinating Council
	Les Hajagos	Kestrel Power Engineering Ltd
	John Hanson	CenterPoint Energy
	Gary Humphries	Duke Energy Carolina
	Venkat S. Kolluri	Entergy Corporation
	Dmitry Kosterev	Bonneville Power Administration
	David Kral	Xcel Energy, Inc.
	Gary Kruempel	MidAmerican Energy Co.
	Daniel J Leonard	GE Energy
	Craig Quist	PacifiCorp
	Balbir S. Sandhu	Manitoba Hydro
	William D Shultz	Southern Company Generation
	Vladimir Stanisic	Ontario Power Generation Inc.
	Ken Stenroos	Florida Power & Light Co.
	Rick Terrill	Luminant Energy
	Chifong L. Thomas	Pacific Gas and Electric Company
	Edward J. Wingard	American Electric Power
NERC Staff	Harry Tom	North American Electric Reliability Corporation
NERC Staff	Thomas Vandervort	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
PRC-019 — Coordination of Generator Voltage Regulator Controls with Unit Capabilities and Protection	
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
PRC-024 — Generator Performance During Frequency and Voltage Excursions	
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
MOD-024-1 — Verification of Generator Gross and Net Real Power Capability	
FERC Order 693	• Require users, owners, and operators of the system to provide this information. • Provide a work plan and compliance filing regarding the collection of information specified for standards that are deferred. • Clarify requirement R2 that specifies that the regional reliability organization shall provide generator gross and net real power capability verification within 30 calendar days of approval. The confusion centers on "approval" and when the 30-day period starts. • Document test conditions and the relationships between test conditions and generator output so that the amount of power that can be expected to be delivered from a generator at different conditions can be determined.
Fill in the Blank Team	• Review MOD-024 and MOD-025 concurrently to transition to uniform North American standards. • Remove the fill-in-the-blank aspects (correct reference to "…Regional Reliability Organization's procedures…"). • Goal is uniform North American standards for real and reactive power verification. Look at regional requirements and identify the best practice, commonalities and differences, and whether differences are needed for reliability.
Phase III/IV Team	• No requirement for the RRO to demonstrate that its procedures result in accurate information of gross and net real power capability of generators for steady state models • It is not clear in R3 to whom the Generator Owner will report the information. • Non compliance levels are too strict. A small utility with 15-20 units will be L4 non-compliant if they miss one unit
Team Comments	Provide clarity where the Planning Authority is mentioned
MOD-025-1 — Verification of Generator Gross and Net Reactive Power Capability	

Source	Language
FERC Order 693	• Provide a work plan and compliance filing regarding the collection of information specified for standards that are deferred. • Require verification of reactive power capability at multiple points over a unit's operating range. • Clarify requirement R2 that specifies that the regional reliability organization shall provide generator gross and net reactive power capability verification within 30 calendar days of approval. The confusion centers on "approval" and when the 30-day period starts.
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
Fill in the Blank Team	• Remove the fill-in-the-blank aspects (correct reference to "… Regional Reliability Organization's procedures…"). • Refer to MOD-024. • Review MOD-024 and MOD-025 concurrently to transition to uniform North American standards.
Phase III/IV Team	• These standards do not provide for uniform testing of generator capability. The determination of which units are tested, how frequently they are tested, and the criteria used for determining capability are left to individual regions. • R1.5.1: The benefit of verifying maximum capability of generators to absorb VArs at seasonal real power generation capability is unclear, particularly if this standard applies to virtually all generators. For the vast majority of units, the need to absorb VArs occurs during low-load conditions, when unit real power production is below maximum capability and the unit's ability to absorb VArs is greater. Therefore, the single datum for unit VAr absorption capability determined pursuant to this standard seems to be of little practical use, except for relatively few generators in a limited set of circumstances. • It is not clear in R3 to whom the Generator Owner will report the information. • Non compliance levels are too strict. A small utility with 15-20 units will be L4 non-compliant if they miss one unit. • Severity of non-compliance should be based on the percentage of the generator owner's total generation capability comprised of units required to be verified, rather than on the percentage (number) of generating units. Exempt units should be excluded from the total generation capability for determining level of non-compliance. • There is no clear reason for regional variations in capability testing. A generator in Georgia does not have more or less capability than an identical unit applied across the Florida line, despite the fact that one is in SERC and the other in FRCC. • Fundamental guidelines outlining some basic requirements (e.g., all units over 20 MW shall be tested annually under conditions that permit full net output of the unit for normal operation) are lacking.
Team Comments	Provide clarity where the Planning Authority is mentioned
MOD-026 Verification of Models and Data for Generator Excitation System Functions	
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
MOD-027 Verification of Generator Unit Frequency Response	

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Project 2007-11 Disturbance Monitoring

Standards Involved:
PRC-002-1 — Define and Document Disturbance Monitoring Equipment Requirements
PRC-018-1 — Disturbance Monitoring Equipment Installation and Data Reporting

Research Needed:
The standard drafting team identified a need to conduct a regional data analysis in order to establish technical requirements for DME locations and thresholds.

Brief Description:
PRC-002 and PRC-018 were approved in 2006.

PRC-002 is one of four reliability standards identified by the Regional Reliability Standards Working Group as a standard that has some requirements that need to be defined by each regional entity in a regional standard. The standard drafting team (SDT) will review PRC-002 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to or contained with the disturbance monitoring program documentation. The SDT shall determine which requirements should be continent-wide requirements and which requirements should be included in regional standards.

When revising PRC-002 and PRC-018 the SDT shall address issues already identified by FERC, other drafting teams and stakeholders. Note: Phasor measurement networks are to be addressed by Project 2008-06.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2007-11 Disturbance Monitoring Web page

Project Schedule:
Project 2007-11 Schedule

Standard Drafting Team Roster:

Chairman	Navin B. Bhatt, PhD., PE	American Electric Power
	Felix Amarh, PhD	Georgia Transmission Corporation
	Alan D. Baker	Florida Power & Light Co.
	James R. Detweiler	FirstEnergy Corp.
	Richard Ferner	Western Area Power Administration
	Barry G. Goodpaster	Exelon Business Services Company
	Willy Haffecke	City Utilities of Springfield
	Daniel J. Hansen	RRI Energy
	Charles J. Jensen	JEA
	Tracy M. Lynd	Consumers Energy
	Susan L. McGill	PJM Interconnection, L.L.C.
	Robert W. Millard	ReliabilityFirst Corporation
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Jeffrey M. Pond	National Grid
	Larry E. Smith	Alabama Power Company
	Jack Soehren	ITC Holdings
NERC Staff	Stephanie Monzon	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
PRC-002-1 — Define Regional Disturbance Monitoring and Reporting Requirements	
FERC Order 693	Consider if greater consistency can be achieved in the standard as suggested by Otter Tail, APPA, and Alcoa.
Phase III/IV Team	There is no criteria that the RROs must use in specifying the process for identifying locations where DMEs are required
Version 0 Team	• Digital inputs and load need to be added • IDWG identified deficiencies • More specificity in equipment requirements needed
VRFs Team	R1 — This standard and all related sub requirements are after the fact data analysis
PRC-018-1 — Disturbance Monitoring Equipment Installation and Data Reporting	
Fill in the Blank Team	• PRC-002 will be a continent-wide standard supported by Regional Reliability Standards. • Need regions to develop and submit regional standards. NERC standard requires region to have this done in 9 months from board adoption (from August 9). Regions need to do this as a regional standard, not a procedure or some other document. • Development of regional standards needs to be coordinated with Regional entities. Regional entities should begin process for developing regional standards once the drafting team for the North American standard has determined what elements of disturbance monitoring should be included in the continent-wide standard and what elements should be included in the regional standards. • Determine what elements (if any) of disturbance monitoring should be included in the North American standard and what elements should be included in the regional standards. • PRC-002 is directly related to PRC-018. PRC-018 requires the functional entities to comply with the requirements developed by each RRO.
VRFs Team	R3.4, 3.5, 3.6, 3.7 — Ambiguous

Project 2007-12 Frequency Response

Standards Involved:
BAL-003-0 — Frequency Response and Bias

Research Needed:
None

Brief Description:
This project involves developing a new standard for the collection of data needed to accurately model existing Frequency Response within each interconnection.

The project will support the following directive in FERC Order 693:

- Define the necessary amount of Frequency Response needed for Reliable Operation for each balancing authority with methods of obtaining and measuring that the frequency response is achieved.

Standards Development Status:
Project 2007-12 Frequency Response Web page

Project Schedule:
Project 2007-12 Schedule

Standard Drafting Team Roster

Chairman	William Herbsleb	PJM Interconnection, L.L.C.
	Don E Badley	Northwest Power Pool Corporation
	Terry Bilke	Midwest ISO, Inc.
	Les Hajagos	Kestrel Power Engineering Ltd
	Harvey Heinz Happ	New York State Department of Public Service
	Howard F. Illian	Energy Mark, Inc.
	David F. Lemmons	Xcel Energy, Inc.
	Clyde Loutan	California ISO
	Carlos Martinez	Electric Power Group
	James Murphy	Bonneville Power Administration
	Sydney Niemeyer	NRG Texas LP
	Michael Potishnak	ISO New England, Inc.
	Raymond L. Vice	Southern Company Services, Inc.
NERC Staff	Darrel Richardson	North American Electric Reliability Corporation
NERC Staff	Thomas Vandervort	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
BAL-003-0 — Frequency Response and Bias	
FERC Order 693	• Define the necessary amount of frequency response needed for reliable operation for each balancing authority with methods of obtaining and measuring that the frequency response is achieved. • Determine the appropriate periodicity of frequency response surveys necessary to ensure requirement R2 and other requirements are being met; also modify measure M1 based on this determination.

Project 2007-17 Protection System Maintenance & Testing

Standards Involved:
PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing
PRC-008-0 — Underfrequency Load Shedding Equipment Maintenance Programs
PRC-011-0 — UVLS System Maintenance and Testing
PRC-017-0 — Special Protection System Maintenance and Testing

Research Needed:
None

Brief Description:
Revise PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing, to consolidate PRC-005-1, PRC-008-0 — Underfrequency Load Shedding Equipment Maintenance Programs; PRC-011-0 — UVLS System Maintenance and Testing; and PRC-017-0 — Special Protection System Maintenance and Testing into a single maintenance and testing standard. Standards PRC-008-0, PRC-011-0, and PRC-017-0 would then be withdrawn.

The revised PRC-005 standard should address the issues raised in the FERC Order 693 and the issues addressed in the SPCTF report "Assessment of PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing; with implications for PRC-008-0, PRC-011-0, and PRC-017-0". The revised standard should also address the comments submitted by stakeholders during the development of Version 0, and Phase III & IV and should reflect improvements identified in the Reliability Standards Review Guidelines.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2007-17 Protection System Maintenance & Testing

Project Schedule:
Project 2007-17 Schedule

Standard Drafting Team Roster:

Chairman	Charles W. Rogers	Consumers Energy
	John Anderson	Xcel Energy, Inc.
	Merle Ashton	Tri-State G & T Association Inc.
	Bob Bentert	Florida Power & Light Co.
	John L. Ciufo	Hydro One, Inc.
	Richard Ferner	Western Area Power Administration
	Carol Gerou	Midwest Reliability Organization
	Roger D. Green	Southern Company Generation
	Russell Hardison, P.E.	Tennessee Valley Authority
	Dave Harper	NRG Texas Maintenance Services
	John Kruse	Commonwealth Edison Co.
	Mark Peterson	Great River Energy
	William D Shultz	Southern Company Generation
	Leonard Swanson, Jr.	National Grid USA
	Eric Udren	Quanta Technology
	Philip Winston	Georgia Power Company
	John Zipp	ITC Holdings
NERC Staff	Al Calafiore	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing	
FERC Order 693	• Consider FirstEnergy's and ISO-NE's suggestions to combine PRC-005, PRC-008, PRC-011, and PRC-017 into a single standard. • Maintenance and testing of a protection system must be carried out within a maximum allowable time interval that is appropriate for the type of protection system and its impact on the reliability of the bulk power system. 1475. In addition, for the reasons discussed in the NOPR, the Commission directs the ERO to develop a modification to PRC-005-1 through the Reliability Standards development process that includes a requirement that maintenance and testing of a protection system must be carried out within a maximum allowable interval that is appropriate to the type of the protection system and its impact on the reliability of the Bulk-Power System.
NERC Audit Observation Team	• As applicable, each TO, DP and GOP shall have a protection system maintenance and testing program for protection systems that affect the reliability of the BES. Does this include major equipment like circuit breakers and transformers? • Determine what on schedule means. Is an entity who maintained/tested 95% of their relays at the same level of non-compliance as an entity who maintained/tested 10% of their relays? • How do you verify compliance for cts/pts? How do you audit these within a scheduled maintenance program? As part of the procedure, most have accepted visual inspection. Some entities state that testing of the relays verify functionality of the ct/pts • How do you verify DC control power? All regions require functional testing of the breaker. This should include functional relay & station battery checks, including breaker tripping, not just a visual inspection.
Phase III/IV Team	• All generation protection systems whose misoperations impact the bulk electric system • All protection systems on the bulk electric system. • Modify applicability to clarify that the requirements are applicable to the following: • Need to add language to ensure the Regional Requirements focus on the most impactive scenarios • PRC 003 to 005 only address generator (and transmission) protective systems, without defining this term. • There is no performance requirement or measure of effectiveness of a maintenance program required by the standard
Version 0 Team	• Define evidence • Include breakers/switches in list • Not a standalone standard
PRC-008-0 — Underfrequency Load Shedding Equipment Maintenance Programs	
FERC Order 693	Maintenance and testing of a protection system must be carried out within a maximum allowable time interval that is appropriate for the type of protection system and its impact on the reliability of the bulk power system.

Source	Language
Fill in the Blank Team	Okay if PRC-006 is fixed
Version 0 Team	• Consistent wording from standard to standard required • Definition of evidence required
PRC-011-0 — UVLS System Maintenance and Testing	
FERC Order 693	Maintenance and testing of a protection system must be carried out within a maximum allowable time interval that is appropriate for the type of protection system and its impact on the reliability of the bulk power system.
Version 0 Team	• Define evidence • Exemptions for those with shunt reactors
PRC-017-0 — Special Protection System Maintenance and Testing	
FERC Order 693	• Includes a requirement that documentation identified in Requirement R2 shall be routinely provided to the ERO or Regional Entity. 1546….and (2) a requirement that documentation identified in Requirement R2 shall be routinely provided to the ERO or Regional Entity • Maintenance and testing of a protection system must be carried out within a maximum allowable time interval that is appropriate for the type of protection system and its impact on the reliability of the bulk power system. • Require that documentation identified in requirement R2 be routinely provided to NERC or the regional entity. that includes: (1) …… and (2) a requirement that documentation identified in Requirement R2 shall be routinely provided to the ERO or Regional Entity
Version 0 Team	• Define evidence • Need to retain two dates

Project 2007-18 Reliability-based Control

Standards Involved:
BAL-001-0 — Real Power Balancing Control Performance
BAL-003-0 — Frequency Response and Bias
EOP-002-2 — Capacity and Energy Emergencies
IRO-005-2 — Reliability Coordination — Current Day Operations

Research Needed:
None

Brief Description:
This project includes expanding on the work already done in developing the draft BAL-007 through BAL-011 by adding requirements to address the following concerns:

- To support elimination of SOL/IROL violations caused by excessive (as determined by this standard) Area Control Error
- To prevent Interconnection frequency excursions of short duration attributed to the ramping of on and off-peak Interchange Transactions
- To support timely transmission congestion relief by requiring corrective load/generation management within a defined timeframe when ACE is impacted by the curtailment of
- Interchange Transactions under Transmission Loading Relief procedures
- To address the directives of FERC Order 693.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual plan): Annual Plan Item 3.a.viii — Justification for NAESB consideration: WEQ SRS analysis

SRS Recommendation: The NERC/NAESB JESS has reviewed EOP-002-2 and identified that there is potential coordination opportunities..

Standards Development Status:
Project 2007-18 Reliability-based Control Web page

Project Schedule:
Project 2007-18 Schedule

Standard Drafting Team Roster:

Chairman	Douglas E. Hils	Duke Energy
	Larry Akens	Tennessee Valley Authority
	William Herbsleb	PJM Interconnection, L.L.C.
	Howard F. Illian	Energy Mark, Inc.
	Clyde Loutan	California ISO
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Sydney Niemeyer	NRG Texas LP
	LeRoy Patterson	Patterson Consulting
	Michael Potishnak	ISO New England, Inc.
	Mark Prosperi-Porta	British Columbia Transmission Corporation
	Thomas W. Siegrist	EnerVision, Inc.
	Glenn Stephens	Santee Cooper
	Stephen Swan	Midwest ISO, Inc.
	Raymond L. Vice	Southern Company Services, Inc.
NERC Staff	Stephen Crutchfield	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
BAL-001-0 — Real Power Balancing Control Performance	
FERC Order 693	Regional Differences to BAL-001-0: ERCOT Control Performance Standard 2: Include requirements concerning frequency response contained in Section 5 of the ERCOT protocols. Paragraph 313. The Commission approves the ERCOT regional difference as mandatory and enforceable. Order No. 672 explains that "uniformity of Reliability Standards should be the goal and the practice, the rule rather than the exception." However, the Commission has stated that, as a general matter, regional differences are permissible if they are either more stringent than the continent-wide Reliability Standard, or if they are necessitated by a physical difference in the Bulk-Power System. Regional differences must still be just, reasonable, not unduly discriminatory or preferential and in the public interest. 314. The Commission finds that ERCOT's approach under section 5 of the ERCOT protocols appears to be a more stringent practice than Requirement R2 in BAL-001-0 and therefore approves the regional difference. 315. As proposed in the NOPR, the Commission directs the ERO to file a modification of the ERCOT regional difference to include the requirements concerning frequency response contained in section 5 of the ERCOT protocols. As with other new regional differences, the Commission expects that the ERCOT regional difference will include Requirements, Measures and Levels of Non-Compliance sections.
BAL-003-0 — Frequency Response and Bias	
NERC Audit Observation Team	Both requirements need to be met?
EOP-002-2 — Capacity and Energy Emergencies	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Source	Language
IRO-005-2 — Reliability Coordination — Current Day Operations	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Project 2008-01 Voltage and Reactive Control

Standards Involved:
VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules

Research Needed:
In August 2008, the Transmission Issues Subcommittee (TIS) formed the Reactive Support/Control Sub team to develop a report to address the fundamental issues associated with voltage and reactive control. The results of the report are being used to support improvements to the existing VAR standards and may result in development of an additional VAR standard. The Reactive Support and Control White Paper was produced by the TIS and identifies technical requirements needed to determine the reactive resources required under different system states. The white paper identifies the need for requirements that address:

- criteria and associated rationale needed to determine the split of dynamic reactive supply (such as reactive power provided by the generators and other dynamic devices) and static reactive power supply (such as static capacitors and other static devices)
- criteria for distribution of the interconnection's reactive resource needs among transmission, distribution, and generation facilities

The drafting team will incorporate the white paper into the standards as well as address other issues identified in the tables below.

Brief Description:
This is a new project and supports a blackout recommendation. Industry debate is needed on whether there should be a North American standard that requires a specific amount of reserves, or whether requirements for specific reserves should continue to be addressed at the regional level. The requirements in the existing standards need to be upgraded to be more specific in defining voltage and reactive power schedules. Consideration should be given to adding a requirement for the Reliability Coordinator to monitor and take action if reactive power falls outside identified limits.

The project will incorporate the interpretation of VAR-002 Requirement 1 and Requirement 2.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual plan):
Annual Plan Item 1

Justification for NAESB consideration:
Industry recommendations

SRS Recommendation:
This project may need NAESB attention in the future. The WEQ SRS will place this on its watch list.

Standards Development Status:

Project 2008-01 Voltage and Reactive project Web page

Project Schedule:

Project 2008-01 Project Schedule

Standard Drafting Team Roster:

TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
VAR-001-1 — Voltage and Reactive Control	
FERC Order 693	"Address reactive power requirements for LSEs on a comparable basis with purchasing-selling entities. Paragraph 1856. The Commission agrees with SoCal Edison that not all LSEs are purchasing selling entities, because not all LSEs purchase or sell power from outside of their balancing authority area. This understanding is consistent with the NERC functional model and NERC glossary. Both LSEs and purchasing-selling entities should have some requirements to provide reactive power to appropriately compensate for the demand they are meeting for their customers. Neither a purchasing-selling entity nor a LSE should depend on the transmission operator to supply reactive power for their loads during normal or emergency conditions."
	"Expand the applicability to include LSEs and reliability coordinators and define the reliability coordinators monitoring responsibilities. Paragraph 1854. In a complex power grid such as the one that exists in North America, reliable operations can only be ensured by coordinated efforts from all operating entities in long-term planning, operational planning and real-time operations. To that end, the Staff Preliminary Assessment recommended and the NOPR proposed that the applicability of VAR-001-1 extend to reliability coordinators and LSEs. 1855. Since a reliability coordinator is the highest level of authority overseeing the reliability of the Bulk-Power System, the Commission believes that it is important to include the reliability coordinator as an applicable entity to assure that adequate voltage and reactive resources are being maintained. As MISO points out, other Reliability Standards address responsibilities of reliability coordinators, but we agree with EEI that it is important to include reliability coordinators in VAR-001-1 as well. Reliability coordinators have responsibilities in the IRO and TOP Reliability Standards, but not the specific responsibilities for voltage levels and reactive resources addressed by VAR-001-1, which have a great impact on system reliability. For example, voltage levels and reactive resources are important factors to ensure that IROLs are valid and operating voltages are within limits, and that reliability coordinators should have responsibilities in VAR-001-1 to monitor that sufficient reactive resources are available for reliable system operations. Accordingly, the ERO should modify VAR-001-1 to include reliability coordinators as applicable entities and include a new requirement(s) that identifies the reliability coordinator's monitoring responsibilities."
	"Include APPA's comments regarding varying power factor requirements due to system conditions and equipment in the standards development process. Paragraph 1860. APPA contends that it may be difficult to reach an agreement on acceptable ranges of net power factors at the interfaces where LSEs receive service from the Bulk-Power System because the acceptable range of power factors at any particular point on the electrical system varies based on many location-specific factors. APPA further states that system power factors will be affected by the transmission infrastructure used to supply the load. As an example, APPA states that an overhead circuit may operate at a higher power factor than an underground cable due to a substantial amount of reactive line charging, and that a transmission circuit carrying low levels of real power will tend to provide more reactive power, which will affect the need to switch off capacitor banks at the delivery point to manage delivery power factors."
	"Includes detailed and definitive requirements on "established limits" and "sufficient reactive resources", and identifies acceptable margins above the voltage instability points. Paragraph 1868. In the NOPR, the Commission expressed concern that the technical requirements containing terms such as "established limits" or "sufficient reactive resources" are not definitive enough to address voltage instability and ensure reliable operations.475 To address this concern, the NOPR proposed directing the ERO to modify VAR-001-1 to include more detailed

Source	Language
	and definitive requirements on “established limits” and “sufficient reactive resources” and identify acceptable margins (i.e. voltage and/or reactive power margins) above voltage instability points to prevent voltage instability and to ensure reliable operations. We will keep this direction, and direct the ERO to include this modification in this Reliability Standard. 1869. We recognize that our proposed modification does not identify what definitive requirements the Reliability Standard should use for “established limits” and “sufficient reactive resources.” Rather, the ERO should develop appropriate requirements that address the Commission’s concerns through the ERO Reliability Standards development process. The Commission believes that the concerns of Dynegy, EEI and MISO are best addressed by the ERO in the Reliability Standards development process. 1870. In response to EEI’s concerns about a prescriptive analytical methodology, we clarify that the Commission is not asking that the Reliability Standard dictate what methodology must be used to determine reactive power needs. Rather, the Commission believes that the Reliability Standard would benefit from having more defined requirements that clearly define what voltage limits are used and how much reactive resources are needed to ensure voltage instability will not occur under normal and emergency conditions. For example, in the NOPR, the Commission suggested that NERC consider WECC’s Reliability Criteria, which contain specific and definitive technical requirements on voltage and margin application. While we are not directing that the WECC reliability criteria be adopted, we believe they represent a good example of clearly-defined requirements for voltage and reactive margins. 1871. In sum, the Commission believes that minimum requirements for voltage levels and reactive resources should be clearly defined by placing more detailed requirements on the terms “established limits” and “sufficient reactive resources” in the Reliability Standard as discussed in the NOPR and the Staff Preliminary Assessment. As mentioned above, EEI’s concerns should be considered in the ERO’s Reliability Standards development process."
	Address the concerns of Dynegy, EEI, and MISO through the standards development process. Paragraph 1864. Dynegy supports the Commission’s proposal to include more definitive requirements on “established limits” and “sufficient reactive resources.” It recommends that VAR-001-1 be further modified to require the transmission operator to have more detailed and definitive requirements when setting the voltage schedule and associated tolerance band that is to be maintained by the generator operator. Dynegy states that the transmission operator should not be allowed to arbitrarily set these values, but rather should be required to have a technical basis for setting the required voltage schedule and tolerance band that takes into account system needs and any limitations of the specific generator. Dynegy believes that such a requirement would eliminate the potential for undue discrimination, as well as the possibility of imposing overly conservative and burdensome voltage schedules and tolerance bands on generator operators that could be detrimental to grid reliability, or conversely, the imposition of too low a voltage schedule and too wide a tolerance band that could also be detrimental to grid reliability. 1865. While MISO supports the concept of including more detailed requirements, it believes that there needs to be a definitive reason for establishing voltage schedules and tolerances, and that any situations monitored in this Reliability Standard need to be limited to core reliability requirements. 1866. EEI seeks clarification about whether the Commission is suggesting that reactive requirements should aim for significantly greater precision, especially in terms of planning for various emergency conditions. If so, EEI cautions the Commission against “‘putting too many eggs’ in the reactive power ‘basket.’”474 To the extent compliance takes place pursuant to all other modeling and planning assessments under the other Reliability Standards, EEI strongly believes that the Commission should have some high level of confidence that the system’s reactive power needs can be met satisfactorily across a broad range of contingencies that planners might reasonably anticipate. Moreover, EEI believes that requirements to successfully predict reactive power requirements in conditions of near-system collapse would require significantly more creative guesswork than solid analysis and contingency planning. For example, EEI notes that the combinations and permutations of how a voltage collapse could occur on a system as large as the eastern Interconnection are numerous. 1867. EEI suggests that, alternatively, the Commission should consider that reactive power evaluations

Source	Language
	should be conducted within a process that is documented in detail and includes a range of contingencies that might be reasonably anticipated, because this would avoid the 'one size fits all' problem, where a prescriptive analytical methodology does not fit with a particular system configuration. EEI believes that this flexible approach would provide a more effective planning tool for the industry, while satisfying the Commission's concerns over potentially inadequate reactive reserves. MRO notes that the need for, and method of providing for, reactive resources varies greatly, and if this Reliability Standard is expanded it must be done carefully. MRO believes that all entities should not be required to follow the same methodology to accomplish the goal of a reliable system.
	Address the power factor range at the interface between LSEs and the transmission grid. Paragraph 1861. In the NOPR, the Commission asked for comments on acceptable ranges of net power factor at the interface at which the LSEs receive service from the Bulk-Power System during normal and extreme load conditions. The Commission asked for these comments in response to concerns that during high loads, if the power factor at the interface between many LSEs and the Bulk-Power System is so low as to result in low voltages at key busses on the Bulk-Power System, then there is risk for voltage collapse. The Commission believes that Reliability Standard VAR-001-1 is an appropriate place for the ERO to take steps to address these concerns by setting out requirements for transmission owners and LSEs to maintain an appropriate power factor range at their interface. We direct the ERO to develop appropriate modifications to this Reliability Standard to address the power factor range at the interface between LSEs and the Bulk-Power System. 1862. We direct the ERO to include APPA's concern in the Reliability Standards development process. We note that transmission operators currently have access to data through their energy management systems to determine a range of power factors at which load operates during various conditions, and we suggest that the ERO use this type of data as a starting point for developing this modification. 1863. The Commission expects that the appropriate power factor range developed for the interface between the bulk electric system and the LSE from VAR-001-1 would be used as an input to the transmission and operations planning Reliability Standards. The range of power factors developed in this Reliability Standard provides the input to the range of power factors identified in the modifications to the TPL Reliability Standards. In the NOPR, the Commission suggested that sensitivity studies for the TPL Reliability Standards should consider the range of load power factors.
	Include controllable load among the reactive resources to satisfy reactive requirements, considering the comments of Southern California Edison and SMA in the development of the standard. Paragraph 1879. The Commission noted in the NOPR that in many cases, load response and demand-side investment can reduce the need for reactive power capability in the system.476 Based on this assertion, the Commission proposed to direct the ERO to include controllable load among the reactive resources to satisfy reactive requirements for incorporation into Reliability Standard VAR-001-1. While we affirm this requirement, we expect the ERO to consider the comments of SoCal Edison with regard to reliability and SMA in its process for developing the technical capability requirements for using controllable load as a reactive resource in the applicable Reliability Standards. 1877. SMA supports adoption of the proposal to include controllable load as a reactive resource. SMA notes that its members' facilities often include significant capacitor banks, and further, reducing load can reduce local reactive requirements. 1878. SoCal Edison suggests caution regarding the Commission's proposal to include controllable load as a reactive resource. It agrees that, when load is reduced, voltage will increase and for that reason controllable load can lessen the need for reactive power. However, SoCal Edison believes that controllable load is typically an energy product and there are other impacts not considered by the Commission's proposal to include controllable load as a reactive resource. For example, activating controllable load for system voltage control lessens system demand, requiring generation to be backed down. It is not clear to SoCal Edison whether any consideration has been given to the potential reliability or commercial impacts of the

Source	Language
	Commission's proposal.
	Perform voltage analysis periodically, using on-line techniques where commercially available and off-line techniques where not available on-line, to assist real-time operations, for areas susceptible to voltage instability. Paragraph 1875. In response to the concerns of APPA, SDG&E and EEI on the availability of tools, the Commission recognizes that transient voltage stability analysis is often conducted as an offline study, and that steady-state voltage stability analysis can be done online. The Commission clarifies that it does not wish to require anyone to use tools that are not validated for real-time operations. Taking these comments into consideration, the Commission clarifies its proposed modification from the NOPR. For the Final Rule, we direct the ERO, through its Reliability Standards development process, to modify Reliability Standard VAR-001-1 to include Requirements to perform voltage stability analysis periodically, using online techniques where commercially-available, and offline simulation tools where online tools are not available, to assist real-time operations. The ERO should consider the available technologies and software as it develops this modification to VAR-001-1 and identify a process to assure that the Reliability Standard is not limiting the application of validated software or other tools.
Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan: 2010-2012	Requirement R2 requires the TOP to acquire sufficient reactive resources. The statement probably ought to clearly delineate that this requirement is applicable to the operating horizon only and that the TP is responsible for adequate reactive resources in the planning horizon.
NERC Audit Observation Team	If the TOP does not supply the GOP with a voltage or reactive power schedule is that a noncompliance for the TOP?
Phase III/IV Team	Consolidate R8 and R9
	No criteria for what is an acceptable reactive margin.
	No requirement for verifying that the reactive resources are truly available.
	R10 remove "first" so as not to limit this requirement to first contingency conditions. As written with or without removing "first", R10 provides no additional information not already required in R3.
	R10.1 does 'disperse and locate' mean the same as 'dispatch'? If so, changing the wording to 'dispatch' would make the meaning clearer.
	R11 — Redundant with TOP-007
	R3 covers normal and contingency conditions, while R10 mentions only first contingency conditions. Is there a reason for this difference?
	R3 Suggest changing the phrase…"to protect the voltage"…. To "maintain the voltage"
	R3, R6, R10 go beyond the control of the responsible entity noted.
	R3, the Transmission Operator only has the reactive resources that exist in the area — how does the TO "acquire sufficient reactive resources" if existing resources are not adequate?
	R5 This requirement is an Open Access Transmission Tariff requirement and does not belong in a reliability standard.

Source	Language
	R6 and R10.1 presume that sufficient reactive resources are available.
	R7 and R8 — consider adding more specificity to distinguish the TOP's authority to direct others to operate (Each Transmission Operator shall operate owned devices or direct the operation of, within their normal operating parameters and capabilities, capacitive and inductive reactive resources within its area-including reactive generation scheduling; transmission line and reactive resource switching; and, if necessary, load shedding- to maintain system and Interconnection voltages within established limits.)
	R7 obligates Transmission Operators to know the status of all reactive power sources including AVRs and PSSs. Clarify that this means the generator is available and if dispatched will operate in voltage control mode and with the PSS active.
	R9.1 This requirement is not feasible. Cannot dictate where generation resources are to be disbursed or located.
	Should R3 be assigned to the TP?
	Should the word "acquire" in R3 be replaced with the word "operate"?
	The language in the measures and compliance sections such as "2.1.2 One incident of failing to maintain a voltage or reactive power schedule" is too vague and does not specify any duration that is acceptable or unacceptable to be off schedule.
	VAR-001 requirements (R1, R2, R7, R8, R9, R10, and R12) are redundant to the TOP standards
	What does the second sentence in R3 mean by the phrase 'transmission operator's share of the reactive requirements of interconnecting transmission circuits'? What would be the reactive requirements of transmission circuits?
	Will R6 also apply to wind generation absorbing reactive power at the point of interconnection?
Version 0 Team	• Add BA (R1 & 3)and RA (R5, 7, 8, 10 & 11) • Add GO as entity • Clarify if this includes distribution • Clarify responsibility for voltage support • Define high probability • Define voltage levels • Delete SOL violations • Expand to include relays • Mention power factor requirements for distribution • Move R9 to 5.2 • Not a standard but a business practice
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules	
FERC Order 693	Consider Dynegy's suggestion to improve the standard. Paragraph 1883. Dynegy believes that VAR-002-1 should be modified to require more detailed and definitive requirements when defining the time frame associated with an "incident" of non compliance (i.e., each 4-second scan, 10-minute integrated value, hourly integrated value). Dynegy states that, as written, this Reliability Standard does not define the time frame associated with an "incident" of non-compliance, but apparently leaves this decision to the transmission operator. Dynegy believes that either more detail should be added to the Reliability Standard to cure this omission, or the

Source	Language
	Reliability Standard should require the transmission operator to have a technical basis for setting the time frame that takes into account system needs and any limitations of the generator. Dynegy believes that this approach will eliminate the potential for undue discrimination and the imposition of overly conservative or excessively wide time frame requirements, both of which could be detrimental to grid reliability.
NERC Audit Observation Team	If a generator does not have an automatic voltage regulator do they need to install one?
Phase III/IV Team	R5 of VAR-002: Recognizing that such action would require the generator to change its loading level or cycle, the transmission operator should not rely on tap position changes on a step-up transformer with a no-load tap changer (NLTC) for periodic or seasonal system control, unless there is an explicit voluntary arrangement with the Generator Operator. For each instance of an urgent directive for such action, the transmission operator must justify its action to affected parties

Project 2008-02 Undervoltage Load Shedding

Standards Involved:
PRC-010-0 — Assessment of the Design and Effectiveness of UVLS Program
PRC-022-1 — Under-Voltage Load Shedding Program Performance

Research Needed:
Criteria for installing UVLS need to be identified. The "Technical Reference Paper Fault-Induced Delayed Voltage Recovery" was accepted by the NERC Planning Committee in June of 2009. This reference paper identifies a Fault Induced Delayed Voltage Recovery (FIDVR) as the phenomenon whereby system voltage remains at significantly reduced levels for several seconds after a transmission, sub transmission, or distribution fault has been cleared. Significant load loss due to motor protective device action can result, as can significant loss of generation, with a potential secondary effect of high system voltage due to load loss. A severe event can result in fast voltage collapse. This phenomenon should be addressed in the development of UVLS criteria.

Brief Description:
These standards should be consolidated. Missing are any criteria for identifying where UVLS should be installed.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster:
TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
PRC-010-0 — Technical Assessment of the Design and Effectiveness of Undervoltage Load Shedding Program	
FERC Order 693	Require that an integrated and coordinated approach be included in all protection systems on the bulk power system, including generators and transmission lines, generators' low-voltage ride-through capabilities, and UFLS and UVLS systems. Paragraph 1509. We appreciate MEAG's feedback to our response in the NOPR. For the reasons discussed in the NOPR, as well as our explanation above, the Commission approves Reliability Standard PRC-010-0 as mandatory and enforceable. In addition, the Commission directs the ERO to develop a modification to PRC-010-0 through the Reliability Standards development process that requires that an integrated and coordinated approach be included in all protection systems on the Bulk-Power System, including generators and transmission lines, generators' low voltage ride-through capabilities, and UFLS and UVLS programs.
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Fill in the Blank Team	Placeholder

Source	Language
Phase III/IV Team	• PRC-010 is a very weak standard — it only requires documentation and, in very broad terms, 'coordination' — it doesn't specify any level of desired performance or any specific scope for coordination. There should be some details to identify what the coordination must achieve — such as verification that the UVLS will trip when voltage drops to a specified voltage and verification that only a specified amount of load will be tripped and that other special protection systems will not be activated by the UVLS program. • There is no requirement that identifies the desired performance of a UVLS program (what voltage set points and timing are acceptable?). • What is the reliability-related need for the RRO to collect data on misoperations and operations of UVLS programs? Is this information used for anything?
Team Comments	Provide clarity where the Planning Authority is mentioned
Version 0 Team	• Define evidence • Exemptions for some who use shunt reactors • Level 4 vs. level 1 changes
PRC-022-1 — Under-Voltage Load Shedding Program Performance	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
FERC Order 693	Consider FirstEnergy's suggestions to revise requirement R1.3 as part of the standards development process. Paragraph 1564. FirstEnergy comments that Requirement R1.3 requires "a simulation of the event, if deemed appropriate by the RRO" and believes that the applicable entities such as transmission operators may not be able to simulate large system events. FirstEnergy suggests that Requirement R1.3 be revised to state that "a simulation of the event, if deemed appropriate, and assisted by the [regional reliability organization]."

Source	Language
Phase III/IV Team	• Consider incorporating into this family of standards a requirement that each TO should study, and implement if found effective, a UVLS program to mitigate the risk of voltage collapse or voltage instability in the BES. • The reliability-related need for the RRO to collect data on operations and misoperations isn't clear — should this be revised and made available instead to the Compliance Monitor or to the Planning Authority? • The TO should also be required to demonstrate that its UVLS program is coordinated with adjacent TOs.

Project 2008-06 Cyber Security — Order 706

Standards Involved:
CIP-002-1 — Critical Cyber Asset Identification
CIP-003-1 — Security Management Controls
CIP-004-1 — Personnel & Training
CIP-005-1 — Electronic Security Perimeter(s)
CIP-006-1 — Physical Security of Critical Cyber Assets
CIP-007-1 — Systems Security Management
CIP-008-1 — Incident Reporting and Response Planning
CIP-009-1 — Recovery Plans for Critical Cyber Assets

Research Needed:
None

Brief Description:
Implement changes to the Cyber Security Standards (above) as indicated in FERC Order 706.

This set of revisions in this project includes:

- Modifying the standards so they conform to the latest approved versions of the ERO Rules of Procedure as outlined in the Standard Review Guidelines identified in Attachment 1.
- Addressing the directives issued by FERC, in Order 706 relative to the approved Cyber Security Standards CIP-002-1 through CIP-009-1. Refer to http://www.ferc.gov/whats-new/comm-meet/2008/011708/E-2.pdf for the complete text of the final order. Specific requirements from the Order are identified in Attachment 2.
    - Emphasis on Order 706 directive for NERC to address revisions to the CIP standards considering applicable feature of the NIST Security Risk Management Framework among other resources.
- Incorporating clarifications from the Interpretation of CIP-006-1 Requirement 1.1.

Additional issues identified by stakeholders during the posting of this SAR are listed in Attachment 3.

Revisions should consider other Cyber-related standards, guidelines and activities:

- Consider adopting the NIST Security Risk Management Framework (includes GAO, OMB and FIPS)
- Consider other cyber security related documents such as NIST, ISO 27000 Family, CIPC WG Risk Assessment Guideline, MITRE corporation technical report, DHS, National Laboratories papers, DOE 417, IEC, ISA, etc.
- Stay apprised of coordination work between FERC, NEI and NRC in regard to the nuclear facility exemption issue with respect to regulatory gaps. As necessary modify the standards to reflect current determinations.

Standards Development Status:
Project 2008-06 Cyber Security Web page

Project Schedule:
TBD

Standard Drafting Team Roster:

Chairman	Jeri Domingo Brewer	U.S. Bureau of Reclamation
Vice Chairman	Kevin B. Perry	Southwest Power Pool Regional Entity
	Robert Antonishen	Ontario Power Generation Inc.
	Jim Brenton	Electric Reliability Council of Texas, Inc.
	Jackie Collett	Manitoba Hydro
	Jay S. Cribb	Southern Company Services, Inc.
	Joe Doetzl	Kansas City Power & Light Co.
	Sharon Edwards	Duke Energy
	Scott W. Fixmer	Exelon Corporation
	Gerald S. Freese	American Electric Power
	Philip Huff	Arkansas Electric Cooperative Corporation
	Frank Kim	Hydro One Networks, Inc.
	Richard Kinas	Orlando Utilities Commission
	John Lim, CISSP	Consolidated Edison Co. of New York
	David L. Norton	Entergy Corporation
	Christopher Peters	ICF International
	David S Revill	Georgia Transmission Corporation
	Scott Rosenberger	Luminant Energy
	Kevin Sherlin	Sacramento Municipal Utility District
	Jon Stanford	Bonneville Power Administration
	Keith Stouffer	National Institute of Standards & Technology
	John D. Varnell	Tenaska Power Services Co.
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NERC Staff	Roger Lampila	North American Electric Reliability Corporation
NERC Staff	Scott Mix	North American Electric Reliability Corporation
NERC Staff	David Taylor	North American Electric Reliability Corporation
NERC Staff	Todd Thompson	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
CIP-001-1 — Sabotage Reporting	
FERC Order 693	Consider the need for wider application of the standard. Consider whether separate, less burdensome requirements for smaller entities may be appropriate. Paragraph 458. The Commission acknowledges the concerns of the commenter's about the applicability of CIP-001-1 to small entities and has addressed the concerns of small entities generally earlier in this Final Rule. Our approval of the ERO Compliance Registry criteria to determine which users, owners and operators are responsible for compliance addresses the concerns of APPA and others. 459. However, the Commission believes that there are specific reasons for applying this Reliability Standard to such entities, as discussed in the NOPR. APPA indicates that some small LSEs do not own or operate "hard assets" that are normally thought of as "at risk" to sabotage. The Commission is concerned that, an adversary might determine that a small LSE is the appropriate target when the adversary aims at a particular population or facility. Or an adversary may target a small user, owner or operator because it may have similar equipment or protections as a larger facility, that is, the adversary may use an attack against a smaller facility as a training "exercise." The knowledge of sabotage events that occur at any facility (including small facilities) may be helpful to those facilities that are traditionally considered to be the primary targets of adversaries as well as to all members of the electric sector, the law enforcement community and other critical infrastructures. 460. For these reasons, the Commission remains concerned that a wider application of CIP-001-1 may be appropriate for Bulk-Power System reliability. Balancing these concerns with our earlier discussion of the applicability of Reliability Standards to smaller entities, we will not direct the ERO to make any specific modification to CIP-001-1 to address applicability. However, we direct the ERO, as part of its Work Plan, to consider in the Reliability Standards development process, possible revisions to CIP-001-1 that address our concerns regarding the need for wider application of the Reliability Standard. Further, when addressing such applicability issues, the ERO should consider whether separate, less burdensome requirements for smaller entities may be appropriate to address these concerns.
	"Define "sabotage" and provide guidance on triggering events that would cause an entity to report an event. Paragraph 461. Several commenter's agree with the Commission's concern that the term "sabotage" should be defined. For the reasons stated in the NOPR, we direct that the ERO further define the term and provide guidance on triggering events that would cause an entity to report an event. However, we disagree with those commenter's that suggest the term "sabotage" is so vague as to justify a delay in approval or the application of monetary penalties. As explained in the NOPR, we believe that the term sabotage is commonly understood and that common understanding should suffice in most instances. Further, in the interim while the matter is being addressed by the Reliability Standards development process, we direct the ERO to provide advice to entities that have concerns about the reporting of particular circumstances as they arise. 462. Further, in defining sabotage, the ERO should consider FirstEnergy's suggestions to differentiate between cyber and physical sabotage and develop a threshold of materiality. However, regarding the latter suggestion, the Commission directs that guidance for a threshold of materiality must be designed carefully to mitigate the risk that an unsuccessful sabotage event is not correctly reported because it did not cause sufficient harm. 463. Requirement R1 of CIP-001-1 provides that an applicable entity must have procedures "for the recognition of and for making their operational personnel aware of sabotage events on its facilities and multi-site sabotage affecting larger portions of the Interconnection." The NOPR expressed concern that the provision does not establish baseline requirements regarding what

Source	Language
	issues should be addressed by the developed procedures. APPA goes even further and, characterizing it as an entity specific fill-in the-blank standard, contends that it lacks sufficient detail upon which the ERO can base compliance and enforcement efforts. 464. While the Commission believes that this Reliability Standard can and should be enhanced by specifying baseline requirements regarding what issues should be addressed in the procedures for recognizing sabotage events and making personnel aware of such events, it disagrees with APPA that Requirement R1 lacks sufficient detail on which to base ERO compliance and enforcement efforts. As indicated in Measure M1, an applicable entity must have and maintain the procedure as defined by Requirement R1. Thus, if an applicable entity cannot provide the required procedure to the ERO or a Regional Entity auditor upon request, it would likely be subject to an enforcement action. While we expect that an applicable entity that has made a good faith effort to develop a meaningful procedure to comply with Requirement R1 (and Measure M1) would not be subject to an enforcement action, an ERO or Regional Entity audit team may provide steps to improve the individual entity's procedure, which would serve as a baseline for that entity for any subsequent audit. Such an approach would be acceptable and allow for meaningful compliance in the interim until CIP-001-1 is modified pursuant to our directive."
	In the interim, provide advice to entities about the reporting of particular circumstances as they arise. Paragraph 461. Several commenter's agree with the Commission's concern that the term "sabotage" should be defined. For the reasons stated in the NOPR, we direct that the ERO further define the term and provide guidance on triggering events that would cause an entity to report an event.209 However, we disagree with those commenter's that suggest the term "sabotage" is so vague as to justify a delay in approval or the application of monetary penalties. As explained in the NOPR, we believe that the term sabotage is commonly understood and that common understanding should suffice in most instances.210 Further, in the interim while the matter is being addressed by the Reliability Standards development process, we direct the ERO to provide advice to entities that have concerns about the reporting of particular circumstances as they arise.
	Consider FirstEnergy's suggestions to differentiate between cyber and physical security sabotage and develop a threshold of materiality. Paragraph 451. A number of commenter's agree with the Commission's concern that the term "sabotage" needs to be better defined and guidance provided on the triggering events that would cause an entity to report an event. FirstEnergy states that this definition should differentiate between cyber and physical sabotage and should exclude unintentional operator error. It advocates a threshold of materiality to exclude acts that do not threaten to reduce the ability to provide service or compromise safety and security. SoCal Edison states that clarification regarding the meaning of sabotage and the triggering event for reporting would be helpful and prevent over-reporting.
	Incorporate a periodic review or updating of the sabotage reporting procedures and for their periodic testing. Consider a staggered schedule of annual testing and formal review every two to three years. Paragraph 466. The Commission affirms the NOPR directive and directs the ERO to incorporate a periodic review or updating of the sabotage reporting procedures and for the periodic testing of the sabotage reporting procedures. At this time, the Commission does not specify a review period as suggested by FirstEnergy and MRO and, rather, believes that the appropriate period should be determined through the ERO's Reliability Standards development process. However, the Commission directs that the ERO begin this process by considering a staggered schedule of annual testing of the procedures with modifications made when warranted formal review of the procedures every two or three years.
	"Include a requirement to report a sabotage event to the proper government authorities. Develop the language to specifically implement this directive. Paragraph 467. CIP-001-1, Requirement R4, requires that each applicable entity establish communications contacts, as applicable, with

Source	Language
	the local FBI or Royal Canadian Mounted Police officials and develop reporting procedures as appropriate to its circumstances. The Commission in the NOPR expressed concern that the Reliability Standard does not require an applicable entity to actually contact the appropriate governmental or regulatory body in the event of sabotage. Therefore, the Commission proposed that NERC modify the Reliability Standard to require an applicable entity to "contact appropriate federal authorities, such as the Department of Homeland Security, in the event of sabotage within a specified period of time."212 468. As mentioned above, NERC and others object to the wording of the proposed directive as overly prescriptive and note that the reference to "appropriate federal authorities" fails to recognize the international application of the Reliability Standard. The example of the Department of Homeland Security as an "appropriate federal authority" was not intended to be an exclusive designation. Nonetheless, the Commission agrees that a reference to "federal authorities" could create confusion. Accordingly, we modify the direction in the NOPR and now direct the ERO to address our underlying concern regarding mandatory reporting of a sabotage event. The ERO's Reliability Standards development process should develop the language to implement this directive."
	Explore ways to reduce redundant reporting, including central coordination of sabotage reports and a uniform reporting format. Paragraph 469. As noted above, FirstEnergy, EEI and others express concern regarding the potential for redundant reporting under CIP-001-1 and other government reporting standards, and the need for greater coordination. The Commission understands the concern about multiple reporting channels that may arise and the burden that this may present to applicable entities. We direct the ERO to explore ways to address these concerns — including central coordination of sabotage reports and a uniform reporting format — in developing modifications to the Reliability Standard with the appropriate governmental agencies that have levied the reporting requirements.
NERC Audit Observation Team	• Registered Entities have sabotage reporting processes and procedures in place but not all personnel has been trained. • "What is meant by: "establish contact with the FBI"? Is a phone number adequate? Many entities which call the FBI are referred back to the local authority. The AOT noted that on the FBI website it states to contact the local authorities. Is this a question for Homeland Security to deal with for us?" • Establish communications contacts, as applicable with local FBI and RAMP officials. Some entities are very remote and the sheriff is the only local authority does the FBI still need to be contacted? • Question: How do you "and make the operator aware" • How does this standard pertain to Load Serving Entities, LSE's?
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-

Source	Language
	040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Version 0 Team	• Object to multi-site requirement • Definition of sabotage required
VRFs Team	Adequate procedures will insure it is unlikely to lead to bulk electric system instability, separation, or cascading failures.
CIP-002-1 — Critical Cyber Asset Identification	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
CIP-003-1 — Cyber Security — Security Management Controls	
NERC Audit Observation Team	Security Management Controls specifies the minimum Critical Cyber Asset information to be protected in requirement R4.1. Among the information asset types identified by R4.1. are network topology diagrams. The context of this requirement is clear and applies to computer network topology diagrams relating to Critical Cyber Asset information only.
VRFs Team	R4.2 — only an administrative requirement
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf)

Source	Language
	• NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
CIP-004-1 — Cyber Security — Personnel & Training	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
VRFs Team	R3 - This needs to be looked at for 30 days - should be done prior to access being granted.
CIP-005-1 — Cyber Security — Electronic Security Perimeter(s)	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Source	Language
VRFs Team	• R1.3 — administrative definition • R1.5 — standard to comply with a standard = double jeopardy
CIP-006-1 — Cyber Security — Physical Security of Critical Cyber Assets	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
VRFs Team	• R1.5 & .9 — Should be consistent with CIP-005 • R1.8 - A requirement to meet other standard requirements - double jeopardy • R2.1, .2, .3 & .4 - These are 4 things from which to choose one or more, so no one of them is required. Should be a bulleted list, not subrequirements. • R3.1 — May statement
CIP-007-1 — Cyber Security — Systems Security Management	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Source	Language
VRFs Team	• R2 & 2.3 — An open port can lead to loss of system integrity. • R3 — An improper patch can lead to loss of system integrity.
CIP-008-1 — Incident Reporting and Response Planning	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
CIP-009-1 — Recovery Plans for Critical Cyber Assets	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Project 2008-12 Coordinate Interchange Standards

Standards Involved:

INT-001-3 — Interchange Transaction Tagging
INT-003-2 — Interchange Transaction Implementation
INT-004-1 — Interchange Transaction Modifications
INT-005-2 — Interchange Authority Distributes Arranged Interchange
INT-006-2 — Response to Interchange Authority
INT-007-1 — Interchange Confirmation
INT-008-2 — Interchange Authority Distributes Status
INT-009-1 — Implementation of Interchange
INT-010-1 — Interchange Coordination Exemptions

Research Needed:

None

Brief Description:

The modifications in the set of Coordinate Interchange Standards should address the following:

- Determine if the activities in the Coordinate Interchange standards correctly identify the responsible entity.
- Consider requiring the Sink Balancing Authority responsibility for Interchange Authority functions, using an interchange transaction tool process as defined in the latest approved version of the e-Tag Specifications.
- The existing requirements are tool-neutral — consider adding specific references to the e-Tagging process in the requirements
- Consider adding a requirement to have backup capability for use when the interchange transaction tool fails.
- Consider combining requirements into a fewer number of standards so that the resultant set of requirements follows a chronological sequence that is easier to follow.
- Address the directives issued by FERC in Order 693, and the stakeholder comments from the V0 drafting team and the Violation Risk Factor drafting team. (See Attachment 1)
- Determine if there is industry-wide support for the Interchange Subcommittee's Principles and definition supporting dynamic transfers and pseudo-ties and if there is support, modify the requirements and add definitions accordingly. Make other changes to the standards to bring them into conformance with the latest version of the Reliability Standards Development Procedure, Sanctions Guidelines and Uniform Compliance Monitoring and Enforcement Program.
- The work in this project should be done in two phases, with the first phase focused solely on clarifying the applicability of each requirement in the existing set of standards. All other revisions should take place in a second phase.

Coordination with NAESB:

The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual plan):

Annual Plan Item 3.a.viii

Justification for NAESB consideration:

Industry recommendations

SRS Recommendation:

The NERC/NAESB JESS was assigned to review and correct WEQ-004 Coordinate Interchange Business Practice Standard as needed based on activities in NERC Project 2008-12, Coordinate Interchange Standards Revisions and supporting EOP-002-2 R4 and R6.

Standards Development Status:

Project 2008-12 Coordinate Interchange Standards Web page

Project Schedule:

Project 2008-12 Project Schedule

Standard Drafting Team Roster:

Chairman	Joseph Gardner	Midwest ISO, Inc.
	Clint Aymond	Entergy Services, Inc.
	Kelly W Bertholet	Manitoba Hydro
	Eric Grau	Tennessee Valley Authority
	James Michael Hansen	Seattle City Light
	Peter Harris	ISO New England, Inc.
	Robert H. Harshbarger	Puget Sound Energy, Inc.
	Donald P. Lacen	Public Service Company of New Mexico
	Marcus V Lotto	Southern California Edison Co.
	Gregory D Maxfield	PacifiCorp
	David McRee	Duke Energy Carolina
	Joel L Mickey	Electric Reliability Council of Texas, Inc.
	Brian Neal	Bonneville Power Administration
	Michael Oatts	Southern Company Services, Inc.
	Christopher Pacella	PJM Interconnection, L.L.C.
NERC Staff	Andrew J. Rodriquez	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
NAESB Standards Review Subcommittee	NAESB Standards Review Subcommittee as input to the Reliability Standards Development Plan: 2010-2012: NAESB requests that NERC engage in coordination with them as needed on this project as it relates to item 3.a.viii in the NAESB WEQ 2009 Annual Plan.
INT-001-2 — Interchange Information	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
FERC Order 693	• Include a requirement that interchange information must be submitted for all point-to-point transfers entirely within a balancing authority area, including all grandfathered and "non-Order No. 888" transfers. • Consider Santa Clara's comments about the applicability of the LSE in the standard as part of the standards development process.
Regional Difference to INT-001/4: WECC Tagging Dynamic Schedules and Inadvertent Payback	Submit a filing within 90 days of the Order that provides the needed information or withdraws the regional variance.
VRF comments	• R1, 1.1, 2, 2.1, 2.2 – commercial and administrative
V0 Industry Comments	• R1 - Too stringent • R1 – Who tags dynamic schedules? • Load PSE responsibility is new restriction • Clarify tagging of reserves • R2.2 – 60 minute time frame questioned • Question on generation scheduling

Source	Language
	• Onerous to BA's • More commercial problem than reliability • Lack of compliance
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-003-2 — Interchange Transaction Implementation	
VRF Comments	R1, 1.1, 1.1.2, 1.2 – commercial and administrative
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-004-1 — Dynamic Interchange Transaction Modifications	
FERC Order 693	Consider adding levels of non-compliance to the standard.
Regional Difference to INT-001/4:	WECC Tagging Dynamic Schedules and Inadvertent Payback: Submit a filing within 90 days of the Order that provides the needed information or withdraws the regional variance.
V0 Industry Comments	• Replace TSP with TOP • Need to address tag curtailment • Suggested non-compliance levels • Non-compliance based on % • Use WECC criteria
VRF comments	R2, 2.2, 2.3 – commercial and administrative
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-005-2 — Interchange Authority Distributes Arranged Interchange	
FERC Order 693	Consider adding levels of non-compliance to the standard.
VRF comment	R5 – administrative
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-006-2 — Response to Interchange Authority	
FERC Order 693	• Include reliability coordinators and transmission operators as applicable entities. • Require reliability coordinators and transmission operators to review energy interchange transactions from the wide-area and local area reliability viewpoints respectively and, where their review indicates a potential detrimental reliability impact, communicate to the sink balancing authorities' necessary transaction modifications before implementation. • Consider the suggestions made by EEI and TVA and address questions raised by

Source	Language
	Entergy and Northern Indiana as part of the standard development process.
NERC Audit and Observation Team	Does confirmed action mean direct action needs to be taken or, does confirmed action mean that a process has been put in place that will take action and, the entity agrees with such since they have employed the program.
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-007-1 — Interchange Confirmation	
VRF comment	R1, 1.1, 1.3, 1.3.1, 1.3.2, 1.3.3, 1.3.4, 1.4 – administrative
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-008-2 — Interchange Authority Distributes Status	
FERC Order 693	Consider APPA's suggestion to clarify what reliability entity the standard applies as part of the standard development process.
VRF comments	R1.1.1 & 1.1.2 – commercial and administrative
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-009-1 — Implementation of Interchange	
FERC Order 693	Consider APPA's suggestion to clarify what reliability entity the standard applies as part of the standard development process.
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-010-1 — Interchange Coordination Exemptions	
FERC Order 693	Consider Northern Indiana's and ISO-NE's suggestions in the standards development process.
VRF comments	R1 & 3 – administrative
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA

Project 2009-01 Disturbance and Sabotage Reporting

Standards Involved:
CIP-001-0 — Sabotage Reporting
EOP-004-1 — Disturbance Reporting

Research Needed:
None

Brief Description:
The existing requirements need to be revised to be more specific — and there needs to be more clarity in what sabotage looks like.

CIP-001 may be merged with EOP-004 to eliminate redundancies. Acts of sabotage have to be reported to the DOE as part of EOP-004. Specific references to the DOE form need to be eliminated.

EOP-004 has some 'fill-in-the-blank' components to eliminate.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2009-01 Disturbance and Sabotage Reporting Web page

Project Schedule:
Project 2009-01 Project Schedule

Standard Drafting Team Roster:

Chairman	Ed Seddon	Orlando Utilities Commission
Vice Chairman	Judith A. James	Texas Regional Entity
SAR Requester	Patrick Brown	PJM Interconnection, L.L.C.
	Joseph G. DePoorter	Madison Gas and Electric Co.
	Brandy A Dunn	Western Area Power Administration
	Brian Evans-Mongeon	Utility Services LLC
	Brian M Harrell	SERC Reliability Corporation
	James E. Hartmann, Jr.	Electric Reliability Council of Texas, Inc.
	Tom Jones	Midwest ISO, Inc.
	David McRee	Duke Energy Carolina
	Mark Mullen	Xcel Energy, Inc.
	Drew Phillips	Independent Electricity System Operator
	Lewe Sessions	NextEra Energy Resources, LLC
	Raymond Tran	Ascendant Energy Services, LLC
NERC Staff	Stephen Crutchfield	North American Electric Reliability Corporation
NERC Staff	Scott Mix	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
EOP-004-1 — Disturbance Reporting	
Events Analysis Team	Reliability Issue: Coordination and follow up on lessons learned from event analyses Consider adding to EOP-004 – Disturbance Reporting Proposed requirement: Regional Entities (REs) shall work together with Reliability Coordinators, Transmission Owners, and Generation Owners to develop an Event Analysis Process to prevent similar events from happening and follow up with the recommendations. This process shall be defined within the appropriate NERC Standard
FERC Order 693	Ensure NERC's Rules of Procedure are revised to assure the Commission receives these reports in the same frame as the DOE. Paragraph 618: Requirement R3 addresses the reporting of disturbances to the regional reliability organizations and NERC. The Commission directs the ERO to change its Rules of Procedure to assure that the Commission also receives these reports within the same time frames as DOE.
	Consider all comments offered in a future modification of the reliability standard. Comments begin at paragraph 606 of the order. 606. EEI and FirstEnergy support the Commission's proposed modifications to the Reliability Standard. EEI states that data reporting requirements and other process requirements should be contained in enforceable Reliability Standards. FirstEnergy states that the proposed modification corresponds to good utility practice and that explicitly stating the requirement to provide data to NERC brings clarity to the expectations of NERC and the Commission. 607. APPA is concerned about the scope of Requirement R2 because, in its opinion, Requirement R2 appears to impose an open-ended obligation on entities such as generation operators and LSEs that may have neither the data nor the tools to promptly analyze disturbances that could have originated elsewhere. APPA proposes that Requirement R2 be modified to require affected entities to promptly begin analyses to ensure timely reporting to NERC and DOE. 608. Xcel expresses concern regarding what constitutes a reportable event for each applicable entity and recommends that the Reliability Standard be revised to define what a reportable event is for each entity that has reporting obligations. Further, Xcel states that the requirement in Requirement R3.4 for a final report within 60 days may not be feasible given the current WECC process, which among other things, requires the creation of a group to prepare the report and a 30-day posting of a draft report before it becomes final. Xcel also states that if the ultimate purpose of the report is to provide information to avoid a recurrence of a system disturbance, then the Reliability Standard should be revised to require the distribution of the report to similarly situated entities. 609. FirstEnergy states that, since nuclear units have their own NRC reporting procedures covering the Requirements under EOP-004-1, the Reliability Standard should specify that compliance with such operating procedures is sufficient to satisfy the requirements of EOP-004-1. FirstEnergy also states that the title of this Reliability Standard should be changed to "Disturbance Event Reporting" to indicate that the events covered under this Reliability Standard include a broad range of events that go beyond the events for which reports may be required under Reliability Standard BAL-002-0. 610. APPA states that NERC's November 15, 2006 revision partially fulfills the proposed modification to include Measures and Levels of Non-Compliance. APPA notes that EOP-004-1 did not provide Measures for R2, R3.2, R3.4, R4 and R5.
	Consider APPA's concern about generator operators and LSEs analyzing performance of their equipment and provide data and information on the equipment to assist others with analysis. Paragraph 607. APPA is concerned about the scope of Requirement R2 because, in its opinion, Requirement R2 appears to impose an open-ended obligation on entities such as generation operators and LSEs that may have neither the data nor the tools to promptly analyze disturbances that could have originated elsewhere. APPA proposes that Requirement R2 be modified to require affected entities to promptly begin analyses to ensure timely

Source	Language
	reporting to NERC and DOE.
	Include any requirements for users, owners, and operators of the bulk power system to provide data that will assist NERC in the investigation of a blackout or disturbance. Paragraph 617. While the Commission has identified concerns with regard to EOP-004-1, we believe that the proposal serves an important purpose in establishing requirements for reporting and analysis of system disturbances. Accordingly, the Commission approves Reliability Standard EOP-004-1 as mandatory and enforceable. In addition, pursuant to section 215(d) (5) of the FPA and § 39.5(f) of our regulations, the Commission directs the ERO to develop a modification to EOP-004-1 through the Reliability Standards development process that includes any Requirements necessary for users, owners and operators of the Bulk-Power System to provide data that will assist NERC in the investigation of a blackout or disturbance.
Fill in the Blank Team	• Consider changes to R1 and R3.4 to standardize the disturbance reporting requirements (requirements for disturbance reporting need to be added to this standard) • Regions currently have procedures, but not in the form of a standard. The drafting team will need to review regional requirements to determine reporting requirements for the North American standard.
NERC Audit Observation Team	Can there be a violation without an event?
Version 0 Team	• How does this apply to generator operator? • R3 – too many reports, narrow requirement to RC
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Project 2009-02 Real-time Tools

Standards Involved:
New

Research Needed:
No additional research needed. The NERC Real-Time Tools Best Practices Task Force (RTBPTF) performed an extensive, three-year process of fact finding and analysis supported by the results of their Real-Time Tools Survey, the most comprehensive survey ever conducted of current electric industry practices.

The RTBPTF summarized their findings in a report titled *Real-Time Tools Survey Analysis and Recommendations* dated March 13, 2008. The report includes the RTBPTF's recommendations for minimum acceptable capabilities and best practices for real-time tools necessary to ensure reliable electric system operation and reliability coordination.

Brief Description:
The scope of the SAR is to establish requirements for the functionality, performance, and management of tools used in support of Real-time System Operations. The intent is to describe 'what' needs to be done but not 'how' to do it.

This project will be responsive to the U.S.-Canada Power System Outage Task Force blackout recommendation 10: Establish Guidelines for Real-Time Operating Tools.

Standards Development Status:
Project 2009-02 Real-time Tools Web page

Project Schedule:
TBD

SAR Drafting Team Roster:

Chairman	Sam Brattini	KEMA
Vice Chairman	Chuck Abell	Ameren
SAR Requester	Jack Kerr	Dominion
	Greg Campbell	WECC
	Jay Dondetti	MISO
	Vinit Gupta	Entergy
	Mike Richardson	AEP
	Bob Savage	APS
	Bob Staton	Xcel
	Scott Vidler	Hydro One
	Jerry Whooley	PJM
NERC Staff	Edd Dobrowolski	North American Electric Reliability Corporation

Project 2009-03 Emergency Operations

Standards Involved:
EOP-001-0 — Emergency Operations Planning
EOP-002-2 — Capacity and Energy Emergencies
EOP-003-1 — Load Shedding Plans
IRO-001-1 — Reliability Coordination — Responsibilities and Authorities

Research Needed:
None

Brief Description:
The first three standards in the list above may be merged into a single standard. There are some requirements in IRO-001 that may be improved and merged into the new EOP standard

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual plan):
Annual Plan Item 3.a.viii

Justification for NAESB consideration:
WEQ SRS analysis
Industry recommendations

SRS recommendation:
Refer to Project 2007-18 Reliability Based Control

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster:
TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
EOP-001-0 — Emergency Operations Planning	
Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan: 2010-2012	• The NERC Glossary of terms defines a BA as: "The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time." In other words, responsible for supply and demand balance in the operating horizon. With this definition in mind, why is the BA responsible for EOP-001-1 R2.2 "Develop, maintain, and implement a set of plans to mitigate operating emergencies on the transmission system"? • The NERC Glossary of terms defines a TOP as: "(t)he entity responsible for the reliability of its 'local' transmission system, and that operates or directs the operations of the transmission facilities." With this definition in mind, why is the TOP made responsible for EOP-001-1 R2.1: "(d)evelop, maintain, and implement a set of plans to mitigate operating emergencies for insufficient generating capacity"? • Requirement R4 (and by reference Attachment 1-EOP-001-0) is applicable to both the Transmission Operator and Balancing Authority but includes items that are not applicable to the TOP and are only applicable to the BA, e.g., why is a TOP responsible for fuel supply? Why is a TOP responsible for R6.2 concerning emergency energy? Why is a TOP responsible for fuel supply in R6.4, and why is the TOP responsible for arranging energy delivery?
Real-time Best Practices Standards Study Group	Establish document plans and procedures for conservative operations
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
EOP-002-2 — Capacity and Energy Emergencies	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Other	Modify standard to conform to the latest version of NERC's Reliability Standards

Source	Language
	Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
EOP-003-1 — Load Shedding Plans	
Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan: 2010-2012	• With regard to requirement R2, why is the BA responsible for Under Frequency Load Shedding (UFLS) when PRC-006-0 and PRC-007-0 make it the responsibility of the Regional Entities, the TOPs, the Distribution Providers and the LSEs? Why is the BA responsible for Under Voltage Load Shedding (UVLS) when the responsibility should probably be just the TOP's? Isn't this requirement redundant with PRC-006-0 and PRC-007-0? • Requirement R2 of EOP-003-1 states: "Each Transmission Operator and Balancing Authority shall establish plans for automatic load shedding for underfrequency or undervoltage conditions." The standards drafting team for Project 2007-01 Underfequency Load Shedding should consider modifying this requirement as part of their project.
Real-time Best Practices Standards Study Group	Provide the location, Real-time status, and MWs of Load available to be shed.
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
INT-001-1 — Interchange Information	
FERC Order 693	Regional Difference to INT-001/4: WECC Tagging Dynamic Schedules and Inadvertent Payback: Submit a filing within 90 days of the Order that provides the needed information or withdraws the regional variance.
Version 0 Team	Lack of compliance
	More commercial problem than reliability
	Onerous to BA's
	Question on generation scheduling
	R2.2 – 60 minute time frame questioned
	Clarify tagging of reserves
	Load PSE responsibility is new restriction
	R1 – Who tags dynamic schedules?
	R1 - Too stringent
VRFs Team	R1, 1.1, 2, 2.1, 2.2 – commercial and administrative
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
INT-001-2 — Interchange Information	
FERC's December 20, 2007 Order in Docket Nos.	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC)

Source	Language
RC07-004-000, RC07-6-000, and RC07-7-000	footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
FERC Order 693	Consider Santa Clara's comments about the applicability of the LSE in the standard as part of the standards development process.
	Include a requirement that interchange information must be submitted for all point-to-point transfers entirely within a balancing authority area, including all grandfathered and "non-Order No. 888" transfers.
INT-003-1 — Interchange Transaction Implementation	
VRFs Team	R1, 1.1, 1.1.2, 1.2 – commercial and administrative
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
INT-004-1 — Dynamic Interchange Transaction Modifications	
FERC Order 693	Consider adding levels of non-compliance to the standard.
Version 0 Team	Suggested non-compliance levels
	Non-compliance based on %
	Need to address tag curtailment
	Replace TSP with TOP
	Use WECC criteria
VRFs Team	R2, 2.2, 2.3 – commercial and administrative
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Source	Language
INT-005-2 — Interchange Authority Distributes Arranged Interchange	
FERC Order 693	Consider adding levels of non-compliance to the standard.
VRFs Team	R5 – administrative
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
INT-006-1 — Response to Interchange Authority	
FERC Order 693	Consider the suggestions made by EEI and TVA and address questions raised by Entergy and Northern Indiana as part of the standard development process.
	Include reliability coordinators and transmission operators as applicable entities.
	Require reliability coordinators and transmission operators to review energy interchange transactions from the wide-area and local area reliability viewpoints respectively and, where their review indicates a potential detrimental reliability impact, communicate to the sink balancing authorities necessary transaction modifications before implementation.
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
INT-006-2 — Response to Interchange Authority	
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
NERC Audit Observation Team	Does confirmed action mean direct action needs to be taken or, does confirmed action mean that a process has been put in place that will take action and, the entity agrees with such since they have employed the program.
INT-007-1 — Interchange Confirmation	
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
VRFs Team	R1, 1.1, 1.3, 1.3.1, 1.3.2, 1.3.3, 1.3.4, 1.4 – administrative
INT-008-2 — Interchange Authority Distributes Status	
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
FERC Order 693	Consider APPA's suggestion to clarify what reliability entity the standard applies as part of the standard development process.
VRFs Team	R1.1.1 & 1.1.2 – commercial and administrative
INT-009-1 — Implementation of Interchange	

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
FERC Order 693	Consider APPA's suggestion to clarify what reliability entity the standard applies as part of the standard development process.
INT-010-1 — Interchange Coordination Exemptions	
FERC Order 693	Consider Northern Indiana's and ISO-NE's suggestions in the standards development process.
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
VRFs Team	R1 & 3 – administrative

Project 2009-04 Phasor Measurement Units

Standards Involved:
New

Research Needed:
Analysis of existing research needs to be conducted.

Brief Description:
This is a new project that was identified in 2006 in support of a blackout recommendation. Several industry studies were recently issued and these studies need to be analyzed to determine appropriate requirements for a NERC standard.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster:
TBD

Project 2009-05 Resource Adequacy Assessments

Standards Involved:
New

Research Needed:
None

Brief Description:
This is a continuation of a project from 2006 that was delayed for higher priority projects. The purpose of this standard is to implement some of the recommendations from the Resource and Transmission Adequacy Task Force Report and the Gas/Electricity Interdependency Task Force Report approved by the NERC BOT in 2004 related to resource adequacy.

As envisioned, the standard will require entities to create metrics to assess resource adequacy that takes into account various factors such as fuel deliverability, performing resource adequacy assessments, sharing the results of those assessments. The standard would also require that resource adequacy assessments be conducted according to those metrics.

NERC Staff is developing a paper discussing the options regarding resource adequacy issues. This issue may be better served through the NERC Rules of Procedure rather than a specific Reliability Standard. Two Regional Entities have developed draft standards relating to resource adequacy and these are being included in the consideration of options.

Standard Development Steps Completed:
The SAR has been posted for two comment periods but has not been finalized due to other conflicting higher priority projects. The SAR will be finalized and then work will be delayed on drafting the standard until 2008.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2009-05 Resource Adequacy Assessments

Project Schedule:
Project 2009-05 Project Schedule

Standard Drafting Team Roster:

Chairman	Mary H. Johannis	Bonneville Power Administration
Vice Chairman	Phil Fedora	Northeast Power Coordinating Council, Inc.
	Yong Cai	Sacramento Municipal Utility District
	Curt J. Dahl, P.E.	KeySpan Corp.
	Gregory S. Drake	New York Independent System Operator
	Andrew Fusco	North Carolina Eastern Municipal Power Agency
	William J. Head	Midwest Reliability Organization
	Daniel Huffman	FirstEnergy Corp.
	Tom Kaslow	Calpine Corporation
	Richard Kosch	Lincoln Electric System
	Garey C. Rozier	Southern Company Services, Inc.
	Donald M. Schlegel	American Electric Power
	Steve Scroggs	Florida Power & Light Co.
	Sam Waters	Progress Energy
NERC Staff	Stephen Crutchfield	North American Electric Reliability Corporation

Project 2009-06 Facility Ratings

Standards Involved:
FAC-008-1 — Facility Ratings
FAC-009-1 — Establish and Communicate Facility Ratings

Research Needed:
None

Brief Description:
The revisions to these two standards will result in a single standard that is responsive to the recommended changes identified in the Standard Review Guidelines attached to this SAR and also to two of the three applicable FERC directives in Order 693.

The proposed changes to FAC-008 and FAC-009 have already been through stakeholder review and reached consensus in 2008 on all requirements except the requirement (R7) developed to meet the FERC directive in Order 693 that required identification of the most limiting component of a facility and the theoretical increase in rating if the limitation were removed. Stakeholders indicated that this requirement (R7) did not have a reliability-related benefit, and voted against the inclusion of a requirement to meet this directive. Thus, this SAR proposes the same standard that was developed and balloted in late 2008, but without the requirement (R7).

Standards Development Status:
Project 2009-06 Facility Ratings Web page

Project Schedule:
TBD

Standard Drafting Team Roster:

Chairman	Paul B. Johnson, P.E.	American Electric Power
	Robert A. Birch	Florida Power & Light Co.
	Terry L. Crawley	Southern Company Services, Inc.
	Robert Kluge	American Transmission Company, LLC
	Robert W. Millard	ReliabilityFirst Corporation
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Philip Riley	Public Service Commission of South Carolina
	Tapani Seppa	The Valley Group, Inc.
	Vladimir Stanisic	Ontario Power Generation Inc.
	Ronald F. Szymczak	Exelon Corporation
	Chifong L. Thomas	Pacific Gas and Electric Company
NERC Staff	Stephen Crutchfield	North American Electric Reliability Corporation

Project 2009-07 Reliability of Protection Systems

Standards Involved:
New

Research Needed:
None

Brief Description:
The proposed standard requires facility owners to have protection system equipment installed such that, if there were a failure to a specified component of that protection system, the failure would not prevent meeting the BES performance identified in the TPL standards.

Standards Development Status:
Project 2009-07 Reliability of Protection Systems Web page

Project Schedule:
TBD

Standard Drafting Team Roster:

Chairman	Ed Taylor	Pacific Gas and Electric Co.
	Robert Johnson	Allegheny Power
	Clarence Bradley	Georgia Transmission Co.
	Jonathon Glidewell	Southern Company Transmission Co.
	James Hubertus	Public Service Electric and Gas Co.
	Steve Leistner	PacifiCorp
	Stanley J. Lewis	Consolidated Edison Co. of New York
	Susan L. McGill	PJM
	John Mulhausen	Florida Power & Light Co.
	Jill Muller	American Transmission Co., L.L.C.
	Bill Newell	Progress Energy
	Don Oatman, Jr.	Electric Reliability Council of Texas, Inc.
	Richard P. Quest	Xcel Energy
	Dean Sorensen	National Grid
	Xiaodong Sun	Ontario Power Generation, Inc.
	Roger Whitaker	Bonneville Power Administration
NERC Staff	Darrel Richardson	North American Electric Reliability Corporation

Project 2009-18 Withdraw Three Midwest ISO Waivers

Standards Involved:
BAL-006-2 — Inadvertent Interchange
INT-003-3 — Interchange Transaction Implementation

Research Needed:
None

Brief Description:
During their April 15-16, 2009 meeting the Standards Committee approved a SAR for removing waivers in the current NERC Standards associated with accommodating the operation of the Midwest ISO market in a multi-Balancing Authority environment. These waivers are no longer needed by the Midwest ISO now that the Midwest ISO is a Balancing authority:

- References to the Midwest ISO should be removed from the "Scheduling Agent Waiver" associated with INT-003-2 — Interchange Transaction Implementation.
- The "Enhanced Scheduling Agent Waiver" associated with INT-003-2 should be retired.
- References to the Midwest ISO should be removed from the "RTO Inadvertent Interchange Accounting Waiver" associated with BAL-006-1 — Inadvertent Interchange.

The purpose/industry need is to provide clarity in the applicability of the standard.

Standards Development Status:
Project 2009-18 Withdraw Three Midwest ISO Waivers Web page

Project Schedule:
TBD

Standard Drafting Team Roster:

Terry Bilke	Midwest ISO
Stephen Crutchfield	NERC Staff Coordinator

Project 2010-01 Support Personnel Training

Standards Involved:
New

Research Needed:
None

Brief Description:
This is a new project that was identified in support of a blackout recommendation. Stakeholders indicated a preference for completing work on a standard for real-time system operators before beginning work on this standard, due to resource limitations. The standard will require the use of a systematic approach to determining training needs of generator operators and operations planning and support staff with a direct impact on the reliable operations of the bulk power system.

The standard will require that entities have evidence that this systematic approach is used and require that each responsible entity have evidence that each of applicable personnel is competent to perform each assigned task that is on its company-specific list of reliability-related tasks.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster:
TBD

Project 2010-02 Connecting New Facilities to the Grid

Standards Involved:
FAC-001-0 — Facility Connection Requirements
FAC-002-0 — Coordination of Plans for New Facilities

Research Needed:
None

Brief Description:
A broad review needs to take place to ensure that all of the elements that should be addressed when a new facility is connected to the grid are included in the revised standard. New requirements are needed to require that the facility connection requirements are followed.

FAC-001 and FAC-002 have some 'fill-in-the-blank' components to eliminate.
The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual plan):
Annual Plan Item 1

Justification for NAESB consideration:
Industry recommendations

SRS Recommendation:
The WEQ SRS will add this project to its watch list.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster:
TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Phillip R. Kleckley (SERC EC Planning Standards Subcommittee (PSS)) as input to the Reliability Standards Development Plan:2010-2012	Consider adding a definition of "end user" to the NERC Glossary. (Note: This recommendation was received as part of the comments on Question 3 of the comments form for the "Draft Revision 6 of the SERC Facility Connection Requirements (FCR) Guideline".)
FAC-002-0 — Coordination of Plans for New Facilities	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Project 2010-03 Modeling Data

Standards Involved:
MOD-010-0 — Steady-State Data for Transmission System Modeling and Simulation
MOD-011-0 — Regional Steady-State Data Requirements and Reporting Procedures
MOD-012-0 — Dynamics Data for Transmission System Modeling and Simulation
MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures
MOD-014-0 — Development of Interconnection-Specific Steady State System Models
MOD-015-0 — Development of Interconnection-Specific Dynamics System Models
PRC-013-0 — Special Protection System Database
PRC-015-0 — Special Protection System Data and Documentation
PRC-020-1 — Under-Voltage Load Shedding Program Database
PRC-021-1 — Under-Voltage Load Shedding Program Data

Research Needed:
18 months study for dynamics modeling of load in simulations and analyses

Brief Description:
This is one of two projects aimed at identifying all the 'data provision' requirements and consolidating the requirements into fewer standards. Research is needed to clearly identify what data is needed to accurately model load in simulations and analyses. The requirements need to be more specific to clearly identify the format, etc., for providing data.

As envisioned, this project will result in the elimination of most if not all region-specific requirements and the revised requirements would include much more specificity. MOD-010 through MOD-015 has some 'fill-in-the-blank' components to eliminate.

Many of the requirements need to be realigned so that the data that is needed is provided to the entity that needs the data. In several of the existing standards, the data is provided to the RRO who then provides the data to the Planning Authority or other entities.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster:
TBD

Issues to be Considered by the Standard Drafting Team:

MOD-010-0 — Steady-State Data for Modeling and Simulation of the Interconnected Transmission System	
ATFNSDT	The ATFNSDT identified several issues with regard to modeling data during their deliberations on revising the TPL standards. At one time, they talked about incorporating the gaps they found in TPL but after some deliberation and multiple comments, it was decided to pass them over to the eventual MOD SDT for inclusion in their SAR and the ultimate revisions to MOD-010. These items need to be entered in the issues database so that they are accurately passed on to that SDT: Each Distribution Provider shall provide its respective Planning Coordinator with modeling information for real and reactive Load forecast data for each year of the Transmission planning horizon at Transmission nodes based on expected or historical System performance including the expected mix of industrial, commercial, and residential Loads, within ninety days of a request for such information. Each Transmission Planner shall provide its respective Planning Coordinator with modeling information for Firm Transmission Service data, Interchange Schedules, and resources required to supply Load for each of its Balancing Authorities for each year of the Transmission planning horizon, within ninety days of a request for such information. Each Transmission Owner shall provide its respective Planning Coordinator with modeling information for known planned outages and long-term outages for Transmission equipment for each year of the Transmission planning horizon with consideration given to spare equipment strategy, within ninety days of a request for such information. Each Generator Owner shall provide its respective Planning Coordinator with modeling information for known planned outages and long-term outages for generation equipment for each year of the Transmission planning horizon, within ninety days of a request for such information. Each Resource Planner shall provide its respective Planning Coordinator with the modeling information for new planned Facilities for each year of the Transmission planning horizon including but not limited to generators, Reactive Power devices, and new technologies, within ninety days of a request for such information. Each Transmission Planner shall provide its respective Planning Coordinator with modeling information for new planned Facilities for each year of the Transmission planning horizon including but not limited to Transmission Lines, circuit breakers, Reactive Power devices, Protection System equipment and control devices, and new technologies, within ninety days of a request for such information. These items are seen as gaps in the supply of modeling data that need to be filled. The revised TPL standards will require that a TP/PC use this data and place the onus on acquiring it on the TP/PC. FERC staff is concerned that this approach is lacking in that it doesn't have a corresponding requirement for the applicable entities to supply said data and want to make certain that this 'gap' is eventually closed in MOD.
MOD-011-0 — Maintenance and Distribution of Steady-State Data Requirements and Reporting Procedures	
FERC Order 693	• Expand the applicability to include the planning authority. • Develop a work plan and submit a compliance filing that will facilitate the ongoing collection of the steady-state modeling and simulation data specified in this standard.

Fill in the Blank Team	• Revise NERC MOD-011 to clarify that the data reporting requirements must be uniform across each interconnection. • This should be a North American Standard containing requirements which are interconnection-wide. • MOD-010 and 011 are related. This is the MMWG work for the eastern interconnection. • Review MOD-010, MOD-011, MOD-012, and MOD-013 concurrently for modeling requirements and reporting. • Coordinate the revision of this standard with the revision to MOD-010. MOD-011 needs to be written as a North American standard with requirements for each interconnection.
Other	• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Version 0 Team	• Consistency across standards for non-compliance • Confidentiality of data • Add equipment types and variables • Not a standalone standard • Time element not cited in non-compliance • Several semantics issues • Locations of substations should be deleted
MOD-012-0 — Dynamics Data for Modeling and Simulation of the Interconnected Transmission System	
FERC Order 693	• Provide a list of faults and disturbances used in performing dynamics system studies for operation and planning. • Address critical energy infrastructure confidentiality issues as part of the standard development process. • Expand the applicability to include transmission operators, planning authorities, and transmission planners. • Require users, owners, and operators to submit data to the regional entities as needed for modeling studies and assessments.
Fill in the Blank Team	• This standard is directly related to MOD-013. • Coordinate the revision of this standard with the revision to MOD-013. MOD-013 needs to be written as a North American standard with requirements for each interconnection. Once MOD-013 is modified, the only changes needed to MOD-012 are the references to the appropriate requirements in MOD-013. • Review MOD-010, MOD-011, MOD-012, and MOD-013 concurrently for modeling requirements and reporting.
Other	• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Version 0 Team	• Not a standalone standard • Time element missing in non-compliance • Consistency of non-compliance • Confidentiality of data

MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures	
ATFNSDT	MOD-013 needs to ask for voltage ride through data from generators as per 693.
FERC Order 693	• Permit entities to estimate dynamics stat if they are unable to obtain unit specific information. • Require verification of the dynamic models with actual disturbance data. • Expand the applicability to include transmission operators, planning authorities, and transmission planners. • Develop a work plan and submit a compliance filing that will facilitate the ongoing collection of the dynamics modeling and simulation data specified in this standard.
Fill in the Blank Team	• Review MOD-010, MOD-011, MOD-012 and MOD-013 concurrently for modeling requirements and reporting. • This should be a North American Standard containing requirements which are interconnection-wide. • Revise MOD-013 to clarify that the data reporting requirements must be uniform across each interconnection. • MOD-012 and MOD-013 are related. This is the MMWG work for the Eastern Interconnection.
Other	• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Version 0 Team	• Several semantics issues • Consistency in non-compliance • Confidentiality of data • Timing element not mentioned in non-compliance • Not a standalone standard • 5 business days not sufficient
MOD-014-0 — Development of Steady-State System Models	
FERC Order 693	• If model output is not within the accuracy required, the model shall be modified to achieve the necessary accuracy. • Require models to be validated against actual system response. • Require users, owners, and operators to provide the validated models to regional reliability organizations. • Develop a work plan that will facilitate ongoing validation of steady-state models and submit a compliance filing to the Commission.
Fill in the Blank Team	No action
Other	• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Version 0 Team	• Define near-term vs. long-term • Timing element missing in non-compliance • Solved cases should not have violations • Consistency of non-compliance
MOD-015-0 — Development of Dynamics System Models	
FERC Order 693	• Require actual system events be simulated and dynamics system model output be validated against actual system response. • Require users, owners, and operators to provide the validated models to regional entity. • Develop a work plan that will facilitate ongoing validation of dynamics models and submit a compliance filing to the Commission.
Fill in the Blank Team	No action
Other	• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Version 0 Team	• Consistency of non-compliance • Timing element of non-compliance • Confidentiality of data
PRC-013-0 — Special Protection System Database	
FERC Order 693	Consider APPA's suggestions for interconnection-wide consistency in the standards development process.
Other	• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Fill in the Blank Team	• Related to PRC-015. • Review PRC-013 and PRC-015 together to properly reference regional standards (see notes of PRC-015 for options).
Version 0 Team	• Define evidence • Not a standalone standard
PRC-015-0 — Special Protection System Data and Documentation	
Fill in the Blank Team	• Consider impact of removing R1.2 from PRC-012-0 and revision of PRC-013-0, R1.1, 1.2, & 1.3 to include a specific list of items to be included in the RRO SPS database. The same list could be added to PRC-015, R1.1. However, it may be cleaner to move PRC-015-0, R1.1 and the data portion of R1.3 to PRC-013. (Note: revisions to PRC-012 are identified for a separate drafting team and are expected to take place after revisions to PRC-013 and PRC-015 are completed.) • Tied to PRC-013. • Review PRC-013 and PRC-015 together to properly reference regional standards (see notes of PRC-015 for options).
Other	• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO

	Rules of Procedure.
Version 0 Team	• Define evidence • Already covered elsewhere
PRC-020-1 — Under-Voltage Load Shedding Program Database	
Fill in the Blank Team	No action required
Phase III/IV Team	The reliability-related need for the RRO to have the data isn't clear
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Team Comments	Provide clarity where the Planning Authority is mentioned
PRC-021-1 — Under-Voltage Load Shedding Program Data	
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Fill in the Blank Team	No action required

Project 2010-04 Demand Data

Standards Involved:
MOD-016-1 — Actual and Forecast Demands, Net Energy for Load, Controllable DSM
MOD-017-0 — Aggregated Actual and Forecast Demands and Net Energy for Load
MOD-018-0 — Reports of Actual and Forecast Demand Data
MOD-019-0 — Forecasts of Interruptible Demands and DCLM Data
MOD-020-0 — Providing Interruptible Demands and DCLM Data
MOD-021-0 — Accounting Methodology for Effects of Controllable DSM in Forecasts

Research Needed:
None

Brief Description:
This is one of two projects aimed at identifying all the 'data provision' requirements and consolidating the requirements into fewer standards. As envisioned, this project will result in two standards — with MOD-016 through MOD-020 in a single standard, and MOD-021 in a separate standard. The requirements need to be more specific to clearly identify the format, etc., for providing data.

MOD-016, MOD-017, and MOD-019 have some 'fill-in-the-blank' components to eliminate. The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual plan):
Annual Plan Item 4.b

Justification for NAESB consideration:
Industry recommendations

SRS Recommendation:
The WEQ SRS will add this project to its watch list.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster:
TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
MOD-017-0 — Aggregated Actual and Forecast Demands and Net Energy for Load	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
MOD-018-0 — Reports of Actual and Forecast Demand Data	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
MOD-019-0 — Forecasts of Interruptible Demands and DCLM Data	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000,	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and

RC07-6-000, and RC07-7-000	associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
MOD-020-0 — Providing Interruptible Demands and DCLM Data	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
MOD-021-0 — Accounting Methodology for Effects of Controllable DSM in Forecasts	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Project 2010-05 Protection Systems

Standards Involved:
PRC-003-1 — Regional Requirements for Transmission and Generation Protection System Misoperations
PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations
PRC-012-0 — Special Protection System Review Procedure
PRC-014-0 — Special Protection System Assessment
PRC-016-0 — Special Protection System Misoperations

Research Needed:
None

Brief Description:
Consideration should be given to merging some of the standards to eliminate the need for cross-referencing.

PRC-003, PRC-004, PRC-014, and PRC-016 have some 'fill-in-the-blank' components to eliminate.

PRC-012 is one of the few 'fill-in-the-blank' standards that was identified by the Regional Reliability Standards Working Group as a standard that has some requirements that need to remain in regional standards.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster
TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
PRC-003-1 — Regional Requirements for Transmission and Generation Protection System Misoperations	
FERC Order 693	Consider if greater consistency can be achieved in the standard as suggested by APPA.
Fill in the Blank Team	• Modify PRC-003 to include specific requirements for each functional entity. Each of the regional plans needs to be reviewed to determine what should be included in the North American standard. The current PRC-003 defines requirements for RROs. The drafting team should revise PRC-004 to include proper references to the new PRC-003. • This is a North American Standard as written which places requirements on the regions to develop a procedure. However, PRC-004 requires functional entities to comply with the procedures the RROs develop. Craft a new PRC-003 as a North American standard containing the specific requirements for each functional entity. • Review PRC-003 and PRC-004 together to identify the specific requirements of the functional entities (include specific requirements for each functional entity).
Phase III/IV Team	• All transmission circuits 200 kV and above • Enhance the applicability section to clarify that the systems addressed by the requirements are limited to: • All transmission circuits 100 kV to 200 kV operationally significant circuits, as defined by the RROs • In R1.2 change format to content • The RRO should be required to demonstrate that the requirements developed in accordance with R1 produce the desired result. • Generator protection systems, whose misoperations impact the bulk electric system
Version 0 Team	• Change wording to reporting instead of monitoring • Need to define evidence
PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations	
FERC Order 693	• Consider ISO-NE's suggestion that LSEs and transmission operators should be listed as applicable entities. • The regional entity should develop procedures for corrective action plans.
Fill in the Blank Team	• Coordinate the revision of this standard with the revision to standard PRC-003. PRC-003 needs to be written as a North American standard with requirements for each functional entity as appropriate. Once PRC-003 is modified, the only changes needed to PRC-004 are the references to the appropriate requirements in PRC-003. • See notes for PRC-003-1. • Review PRC-003 and PRC-004 together to identify the specific requirements of the functional entities.
NERC Audit Observation Team	• "Document the process" • The Generator Owner shall analyze its generator protection system misoperations and

Source	Language
	implement corrective action plans to avoid future misoperations.
Phase III/IV Team	This standard should apply to all protection systems on the Bulk Electric System (BES) not just those that 'impact' the BES
Version 0 Team	Levels of non-compliance need to be redefined

Project 2010-06 Results-based Reliability Standards

Standards Involved:
Entire set of NERC Reliability Standards

Research Needed:
In 2008 the NERC Standards Committee Process Subcommittee conducted a review of the then existing NERC reliability standards and identified those that contained requirements that are administrative in nature or are simply explanatory text and which do not appear to contribute directly to meeting reliability objectives. The review results were presented to the Standards Committee at their April 16-17, 2009 meeting, and were adopted as the starting point for prioritizing standard changes and a basis for removing the administrative type of requirements. Detailed review results were included as Attachments 7di, 7dii and 7diii of the April 15-16, 2009 Standards Committee meeting agenda package.

In addition, as documented in Attachment 2 of the ERO Three-Year Assessment dated July 20, 2009 stakeholders recommend that the industry should "focus existing reliability standards and reliability standards development on areas that will lead to the greatest improvement in bulk power system reliability." Suggestions include: "(1) focus the development of new reliability standards on those that will lead to the greatest improvement in reliability; i.e., address the greatest risks of wide-area cascading outages; (2) reduce the number of existing reliability standards to just those that have a critical impact on reliability of the bulk power system and convert the remaining reliability standards to guidelines; and (3) develop a more systematic process for prioritizing new reliability standards development projects based on risks to the bulk power system."

In August 2009 an ad-hoc group was organized made up of representatives from the Standards Committee, Regional Entity staff, and NERC standards staff for developing a plan for transitioning the exiting set of NERC reliability standards into a set of revised reliability standards. The goal of the plan is to define a more focused set of reliability requirements that are predominantly performance-based, with a direct relation to bulk power system reliability. The plan is anticipated to be presented to the NERC Board of Trustees (BOT) at their November 4, 2009 meeting for consideration and approval.

Project Description:
Implement the plan approved by the NERC Board of Trustees (BOT) for improving the set of NERC reliability standards to be more focused on reliability performance. The plan is anticipated to be presented to the BOT during their November 4, 2009 meeting for consideration and approval.

Project 2010-07 Transmission Requirements at the Generator Interface

Standards Involved:

New

Research Needed:

None.

Project Description:

This project was proposed Mr. Gerry Adamski during the 2009 revision of the Reliability Standards Development Plan.

The Ad Hoc Group for Transmission Requirements at the Generator Interface plans to issue a final report document in October, 2009. This report contains a SAR and redline standards for a number of recommended changes to existing reliability standards requirements and the addition of several new requirements. These additions and modifications will add greater specificity and clarity to the expectations of those responsible for owning and operating the interconnection facilities that connect generators to the transmission grid. The changes address a significant concern for generator owners and generator operators regarding the believed improper assignment of transmission owner and operator requirements by virtue of their interconnection facilities.

If further information or discussion is required, please contact:

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Project 2012-01 Equipment Monitoring and Diagnostic Devices

Standards Involved:
New

Research Needed:
None

Brief Description:
This project was proposed Mr. R. W. Kenyon, J.D., P.E. during the 2008 revision of the Reliability Standards Development Plan.

The drafting team will propose Reliability Standard(s) covering the application of major equipment monitoring and diagnostic devices and procedures. As proposed by Mr. Kenyon, the Reliability Standard(s) will address dissolved gas and moisture sampling processes and the application on on-line monitoring devices to detect incipient faults within BES major components, such as EHV transformers. These processes and devices enable the equipment owner to detect evolving internal faults, allowing corrective action under controlled conditions. In some instances, early warning of evolving faults can permit field repair of the unit, avoiding a system fault and destruction of a major piece of equipment. In other circumstances, the warning obtained permits the equipment owner to monitor the situation and to schedule unit replacement in a deliberate, controlled manner. Again, occurrence of a major system fault and unscheduled loss of a major unit can be avoided. Obviously, such measures can contribute significantly to reliability of the Bulk Electric System.

Ideally, the proposed Reliability Standard(s) would make the application of this technology mandatory for classes of critical equipment, with EHV transformers and shunt reactors an obvious example. Similar diagnostic approaches could be taken on critical EHV and/or major generator Gas Insulated Switchgear. The general approach could follow PRC-005, where the owner must have a system, but particulars are left to the equipment owner. The proposed Reliability Standard(s) could extend to other equipment condition monitoring such as Doble testing.

In many instances, equipment owners already recognize the value of major equipment monitoring and have equipment and/or procedures in place addressing this technology. However, there is far less assurance that monitoring equipment is properly maintained, that scheduled routine sampling is being fully performed, and that full use is being made of data obtained. Again, as with the Protective Relay Standard PRC-005, the proposed Reliability Standard(s) would contribute to insuring that equipment owners have a program addressing this technology and are indeed following their program. In other instances, equipment owners without such equipment might be obligated to establish a monitoring program.

Project 2012-02 Physical Protection

Standards Involved:
New

Research Needed:
None

Project Description:
This project was proposed Mr. Wayne E. Guthrie during the 2009 revision of the Reliability Standards Development Plan.

The development of reliability standards for the physical protection of essential equipment, buildings and people located in power generation, transmission, or distribution system locations should be considered in on order to mitigate the associated reliability risks to the bulk power system. The ANSI NFPA 850 standard "Recommended Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations" provides a potential starting reference for such standards.

If further information or discussion is required, please contact:

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Attachment 1

Standard Authorization Request Form

Title of Proposed Standard	Protection Misoperations Revisions to PRC-003, PRC-004, PRC-012, and PRC-016
Request Date	June 10, 2009

SAR Requester Information	**SAR Type** (*Check a box for each one that applies.*)	
Name System Protection and Control Subcommittee	☐	New Standard
Primary Contact John Ciufo, Chairman	X	Revision to existing Standard
Telephone (416) 345-5258 Fax (416) 345-5406	X	Withdrawal of existing Standard (PRC-016)
E-mail john.ciufo@HydroOne.com	☐	Urgent Action

Purpose (Describe what the standard action will achieve in support of bulk power system reliability.)

A key element of bulk power system reliability is the performance of the Protection Systems. To properly gage Protection System performance, is necessary to have a consistent set of metrics on Protection System Misoperations. Current PRC standards and definitions related to Protection System Misoperations are confusing and do not support a good metric for measurement of Protection System performance.

Industry Need (Provide a justification for the development or revision of the standard, including an assessment of the reliability and market interface impacts of implementing or not implementing the standard action.)

Current PRC standards and definitions related to Protection System Misoperations are confusing and do not support a good metric for measurement of Protection System performance.

Brief Description (Provide a paragraph that describes the scope of this standard action.)

SPCS recommends creation of a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016.

Detailed Description (Provide a description of the proposed project with sufficient details for

the standard drafting team to execute the SAR.)

Standard PRC-003 is intended to ensure that all System Protection Misoperations are analyzed and mitigated according to guidelines established by the regions. The FERC, in Order 693, dated March 16, 2007, declared this standard as a "fill in the blank" type of standard that does not merit approval unless it is modified to make it more specific and consistent for all Regions. The SPCS concurs with the FERC order and provides recommendations on how the standard can be rewritten.

Because the procedures for analyzing and mitigating Misoperations were to be established by the regions, there is significant dissimilarity between the Misoperation data reported by each region, resulting in a virtually unusable misoperation metric for North America. SPCS recommends a change to the definition of Misoperation (Reportable Protection Misoperation) to provide uniformity to the misoperation data reported to the regions and NERC.

Protection System elements used for Special Protection Systems (SPS) or Remedial Action Schemes (RAS) are no different from those used for non Special Protection Systems. The revision to Standard PRC-003 should therefore apply to all Protection Systems, including SPS and RAS.

The SPCS also recommends that Standard PRC-016-0 – Special Protection System Misoperations, be requirements, merging its SPS/RAS Misoperation reporting, Corrective Action Plans, and tracking requirements into PRC-004 – Analysis and Mitigation of Transmission and Generation Protection System Misoperations.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and is coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should be modified to refer to that review process.

SPCS recommends creation of a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016.

See attached Technical Review document for additional details.

Reliability Functions

The Standard will Apply to the Following Functions *(Check box for each one that applies.)*		
☐	Reliability Coordinator	Responsible for the real-time operating reliability of its Reliability Coordinator Area in coordination with its neighboring Reliability Coordinator's wide area view.
☐	Balancing Authority	Integrates resource plans ahead of time, and maintains load-interchange-resource balance within a Balancing Authority Area and supports Interconnection frequency in real time.
☐	Interchange Authority	Ensures communication of interchange transactions for reliability evaluation purposes and coordinates implementation of valid and balanced interchange schedules between Balancing Authority Areas.
☐	Planning Coordinator	Assesses the longer-term reliability of its Planning Coordinator Area.
☐	Resource Planner	Develops a >one year plan for the resource adequacy of its specific loads within a Planning Coordinator area.
☐	Transmission Planner	Develops a >one year plan for the reliability of the interconnected Bulk Electric System within its portion of the Planning Coordinator area.
☐	Transmission Service Provider	Administers the transmission tariff and provides transmission services under applicable transmission service agreements (e.g., the pro forma tariff).
X	Transmission Owner	Owns and maintains transmission facilities.
☐	Transmission Operator	Ensures the real-time operating reliability of the transmission assets within a Transmission Operator Area.
X	Distribution Provider	Delivers electrical energy to the End-use customer.
X	Generator Owner	Owns and maintains generation facilities.
☐	Generator Operator	Operates generation unit(s) to provide real and reactive power.
☐	Purchasing-Selling Entity	Purchases or sells energy, capacity, and necessary reliability-related services as required.
☐	Market Operator	Interface point for reliability functions with commercial functions.
☐	Load-Serving Entity	Secures energy and transmission service (and reliability-related services) to serve the End-use Customer.

Reliability and Market Interface Principles

Applicable Reliability Principles *(Check box for all that apply.)*	
X	1. Interconnected bulk power systems shall be planned and operated in a coordinated manner to perform reliably under normal and abnormal conditions as defined in the NERC Standards.
☐	2. The frequency and voltage of interconnected bulk power systems shall be controlled within defined limits through the balancing of real and reactive power supply and demand.
☐	3. Information necessary for the planning and operation of interconnected bulk power systems shall be made available to those entities responsible for planning and operating the systems reliably.
☐	4. Plans for emergency operation and system restoration of interconnected bulk power systems shall be developed, coordinated, maintained and implemented.
☐	5. Facilities for communication, monitoring and control shall be provided, used and maintained for the reliability of interconnected bulk power systems.
☐	6. Personnel responsible for planning and operating interconnected bulk power systems shall be trained, qualified, and have the responsibility and authority to implement actions.
X	7. The security of the interconnected bulk power systems shall be assessed, monitored and maintained on a wide area basis.
☐	8. Bulk power systems shall be protected from malicious physical or cyber attacks.
Does the proposed Standard comply with all of the following Market Interface Principles? *(Select 'yes' or 'no' from the drop-down box.)*	
1. A reliability standard shall not give any market participant an unfair competitive advantage. Yes	
2. A reliability standard shall neither mandate nor prohibit any specific market structure. Yes	
3. A reliability standard shall not preclude market solutions to achieving compliance with that standard. Yes	
4. A reliability standard shall not require the public disclosure of commercially sensitive information. All market participants shall have equal opportunity to access commercially non-sensitive information that is required for compliance with reliability standards. Yes	

Related Standards

Standard No.	**Explanation**
PRC-003	Revise
PRC-004	Revise
PRC-012	Revise

PRC-016	Retire

Related SARs

SAR ID	Explanation

Regional Variances

Region	Explanation
ERCOT	
FRCC	
MRO	
NPCC	
SERC	
RFC	
SPP	
WECC	

NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

NERC SPCS Assessment of Standards:

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations
- PRC-016-1 — Special Protection System Misoperations

A Technical Review of Standards Prepared by the System Protection and Controls Subcommittee of the NERC Planning Committee

May 2009

to ensure the reliability of the bulk power system

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Table of Contents

This report was approved by the Planning Committee on June 10, 2009, for forwarding to the Standards Committee.

Introduction

When the original scope for the System Protection and Control Task Force (SPCTF, now the System Protection and Control Subcommittee – SPCS) was developed, one of the assigned items was to review all of the existing PRC-series of Reliability Standards, to advise the Planning Committee, and to develop Standards Authorization Requests, as appropriate, to address any perceived deficiencies.

This report presents the SPCS' assessment of three of the PRC standards pertaining to relay misoperations:

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations
- PRC-016-1 — Special Protection System Misoperations

This report serves as a precursor for a Standards Authorization Request (SAR) for modifications to PRC-003 that will be submitted by the SPCS.

Executive Summary

Standard PRC-003 is intended to ensure that all System Protection Misoperations are analyzed and mitigated according to guidelines established by the regions. The FERC, in Order 693, dated March 16, 2007, declared this standard as a "fill in the blank" type of standard that does not merit approval unless it is modified to make it more specific and consistent for all Regions. The SPCS concurs with the FERC order and provides recommendations on how the standard can be rewritten.

Because the procedures for analyzing and mitigating Misoperations were to be established by the regions, there is significant dissimilarity between the Misoperation data reported by each region, resulting in a virtually unusable misoperation metric for North America. SPCS recommends a change to the definition of Misoperation (Reportable Protection Misoperation) to provide uniformity to the misoperation data reported to the regions and NERC.

Protection System elements used for Special Protection Systems (SPS) or Remedial Action Schemes (RAS) are no different from those used for non Special Protection Systems. The revision to Standard PRC-003 should therefore apply to all Protection Systems, including SPS and RAS.

The SPCS also recommends that Standard PRC-016-0 — Special Protection System Misoperations, be requirements, merging its SPS/RAS Misoperation reporting, Corrective Action Plans, and tracking requirements into PRC-004 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and is coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should be modified to refer to that review process.

A Standards Authorization Request (SAR) will be submitted by the SPCS calling for a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016.

Assessment of PRC-003-1

PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems requires the regions to establish procedures for analysis of Misoperations. This has resulted in significant and substantive differences in regional procedures and this was noted in FERC's recommendation for "greater uniformity."

SPCS proposes updating the PRC-003-1 standard to be applicable to all regions based on following tenets:

1. **Applicability** — The existing standard says that the Protection Systems shall be reviewed but does not specify which systems apply to this standard.

   It is necessary for the new standard to define the protections systems to which the standard applies:

   - Transmission Protection Systems which trip:
     a. Transmission system elements 200-kV and above
     b. Operationally significant system elements 100-kV to 200-kV
     c. Transformers with 100-kV or higher on the low side
     d. GSU transformers with high side voltages of 100-kV or higher
   - Generation Protection Systems which trip:
     a. Transmission system elements 200-kV and above
     b. Operationally significant system elements 100-kV to 200-kV
     c. Transformers with 100-kV or higher on the low side
     d. GSU transformers with high side voltages of 100-kV or higher
     e. Generators connected through GSU transformers with high side voltages of 100-kV or higher
   - Protection Systems that trip aggregate generation of 75 MW or more (such as wind farms, geothermal, or solar) connected to the transmission system at 100-kV or higher.

2. **Definitions** — The NERC Glossary of Terms currently defines Misoperation as:

   Misoperation (current definition)

   - Any failure of a Protection System element to operate within the specified time when a fault or abnormal condition occurs within a zone of protection.
   - Any operation for a fault not within a zone of protection (other than operation as backup protection for a fault in an adjacent zone that is not cleared within a specified time for the protection for that zone).
   - Any unintentional Protection System operation when no fault or other abnormal condition has occurred unrelated to on-site maintenance and testing activity

   The existing definition does not address what are reportable and non-reportable misoperations. Reportable misoperations should be redefined in terms of both

dependability and security, as a function of the impact of the Protection Systems on the electric system performance. SPCS recommends the following definition:

Reportable Protection Misoperation (proposed definition)

Dependability (failure to operate):

- Failure of the composite Protection System to initiate the isolation of a faulted power system Element as designed or within its designed operating time.
- Failure of the composite Protection System to operate as intended for a non-fault condition, such as out-of-step, overload, etc., within its designed operating time.
- Failure of an SPS/RAS, UVLS system, or UFLS system to operate for an intended condition or within its designed operating time.

Security (false or undesirable operations):

- Improper operation of a Protection System in absence of a fault on the power system Element it is designed to protect.
- Improper operation of a Protection System during a fault on any other power system Element it is not designed to protect.
- Improper operation of an SPS/RAS, UVLS system, or UFLS system in absence of its designed trigger conditions.
- Over-response of an SPS/RAS, UVLS system, or UFLS system

Notes to the proposed definition:

A. The composite Protection System in the context of this standard is the total complement of protection for a system Element (line, bus, transformer, generator, etc). Primary and secondary protection of a given Element is considered as the composite Protection System, not two separate Protection Systems.

B. Delayed clearing, where a high-speed system is employed and is essential for transmission system performance, is considered a reportable misoperation of the high-speed system.

C. Lack of targeting of the high-speed system, such as when it is beat out by a high-speed zone, is not considered a reportable misoperation.

D. Multiple misoperations of a Protection System before it can be reasonably investigated and remedied should be considered as a single misoperation.

E. Failure to automatically reclose after a fault is not a reportable misoperation.

F. Human errors made in protection settings either as calculated or as installed, or wiring errors, which result in a misoperation are reportable.

G. Protection System operations related to on-site maintenance, testing, construction and or commissioning activities for that Protection System, when no fault or other abnormal condition has occurred, are not considered reportable Protection System misoperations.

H. Operations which are initiated by control systems (not by the Protection Systems), such as those associated with generator controls or turbine/boiler controls, SVCs,

FACTS, HVDC, circuit breaker mechanism, or insulation media, or other facility control systems, are not reportable Protection System misoperations.

I. *Protection System operations which occur with the protected element already out of service, that do not trip any in-service elements, are not reportable Protection System misoperations.*

3. **Reporting of Misoperations** — Because the current PRC-003 calls for regional procedures and reporting requirements, there is a wide variation in those requirements from region to region, making comparison of misoperations metrics at the NERC level virtually impossible. Since any assessment of the success or failure of the NERC protection-related standards to maintain or improve reliability depends on those metrics, it is important to provide for uniformity. The variations in definitions can be corrected by the adoption of the Reportable Protection Misoperation definition above. Uniform reporting can be addressed by following proposed reporting requirements:

   - Transmission Owner or Generation Owners that own Protection Systems shall submit a quarterly report of the total number of events , the number of Protection System misoperations, and the number of events still under analysis, in a prescribed format (to be part of the revised PRC-003 standard) no later than two calendar months after each quarter.
   - The regions shall, in turn, submit a quarterly report to NERC – consolidated data for the Region in a prescribed format (also part of the revised PRC-003 standard).
   - The regions shall provide any additional information on misoperations to NERC as requested.

4. **Peer Review of Misoperations —** Peer review of misoperations and tracking of mitigation plans is an important part of improving Protection System performance. Logically, that function should be done by the Regional Entities. However, since standards requirements cannot be placed on the Regional Entities, the following suggestions are made but the mechanics are left open.

   - The regions, through their appropriate committees or subcommittee, shall review the misoperation reports. This review should determine whether further analysis, data, or other documentation is required, and it will confirm that appropriate mitigation is defined and scheduled.
   - The regions should maintain records of the quarterly reports and confirm the implementation of any proposed mitigation plan.
   - The regions should track the mitigation of reported misoperations to avoid further occurrences.

Assessment of PRC-004 and PRC-016-0

NERC standards PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations, and PRC-016 – Special Protection System Misoperations both require that Protection System misoperations are analyzed and reported, and that corrective actions are taken where necessary. However, PRC-016 exclusively applies to special protection systems (SPS) also know as remedial action schemes (RAS). Since analysis and reporting of protection system misoperations is the same regardless of whether or not a SPS/RAS is involved; there is no need for a separate standard. Standard PRC-004-1 should be revised to include SPS/RAS, and PRC-016 should be retired.

SPS Corrective Action Plan Review

PRC-012-0 — Special Protection System Review Procedure is intended to provide a review procedure to ensure that all SPS/RAS are properly designed, meet performance requirements, and are coordinated with other Protection Systems.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and are coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should refer to that review process.

Proposed PRC-004-1 Revisions

SPCS recommends the following revisions to PRC-004-1 requirements to encompass those of PRC-016:

R1. The Transmission Owner and any Distribution Provider that owns a transmission Protection System or SPS shall each analyze its transmission Protection System or SPS Misoperations and shall develop and implement a Corrective Action Plan to avoid future Misoperations of a similar nature in accordance with Standard PRC-003 (revised).

R2. The Generator Owner shall analyze its generator Protection System or SPS Misoperations, and shall develop and implement a Corrective Action Plan to avoid future Misoperations of a similar nature in accordance with Standard PRC-003 (revised).

R3. The Transmission Owner, Generator Owner, and Distribution Provider that owns a transmission Protection System or an SPS shall provide documentation of the misoperation analyses and the Corrective Action Plans to its Regional Reliability Organization and NERC upon request (within 90 calendar days).

R4. All Corrective Action Plans for SPS shall be subject to SPS Review Procedures in accordance with Standard PRC-012.

Appendix A — System Protection and Control Subcommittee

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NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Reliability Standards Development Plan: 2010–2012

Volume II — List of Projects

to ensure the reliability of the bulk power system

October 7, 2009

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Table of Contents:

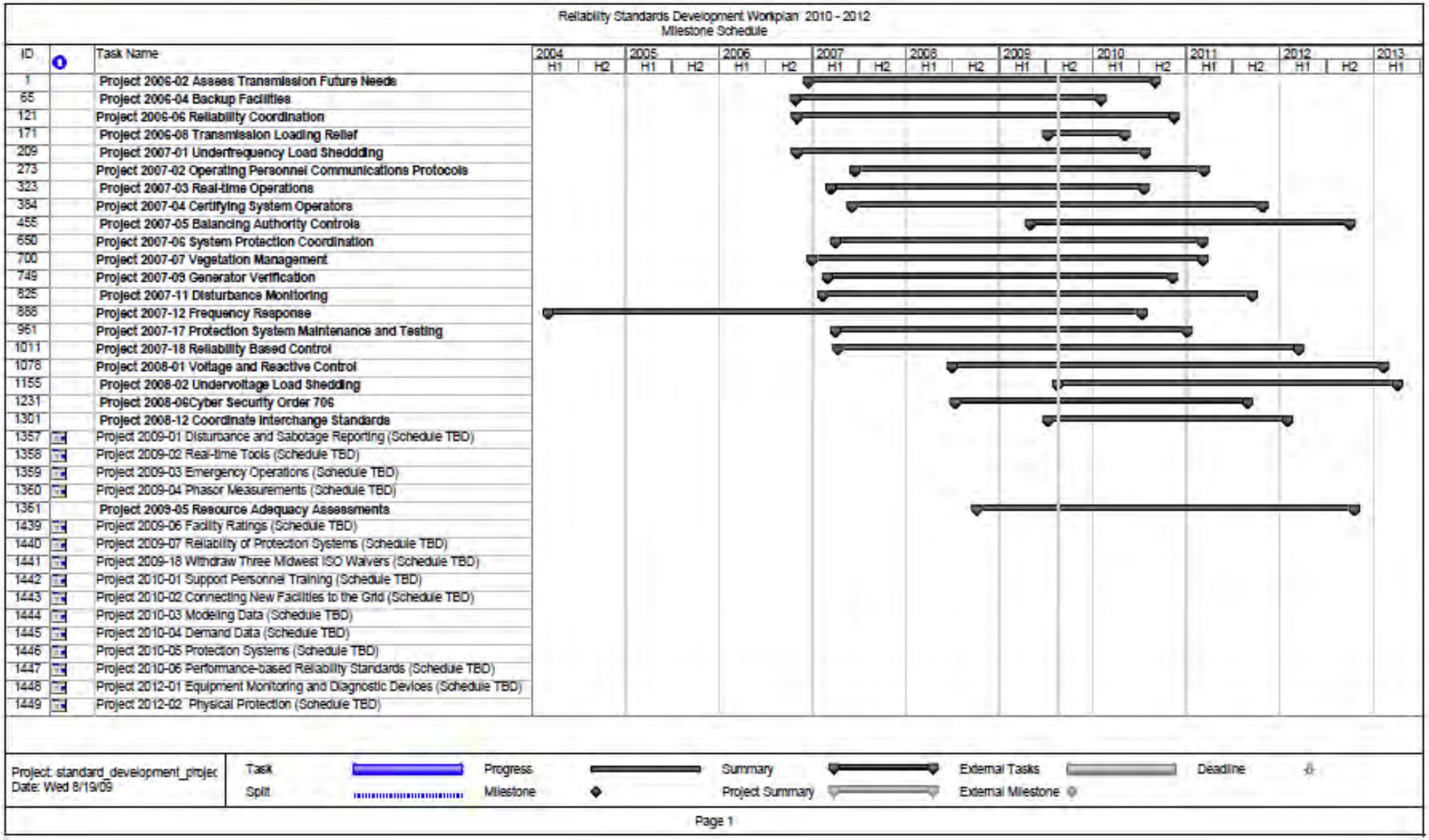
Introduction

This Volume II of the *Reliability Standards Development Plan* ~~primarily~~ contains the project descriptions for each of the currently opened and planned reliability standards development projects. There are 37~~6~~ projects in this plan. For each project, a description is provided that outlines the general overview and scope of improvements to be considered in conjunction with the project.

The three charts and tables on the pages which immediately follow have been provided as additional information for helping better understand each project:

- The first chart provides an overall Gantt chart for all currently open projects. More detailed project schedules are posted on the "Related Files" of each project. The intent of this overall Gantt chart is to provide a quick reference of the overall project schedule for each project.
- The next table provides a quick reference identifying which project is associated with a particular standard and is sorted by standard number.
- The final table provides a quick reference identifying which standards are associated with each project and is sorted by project number for those projects that have specifically identified standards to be included in their scope.

Reliability Standards Development Plan Overall Project Schedules



Reference Identifying the Standard in each Project Sorted by Standard Number

Standard	Standard Name	Project Number
Resource and Demand Balancing (BAL) Standards		
BAL-001-0a	Real Power Balancing Control Performance	Project 2007-18
BAL-002-0	Disturbance Control Performance	Project 2007-05, Project 2009-02, and Project 2007-18
BAL-003-0a	Frequency Response and Bias	Project 2007-12
BAL-004-0	Time Error Correction	Project 2007-05
BAL-004-1	Time Error Correction	Project 2007-05
BAL-005-0b	Automatic Generation Control	Project 2007-05 and Project 2009-02
BAL-006-1	Inadvertent Interchange	Project 2007-05
Critical Infrastructure Protection (CIP) Standards		
CIP-001-1	Sabotage Reporting	Project 2009-01
CIP-002-2	Critical Cyber Asset Identification	Project 2008-06
CIP-003-2	Security Management Controls	Project 2008-06
CIP-004-2	Personnel and Training	Project 2008-06
CIP-005-2	Electronic Security Perimeter(s)	Project 2008-06
CIP-006-2	Physical Security	Project 2008-06
CIP-006-1a	Cyber Security — Physical Security	Project 2008-06
CIP-007-2	Systems Security Management	Project 2008-06
CIP-008-2	Incident Reporting and Response Planning	Project 2008-06
CIP-009-2	Recovery Plans for Critical Cyber Assets	Project 2008-06
Communications (COM) Standards		
COM-001-1	Telecommunications	Project 2006-06 and Project 2009-02
COM-002-2	Communications and Coordination	Project 2006-06 and Project 2007-02
Emergency Preparedness and Operations (EOP) Standards		
EOP-001-0	Emergency Operations Planning	Project 2006-04, Project 2008-08 (VSLs only), and Project 2009-03
EOP-002-2	Capacity and Energy Emergencies	Project 2007-18, Project 2008-08 (VSLs only) and Project 2009-03
EOP-003-1	Load Shedding Plans	Project 2008-08 (VSLs only), Project 2009-02, and Project 2009-03
EOP-004-1	Disturbance Reporting	Project 2008-08 (VSLs only) and Project 2009-01
Facilities Design, Connections, and Maintenance (FAC) Standards		
FAC-001-0	Facility Connection Requirements	Project 2010-02

Standard	Standard Name	Project Number
FAC-002-0	Coordination of Plans for New Facilities	Project 2010-02
FAC-003-1	Transmission Vegetation Management Program	Project 2007-07
FAC-008-1	Facility Ratings Methodology	Project 2009-06
FAC-009-1	Establish and Communicate Facility Ratings	Project 2009-06
FAC-010-2	System Operating Limits Methodology for the Planning Horizon	Project 2008-04
FAC-011-1	System Operating Limits Methodology for the Operations Horizon	Project 2008-05
FAC-011-2	System Operating Limits Methodology for the Operations Horizon	Project 2008-05 and Project 2008-04
FAC-012-1	Transfer Capability Methodology	Project 2006-07
FAC-013-1	Establish and Communicate Transfer Capabilities	Project 2006-07
FAC-014-2	Establish and Communicate System Operating Limits	Project 2008-04
Interchange Scheduling and Coordination (INT) Standards		
INT-001-3	Interchange Information	Project 2008-12
INT-003-2	Interchange Transaction Implementation	Project 2008-12
INT-004-1	Dynamic Interchange Transaction Modifications	Project 2008-12
INT-005-1	Interchange Authority Distributes Arranged Interchange	Project 2008-12 and Project 2010-03
INT-005-2	Interchange Authority Distributes Arranged Interchange	Project 2008-12
INT-006-2	Response to Interchange Authority	Project 2008-12
INT-007-1	Interchange Confirmation	Project 2008-12
INT-008-1	Interchange Authority Distributes Status	Project 2008-12
INT-008-2	Interchange Authority Distributes Status	Project 2008-12
INT-009-1	Implementation of Interchange	Project 2008-12
INT-010-1	Interchange Coordination Exemptions	Project 2008-12
Interconnection Reliability Operations and Coordination (IRO) Standards		
IRO-001-1	Reliability Coordination — Responsibilities and Authorities	Project 2006-06 and Project 2009-03
IRO-002-1	Reliability Coordination — Facilities	Project 2006-06 and Project 2009-02
IRO-003-2	Reliability Coordination — Wide-Area View	Project 2009-02
IRO-004-1	Reliability Coordination — Operations Planning	Project 2009-02
IRO-005-2	Reliability Coordination — Current-Day Operations	Project 2006-06, Project 2007-18, and Project 2009-02
IRO-006-4	Reliability Coordination — Transmission Loading Relief	Project 2006-08
IRO-014-1	Procedures, Processes, or Plans to Support Coordination Between Reliability Coordinators	Project 2006-06
IRO-015-1	Notifications and Information Exchange Between Reliability Coordinators	Project 2006-06
IRO-016-1	Coordination of Real-time Activities Between Reliability Coordinators	Project 2006-06
Modeling, Data, and Analysis (MOD) Standards		
MOD-010-0	Steady-State Data for Transmission System Modeling and Simulation	Project 2010-03
MOD-011-0	Regional Steady-State Data Requirements and Reporting Procedures	Project 2010-03

Standard	Standard Name	Project Number
MOD-012-0	Dynamics Data for Transmission System Modeling and Simulation	Project 2010-03
MOD-013-1	RRO Dynamics Data Requirements and Reporting Procedures	Project 2010-03
MOD-014-0	Development of Interconnection-Specific Steady State System Models	Project 2010-03
MOD-015-0	Development of Interconnection-Specific Dynamics System Models	Project 2010-03
MOD-016-1	Actual and Forecast Demands, Net Energy for Load, Controllable DSM	Project 2010-04
MOD-017-0	Aggregated Actual and Forecast Demands and Net Energy for Load	Project 2010-04
MOD-018-0	Reports of Actual and Forecast Demand Data	Project 2010-04
MOD 019-0	Forecasts of Interruptible Demands and DCLM Data	Project 2010-04
MOD-020-0	Providing Interruptible Demands and DCLM Data	Project 2010-04
MOD-021-0	Accounting Methodology for Effects of Controllable DSM in Forecasts	Project 2010-04
MOD-024-1	Verification of Generator Gross and Net Real Power Capability	Project 2007-09
MOD-025-1	Verification of Generator Gross and Net Reactive Power Capability	Project 2007-09
MOD-026-1	Verification of Models and Data for Generator Excitation System Functions	Project 2007-09
MOD-027-1	Verification of Generator Unit Frequency Response	Project 2007-09
Personnel Performance, Training, and Qualifications (PER) Standards		
PER-001-0	Operating Personnel Responsibility and Authority	Project 2007-03
PER-003-0	Operating Personnel Credentials	Project 2007-04
Protection and Control (PRC) Standards		
PRC-001-1	System Protection Coordination	Project 2007-06 and Project 2009-02
PRC-002-1	Define Regional Disturbance Monitoring and Reporting Requirements	Project 2007-11
PRC-003-1	Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems	Project 2010-05
PRC-004-1	Analysis and Mitigation of Transmission and Generation Protection System Misoperations	Project 2010-05
PRC-005-1	Transmission and Generation Protection System Maintenance and Testing	Project 2007-17
PRC-006-0	Development and Documentation of Regional UFLS Programs	Project 2007-01
PRC-007-0	Assuring Consistency with Regional UFLS Program Requirements	Project 2007-01
PRC-008-0	Underfrequency Load Shedding Equipment Maintenance Programs	Project 2007-17
PRC-009-0	UFLS Performance Following an Underfrequency Event	Project 2007-01
PRC-010-0	Assessment of the Design and Effectiveness of UVLS Program	Project 2008-02
PRC-011-0	UVLS System Maintenance and Testing	Project 2007-17
PRC-012-0	Special Protection System Review Procedure	Project 2010-05
PRC-013-0	Special Protection System Database	Project 2010-03
PRC-014-0	Special Protection System Assessment	Project 2010-05
PRC-015-0	Special Protection System Data and Documentation	Project 2010-03
PRC-016-0	Special Protection System Misoperations	Project 2010-05
PRC-017-0	Special Protection System Maintenance and Testing	Project 2007-17

Standard	Standard Name	Project Number
PRC-018-1	Disturbance Monitoring Equipment Installation and Data Reporting	Project 2007-11
PRC-019-1	Coordination of Generator Voltage Regulator Controls with Unit Capabilities and Protection	Project 2007-09
PRC-020-1	Under-Voltage Load Shedding Program Database	Project 2010-03
PRC-021-1	Under-Voltage Load Shedding Program Data	Project 2010-03
PRC-022-1	Under-Voltage Load Shedding Program Performance	Project 2008-02
PRC-024-1	Generator Performance During Frequency and Voltage Excursions	Project 2007-09
Transmission Operations (TOP) Standards		
TOP-001-1	Reliability Responsibilities and Authorities	Project 2007-03
TOP-002-2	Normal Operations Planning	Project 2007-03
TOP-003-0	Planned Outage Coordination	Project 2007-03
TOP-004-2	Transmission Operations	Project 2007-03
TOP-005-1	Operational Reliability Information	Project 2007-03
TOP-006-1	Monitoring System Conditions	Project 2007-03
TOP-007-0	Reporting SOL and IROL Violations	Project 2007-03
TOP-008-1	Response to Transmission Limit Violations	Project 2007-03
Transmission Planning (TPL) Standards		
TPL-001-0	System Performance Under Normal Conditions	Project 2006-02
TPL-002-0	System Performance Following Loss of a Single BES Element	Project 2006-02
TPL-003-0	System Performance Following Loss of Two or More BES Elements	Project 2006-02
TPL-004-0	System Performance Following Extreme BES Events	Project 2006-02
TPL-005-0	Regional and Interregional Self-Assessment Reliability Reports	Project 2006-02
TPL-006-0	Assessment Data from Regional Reliability Organizations	Project 2006-02
Voltage and Reactive (VAR) Standards		
VAR-001-1a	Voltage and Reactive Control	Project 2008-01 and Project 2009-02
VAR-002-1a	Generator Operation for Maintaining Network Voltage Schedules	Project 2008-01

Reference Identifying the Standard in each Project Sorted by Project Number

Project 2006-02 Assess Transmission Future Needs ▪ TPL-001-0 — System Performance Under Normal Conditions ▪ TPL-002-0 — System Performance Following Loss of a Single BES Element ▪ TPL-003-0 — System Performance Following Loss of Two or More BES Elements ▪ TPL-004-0 — System Performance Following Extreme BES Events ▪ TPL-005-0 — Regional and Interregional Self-Assessment Reliability Reports ▪ TPL-006-0 — Assessment Data from Regional Reliability Organizations
Project 2006-06 Reliability Coordination ▪ COM-001-1 — Telecommunications ▪ COM-002-2 — Communications and Coordination ▪ IRO-001-1 — Reliability Coordination — Responsibilities and Authorities ▪ IRO-002-1 — Reliability Coordination — Facilities ▪ IRO-005-2 — Reliability Coordination — Current-Day Operations ▪ IRO-014-1 — Procedures, Processes, or Plans to Support Coordination Between Reliability Coordinators ▪ IRO-015-1 — Notifications and Information Exchange Between Reliability Coordinators ▪ IRO-016-1 — Coordination of Real-time Activities Between Reliability Coordinators
Project 2006-08 Transmission Loading Relief ▪ IRO-006-3 — Reliability Coordination — Transmission Loading Relief ▪ IRO-006-4 — Reliability Coordination — Transmission Loading Relief
~~**Project 2009-06 Facility Ratings**~~ ~~▪ FAC-008-1 — Facility Ratings Methodology~~ ~~▪ FAC-009-1 — Establish and Communicate Facility Ratings~~
Project 2007-01 Underfrequency Load Shedding ▪ PRC-006-0 — Development and Documentation of Regional UFLS Programs ▪ PRC-007-0 — Assuring Consistency with Regional UFLS Program Requirements ▪ PRC-009-0 — UFLS Performance Following an Underfrequency Event
Project 2007-02 Operating Personnel Communications Protocols ▪ COM-003-1 — Operating Personnel Communications Protocols
Project 2007-03 Real-time Operations ▪ PER-001-0 — Operating Personnel Responsibility and Authority ▪ TOP-001-1 — Reliability Responsibilities and Authorities ▪ TOP-002-2 — Normal Operations Planning ▪ TOP-003-0 — Planned Outage Coordination ▪ TOP-004-1 — Transmission Operations ▪ TOP-004-2 — Transmission Operations ▪ TOP-005-1 — Operational Reliability Information ▪ TOP-006-1 — Monitoring System Conditions ▪ TOP-007-0 — Reporting SOL and IROL Violations

	▪ TOP-008-1 — Response to Transmission Limit Violations
Project 2007-04 Certifying System Operators	▪ PER-003-0 — Operating Personnel Credentials
Project 2007-05 Balancing Authority Controls	▪ BAL-002-0 — Disturbance Control Performance ▪ BAL-004-0 — Time Error Correction ▪ BAL-004-1 — Time Error Correction ▪ BAL-005-0 — Automatic Generation Control ▪ BAL-005-0b — Automatic Generation Control ▪ BAL-006-1 — Inadvertent Interchange
Project 2007-06 System Protection Coordination	▪ PRC-001-1 — System Protection Coordination
Project 2007-07 Vegetation Management	▪ FAC-003-2 — Transmission Vegetation Management Program
Project 2007-09 Generator Verification	▪ MOD-024-1 — Verification of Generator Gross and Net Real Power Capability ▪ MOD-025-1 — Verification of Generator Gross and Net Reactive Power Capability ▪ MOD-026-1 — Verification of Models and Data for Generator Excitation System Functions ▪ MOD-027-1 — Verification of Generator Unit Frequency Response ▪ PRC-019-1 — Coordination of Generator Voltage Regulator Controls with Unit Capabilities and Protection ▪ PRC-024-1 — Generator Performance During Frequency and Voltage Excursions
Project 2007-11 Disturbance Monitoring	▪ PRC–002-1 — Define Regional Disturbance Monitoring and Reporting Requirements ▪ PRC–018-1 — Disturbance Monitoring Equipment Installation and Data Reporting
Project 2007-17 Protection System Maintenance and Testing	▪ PRC–005-1 — Transmission and Generation Protection System Maintenance and Testing ▪ PRC–008-0 — Underfrequency Load Shedding Equipment Maintenance Programs ▪ PRC–011-0 — UVLS System Maintenance and Testing ▪ PRC–017-0 — Special Protection System Maintenance and Testing
Project 2007-18 Reliability-based Control	▪ BAL–001-0 — Real Power Balancing Control Performance ▪ BAL–001-0a — Real Power Balancing Control Performance ▪ BAL–003-0a — Frequency Response and Bias ▪ EOP–002-2 — Capacity and Energy Emergencies ▪ IRO–005-2 — Reliability Coordination — Current-Day Operations
Project 2008-01 Voltage and Reactive Control	▪ VAR–001-1 — Voltage and Reactive Control ▪ VAR–001-1a — Voltage and Reactive Control ▪ VAR–002-1 — Generator Operation for Maintaining Network Voltage Schedules ▪ VAR–002-1a — Generator Operation for Maintaining Network Voltage Schedules
Project 2008-02 Undervoltage Load Shedding	

	▪ PRC–010-0 — Assessment of the Design and Effectiveness of UVLS Program ▪ PRC–022-1 — Under-Voltage Load Shedding Program Performance
Project 2008-06 Cyber Security — Order 706	▪ CIP–002–2 — Critical Cyber Asset Identification ▪ CIP–003–2 — Security Management Controls ▪ CIP–004–2 — Personnel and Training ▪ CIP–005–2 — Electronic Security Perimeter(s) ▪ CIP–006-2a — Cyber Security — Physical Security ▪ CIP–007–2 — Systems Security Management ▪ CIP–008–2 — Incident Reporting and Response Planning ▪ CIP–009–2 — Recovery Plans for Critical Cyber Assets
Project 2008-08 EOP VSL Revisions	▪ EOP-001-0 — Emergency Operations Planning ▪ EOP-002-2 — Capacity and Energy Emergencies ▪ EOP-003-1 — Load Shedding Plans
Project 2008-12 Coordinate Interchange Standards	▪ INT-001-3 — Interchange Information ▪ INT-003-2 — Interchange Transaction Implementation ▪ INT-004-1 — Dynamic Interchange Transaction Modifications ▪ INT-005-2 — Interchange Authority Distributes Arranged Interchange ▪ INT-006-2 — Response to Interchange Authority ▪ INT-007-1 — Interchange Confirmation ▪ INT-008-2 — Interchange Authority Distributes Status ▪ INT-009-1 — Implementation of Interchange ▪ INT-010-1 — Interchange Coordination Exemptions
Project 2009-01 Disturbance and Sabotage Reporting	▪ CIP-001-1 — Sabotage Reporting ▪ EOP-004-1 — Disturbance Reporting
Project 2009-02 Real-time Tools	▪ BAL-002-0 — Disturbance Control Performance ▪ BAL-005-0 — Automatic Generation Control ▪ BAL-005-0b — Automatic Generation Control ▪ COM-001-1 — Telecommunications ▪ EOP-003-1 — Load Shedding Plans ▪ EOP-005-1 — System Restoration Plans ▪ IRO-002-1 — Reliability Coordination — Facilities ▪ IRO-003-2 — Reliability Coordination — Wide-Area View ▪ IRO-004-1 — Reliability Coordination — Operations Planning ▪ IRO-005-2 — Reliability Coordination — Current-Day Operations ▪ PRC-001-1 — System Protection Coordination ▪ TOP-001-1 — Reliability Responsibilities and Authorities ▪ TOP-002-2 — Normal Operations Planning ▪ TOP-003-0 — Planned Outage Coordination

- TOP-004-1 — Transmission Operations
- TOP-004-2 — Transmission Operations
- TOP-005-1 — Operational Reliability Information
- TOP-006-1 — Monitoring System Conditions
- VAR-001-1 — Voltage and Reactive Control
- VAR-001-1a — Voltage and Reactive Control

Project 2009-05 Resource Adequacy Assessments

- ~~MOD-011-0 — Regional Steady-State Data Requirements and Reporting Procedures~~
- ~~MOD-014-0 — Development of Steady State System Models~~
- ~~TPL-005-0 — Regional and Inter-Regional Self-Assessment Reliability Reports~~
- ~~MOD-017-1 — Aggregated Actual and Forecast Demands, Net Energy for Load~~
- ~~MOD-018-0 — Reports of Actual and Forecast Demand Data~~
- ~~MOD-016-1 — Actual and Forecast Demands, Net Energy for Load, Controllable DSM~~New Standard

Project 2009-06 Facility Ratings

- FAC-008-1 — Facility Ratings Methodology

FAC-009-1 — Establish and Communicate Facility Ratings

Project 2010-02 Connecting New Facilities to the Grid

- FAC-001-0 — Facility Connection Requirements
- FAC-002-0 — Coordination of Plans for New Facilities

Project 2010-03 Modeling Data

- MOD-010-0 — Steady-State Data for Transmission System Modeling and Simulation
- MOD-011-0 — Regional Steady-State Data Requirements and Reporting Procedures
- MOD-012-0 — Dynamics Data for Transmission System Modeling and Simulation
- MOD-013-1 — RRO Dynamics Data Requirements and Reporting Procedures
- MOD-014-0 — Development of Interconnection-Specific Steady State System Models
- MOD-015-0 — Development of Interconnection-Specific Dynamics System Models
- PRC-013-0 — Special Protection System Database
- PRC-015-0 — Special Protection System Data and Documentation

Project 2010-04 Demand Data

- MOD-016-1 — Actual and Forecast Demands, Net Energy for Load, Controllable DSM
- MOD-017-0 — Aggregated Actual and Forecast Demands and Net Energy for Load
- MOD-018-0 — Reports of Actual and Forecast Demand Data
- MOD-019-0 — Forecasts of Interruptible Demands and DCLM Data
- MOD-020-0 — Providing Interruptible Demands and DCLM Data
- MOD-021-0 — Accounting Methodology for Effects of Controllable DSM in Forecasts

Project 2010-05 Protection Systems

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations
- PRC-012-0 — Special Protection System Review Procedure
- PRC-014-0 — Special Protection System Assessment
- PRC-016-0 — Special Protection System Misoperations

Project Descriptions

The following pages contain the project descriptions for each of the currently opened or planned Reliability Standards development projects. Each project description includes a cover page that provides an overview of the project, including the project number, title, list of affected reliability standards, hyperlinks to associated portions of the NERC standards web pages, and a brief description of the project. The cover page is followed by the drafting team roster for the project (if one exists – future/planned projects will not have a roster) and a list of "Issues to be Considered by Drafting Team" for each reliability standard associated with the specific project.

The standard drafting team for each of these projects will be expected to review the assigned standards and modify the standards to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure as described in the "Global Improvements" section of Volume I of this *Reliability Standards Development Plan*.

Each list of "Issues to be Considered by Drafting Team" identifies the FERC directives from various orders, items from the Issues Database, and also includes comments provided by:

- The team working on identifying the "fill-in-the-blank" characteristics of the NERC reliability standards,
- Industry stakeholders,
- NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS),
- Version 0, Phase III & IV, Violation Risk Factors (VRFs), and Missing Measures and Compliance Elements drafting teams and others as noted.

The majority of comments provided by these entities can be found in the following references:

- FERC Order 693 Mandatory Reliability Standards for the Bulk-Power System
- FERC Order 693 — A, Order on Rehearing
- FERC Order 706 Mandatory Reliability Standards for Critical Infrastructure Protection
- FERC Order 706–A Mandatory Reliability Standards for Critical Infrastructure Protection
- FERC Order 890 Preventing Undue Discrimination and Preference in Transmission Service
- FERC NOPR Mandatory Reliability Standards for Critical Infrastructure Protection
- FERC NOPR — Mandatory Reliability Standards for the Bulk-Power System, dated October 20, 2006 — *Explanatory comments from NERC staff's discussion with FERC personnel on the NOPR are indicated in italic text contained within parenthesis*
- Summary of Comments for Addressing Fill-in-the-Blank Aspects of Reliability Standards, October 24, 2006
- Comments received during the development of Version 0 reliability standards
- Consideration of comments of the Missing Compliance Elements drafting team.
- Consideration of comments of the Violation Risk Factors drafting team

- Consideration of comments in the Phase III-IV standards
- SAR on Planning Authority (The requester agreed to not proceed with this SAR.) SAR on Applicability

Note that no value judgments have been made about the technical merits of any of the items included in each list of "Issues to be Considered by Drafting Team." Each standard drafting team for the specific project is expected to further investigate and properly address each of the issues listed.

Project 2006-02 Assess Transmission and Future Needs

Standards Involved:
TPL-001-0 — System Performance under Normal Conditions
TPL-002-0 — System Performance Following Loss of a Single BES Element
TPL-003-0 — System Performance Following Loss of Two or More BES Elements
TPL-004-0 — System Performance Following Extreme BES Events
TPL-005-0 — Regional and Interregional Self-Assessment Reliability Reports
TPL-006-0 — Assessment Data from Regional Reliability Organizations

Research Needed:
None

Brief Description:
The proposed work effort will establish requirements where requirements do not exist, and verify and clarify the existing standards for assessing and reporting the performance of planned bulk electric systems and the requirements for documenting plans to remedy any inadequacies identified in the process of conducting such assessments.

Consideration will be given to the many proposed improvements identified in the 'Issues' list for each of the above standards.

The drafting team will also work to incorporate the interpretation on TPL-002 Requirement R1.3.12 and Requirement R1.32 and the interpretation on TPL-003 Requirement R1.3.12 and Requirement R1.32.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2006-02 Assess Transmission and Future Needs Web Page

Project Schedule:
Project 2006-02 Schedule

Standard Drafting Team Roster:

Chairman	John E. Odom, Jr.	Florida Reliability Coordinating Council
Vice Chairman	Douglas Hohlbaugh	FirstEnergy Corp.
	D. Darrin Church	Tennessee Valley Authority
	William Harm	PJM Interconnection, L.L.C.
	Julius Horvath	Lower Colorado River Authority
	Robert A. Jones	Southern Company Services, Inc.
	R. W. Mazur	Manitoba Hydro
	Thomas C. Mielnik	MidAmerican Energy Co.
	Bernie Pasternack, P.E.	American Electric Power
	Bob Pierce	Duke Energy
	Chifong L. Thomas	Pacific Gas and Electric Company
	James Useldinger	Kansas City Power & Light Co.
	Dana Walters	National Grid
NERC Staff	Edward J. Dobrowolski	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
TPL Family	
FERC Order 693	• 1692 — Consider integrating TPL-001 through TPL-004 into one standard. • 1694, 1704, & 1706 — Consider the full range of variables when determining critical system conditions but only those deemed to be significant need to be assessed and documentation provided that explain the rational for selection. • 1716 — System performance should be assessed based on contingencies that mimic what happens in real-time. • 1719 — Consider appropriate revisions to the reliability standards to deal with cyber security events.
	—Submit an informational filing, in addition to regional criteria, all utility and RTO/ISO differences in transmission planning criteria that are more stringent than those specified by the TPL standards.
TPL-001-0 — System Performance Under Normal (No Contingency) Conditions (Category A)	
FERC Order 693	• 1694, 1704, & 1706 — Determine critical system conditions and study years by conducting sensitivity analysis with due consideration of the factors outlined by the Commission. • 1751 — Require a peer review of planning assessments with neighboring entities • 1759 — Modify requirement R1.3 to substitute the reference to regional reliability organization with regional entity. • 1797 — Address concerns with footnote (a) of Table 1 with regard to applicability of emergency ratings and consistency of normal ratings and voltages with values obtained from other reliability standards and concerns raised by International Transmission with regard to the footnotes in Table 1 • 1786 — Require assessments of outages of critical long lead time equipment, consistent with an entity's spare equipment strategy • 1719 — Consider appropriate revisions to the reliability standards to deal with cyber security events. • Entities that have planned and designed their systems on the basis of a different approach to single contingencies should work with NERC in developing plans to transition to this new approach. • 1716 — System performance should be assessed based on contingencies that mimic what happens in real-time. • 1694, 1704, & 1706 — Consider the full range of variables when determining critical system conditions but only those deemed to be significant need to be assessed and documentation provided that explain the rational for selection. • 1693 — Submit an informational filing, in addition to regional criteria, all utility and RTO/ISO differences in transmission planning criteria that are more stringent than those specified by the TPL standards. • Consider integrating TPL-001 through TPL-004 into one standard.
Fill in the Blank Team	No action needed

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Phase III/IV Team	• Add a requirement to identify where UVLS should be installed • Add a requirement to verify that there are sufficient reactive resources
Team Comments	• Provide clarity where the Planning Authority is mentioned
Version 0 Team	• Table 1 — C.5 goes beyond double circuit outage criteria • Table 1, items 6, 7, 8 & 9 need footnote stating that they do not apply to generator breaker failure • What is a major load center? • Need to include multiple time frames • Does planned facilities include just those under construction? • Having all projected firm transfers modeled may not be practical to achieve in a single shapshot of a powerflow model. The requirement should allow engineering judgment to determine the appropriate level of system utilization to assess reliability considering all projected firm uses. • Define critical system conditions • Need to address deliverability to load • Clarify use of applicable ratings in Table 1, note 'a' • Clarify timing for submittal of corrective plan • Several semantic issues • Table 1, note 'b' — clarify when to curtail firm deliveries
VRFs Team	R1 — time horizon should be long-term planning
TPL-002-0 — System Performance Following Loss of a Single Bulk Electric System Element (Category B)	
FERC Order 693	• 1694, 1704, & 1706 — Determine critical system conditions in the same manner as proposed in TPL-001. • 1787 — Requires all generators to ride through the same set of category B and C contingencies as required by wind generators in Order No. 661, or to simulate without this capability as tripping. • 1786 — Requires assessment of planned outages of long lead time critical equipment consistent with the entity's spare equipment strategy. • 1789 — Document the load models used in system studies and the rationale for their use. • 1773 — Clarify the phrase "permit operating steps necessary to maintain system control" in the footnote (a) and the use of emergency ratings. • 1773 — Clarifies footnote (b) in regard to load loss following a single contingency specifying the amount and duration of consequential load loss and system adjustments permitted after the first contingency to return the system to a normal operating state. NERC should consider this through its standard development process. • 1773 — Footnote (b) should not allow for firm load shedding or curtailment of firm transfers as part of the system adjustments. • 1788 — Consider NRC's comments regarding clarifying the N-1 state as being always

Source	Language
	applicable to the current conditions as part of the standards development process. • 1794 — Standard should be clarified to not allow an entity to plan for the loss of non-consequential load in the event of a single contingency.
Phase III/IV Team	• Add a requirement to verify that there are sufficient reactive resources • Add a requirement to identify where UVLS should be installed
Team Comments	• Provide clarity where the Planning Authority is mentioned
Version 0 Team	• Don't include planning outage • Don't include generation runback or redispatch • Address deliverability of generation to load • Clarify timing for corrective plan • Define critical system conditions • Single terminals are not included • Must study all contingencies and multiple demand levels & time frames • Clarify applicable ratings in Table 1, note 'a'
Other	Incorporate approved formal interpretation
VRFs Team	Time horizon should be long-term planning and R2.2 — redundant with R1.3.8
TPL-003-0 — System Performance Following loss of Two or More Bulk Electric System Elements (Category C)	
FERC Order 693	• 1769 — Address LPPA's concerns on changes to footnotes of Table 1 through the standard development process. • 1788 — Address NRC concerns as described in TPL-002 through the standards development process. • 1824 — Consider the comments on major load pockets as part of the standards development process. • 1821 — Tailor the purpose statement to reflect the specific goal of the standard. • 1820 — Applicable entities must define and document the proxies necessary to simulate cascading outages. • 1765 — Determine critical system conditions in the same manner as proposed in TPL-001. • 1806 — Clarify the term "controlled load interruption".
Fill in the Blank Team	No action required
Phase III/IV Team	• Add a requirement to identify where UVLS should be installed • Add a requirement to verify that there are sufficient reactive resources • Add a requirement to identify where UVLS should be installed
Team Comments	Provide clarity where the Planning Authority is mentioned
Version 0 Team	• Development of mitigation plans requires subsequent studies, and may actually be done by a different entity than the entity performing the assessment (the TO instead of the RTO who may have done the assessment) • Clearly identify outages

Source	Language
	• Use NERC Compliance Reporting Process • Don't base penalties on low probability, low consequence events • TO should provide plan of action • Same as TPL-001 & 002
VRFs Team	• R2.2 — lack of consistency with TPL-001 & TPL-007 • R2.1.3 — lack of consistency with TPL-001 & TPL-006 • R2.1.2 — lack of consistency with TPL-001 & TPL-005 • R2.1.1 — lack of consistency with TPL-001 & TPL-004 • R2.1 — lack of consistency with TPL-001 • R2 — lack of consistency with TPL-001 & TPL-002 • Time horizon should be long-term planning
TPL-004-0 — System Performance Following Extreme Events Resulting in the Loss of Two or More Bulk Electric System Elements (Category D)	
FERC Order 693	• 1835 — Tailor the purpose statement to reflect the specific goal of the standard. • 1765 — Determine critical system conditions in the same manner as proposed in TPL-001. • 1836 — Identify options for reducing the probability or impacts of extreme events that cause cascading. • 1836 — Expand the list of category D events to include recent actual events.
Fill in the Blank Team	No action required
Phase III/IV Team	• Add a requirement to identify where UVLS should be installed • Add a requirement to verify that there are sufficient reactive resources
Team Comments	Provide clarity where the Planning Authority is mentioned
Version 0 Team	• R1.3.9 — remove from extreme events • TO should determine which events to study • Perform analysis on credible contingency • Same as TPL-001
TPL-005-0 — Regional and Interregional Self-Assessment Reliability Reports	
FERC Order 693	1841 — Encourages NERC to utilize input from the Commission's technical conferences on regional planning as directed in Order No. 890 to improve this standard.
Fill in the Blank Team	New SAR needed
Version 0 Team	• An RRO can't make a mandatory request for another RRO to perform a study • Define fuel adequacy
TPL-006-0 — Assessment Data from Regional Reliability Organizations	
Fill in the Blank Team	No action required

Project 2006-04 Backup Facilities

Standards Involved:
EOP-008-0 — Plans for Loss of Control Center Functionality

Research Needed:
A study of backup capabilities needed to support reliable operations is required.

Brief Description:
The requirements in EOP-008 need additional specificity. The development revision to EOP-008 may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards. In addition, the efforts of the OC Backup Control Center Task Force will be used as one of the inputs to the revision of EOP-008. Also, there may be backup facility requirements in some other standards, and those requirements should be considered for movement into this standard.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2006-04 Backup Facilities Web page

Project Schedule:
Project 2006-04 Schedule

Standard Drafting Team Roster:

Chairman	Samuel Brattini	KEMA Consulting
Vice Chairman	Michael Schiavone	Niagara Mohawk Power Corp.
	Tom Bowe	PJM Interconnection, L.L.C.
	Blaine R. Dinwiddie	Omaha Public Power District
	Charles W. Jenkins	Oncor Electric Delivery
	Glenn Kaht	ReliabilityFirst Corporation
	Barry R. Lawson	National Rural Electric Cooperative Association
	Sara McCoy	SRP
	Melinda K. Montgomery	Entergy Services, Inc.
	Keith Porterfield	Georgia Systems Operations Corporation
	John Procyk	Hydro One, Inc.
	James Vermillion	Associated Electric Cooperative, Inc.
NERC Staff	Edward J. Dobrowolski	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
EOP-008-0 — Plans for Loss of Control Center Functionality	
FERC Order 693	• 672 — Provide for backup capabilities that, at a minimum, must include a requirement that all reliability coordinators have full backup control centers; • Include a requirement that provides for backup capabilities that, at a minimum, must: • 672 — Provide for backup capabilities that, at a minimum, must provide that the extent of the backup capability be consistent with the impact of the loss of the entity's primary control center on the reliability of the bulk power system. • 651 — Provide for backup capabilities that, at a minimum, must provide for a minimum functionality to replicate the critical reliability functions of the primary control center. • Provide for backup capabilities that, at a minimum, must be independent of the primary control center • 672 — Provide for backup capabilities that, at a minimum, must require transmission operators and balancing authorities that have operational control over significant portions of generation and load to have minimum backup capabilities discussed above but may do • 651 — Provide for backup capabilities that, at a minimum, must be capable of operating for a prolonged period of time, generally defined by the time it takes to restore the primary control center.
Fill in the Blank Team	No comments
NERC Audit Observation Team	Compliance levels don't align with the measures or requirements
Version 0 Team	• Max. time to restore capabilities • How is backup control achieved? • How does staff know control center is lost? (Note — A system health monitor concept or equivalent functionality is what is desired here.)
VRFs Team	• R1.1 — Not having a written plan is unlikely, under emergency, abnormal, or restoration conditions anticipated by the preparations, to lead to bulk electric system instability, separation, or cascading failures, nor to hinder restoration to a normal condition. • R1 — Not having a written plan does not directly cause or contribute to bulk electric system instability, separation, or a cascading sequence of failures, or could place the bulk electric system at an unacceptable risk of instability, separation, or cascading

Project 2006-06 Reliability Coordination

Standards Involved:
COM-001-1 — Telecommunications
COM-002-2 — Communications and Coordination
IRO-001-1 — Reliability Coordination — Responsibilities and Authorities
IRO-002-1 — Reliability Coordination — Facilities
IRO-005-2 — Reliability Coordination — Current-Day Operations
IRO-014-1 — Procedures to Support Coordination between Reliability Coordinators
IRO-015-1 — Notifications and Information Exchange Between Reliability Coordinators
IRO-016-1 — Coordination of Real-time Activities between Reliability Coordinators

Research Needed:
None

Brief Description
Most of the requirements in this set of standards were translated from Operating Policies as part of the Version 0 process. There have been suggestions for improving these requirements, and the drafting team will consider comments submitted by stakeholders, drafting teams and FERC in determining what changes should be proposed to stakeholders.

The drafting team will review all of the requirements in this set of standards and make a determination, with stakeholders, on whether to:

- Modify the requirement to improve its clarity and measureability while removing abiguity Move the requirement (into another SAR or Standard or to the certification process or standards)
- Eliminate the requirement (either because it is redundant or because it doesn't support bulk power system reliability).

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2006-06 Reliability Coordination Web page

Project Schedule:
Project 2006-06 Schedule

Standard Drafting Team Roster:

Chairman	Mike Hardy	Southern Company Services, Inc.
	Earl A. Barber	National Grid
	Timothy A. Beach	American Transmission Company, LLC
	Paul Bleuss	California/Mexico Reliability Coordinator (CMRC)
	James S. Case	Entergy Services, Inc.
	Albert DiCaprio	PJM Interconnection, L.L.C.
	Anthony Jankowski	We Energies
	Allan D. Miller	Independent Electricity System Operator
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Robert C. Rhodes, Jr.	Southwest Power Pool
NERC Staff	Stephen Crutchfield	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
COM-001-1 — Telecommunications	
FERC Order 693	"Include generator operators and distribution providers in the list of applicable entities and create appropriate requirements for them. Paragraph 487. The Commission reaffirms its position that generator operators and distribution providers should be included as applicable entities in COM-001-1 to ensure there is no reliability gap during normal and emergency operations. For example, during a blackstart when normal communications may be disrupted, it is essential that the transmission operator, balancing authority and reliability coordinator maintain communications with their distribution providers and generator operators. However, the current version of Reliability Standard COM-001-1 does not require this because it does not include generator operators and distribution providers as applicable entities. We clarify that the NOPR did not propose to require redundancy on generator operators' or distribution providers' telecommunication facilities or that generator operators or distribution providers be trained on anything not related to their functions during normal and emergency conditions. We expect the telecommunication requirements for all applicable entities will vary according to their roles and that these requirements will be developed under the Reliability Standards development process."
	"Specify requirements for using telecommunication facilities during normal and emergency conditions that reflect the roles of the applicable entities and their impact of reliable operation, and include adequate flexibility. Paragraph 490. In response to SDG&E, the Commission's intent is not to subject generator operators and distribution providers to the same requirements placed on transmission operators. As part of the modification of this Reliability Standard or development of a new Reliability Standard to include the appropriate telecommunications facility requirements for generator operators and distribution providers, the ERO should take into account what would be required of generator operators and distribution providers in terms of telecommunications for the Reliable Operation of the Bulk-Power System, instead of applying the same requirements as are placed on other reliability entities such as reliability coordinators, balancing authorities and transmission operators."
	Address TAPS, Entergy, Six Cities, and FirstEnergy concerns through the standard development process. TAPS Paragraph 483. TAPS states that Requirement R1.4 has an ambiguous requirement that, if applied to distribution providers and generator operators, would impose redundancy requirements well beyond what is reasonably necessary for Bulk-Power System reliability. Further it asserts that the NOPR provides no basis for expanding the Reliability Standard to small entities, such as a 2-MW distribution provider or generator, much less than one that has no connection to the bulk transmission system. Finally, TAPS contends that, in making this proposal, the Commission is "over-stepping its bounds" by not leaving it to the ERO's expert judgment whether COM-001-1 has sufficient coverage to protect Bulk-Power System reliability and states that, in any event, applicability should be limited through NERC's registry criteria and definition of bulk electric system.
	"Address TAPS, Entergy, Six Cities, and FirstEnergy concerns through the standard development process. Entergy Paragraph 499. Entergy states that it is unclear what cyber assets are covered by COM-001-0. Entergy believes that the Reliability Standard should focus on telecommunications that support the operation of critical assets. Entergy also believes that COM-001-0 should be expanded to include advances in communications technology. It states that NERC should consider addressing the following in a way that will

Source	Language
	facilitate an understanding of the Reliability Standards' requirements: (1) voice communications; (2) command and control data communications; (3) security coordination data communications; (4) digital messaging communications; (5) human linguistic convention and (6) other types of communications, including video conferencing and communications with remote security cameras. Entergy believes that this could be accomplished through an enhancement to the definition of communications in the NERC glossary and recasting COM-001-0 to improve the specificity of requirements for each form of communication. Finally, Entergy believes that Requirement R4 of COM-001-0, which requires reliability coordinators, transmission operators and balancing authorities to use English in all types of communications, should apply only to verbal and written communications."
	Address TAPS, Entergy, Six Cities, and FirstEnergy concerns through the standard development process. Six Cities Paragraph 501. Six Cities is concerned that the scope of improper conduct under the "NERCNet security policy" in Attachment 1 is virtually limitless. Six Cities recognizes that it would be difficult to provide a comprehensive and detailed list of all conduct that might be considered a misuse of NERCNet data, but that difficulty does not justify exposing NERCNet users to the risk of monetary penalties based on amorphous and unbounded descriptions of potentially violative conduct. Six Cities states that one solution would be to limit the imposition of monetary penalties for misuse of NERCNet data to instances where such misuse is intentional or grossly egligent. According to Six Cities, it would be appropriate to exact a monetary penalty where a NERCNet user deliberately uses NERCNet data for unauthorized or unreasonable purposes. Six Cities asks that it be modified to provide for a warning for the improper disclosure of NERCNet data where the disclosure was not intentional or grossly negligent.
	Address TAPS, Entergy, Six Cities, and FirstEnergy concerns through the standard development process. First Energy Paragraph 500. FirstEnergy asserts that the Requirement R2 is unclear because it does not specify whether the phrase "telecommunication facilities" covers both voice and data facilities in the context of alarms. It states that, although the word "telecommunications facilities" is generally understood to mean both voice and data facilities, the current practice is to display alarms only for data facilities. Requirement R2 could be misinterpreted to require alarms on voice facilities as well, which would be impractical.
NERC Standards DT Coordinators Meeting 20080520	COM-001-1 Telecommunications is being reviewed and revised under Project 2006-06 Reliability Coordination; however, it has been agreed that all requirements of COM-001-1 except R4 will be addressed by the SDT for Project 2006-06 and that requirement R4 will be addressed by the SDT for Project 2007-02 Operating Personnel Communications Protocols. If either part of this agreement is not maintained, COM-001-1 will need revisited.
Version 0 Team	• Apply R1 to all but smallest entities • Many players missing • Redundant with Policy 5A, R1
VRFs Team	R6 — administrative requirement
COM-002-2 — Communications and Coordination	
NERC Standards DT Coordinators Meeting 20080520	COM-002-2 Communication and Coordination is being reviewed and revised under both Project 2006-06 Reliability Coordination and Project 2007-02 Operating Personnel Communications Protocols; however, it has been agreed that: •Requirement R1will be addressed by the SDT for Project 2006-06 and •Requirement R2 will be addressed by the SDT for Project 2007-02 Operating Personnel Communications Protocols. If either part of this agreement is not maintained, COM-002-2 will need revisited.

Source	Language
IRO-001-1 — Reliability Coordination — Responsibilities and Authorities	
FERC Order 693	Consider commenter's' suggestions as part of the standards development process. 895. California Cogeneration comments that the Reliability Standard fails to address the operational limitations of QFs because they have contractual obligations to provide thermal energy to their industrial hosts. It contends that a QF can be directed to change operations only in the case of a system emergency, pursuant to 18 CFR § 292.307.
	Consider adding measures and levels of non-compliance. Paragraph 897. While APPA, FirstEnergy and California Cogeneration suggest possible changes to IRO-001-1, they do not suggest that the proposed Reliability Standard should not be approved. The ERO should consider the commenter's' suggestions when modifying the Reliability Standard pursuant to its Reliability Standards development process. Further, the Commission directs the ERO to consider adding Measures and Levels of Non-Compliance in the Reliability Standard as requested by APPA.
	Consider commenter's' suggestions as part of the standards development process. Paragraph 892. APPA supports the approval of the Reliability Standard but expresses concern that the Version 1 standard does not include Measures that correspond to Requirements R2 and R9. APPA emphasizes the need for Measures corresponding to Requirement R9, which requires the reliability coordinator to act in the interests of reliability for the overall reliability coordinator area and the Interconnection before the interests of any other entity. APPA supports Requirement R8 with the extended applicability, provided that applicability is determined by reference to the NERC compliance registry. APPA agrees that the regional reliability organization should be eliminated as an applicable entity and suggests it be replaced with Regional Entities.
	Eliminate the references to the regional reliability organization as an applicable entity. Paragraph 896. In the NOPR, the Commission proposed to approve the Reliability Standard as mandatory and enforceable. In addition, as a separate action under section 215(d)(5), the NOPR proposed to direct the ERO to develop modifications to Requirement R1291 to substitute "Regional Entity" for "regional reliability organization" and reflect NERC's Rules of Procedure for registering, certifying and verifying entities, including reliability coordinators. Commenter's do not raise any concerns regarding the proposed action. Accordingly, for the reasons stated in the NOPR, the Commission approves IRO-001-1 as mandatory and enforceable. In addition, for the reasons discussed in the NOPR, the Commission directs the ERO to develop modifications to the Reliability Standard through the Reliability Standards development process that reflect the process set forth in the NERC Rules of Procedures and eliminate the regional reliability organization as an applicable entity.
	Consider commenter's' suggestions as part of the standards development process. 893. FirstEnergy suggests that NERC clarify whether Requirement R8, which requires entities to comply with a reliability coordinator directive "unless such actions would violate safety, equipment or regulatory or statutory requirements," refers to personnel safety, equipment safety or both. In addition, it suggests the establishment of a chain of command so that, for example, if a generator receives conflicting instructions from a balancing authority and a transmission operator, it can determine which instruction governs.
	Consider commenter's' suggestions as part of the standards development process. 894. Requirement R3 provides that a reliability coordinator "shall have clear decision making authority to act and direct actions to be taken" by applicable entities to "preserve the integrity and reliability of the Bulk Electric System and these actions shall be taken without delay but no longer than 30 minutes." Santa Clara contends that some actions would require driving to a remote site and therefore, mandating completion of the required action within 30 minutes would be unreasonable. Thus, it recommends that NERC modify Requirement R3 to provide

Source	Language
	that “actions shall commence without delay, but in any event shall commence within 30 minutes.”
FERC’s December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC’s December 20, 2007 Order, the Commission reversed NERC’s Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a “reliability gap” if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC’s December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC’s March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC’s April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC’s July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Fill in the Blank Team	• Remove ", sub-region, or interregional coordinating group" from R1 • Consider removing "Standards of conduct are necessary to ensure the Reliability Coordinator does not act in a manner that favors one market participant over another." from the Purpose section of the standard.
NERC Audit Observation Team	All applicable registered functions shall comply with RC directives unless such actions would violate safety, equipment or regulatory or statutory requirements. Inform the RC immediately of the inability to perform such directives. For audit purposes, what is acceptable evidence?
Version 0 Team	• Inability to perform needs to be communicated • What is meant by ‘interest of other entity’? • What is meant by ‘interest of other entity’?
VRFs Team	• R6 - Since the RC must be NERC certified, it stands to reason that anyone performing RC tasks should be certified. However, since the RC still retains the accountability for actions, and requirement 4 handles the agreements, this requirement is a medium risk. • R6 - Since the RC must be NERC certified, it stands to reason that anyone performing RC tasks should be certified. However, since the RC still retains the accountability for actions, and requirement 4 handles the agreements, this requirement is a medium risk.
IRO-002-1 — Reliability Coordination — Facilities	
FERC Order 693	"Require a minimum set of tools that must be made available to the reliability coordinator. Paragraph 905. Further, consistent with the NOPR, the Commission directs the ERO to modify IRO-002-1 to require a minimum set of tools that must be made available to the reliability coordinator. We believe that this requirement will ensure that a reliability coordinator has the tools it needs to perform its functions. Further, as noted by Dominion, such a requirement promotes a more proactive approach to maintaining reliability."

Source	Language
Version 0 Team	• Words such as 'easily understood' and 'particular emphasis' need to be tightened • R7 — define 'adequate' tools and 'wide-area' • R5 — define synchronized information system
IRO-005-1 — Reliability Coordination — Current-Day Operations	
FERC Order 693	Include measures and levels of non-compliance.
	"Conduct a survey on IROL practices and actual operating experiences by requiring reliability coordinators to report any violations of IROLS, their causes, the date and time, the durations and magnitudes in which actual operations exceeds IROLs to NERC. Paragraph 951. Accordingly, the Commission approves Reliability Standard IRO-005-1 as mandatory and enforceable. Further, because IRO-005-1 has no Measures or Levels of Non-Compliance, pursuant to section 215(d)(5) of the FPA and § 39.5(f) of our regulations, the Commission directs the ERO to develop a modification to IRO-005-1 through the Reliability Standards development process that includes Measures and Levels of Non-Compliance. The Commission further directs that the Measures and Levels of Non-Compliance specific to IROL violations must be commensurate with the magnitude, duration, frequency and causes of the violations and whether these occur during normal or contingency conditions. Finally, the Commission directs the ERO to conduct a survey on IROL practices and actual operating experiences by requiring reliability coordinators to report any violations of IROL, their causes, the date and time, the durations and magnitudes in which actual operations exceeds IROLs to the ERO on a monthly basis for one year beginning two months after the effective date of the Final Rule. We may propose further modifications to IRO-005-1 based on the survey results."
	"Measures and levels of non-compliance specific to IROL violations must be commensurate with the magnitude, duration, frequency, and causes of the violations and whether these occur during normal or contingency conditions. Paragraph 951. Accordingly, the Commission approves Reliability Standard IRO-005-1 as mandatory and enforceable. Further, because IRO-005-1 has no Measures or Levels of Non-Compliance, pursuant to section 215(d)(5) of the FPA and § 39.5(f) of our regulations, the Commission directs the ERO to develop a modification to IRO-005-1 through the Reliability Standards development process that includes Measures and Levels of Non-Compliance. The Commission further directs that the Measures and Levels of Non-Compliance specific to IROL violations must be commensurate with the magnitude, duration, frequency and causes of the violations and whether these occur during normal or contingency conditions. Finally, the Commission directs the ERO to conduct a survey on IROL practices and actual operating experiences by requiring reliability coordinators to report any violations of IROL, their causes, the date and time, the durations and magnitudes in which actual operations exceeds IROLs to the ERO on a monthly basis for one year beginning two months after the effective date of the Final Rule. We may propose further modifications to IRO-005-1 based on the survey results."
	"Provide further clarification that reliability coordinators and transmission operators direct control actions, not LSEs as part of the standard development process. Paragraph 950. We do not share TAPS' concern regarding LSEs initiating load shedding as their own control action to respect IROLs or SOLs. The appropriate control actions to respect IROLs and SOLs are the responsibilities of a reliability coordinator and transmission operator. If load shedding is required, it is the responsibility of a reliability coordinator or a transmission operator to direct the appropriate entities including LSEs to carry it out. However, we urge the ERO to provide further clarification in this regard and include TAPS' concern in developing the modification of this Reliability Standard."
Fill in the Blank Team	R14 has regional reference

	Source	Language
	Version 0 Team	R10, 11 & 12 — RA not empowered to do this
	IRO-016-1 — Coordination of Real-Time Activities Between Reliability Coordinators	
	VRFs Team	R1.2.1 & R2 — ambiguous

Project 2006-08 Transmission Loading Relief

Standards Involved:
IRO-006-4 — Reliability Coordination — Transmission Loading Relief

Research Needed:
None

Brief Description:
This is a project that is carried over from 2006. This project involves a coordinated effort with NAESB to clarify and refine the requirements in the standard and identify which requirements are needed to support reliability and which requirements are needed to support a business practice. Related to this project, NERC's IDC Working Group (IDCWG) is in the process of identifying changes to the Interchange Distribution Calculator such that it will accept market data, thus eliminating the need for the existing regional differences and to make other necessary modifications as identified by stakeholders. NAESB and the IDCWG are working collaboratively with the NERC Reliability Coordinator Working Group in order to ensure both commercial needs and reliability needs are met.~~A part of this project is to modify the requirements so that the Interchange Distribution Calculator will accept market data, thus eliminating the need for the existing regional differences and to make other necessary modifications as identified by stakeholders.~~

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ ~~2008~~ 2009 Annual plan):

~~Annual Plan Item 1.a.ii~~

Annual Plan Item 1.~~d~~b

~~Annual Plan Item 2.b.vi~~

Justification for NAESB consideration:

FERC Order 890

SRS Recommendation:

This project is already covered by current NAESB WEQ projects. NERC should take into consideration WEQ Annual Plan Item 1.~~d~~ b in the development of the NERC Standard. Coordination between NERC and NAESB is in progress.

Standard Development Status:
Project 2006-08 Transmission Loading Relief Web page

Project Schedule:

Project 2006-08 Schedule

Standard Drafting Team Roster:

Chairman	P.S. (Ben) Li	Ben Li Associates, Inc.
	Daryn Barker	E.ON-US Energy Services Inc.
	Bill Blevins	Electric Reliability Council of Texas, Inc.
Vice Chair	James Busbin	Southern Company Services, Inc.
	James Eckelkamp	Progress Energy
	Robert Paul Humberson	Western Area Power Administration - Rocky Mountain Region
	Frank J. Koza	PJM Interconnection, L.L.C.
	David F. Lemmons	Xcel Energy, Inc.
	Thomas J Mallinger, P.E.	Midwest ISO, Inc.
	Dave Marton	FirstEnergy Solutions
	Narinder K. Saini	Entergy Services, Inc.
	Don Shipley	Southwest Power Pool
NERC Staff	Andrew J. Rodriquez	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
NAESB Standards Review Subcommittee	NAESB Standards Review Subcommittee as input to the Reliability Standards Development Plan: 2010-2012: NAESB requests that NERC continue its coordination with NAESB on this project.
IRO-006-3 — Reliability Coordination — Transmission Loading Relief	
FERC Order 693	Regional Difference to IRO-006: PJM/MISO/SPP Enhanced Congestion Management: Allow the NERC Operating Committee to address the technical merits of netting flow impacts in the interchange distribution calculator.
	Regional Difference to IRO-006: PJM/MISO/SPP Enhanced Congestion Management: Instructs the RTOs to continue working with the non-market regions to develop revised seams agreements that allow for equitable and feasible treatment of market flows in the NERC TLR/redispatch process.
	Regional Difference to IRO-006: PJM/MISO/SPP Enhanced Congestion Management: Commission will allow the twelve-month PJM/MISO/SPP field test to conclude before taking further action on the variance.
	Include a clear warning that TLR procedures are not appropriate and not effective to mitigate an actual IROL violation.
	Modify the WECC and ERCOT load relief procedures to ensure consistency with the standard form of the reliability standard including requirements, measures, and levels of non-compliance.
	Identifies the available alternatives to mitigate an IROL violation other than the use of the TLR procedure. Consider the suggestions of MidAmerican and Xcel when developing the modification.
FERC Order 890	659 This is consistent with our determination that conditional firm service when it is conditional is curtailable only to maintain reliable operation of the transmission system.
	660 We are cognizant that daily and hourly operations to change the tags for conditional firm customers likely involve the need for control room coordination and development of an appropriate tracking process. As the Commission described in the NOPR, new tracking and tagging business practices for this service must be developed by each transmission provider. Thus, we are allowing a sufficient period for the development of these business practices, i.e., 180 days from the date of publication of this Final Rule in the Federal Register. As directed above, transmission providers must coordinate with other transmission providers in their regions to develop these tracking and tagging business practices.
	1074. We adopt a secondary network curtailment priority to apply for the hours or specific system conditions when conditional firm service is conditional. During non-conditional periods, conditional firm service is subject to pro rata curtailment consistent with curtailment of other long-term firm service. Thus, secondary network service and conditional firm service when it is conditional will share the same curtailment priority. Also, there is no conflict with reliability standards because conditional firm service will be subject to pro rata curtailment with all other firm uses of the system once conditional curtailment hours, if that is the option selected, are exhausted.
	1075. The secondary network curtailment priority is appropriate because the customer is

Source	Language
	paying the long-term firm point-to-point rate and thus should receive the highest non-firm curtailment priority during the conditional curtailment hours or during specified system conditions. Adoption of this curtailment priority overcomes what could otherwise be significant implementation hurdles. It allows for implementation of the service without changes to existing NERC TLR practices. NERC and members of the industry need not undertake the time-consuming and expensive process of establishing a new curtailment priority that is between firm and non-firm service as some commenter's requested. Use of this curtailment priority also avoids attendant decisions relating to the method of curtailment that should apply, i.e., pro rata or transactional curtailment, for a quasi-firm curtailment priority. It is also consistent with existing interruption provisions of the pro forma OATT which provide that secondary service cannot be interrupted for economic reasons.
	1076. We reject EEI's argument that the curtailment priority for conditional firm service is inconsistent with Commission precedent regarding priority non-firm service only for network customers. EEI's argument is inapposite. Long-term firm point-to-point customers taking fully firm service without the conditional firm option do not need access to priority non-firm service as EEI suggests. They have assurance that their service will not be interrupted for economic reasons and will only be curtailed on a comparable basis with network service. This would not be the case for conditional firm customers. We also find that EEI has failed to explain the connection between the conditional firm transmission service and the availability of reliability redispatch options ,i.e., generators on its system that can ramp up or down in response to a curtailment. We reject Powerex's request that transmission providers be required to show that existing long-term rights are protected. Each addition of a new long-term firm transaction impacts the rights of existing firm customers to some extent.
	1077. We disagree with commenter's' suggestion that the NERC IDC must be changed to accommodate conditional firm service. We reiterate that we are not creating a new curtailment priority in this Final Rule. We also disagree that new tags that combine a firm and non-firm priority must be developed in order to implement the conditional firm option. The curtailment priority in a tag can be changed ahead of the operating hour based on a near-term forecast of system conditions.660 We are cognizant that daily and hourly operations to change the tags for conditional firm customers likely involve the need for control room coordination and development of an appropriate tracking process. As the Commission described in the NOPR, new tracking and tagging business practices for this service must be developed by each transmission provider. Thus, we are allowing a sufficient period for the development of these business practices, i.e., 180 days from the date of publication of this Final Rule in the Federal Register. As directed above, transmission providers must coordinate with other transmission providers in their regions to develop these tracking and tagging business practices.
	1077. We disagree with commenter's' suggestion that the NERC IDC must be changed to accommodate conditional firm service. We reiterate that we are not creating a new curtailment priority in this Final Rule. We also disagree that new tags that combine a firm and non-firm priority must be developed in order to implement the conditional firm option. The curtailment priority in a tag can be changed ahead of the operating hour based on a near-term forecast of system conditions.
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT should review the definition of the following term and coordinate with NAESB so that the definition is consistent between NERC and NAESB: Reallocation
Version 0 Team	• Usage of TLR log questioned • Some inconsistencies with current usage

Source	Language
VRFs Team	• R2.1, .2 & .3 — not a requirement, just a suggested instruction • R6 — redundant
TLR Family	
Other	Gerry, Hey, I was looking something up in the standards and I couldn't find a definition for "TLR." I ended up downloading the whole set of standards and doing a search. I finally found it. Should TLR be included in the glossary? Kevin J. Conway NERC Reliability Readiness Evaluator North American Electric Reliability Corporation 116-390 Village Blvd. Princeton, NJ 08540-5721 Cellular Phone: 509-750-5441 kevin.conway@nerc.net

Project 2007-01 Underfrequency Load Shedding

Standards Involved:
PRC-006-0 — Development and Documentation of Regional ULS Program Requirements
PRC-007-0 — Assuring Consistency with Regional UFLS Programs
PRC-009-0 — UFLS Performance Following an Underfrequency Event

Research Needed:
None

Brief Description:
PRC-006 is one of the few reliability standards identified by the Regional Reliability Standards Working Group as a standard that has some requirements that need to be defined by each regional entity in a regional standard.

The standard drafting team (SDT) will work with stakeholders to review PRC-006 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the UFLS program documentation. The SDT shall determine which requirements should be continent-wide requirements and which requirements should be included in regional standards.

PRC-007 and PRC-009 have some 'fill-in-the-blank' characteristics, as identified in the Regional Reliability Standards Working Group work plan, which need to be removed. These standards shall be included with PRC-006 for consideration as one or more revised standards as necessary for consistency and clarity of overall program requirements and any other associated programs and/or requirements that affect or impact the UFLS program.

The standard drafting team may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standard Development Status:
Project 2007-01 Underfrequency Load Shedding Web page

Project Schedule:
Project 2007-01 Schedule

Standard Drafting Team Roster:

Chairman	Philip J. Tatro, P.E.	National Grid USA
	Paul Attaway	Georgia Transmission Corporation
	Brian D. Bartos	Bandera Electric Cooperative
	Scott Berry	Indiana Municipal Power Agency
	Brian Evans-Mongeon	Utility Services LLC
	Frank Gaffney	Florida Municipal Power Agency
	Jonathan Glidewell	Southern Company Transmission Company
	Gerald Keenan	Northwest Power Pool Corporation
	Robert W. Millard	ReliabilityFirst Corporation
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Mak Nagle	Southwest Power Pool
	Robert J. O'Keefe	American Electric Power
	Si Truc Phan	Hydro-Québec TransEnergie
	Tony Rodrigues, P.E.	PacifiCorp
NERC Staff	Robert W Cummings	North American Electric Reliability Corporation
NERC Staff	Stephanie Monzon	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
PRC-006-0 — Development and Documentation of Regional ULS Program Requirements	
FERC Order 693	Transfer responsibility from the regional reliability organization to the regional entity.
Fill in the Blank Team	• Modify R1 to require each Region to develop a regional standard, and • Development of regional standards needs to be coordinated with Regional entities. Regional entities should begin process for developing regional standards once the drafting team for the North American standard has determined what elements of UFLS should be included in the continent-wide standard and what elements should be included in the regional standards. • Determine what elements (if any) of UFLS should be included in the North American standard and what elements should be included in the regional standards. • Related PRC-007, PRC-008, and 009. • PRC-006 will be a continent-wide standard supported by Regional Reliability Standards.
Version 0 Team	• Not a standalone standard • Who do you submit compliance material to? • Need to define evidence
PRC-007-0 — Assuring Consistency with Regional UFLS Programs	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Fill in the Blank Team	• The regional procedures need to be converted to a standard to implement this. • Change "program" to "standard" in R1. • Coordinated with PRC-006.
Version 0 Team	• Need to refine levels of non-compliance • Need to include RA

PRC-009-0 — UFLS Performance Following an Underfrequency Event	
Fill in the Blank Team	• See notes for PRC-007. • Change "program" to "standard".
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Version 0 Team	• Exemptions for those with shunt reactors who don't shed load • 90 days vs. 30 days • Define evidence

Project 2007-02 Operating Personnel Communications Protocols

Standards Involved:
COM-002-2 — Communications and Coordination

Research Needed:
None

Brief Description:
This is a new project that was identified in support of a blackout recommendation #26. This standard will require the use of specific communication protocols, especially for communications during alerts and emergencies. The standard will be applicable to transmission operators, balancing authorities, reliability coordinators, generator operators and distribution providers.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standard Development Status:
Project 2007-02 Operating Personnel Communications Protocols Web page

Project Schedule:
Project 2007-02 Schedule

Standard Drafting Team Roster:

Chairman	Lloyd S. Snyder	Georgia Systems Operations Corporation
	Alan N. Allgower	Electric Reliability Council of Texas, Inc.
	Harvie D. Beavers	Colmac Clarion/Piney Creek LP
	Mark L. Bradley	ITC Transmission
	Mike Brost	JEA
	William D Ellard	California ISO
	Ronald Goins	Midwest ISO, Inc.
	Leanne Harrison	PJM Interconnection, L.L.C.
	Tom Irvine	Hydro One Networks, Inc.
	James McGovern	ISO New England, Inc.
	Wayne Mitchell	Entergy Corporation
	John Stephens	City Utilities of Springfield
	Fred Waites	Southern Company
NERC Staff	Larry J. Kezele	North American Electric Reliability Corporation
NERC Staff	Harry Tom	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
	COM-001-1 — Telecommunications
NERC Standards DT Coordinators Meeting 20080520	COM-001-1 Telecommunications is being reviewed and revised under Project 2006-06 Reliability Coordination; however, it has been agreed that all requirements of COM-001-1 except R4 will be addressed by the SDT for Project 2006-06 and that requirement R4 will be addressed by the SDT for Project 2007-02 Operating Personnel Communications Protocols. If either part of this agreement is not maintained, COM-001-1 will need revisited.
	COM-002-2 — Communications and Coordination
FERC Order 693	• Address APPA's concern through the standard development process. • Address Santa Clara, FirstEnergy, and Six Cities concerns in the reliability standards development process. • Consider Xcel's suggestion that the entity taking operating actions should not be held responsible for the delays caused by the reliability coordinator's assessment and approval. • Establish tightened communication protocols, especially for communications during alerts and emergencies. Establish uniformity to the extent practical on a continent-wide basis. • Include a requirement for the reliability coordinator to assess and approve only those actions that have impacts beyond the area views of the transmission operators and balancing authorities. Include how to determine whether an action needs to be assessed by the reliability coordinator. • Include APPA's suggestions to complete the measures and levels of non-compliance. • Include distribution providers in the list of applicable entities.
NERC Standards DT Coordinators Meeting 20080520	• "COM-002-2 Communication and Coordination is being reviewed and revised under both Project 2006-06 Reliability Coordination and Project 2007-02 Operating Personnel Communications Protocols; however, it has been agreed that: •Requirement R1will be addressed by Project 2006-06" • Requirements R1, R3, R4, and R5 (for coordination in planning time frame) of PRC-001-1 System Protection Coordination are better addressed in COM-002 Communications and Coordination. (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.)
Version 0 Team	• R1 — include reliability authority • R2 — include sabotage and security • R4 — clarify repeat back requirement with regard to emergency • Voice with generators not required
Version 1 Team	• R1 — include reliability authority • R2 — include sabotage and security • R4 — clarify repeat back requirement with regard to emergency • Voice with generators not required

Project 2007-03 Real-time Operations

Standards Involved:
TOP-001-1 — Reliability Responsibilities and Authorities
TOP-002-2 — Normal Operations Planning
TOP-003-0 — Planned Outage Coordination
TOP-004-1 — Transmission Operations
TOP-005-1 — Operational Reliability Information
TOP-006-1 — Monitoring System Conditions
TOP-007-0 — Reporting SOL and IROL Violations
TOP-008-1 — Response to Transmission Limit Violations
PER-001-0 — Operating Personnel Responsibility and Authority

Research Needed:
Operating Committee study of situational awareness tools

Brief Description:
Most of the requirements in this set of standards were translated from Operating Policies as part of the Version 0 process. There have been suggestions for improving these requirements, and the drafting team will consider comments submitted by stakeholders, drafting teams and FERC in determining what changes should be proposed to stakeholders.

The drafting team will review all of the requirements in this set of standards and make a determination, with stakeholders, on whether to:

- Move the requirement (into another SAR or Standard or to the certification process or standards)
- Eliminate the requirement (either because it is redundant or because it does not support bulk power system reliability).
- Improve clarity of, improve measurability of, and remove ambiguity from the remaining requirements
- Bring the set of standards into conformance with the latest version of the Reliability Standards Development Procedure and the ERO Sanctions Guidelines.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standard Development Status:
Project 2007-03 Real-time Operations Web page

Project Schedule:
Project 2007-03 Schedule

Standard Drafting Team Roster:

Chairman	James S. Case	Entergy Services, Inc.
	Paul Bleuss	California/Mexico Reliability Coordinator
	Albert DiCaprio	PJM Interconnection, L.L.C.
	Ryan Johnson	NRG Energy Power Marketing, Inc.
	Phillip Lavallee	National Grid USA
	Jason L. Marshall, P.E.	Midwest ISO, Inc.
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Paul Olson	Sacramento Municipal Utility District
	Gregory Van Pelt	California ISO
	Jim Useldinger	KCP&L
NERC Staff	Edward J. Dobrowolski	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
PER-001-0 — Operating Personnel Responsibility and Authority	
Version 0 Team	Data retention should be 1 year
TOP-001-1 — Reliability Responsibilities and Authorities	
FERC Order 693	• Consider adding other measures and levels of non-compliance. • 1589 — Includes measures and levels of non-compliance for requirement R8 • 1588 — Consider Santa Clara's comments on requirements R7.2 and R7.3 on transmission operator notification requirements as part of the standards development process. • 1585 — Clarify the definition of "emergency" and define the criteria for entering into the various states. Also define the authority for declaring these states.
NERC Audit Observation Team	Does this imply that a GOP can call another GOP and request an output change without going through the RC, BA or TOP?
Version 0 Team	• Define emergency • Need to expand included entities • What is 'clear decision making authority'? • Need to define single, central communications point during emergencies • Some emergencies will require follow up notification as opposed to immediate
TOP-002-1 — Normal Operations Planning	
Fill in the Blank Team	Remove "in accordance with NERC, Regional Reliability Organization, sub regional, and local reliability requirements" from R6 and "in accordance with filed tariffs and/or regional Total Transfer Capability and Available Transfer Capability calculation processes" from R12 .
Version 0 Team	• Limit of 2 tests per year • Coordination of planning required • Define N-1 • Define 'without intentional delay' • Reliability should 'trump' confidentiality
VRFs Team	• R2 — administrative in nature, not a real requirement • R9 — related to INT-003 • R14 & 14.1 — ambiguous
TOP-002-2 — Normal Operations Planning	

Source	Language
FERC Order 693	• 1607 — Consider the comments of ISO-NE and the NRC with respect to requirement R12 and measure M7 as part of the standard development process. • 1608 — Requires simulation contingencies to match what will actually happen in the field. • 1608 — Requires next-day analysis of minimum voltages at nuclear power plants auxiliary power buses. • 1608 — Next-day analysis for all IROLs must identify and communicate control actions to system operators that can be implemented within 30 minutes following a contingency. • 1608 — Delete references to confidentiality in requirements R3 and R4. • 1608 — Address critical energy infrastructure confidentiality as part of the routine standard development process. • 1603 — Inform the nuclear plant operator in real-time if the auxiliary power bus voltages cannot be maintained.
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
NERC Standards DT Coordinators Meeting 20080520	Requirements R2, R5, and R6 (for coordination in real-time) of PRC-001-1 System Protection Coordination are better addressed in the TOP family of standards: Consider putting R5 of PRC-001-1 in: TOP-002 R1, R3, R4, or R5 or TOP-003 — R1, R3, R4 (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.)
TOP-003-0 — Planned Outage Coordination	

Source	Language
FERC Order 693	• 1622 — Consider TVA's suggestion for including breaker outages within the meaning of facilities that are subject to advance notice for planned outages. • 1624 — Require any facility, that in the opinion of the reliability coordinator, balancing authority, or transmission operator, will have a direct impact on the reliability of the bulk power system be subject to the requirement R1 for planned outage coordination • 1626 — Incorporate an appropriate lead time for planned outages using suggestions from the various commenter's. • 1626 — Communicate scheduled outages to all affected entities well in advance to ensure reliability and accuracy of ATC calculations.
Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan: 2010-2012	With respect to requirement R1.2, why is the TOP responsible for providing generator outage information? Isn't that the BA's or GOP's responsibility and isn't this redundant with IRO-010-1?
NERC Standards DT Coordinators Meeting 20080520	Requirements R2, R5, and R6 (for coordination in real-time) of PRC-001-1 System Protection Coordination are better addressed in the TOP family of standards: •Consider putting R5 of PRC-001-1 in: TOP-002 R1, R3, R4, or R5 or TOP-003 — R1, R3, R4 •Consider putting R6 of PRC-001-1 in: TOP-003 R5 or TOP-006 (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.)
Version 0 Team	• Submit outage data ASAP but no later than noon day ahead • RA can't request outage cancellation • Outage information needed sooner than 1 day prior
VRFs Team	R4 — poorly written
TOP-004-1 — Transmission Operations	
FERC Order 693	• 1630 - Modify requirement R4 to state that the system should be restored to respect proven limits as soon as possible taking no more than 30 minutes. • 1628 - NERC should report the results of the survey to the Commission within 18 months of the effective date of this rule. • 1641 - Reliability coordinators should report any IROL violations to NERC on a monthly basis for one year beginning August 2, 2007. • 1628 - Perform a survey of the prevailing operating practices and actual operating experiences surrounding IROL limits. • 1640 - Defines high risk conditions under which the system must be operated to respect multiple outages in requirement R3. • 1634 - Consider Santa Clara's comments regarding changes to requirement R2 in the standards development process.
Fill in the Blank Team	No action required
NERC Audit Observation Team	Transmission operator enters an unknown state. What does this mean?

Source	Language
Version 0 Team	• Define (or remove) practical • Define SOL & IROL • Specify disconnection as acceptable in R5 • Clarify roles • Vagueness in application of IROL limits • Operations should conform to planning standards
TOP-005-1 — Operational Reliability Information	
FERC Order 693	• 1644 & 1646 — Consider FirstEnergy's modifications to Attachment 1 and ISO-NE's recommended revision to requirement R4 in the standards development process. • 1649 — Delete references to confidentiality agreements but ensure critical energy infrastructure confidentiality is addressed in the standards development process. • 1651 — Include information about the operational status of special protection systems and power system stabilizers in Attachment 1.
NERC Standards DT Coordinators Meeting 20080520	Requirements R2, R5, and R6 (for coordination in real-time) of PRC-001-1 System Protection Coordination are better addressed in the TOP family of standards: •Consider putting R2 of PRC-001-1 in TOP-005 (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.)
Version 0 Team	• Generator data should include voltage control & stabilizers • Data update is too slow • Need to include GO & LSE • GO needs to supply data to BA & TO
TOP-006-1 — Monitoring System Conditions	
FERC Order 693	• 1653 — Add requirement related to the provision of minimum capabilities that are necessary to enable operators to deal with real-time situations and to ensure reliable operation of the bulk power system. • 1653 — Clarify the meaning of "appropriate technical information" concerning protective relays. • 1658 — Consider APPA's comments regarding missing measures in the standards development process.
Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan: 2010-2012	• With respect to requirements R1 and R1.2, why are BAs responsible for information regarding transmission resources available for use? Isn't that the role of the TOP? • With respect to requirement R2, why is the BA responsible for monitoring transmission line status, voltage, load tap changer settings, and reactive power in general? Monitoring and managing reactive resources, voltage and tap settings is clearly made the responsibility of the TOP in VAR-001-1a. • With respect to requirement R3 why does the BA need to understand protective relaying? Isn't that the role of the TOP and GOP?
NERC Standards DT Coordinators Meeting	Requirements R2, R5, and R6 (for coordination in real-time) of PRC-001-1 System Protection Coordination are better addressed in the TOP family of standards: •Consider

Source	Language
20080520	putting R6 of PRC-001-1 in: TOP-003 R5 or TOP-006 (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.)
Version 0 Team	• Monitor frequency at multiple points • GO needs to provide normal & emergency data • Load forecasting data required • Need to match roles with FM
VRFs Team	• R3 — define appropriate • R1, 1.1, 1.2 — 'available in emergency situation' may be needed • R4 — What information is required and what is a load pattern?
TOP-007-0 — Reporting System Operating Limit (SOL) and Interconnection Reliability Operating Limit (IROL) Violations	
FERC Order 693	• 1671 — Consider the NRC's comments on voltage requirements as part of the standards development process. • 1668 — Eliminate overlapping matters in TOP-007 and TOP-008.
Version 0 Team	• Not enforceable with current criteria • Need to tighten the non-compliance terms • Need to define evidence of evaluation • More of a compliance issue than an true standard • RA should be included
TOP-008-1 — Response to Transmission Limit Violations	
FERC Order 693	1678 — Consider APPA's comments regarding missing measures in the standards development process.

Project 2007-04 Certifying System Operators

Standards Involved:
PER-003-0 — Operating Personnel Credentials

Research Needed:
None

Brief Description:
This Version 0 Standard requires the Reliability Coordinator, Balancing Authority and Transmission Operator to staff its real-time operating positions with personnel that have a NERC certification credential.

The standard will be revised to address the directives from FERC Order 693 and industry comments from Version 0.

The standard will also be revised to conform to the latest version of the Reliability Standards Development Procedure and the ERO Sanctions Guidelines. The standard drafting team will apply the Reliability Standard Review Guidelines when modifying the standard.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2007-04 Certifying System Operators Web page

Project Schedule:
Project 2007-04 Schedule

Standard Drafting Team Roster:

Chairman	David J. Carlson	Commonwealth Edison Co.
	Brad E. Calhoun	CenterPoint Energy
	William D Ellard	California ISO
	David L. Folk	FirstEnergy Corp.
	Jeff Gooding	Florida Power & Light Co.
	Mike Gough	Western Area Power Administration
	Raymond C. Gross	PJM Interconnection, L.L.C.
	Mark A. Heimbach	Pennsylvania Power & Light Company
	Lauri Jones	Pacific Gas and Electric Company
	Rob MacDonald	Hydro One, Inc.
	Tom McKenrick	Midwest ISO, Inc.
	Patricia E. Metro	National Rural Electric Cooperative Association
	Ed Seddon	Orlando Utilities Commission
	Fred Waites	Southern Company
NERC Staff	Darrel Richardson	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
PER-003-0 — Operating Personnel Credentials	
FERC Order 693	• Consider grandfathering certification requirements for transmission operator personnel as part of the standards development process. • Identify the minimum competencies operating personnel must demonstrate to be certified. • Specify the minimum competencies that must be demonstrated to become and remain a certified operator.
NERC Audit Observation Team	Who needs to be certified?
Version 0 Team	• Problem with wording change from 'both' to 'either' • Need to define critical tasks • Staffing plan is out of scope • Non-compliance levels missing • Need to specify exact position titles and match to credentials • Need to define 'current'
PER-004-1 — Reliability Coordination — Staffing	
FERC Order 693	Include requirements pertaining to personnel credentials for reliability coordinators similar to PER-003.

Project 2007-05 Balancing Authority Controls

Standards Involved:
BAL-002-0 — Disturbance Control Performance
BAL-004-0 — Time Error Correction
BAL-005-01 — Automatic Generation Control
BAL-006-1 — Inadvertent Interchange

Research Needed:
None

Brief Description:
The standard drafting team will:

- Work collaboratively with NAESB to ensure that the elements of these standards that are need to support reliability are include in the revised standard
- Consider comments receive during the initial development of this set of standards and other comments received from ERO regulatory authorities and stakeholders
- Bring the standards into conformance with the latest version of the Reliability Standards Development Procedure and the ERO Rules of Procedures
- Incorporate language to eliminate two interpretations (BAL-005, Requirement 17)
- Incorporate language to make permanent the Urgent Action removal of some of the reliability coordinator's requirements in BAL-004
- Review all of the requirements in the standards listed above.

For each existing requirement, the standard drafting team will also work with NAESB and stakeholders to:

- Eliminate redundancy (or overlap) in the requirements and associated business practices
- Identify requirement that should be moved into other SARs, standards, or business practices
- Eliminate requirements that do not support bulk power reliability
- Improve clarity of, improve measurability of, and remove ambiguity from the remaining requirements

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ ~~2008~~ 2009 Annual plan):
Annual Plan Item 1.d
Annual Plan Item 1.e~~6.b~~
~~Provisional Item 5~~

Justification for NAESB consideration:
FERC Order 693
Project Description

SRS Recommendation:
During initial discussions (REF: Rae McQuade's letter to Gerry Adamski dated February 11, 2008), there was no identified need for business practices related to this project. NERC should point out any areas where they see a need for a business practice. This ~~should~~ is being coordinated with the WEQ on current project Annual Plan Items 1.d and 1.e, and t~~-~~here is ongoing coordination between the BAC Standards Drafting Team and the NAESB WEQ Time and Inadvertent Management Task Force. ~~6.b.~~

Standards Development Status:

Project 2007-05 Balancing Authority Controls Web page

Project Schedule:

Project 2007-05 Schedule

Standard Drafting Team Roster:

Chairman	Larry Akens	Tennessee Valley Authority
	Thomas Artau	Progress Energy Florida
	Harvie D. Beavers	Colmac Clarion/Piney Creek LP
	Gerald D Beckerle	Ameren Corp.
	David L. Folk	FirstEnergy Corp.
	William Franklin	Xcel Energy, Inc.
	Steve Gillespie	California ISO
	Howard F. Illian	Energy Mark, Inc.
	Ken McIntyre	Electric Reliability Council of Texas, Inc.
	Sydney Niemeyer	NRG Texas LP
	Guy Quintin	Hydro-Québec TransEnergie
	Kris Ruud	Midwest ISO, Inc.
	Mark Thomas	Entergy Transmission
	Raymond L. Vice	Southern Company Services, Inc.
NERC Staff	Andrew J. Rodriquez	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
NAESB Standards Review Subcommittee	NAESB Standards Review Subcommittee as input to the Reliability Standards Development Plan: 2010-2012: NAESB requests that NERC continue its coordination with NAESB on this project as it relates to item 1.d and 1.e in the NAESB WEQ 2009 Annual Plan.
Other	Incorporate approved formal interpretation
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
BAL-002-0 — Disturbance Control Performance	
FERC Order 693	• Include a frequency response requirement. • Measures should be available in real-time to balancing authorities. • Substitute regional entity for regional reliability organization • Include a continent-wide contingency reserve policy, which should include uniform elements (definitions and requirements) • Modify to make requirements R4.2 and R6.2 refer to NERC rather than the NERC Operating Committee. • Define a significant (frequency) deviation and a reportable event, taking into account all events that have an impact on frequency, and how balancing authorities should respond. • Include a requirement that explicitly provides that DSM may be used as a resource for contingency reserves. • DSM should be treated on a comparable basis and must meet similar technical requirements as other resources providing this service • Policy can allow for regional differences, but should include procedures to determine the appropriate mix of operating reserves, spinning and non-spinning, as well as requirements pertaining to the specific amounts of operating reserves based on the load characteristics and magnitude, topology, and mix of resources in the region. • Address Commission concerns about having enough contingency reserves to respond to an event on the system in requirement 3.1 and how such reserves are measured. • Requires any single reportable disturbance that has a recovery time of 15 minutes or longer be reported as a violation.
Fill in the Blank Team	• Modify R2 to remove reference to "sub-Regional Reliability Organization or Reserve Sharing Group", and • Determine what elements of contingency reserve should be included in the North American standard and what elements should be included in the regional standard. • Development of regional standards needs to be coordinated with Regional entities. Regional entities should begin process for developing regional standards once the drafting team for the North American standard has determined what elements of contingency reserve should be included in the continent-wide standard and what elements should be included in the regional standards. • Regional reliability standards will be developed in support of North American standard BAL-002. • Each RRO will need to create a regional standard specifying its Contingency Reserve policy.
NERC Audit Observation Team	• Should the reserve sharing group be audited or the members? This should be tied to

Source	Language
	registration for consistency. • What is a sub-region
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Frequency Bias Setting Time Error Time Error Correction
Version 0 Team	• Need regional standards in support of N. American • Modify R2 • Determine N. America vs. regional elements
BAL-004-0 — Time Error Correction	
FERC Order 693	• Include levels of non-compliance and additional measures for requirement R3. • In the five-year review cycle of the standard, perform research that would provide a technical basis for the present or any alternative approach that is more effective and helps reduce inadvertent interchange.
NERC/NAESB Coordination	NERC/NAESB Coordination The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Frequency Bias Setting Time Error Time Error Correction
BAL-005-0 — Automatic Generation Control	
FERC Order 693	• Develop a process to calculate the minimum regulating reserve for a balancing authority, taking into account expected load and generation variation and transactions being ramped in and out. • Change title to be neutral as to the source of regulating reserves and allows the inclusion of technically qualified DSM. • Address comments of Xcel and FirstEnergy when the standard is revisited in the work plan. • If regulation is being provided over non-firm transmission service, the entity receiving the regulation must have a back-up plan to include the loss of the non-firm transmissions service as referenced in requirement R5. • Include a measure that provides for a verification process over the required automatic generation control, or regulating reserves a balancing authority maintains
Fill in the Blank Team	No comments
NERC Audit Observation Team	What the difference between this and BAL-005-1?
Version 0 Team	• Re-order & re-word requirements • Define data requirements • Non-compliance missing • Purpose statement
VRFs Team	• R14 — Check for redundancy of second statement. This seems to be a real-time requirement - not planning. Is this for archival data requirements? • R12.3 — redundant • R12 — sub-requirements should be separate requirements

Source	Language
BAL-005-01 — Automatic Generation Control	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Frequency Bias Setting Time Error Time Error Correction
BAL-006-1 — Inadvertent Interchange	
FERC Order 693	• Regional Differences to BAL-006-1: Inadvertent Interchange Accounting and Financial Inadvertent Settlement: Explore FirstEnergy's request to define the function of a waiver in the reliability standard development process. • Regional Differences to BAL-006-1: Inadvertent Interchange Accounting and Financial Inadvertent Settlement: Reference the current reliability standards and are in the standard form, which includes requirements, measures, and levels of non-compliance. • Add measures concerning the accumulation of large inadvertent interchange balances and levels of non-compliance. • Examine the WECC time error correction procedure as a possible guide.
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Frequency Bias Setting Time Error Time Error Correction
Version 0 Team	• Wording in R4 • Split requirements • Requirements mixed in Compliance • Non-compliance missing • Purpose/Requirement contradiction

Project 2007-06 System Protection Coordination

Standards Involved:
PRC-001-1 — System Protection Coordination

Research Needed:
Identification of criteria for determining where to install protection systems

Brief Description:
The existing PRC-001 Standard has been identified in the Reliability Standards Development Plan as requiring revision, within the FERC Order 693 as requiring revisions, and by a SPCTF report (attached) which identified a number of issues with the existing standard (the SPCTF report, which precedes FERC Order 693, also includes observations from the preceding FERC NOPR on RM-06-16-000). This revision of PRC-001 should address concerns from these sources and should include upgrades to bring the revised standard into conformance with the latest version of the ERO Rules of Procedure.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2007-06 System Protection Web page

Project Schedule:
Project 2007-06 Schedule

Standard Drafting Team Roster:

Chairman	Arthur J. Buanno	FirstEnergy Corp.
	David Cirka	National Grid
	Aaron Cooperberg	Hydro One Networks, Inc.
	Samuel Francis	Oncor Electric Delivery
	Jeffrey Iler	American Electric Power
	Bill Middaugh	Tri-State G & T Association Inc.
	Richard P. Quest	Xcel Energy, Inc.
	William Waudby	Consumers Energy
	Kevin Wempe	Kansas City Power & Light Co.
	Philip Winston	Georgia Power Company
NERC Staff	Al Calafiore	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
	PRC-001-1 — System Protection Coordination
FERC Order 693	• Upon detection of failures in relays or protection system elements on the bulk power system that threaten reliability, relevant transmission operators must be informed promptly, but within a specified period of time. -- (2) a requirement that transmission and generator operators be informed immediately upon the detection of failures in relays or protection system elements on the Bulk-Power System that would threaten reliable operation, so that these entities could carry out appropriate corrective control actions consistent with those used in mitigating IROL violations. • Once informed, transmission operators must carry out corrective control actions that return the system to a stable state that respects system requirements as soon as possible and no longer than 30 minutes. "[t]he transmission operator shall take corrective action as soon as possible" refers to transmission operators taking operator control actions. It does not refer to troubleshooting, repairing or replacing failed relays or equipment, etc., since these time-consuming corrective actions would prolong the risk of cascading failures to the Bulk-Power System. • Clarify the term "corrective action". 1440. We believe that "[t]he transmission operator shall take corrective action as soon as possible" refers to transmission operators taking operator control actions. It does not refer to troubleshooting, repairing or replacing failed relays or equipment, etc., since these time-consuming corrective actions would prolong the risk of cascading failures to the Bulk-Power System. 1441…. We direct the ERO to clarify the term "corrective action" consistent with this discussion when it modifies PRC-001-1 in the Reliability Standards development process. • Consider FirstEnergy's and the California PUC's comments about the maximum time for corrective actions in the standards development process. 1428. California PUC contends that imposing a time restriction for returning a system to a stable state may cause more harm than good since additional information and options may be available as time elapses. It repeats its suggestion from its earlier comments on the Staff Preliminary Assessment and proposes the following alternative language: "Transmission or generation operators shall carry out corrective control actions, i.e., returning the system to a stable state that respects system requirements as soon as possible, and no longer than 30 minutes, except where a longer response time is feasible, or where a longer response is demonstrated to produce a better ultimate solution without unacceptable interim risk." 1431. FirstEnergy contends that Requirement R2.1 essentially requires generator operators to report all protective relay or equipment failures, since generator operators may not be able to tell which failures will reduce system reliability. FirstEnergy suggests that R2.1 should be revised to require generator operators to report all equipment failures or outages. FirstEnergy further suggests that PRC-001-1 be revised to provide that if a company performs reasonable testing procedures, undiscoverable equipment failures will not be violations of R2.1. • Measures and levels of non-compliance incorrectly reference non-existent requirements.
Version 0 Team	• Consistent terminology as to neighbor vs. affected • Effects on reliability may not be known • Not all criteria moved over from policies

Project 2007-07 Vegetation Management

Standards Involved:
FAC-003-1 — Vegetation Management Program

Research Needed:
None

Brief Description:
This is a Version 1 standard that was approved in 2006. It has some 'fill-in-the-blank' components to eliminate. In addition, the following comments submitted by FERC and stakeholders need to be addressed in the refinement of the standard:

FERC Order 693 items
Address the issue regarding applicability:

- Work with the reliability entities and the ERO to collect and make available to the FERC, a list of critical lower voltage transmission lines. (Refer to Applicability 4.3 section of the standard.)
- Consider other criteria in determining applicability of the standard to sub 200kV lines.
- Address the issue of clearances for lines on both federal and non-federal lands:
- Review and analyze outage data (collected by the ERO) then consider defining clearances needed to avoid sustained vegetation-related outages that would apply to transmission lines crossing both federal and non-federal land.
- Consider revising the definition of right of way to encompass required clearance areas.
- Review the suitability of IEEE 516-2003 standard for minimum vegetation clearance.

Procedural items

- Re-format standard to bring it into conformance with the latest version of the Reliability Standard Development Procedure and the ERO Sanctions Guidelines.
- Remove references to RRO in the standard and substitute a responsible entity.
- Add newly developed compliance elements such as time horizons, violation risk factors, violation severity levels, etc.

Stakeholder items

- Prepare technical reference material such as a "white paper" to aid in understanding the technical basis for the standard.
- Review reporting criteria for Category 3 outages in the proposed technical reference material and may remove the reporting requirement of Category 3 outages in R.3 and R.4.
- Consider deleting requirement R.4.
- Review the reporting exemptions to include all category outages under major disasters in Requirement R3.2.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project 2007-07 Vegetation Management Web page

Project Schedule:

Project 2007-07 Schedule

Standard Drafting Team Roster:

Chairman	Richard E. Dearman	Tennessee Valley Authority
	Ron A. Adams	Duke Energy Carolina
	Tom Anderson	Lincoln Electric System
	Paul S. Beaulieu	Finley Engineering
	Stephen R. Cieslewicz	CN Utility Consulting LLC
	Randall F. Gann	Alabama Power Company
	Stephen Genua	Pepco Holdings, Inc.
	Jeff Hackman	Ameren Corp.
	Edward Mennella	Orange & Rockland Utilities
	Randall H. Miller	PacifiCorp
	David Morrell	New York State Department of Public Service
	John Pinney	Progress Energy
	John E. Schechter	American Electric Power
	John Tamsberg	Florida Power & Light Co.
	Stephen Tankersley	Pacific Gas and Electric Company
	Ron Turley	Western Area Power Administration
	Gary White	Oncor Electric Delivery
	Philip H. Whitmer	Georgia Power Company
	Ken Wright	Tucson Electric Power Co.
NERC Staff	Harry Tom	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
FAC-003-1 — Vegetation Management Program	
FERC Order 693	• …We recognize that many commenter's would like a more precise definition for the applicability of this Reliability Standard, and we direct the ERO to develop an acceptable definition that covers facilities that impact reliability but balances extending the applicability of this standard against unreasonably increasing the burden on transmission owners…
	• Evaluate suggestions by LPPC, APPA, and Avista in the standards development process.
	• Develop compliance audit procedures, using industry experts, which would identify appropriate inspection cycles based on local factors.
	• Define the minimum clearance needed to avoid sustained vegetation-related outages that apply to line crossing federal and non-federal lands.
	• Address issues that develop in the interim on a case-by-case basis
	• Incorporate suggestions to include facilities at lower voltages that are associated with IROLs.
	• We will not direct NERC to submit a modification to the general limitation on applicability as proposed in the NOPR. However, we will require the ERO to address the proposed modification through its Reliability Standards development process. As explained in the NOPR, the Commission is concerned that the bright-line applicability threshold of 200 kV will exclude a significant number of transmission lines that could impact Bulk-Power System reliability. Although the regional reliability organizations are given discretion to designate lower voltage lines under the proposed Reliability Standard, none have designated any operationally significant lines even though there are lower voltage lines involving IROL as suggested by Progress and SERC. We continue to be concerned that this approach will not prospectively result in the inclusion of all transmission lines that could impact Bulk-Power System reliability. In proposing to require the ERO to modify the Reliability Standard to apply to Bulk-Power System transmission lines that have an impact on reliability as determined by the ERO, we did not intend to make this Reliability Standard applicable to fewer facilities than it currently is with the 200 kV bright line applicability, but to extend the applicability to lower-voltage facilities that have an impact on reliability. We support the suggestions by Progress Energy, SERC and MISO to limit applicability to lower voltage lines associated with IROL and these suggestions should be part of the input to the Reliability Standards development process. Similarly, the ERO should evaluate the suggestions proposed by LPPC, APPA and Avista…..
	• Consider a phase-in timeframe if lower voltage facilities are included as applicable to this standard.
	• …. FirstEnergy and Xcel suggest that if the applicability of this Reliability Standard is expanded, the Commission should allow flexibility in complying with this Reliability Standard for lower-voltage facilities, or allow lower-voltage facilities one year before the Reliability Standard is implemented. The ERO should consider these comments when determining when it would request that the modification of this Reliability Standard to go into effect…..
	• Accordingly, the Commission directs the ERO to develop compliance audit procedures, using relevant industry experts, which would identify appropriate inspection cycles based on local

Source	Language
	factors. These inspection cycles are to be used in compliance auditing of FAC-003-1 by the ERO or Regional Entity to ensure such inspection cycles and vegetation management requirements are properly met by the responsible entities.
	• Accordingly, the Commission directs the ERO to develop a Reliability Standard that defines the minimum clearance needed to avoid sustained vegetation-related outages that would apply to transmission lines crossing both federal land and non-federal land. While this consensus is developed, the Commission directs the ERO to address any potential issues regarding mitigation measures needed to assure these minimum clearances on Forest Service lands are appropriate on a case-by-case basis. The Commission also directs the ERO to collect outage data for transmission outages of lines that cross both federal and non-federal lands, analyze it, and use the results of this analysis and information to develop a Reliability Standard that would apply to transmission lines crossing both federal and non-federal land.
	• FirstEnergy suggests that rights-of-way be defined to encompass the required clearance areas instead of the corresponding legal rights, and that the standards should not require clearing the entire right-of-way when the required clearance for an existing line does not take up the entire right-of-way. The Commission believes this suggestion is reasonable and should be addressed by the ERO. Accordingly, the Commission directs the ERO to address this suggestion in the Reliability Standards development process.
	• Address FirstEnergy's suggestion to clarify the definition of "rights-of-way" as part of the standards development process.
	• Collect outage data for transmission outages of lines that cross both federal and non-federal lands, analyze it, and use the results to develop a standard that would apply to both federal and non-federal lands.
	• Ensure inspection cycles and vegetation management requirements are properly met by the responsible entities.
	• Address the issue of "bright-line" applicability of 200 kV and above through the standards development process.
NERC Audit Observation Team	• It was pointed out that an entity did not need to be registered as a TO for FAC-003-1 to apply to them, only that they have transmission lines operated at 200 kV and above. This could include radial lines as well as generation leads at the 200kV and above level. This could mean functions other than TO would require FAC-003-1 to be in the audit scope. How are you looking at the applicability of FAC-003-1 as it applies to DPs, LSEs, and GOs etc. This could be applicable to many entities registered in multiple regions • TO's shall demonstrate compliance through self certification. Compliance monitoring shall conduct an on-site audit every five years or more frequently as deemed appropriate. Does this over-ride the six year audit cycle for TO's? • With regards to the vegetation management standard, what type of event would trigger a compliance investigation?
Version 0 Team	• RA vs. RRO • Too weak on compliance • Format inconsistencies

Project 2007-09 Generator Verification

Standards Involved:

PRC-019-1 — Coordination of Generator Voltage Regulator Controls with Unit Capabilities and Protection

PRC-024-1 — Generator Performance During Frequency and Voltage Excursions

MOD-024-1 — Verification of Generator Gross and Net Real Power Capability

MOD-025-1 — Verification of Generator Gross and Net Reactive Power Capability

MOD-026-1 —Verification of Models and Data for Generator Excitation System Functions

MOD-027-1 — Verification of Generator Unit Frequency Response

Research Needed:

None

Brief Description:

The scope of this project includes:

- Modifying the six standards associated with this project so they conform to the latest version of NERC's Reliability Standards Development Procedure and the ERO Rules of Procedure,
- Replacing the "fill-in-the-blank" requirements assigned to the Regional Reliability Organization with requirements that can be applied on a continent-wide basis and are assigned to users, owners or operators of the bulk power system,
- Considering and addressing issues identified in FERC orders, including the modifications to MOD-024-1 and MOD-025-1 as proposed in FERC Order 693, and
- Considering and addressing issues identified during Phase III & IV field testing.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project 2007-09 Generator Verification Web page

Project Schedule:

Project 2007-09 Schedule

Standard Drafting Team Roster:

Chairman	Robert W. Millard	ReliabilityFirst Corporation
Vice Chairman	Lee Y. Taylor	Southern Company Services, Inc.
	Baj Agrawal	Arizona Public Service Co.
	Thomas J. Bradish	RRI Energy
	Donald G. Davies	Western Electricity Coordinating Council
	Les Hajagos	Kestrel Power Engineering Ltd
	John Hanson	CenterPoint Energy
	Gary Humphries	Duke Energy Carolina
	Venkat S. Kolluri	Entergy Corporation
	Dmitry Kosterev	Bonneville Power Administration
	David Kral	Xcel Energy, Inc.
	Gary Kruempel	MidAmerican Energy Co.
	Daniel J Leonard	GE Energy
	Craig Quist	PacifiCorp
	Balbir S. Sandhu	Manitoba Hydro
	William D Shultz	Southern Company Generation
	Vladimir Stanisic	Ontario Power Generation Inc.
	Ken Stenroos	Florida Power & Light Co.
	Rick Terrill	Luminant Energy
	Chifong L. Thomas	Pacific Gas and Electric Company
	Edward J. Wingard	American Electric Power
NERC Staff	Harry Tom	North American Electric Reliability Corporation
NERC Staff	Thomas Vandervort	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
PRC-019 — Coordination of Generator Voltage Regulator Controls with Unit Capabilities and Protection	
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
PRC-024 — Generator Performance During Frequency and Voltage Excursions	
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
MOD-024-1 — Verification of Generator Gross and Net Real Power Capability	
FERC Order 693	• Require users, owners, and operators of the system to provide this information. • Provide a work plan and compliance filing regarding the collection of information specified for standards that are deferred. • Clarify requirement R2 that specifies that the regional reliability organization shall provide generator gross and net real power capability verification within 30 calendar days of approval. The confusion centers on "approval" and when the 30-day period starts. • Document test conditions and the relationships between test conditions and generator output so that the amount of power that can be expected to be delivered from a generator at different conditions can be determined.
Fill in the Blank Team	• Review MOD-024 and MOD-025 concurrently to transition to uniform North American standards. • Remove the fill-in-the-blank aspects (correct reference to "…Regional Reliability Organization's procedures…"). • Goal is uniform North American standards for real and reactive power verification. Look at regional requirements and identify the best practice, commonalities and differences, and whether differences are needed for reliability.
Phase III/IV Team	• No requirement for the RRO to demonstrate that its procedures result in accurate information of gross and net real power capability of generators for steady state models • It is not clear in R3 to whom the Generator Owner will report the information. • Non compliance levels are too strict. A small utility with 15-20 units will be L4 non-compliant if they miss one unit
Team Comments	Provide clarity where the Planning Authority is mentioned
MOD-025-1 — Verification of Generator Gross and Net Reactive Power Capability	

Source	Language
FERC Order 693	• Provide a work plan and compliance filing regarding the collection of information specified for standards that are deferred. • Require verification of reactive power capability at multiple points over a unit's operating range. • Clarify requirement R2 that specifies that the regional reliability organization shall provide generator gross and net reactive power capability verification within 30 calendar days of approval. The confusion centers on "approval" and when the 30-day period starts.
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
Fill in the Blank Team	• Remove the fill-in-the-blank aspects (correct reference to "… Regional Reliability Organization's procedures…"). • Refer to MOD-024. • Review MOD-024 and MOD-025 concurrently to transition to uniform North American standards.
Phase III/IV Team	• These standards do not provide for uniform testing of generator capability. The determination of which units are tested, how frequently they are tested, and the criteria used for determining capability are left to individual regions. • R1.5.1: The benefit of verifying maximum capability of generators to absorb VArs at seasonal real power generation capability is unclear, particularly if this standard applies to virtually all generators. For the vast majority of units, the need to absorb VArs occurs during low-load conditions, when unit real power production is below maximum capability and the unit's ability to absorb VArs is greater. Therefore, the single datum for unit VAr absorption capability determined pursuant to this standard seems to be of little practical use, except for relatively few generators in a limited set of circumstances. • It is not clear in R3 to whom the Generator Owner will report the information. • Non compliance levels are too strict. A small utility with 15-20 units will be L4 non-compliant if they miss one unit. • Severity of non-compliance should be based on the percentage of the generator owner's total generation capability comprised of units required to be verified, rather than on the percentage (number) of generating units. Exempt units should be excluded from the total generation capability for determining level of non-compliance. • There is no clear reason for regional variations in capability testing. A generator in Georgia does not have more or less capability than an identical unit applied across the Florida line, despite the fact that one is in SERC and the other in FRCC. • Fundamental guidelines outlining some basic requirements (e.g., all units over 20 MW shall be tested annually under conditions that permit full net output of the unit for normal operation) are lacking.
Team Comments	Provide clarity where the Planning Authority is mentioned
~~PRC-022-1 — Under-Voltage Load Shedding Program Performance~~	
~~FERC Order 693~~	~~"In the NOPR, the Commission identified an implicit assumption in the TPL Reliability Standards that all generators are required to ride through the same types of voltage disturbances and remain in service after the fault is cleared. This implicit assumption should be made explicit. Commenter's agree with the proposed requirement for all generators to ride through the same set of Category B and C events as required for wind generators. The Commission understands~~

	Source	Language
		~~that NRC has both degraded voltage and loss of voltage requirements. The degraded voltage requirement allows the voltage at the auxiliary power system busses to go below the minimum value for a time frame that is usually much longer than normal fault clearing time.457 If a specific nuclear power plant has an NRC requirement that would force it to trip off-line if its auxiliary power system voltage was depressed below some minimum voltage, the simulation should include the tripping of the plant in addition to the faulted facilities. In this regard, the Commission agrees that NRC requirements should be used when implementing the Reliability Standards. Using NRC requirements as input will assure that there is consistency between the Reliability Standards and the NRC requirement that the system is accurately modeled. Accordingly, the Commission directs the ERO to modify the Reliability Standard to explicitly require either that all generators are capable of riding through the same set of Category B and C contingencies, as required by wind generators in Order No. 661, or that those generators that cannot ride through be simulated as tripping. If a generator trips due to low voltage from a single contingency, the initial trip of the faulted element and the resulting trip of the generator would be governed by Category B contingencies and performance criteria. "~~
	MOD-026 Verification of Models and Data for Generator Excitation System Functions	
Other		Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
	MOD-027 Verification of Generator Unit Frequency Response	
Other		Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Project 2007-11 Disturbance Monitoring

Standards Involved:
PRC-002-1 — Define and Document Disturbance Monitoring Equipment Requirements
PRC-018-1 — Disturbance Monitoring Equipment Installation and Data Reporting

Research Needed:
The standard drafting team identified a need to conduct a regional data analysis in order to establish technical requirements for DME locations and thresholds.

Brief Description:
PRC-002 and PRC-018 were approved in 2006.

PRC-002 is one of four reliability standards identified by the Regional Reliability Standards Working Group as a standard that has some requirements that need to be defined by each regional entity in a regional standard. The standard drafting team (SDT) will review PRC-002 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to or contained with the disturbance monitoring program documentation. The SDT shall determine which requirements should be continent-wide requirements and which requirements should be included in regional standards.

When revising PRC-002 and PRC-018 the SDT shall address issues already identified by FERC, other drafting teams and stakeholders. Note: Phasor measurement networks are to be addressed by Project 2008-06.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2007-11 Disturbance Monitoring Web page

Project Schedule:
Project 2007-11 Schedule

Standard Drafting Team Roster:

Chairman	Navin B. Bhatt, PhD., PE	American Electric Power
	Felix Amarh, PhD	Georgia Transmission Corporation
	Alan D. Baker	Florida Power & Light Co.
	James R. Detweiler	FirstEnergy Corp.
	Richard Ferner	Western Area Power Administration
	Barry G. Goodpaster	Exelon Business Services Company
	Willy Haffecke	City Utilities of Springfield
	Daniel J. Hansen	RRI Energy
	Charles J. Jensen	JEA
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	Susan L. McGill	PJM Interconnection, L.L.C.
	Robert W. Millard	ReliabilityFirst Corporation
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Jeffrey M. Pond	National Grid
	Larry E. Smith	Alabama Power Company
	Jack Soehren	ITC Holdings
NERC Staff	Stephanie Monzon	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
PRC-002-1 — Define Regional Disturbance Monitoring and Reporting Requirements	
FERC Order 693	Consider if greater consistency can be achieved in the standard as suggested by Otter Tail, APPA, and Alcoa.
Phase III/IV Team	There is no criteria that the RROs must use in specifying the process for identifying locations where DMEs are required
Version 0 Team	• Digital inputs and load need to be added • IDWG identified deficiencies • More specificity in equipment requirements needed
VRFs Team	R1 — This standard and all related sub requirements are after the fact data analysis
PRC-018-1 — Disturbance Monitoring Equipment Installation and Data Reporting	
Fill in the Blank Team	• PRC-002 will be a continent-wide standard supported by Regional Reliability Standards. • Need regions to develop and submit regional standards. NERC standard requires region to have this done in 9 months from board adoption (from August 9). Regions need to do this as a regional standard, not a procedure or some other document. • Development of regional standards needs to be coordinated with Regional entities. Regional entities should begin process for developing regional standards once the drafting team for the North American standard has determined what elements of disturbance monitoring should be included in the continent-wide standard and what elements should be included in the regional standards. • Determine what elements (if any) of disturbance monitoring should be included in the North American standard and what elements should be included in the regional standards. • PRC-002 is directly related to PRC-018. PRC-018 requires the functional entities to comply with the requirements developed by each RRO.
VRFs Team	R3.4, 3.5, 3.6, 3.7 — Ambiguous

Project 2007-12 Frequency Response

Standards Involved:
BAL-003-0 — Frequency Response and Bias

Research Needed:
None

Brief Description:
This project involves developing a new standard for the collection of data needed to accurately model existing Frequency Response within each interconnection.

The project will support the following directive in FERC Order 693:

- Define the necessary amount of Frequency Response needed for Reliable Operation for each balancing authority with methods of obtaining and measuring that the frequency response is achieved.

Standards Development Status:
Project 2007-12 Frequency Response Web page

Project Schedule:
Project 2007-12 Schedule

Standard Drafting Team Roster

Chairman	William Herbsleb	PJM Interconnection, L.L.C.
	Don E Badley	Northwest Power Pool Corporation
	Terry Bilke	Midwest ISO, Inc.
	Les Hajagos	Kestrel Power Engineering Ltd
	Harvey Heinz Happ	New York State Department of Public Service
	Howard F. Illian	Energy Mark, Inc.
	David F. Lemmons	Xcel Energy, Inc.
	Clyde Loutan	California ISO
	Carlos Martinez	Electric Power Group
	James Murphy	Bonneville Power Administration
	Sydney Niemeyer	NRG Texas LP
	Michael Potishnak	ISO New England, Inc.
	Raymond L. Vice	Southern Company Services, Inc.
NERC Staff	Darrel Richardson	North American Electric Reliability Corporation
NERC Staff	Thomas Vandervort	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
BAL-003-0 — Frequency Response and Bias	
FERC Order 693	• Define the necessary amount of frequency response needed for reliable operation for each balancing authority with methods of obtaining and measuring that the frequency response is achieved. • Determine the appropriate periodicity of frequency response surveys necessary to ensure requirement R2 and other requirements are being met; also modify measure M1 based on this determination.

Project 2007-17 Protection System Maintenance & Testing

Standards Involved:
PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing
PRC-008-0 — Underfrequency Load Shedding Equipment Maintenance Programs
PRC-011-0 — UVLS System Maintenance and Testing
PRC-017-0 — Special Protection System Maintenance and Testing

Research Needed:
None

Brief Description:
Revise PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing, to consolidate PRC-005-1, PRC-008-0 — Underfrequency Load Shedding Equipment Maintenance Programs; PRC-011-0 — UVLS System Maintenance and Testing; and PRC-017-0 — Special Protection System Maintenance and Testing into a single maintenance and testing standard. Standards PRC-008-0, PRC-011-0, and PRC-017-0 would then be withdrawn.

The revised PRC-005 standard should address the issues raised in the FERC Order 693 and the issues addressed in the SPCTF report "Assessment of PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing; with implications for PRC-008-0, PRC-011-0, and PRC-017-0". The revised standard should also address the comments submitted by stakeholders during the development of Version 0, and Phase III & IV and should reflect improvements identified in the Reliability Standards Review Guidelines.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2007-17 Protection System Maintenance & Testing

Project Schedule:
Project 2007-17 Schedule

Standard Drafting Team Roster:

Chairman	Charles W. Rogers	Consumers Energy
	John Anderson	Xcel Energy, Inc.
	Merle Ashton	Tri-State G & T Association Inc.
	Bob Bentert	Florida Power & Light Co.
	John L. Ciufo	Hydro One, Inc.
	Richard Ferner	Western Area Power Administration
	Carol Gerou	Midwest Reliability Organization
	Roger D. Green	Southern Company Generation
	Russell Hardison, P.E.	Tennessee Valley Authority
	Dave Harper	NRG Texas Maintenance Services
	John Kruse	Commonwealth Edison Co.
	Mark Peterson	Great River Energy
	William D Shultz	Southern Company Generation
	Leonard Swanson, Jr.	National Grid USA
	Eric Udren	Quanta Technology
	Philip Winston	Georgia Power Company
	John Zipp	ITC Holdings
NERC Staff	Al Calafiore	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing	
FERC Order 693	• Consider FirstEnergy's and ISO-NE's suggestions to combine PRC-005, PRC-008, PRC-011, and PRC-017 into a single standard. • Maintenance and testing of a protection system must be carried out within a maximum allowable time interval that is appropriate for the type of protection system and its impact on the reliability of the bulk power system. 1475. In addition, for the reasons discussed in the NOPR, the Commission directs the ERO to develop a modification to PRC-005-1 through the Reliability Standards development process that includes a requirement that maintenance and testing of a protection system must be carried out within a maximum allowable interval that is appropriate to the type of the protection system and its impact on the reliability of the Bulk-Power System.
NERC Audit Observation Team	• As applicable, each TO, DP and GOP shall have a protection system maintenance and testing program for protection systems that affect the reliability of the BES. Does this include major equipment like circuit breakers and transformers? • Determine what on schedule means. Is an entity who maintained/tested 95% of their relays at the same level of non-compliance as an entity who maintained/tested 10% of their relays? • How do you verify compliance for cts/pts? How do you audit these within a scheduled maintenance program? As part of the procedure, most have accepted visual inspection. Some entities state that testing of the relays verify functionality of the ct/pts • How do you verify DC control power? All regions require functional testing of the breaker. This should include functional relay & station battery checks, including breaker tripping, not just a visual inspection.
Phase III/IV Team	• All generation protection systems whose misoperations impact the bulk electric system • All protection systems on the bulk electric system. • Modify applicability to clarify that the requirements are applicable to the following: • Need to add language to ensure the Regional Requirements focus on the most impactive scenarios • PRC 003 to 005 only address generator (and transmission) protective systems, without defining this term. • There is no performance requirement or measure of effectiveness of a maintenance program required by the standard
Version 0 Team	• Define evidence • Include breakers/switches in list • Not a standalone standard
PRC-008-0 — Underfrequency Load Shedding Equipment Maintenance Programs	
FERC Order 693	Maintenance and testing of a protection system must be carried out within a maximum allowable time interval that is appropriate for the type of protection system and its impact on the reliability of the bulk power system.

Source	Language
Fill in the Blank Team	Okay if PRC-006 is fixed
Version 0 Team	• Consistent wording from standard to standard required • Definition of evidence required
PRC-011-0 — UVLS System Maintenance and Testing	
FERC Order 693	Maintenance and testing of a protection system must be carried out within a maximum allowable time interval that is appropriate for the type of protection system and its impact on the reliability of the bulk power system.
Version 0 Team	• Define evidence • Exemptions for those with shunt reactors
PRC-017-0 — Special Protection System Maintenance and Testing	
FERC Order 693	• Includes a requirement that documentation identified in Requirement R2 shall be routinely provided to the ERO or Regional Entity. 1546….and (2) a requirement that documentation identified in Requirement R2 shall be routinely provided to the ERO or Regional Entity • Maintenance and testing of a protection system must be carried out within a maximum allowable time interval that is appropriate for the type of protection system and its impact on the reliability of the bulk power system. • Require that documentation identified in requirement R2 be routinely provided to NERC or the regional entity. that includes: (1) …… and (2) a requirement that documentation identified in Requirement R2 shall be routinely provided to the ERO or Regional Entity
Version 0 Team	• Define evidence • Need to retain two dates

Project 2007-18 Reliability-based Control

Standards Involved:
BAL-001-0 — Real Power Balancing Control Performance
BAL-003-0 — Frequency Response and Bias
EOP-002-2 — Capacity and Energy Emergencies
IRO-005-2 — Reliability Coordination — Current Day Operations

Research Needed:
None

Brief Description:
This project includes expanding on the work already done in developing the draft BAL-007 through BAL-011 by adding requirements to address the following concerns:

- To support elimination of SOL/IROL violations caused by excessive (as determined by this standard) Area Control Error
- To prevent Interconnection frequency excursions of short duration attributed to the ramping of on and off-peak Interchange Transactions
- To support timely transmission congestion relief by requiring corrective load/generation management within a defined timeframe when ACE is impacted by the curtailment of
- Interchange Transactions under Transmission Loading Relief procedures
- To address the directives of FERC Order 693.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ ~~2008~~ 2009 Annual plan): Annual Plan Item ~~1~~ 3.a.viii — Justification for NAESB consideration: WEQ SRS analysis

SRS Recommendation: The NERC/NAESB JESS has reviewed EOP-002-2 and identified that there is potential coordination opportunities.~~WEQ SRS has referred this to the JISWG for consideration~~.

Standards Development Status:
Project 2007-18 Reliability-based Control Web page

Project Schedule:
Project 2007-18 Schedule

Standard Drafting Team Roster:

Chairman	Douglas E. Hils	Duke Energy
	Larry Akens	Tennessee Valley Authority
	William Herbsleb	PJM Interconnection, L.L.C.
	Howard F. Illian	Energy Mark, Inc.
	Clyde Loutan	California ISO
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Sydney Niemeyer	NRG Texas LP
	LeRoy Patterson	Patterson Consulting
	Michael Potishnak	ISO New England, Inc.
	Mark Prosperi-Porta	British Columbia Transmission Corporation
	Thomas W. Siegrist	EnerVision, Inc.
	Glenn Stephens	Santee Cooper
	Stephen Swan	Midwest ISO, Inc.
	Raymond L. Vice	Southern Company Services, Inc.
NERC Staff	Stephen Crutchfield	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
BAL-001-0 — Real Power Balancing Control Performance	
FERC Order 693	Regional Differences to BAL-001-0: ERCOT Control Performance Standard 2: Include requirements concerning frequency response contained in Section 5 of the ERCOT protocols. Paragraph 313. The Commission approves the ERCOT regional difference as mandatory and enforceable. Order No. 672 explains that "uniformity of Reliability Standards should be the goal and the practice, the rule rather than the exception." However, the Commission has stated that, as a general matter, regional differences are permissible if they are either more stringent than the continent-wide Reliability Standard, or if they are necessitated by a physical difference in the Bulk-Power System. Regional differences must still be just, reasonable, not unduly discriminatory or preferential and in the public interest. 314. The Commission finds that ERCOT's approach under section 5 of the ERCOT protocols appears to be a more stringent practice than Requirement R2 in BAL-001-0 and therefore approves the regional difference. 315. As proposed in the NOPR, the Commission directs the ERO to file a modification of the ERCOT regional difference to include the requirements concerning frequency response contained in section 5 of the ERCOT protocols. As with other new regional differences, the Commission expects that the ERCOT regional difference will include Requirements, Measures and Levels of Non-Compliance sections.
BAL-003-0 — Frequency Response and Bias	
NERC Audit Observation Team	Both requirements need to be met?
EOP-002-2 — Capacity and Energy Emergencies	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Source	Language
IRO-005-2 — Reliability Coordination — Current Day Operations	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Project 2008-01 Voltage and Reactive Control

Standards Involved:
VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules

Research Needed:
In August 2008, the Transmission Issues Subcommittee (TIS) formed the Reactive Support/Control Sub team to develop a report to address the fundamental issues associated with voltage and reactive control. The results of the report are being used to support improvements to the existing VAR standards and may result in development of an additional VAR standard. The Reactive Support and Control White Paper was produced by the TIS and identifies technical requirements needed to determine the reactive resources required under different system states. The white paper identifies the need for requirements that address:

- criteria and associated rationale needed to determine the split of dynamic reactive supply (such as reactive power provided by the generators and other dynamic devices) and static reactive power supply (such as static capacitors and other static devices)
- criteria for distribution of the interconnection's reactive resource needs among transmission, distribution, and generation facilities

The drafting team will incorporate the white paper into the standards as well as address other issues identified in the tables below.

Brief Description:
This is a new project and supports a blackout recommendation. Industry debate is needed on whether there should be a North American standard that requires a specific amount of reserves, or whether requirements for specific reserves should continue to be addressed at the regional level. The requirements in the existing standards need to be upgraded to be more specific in defining voltage and reactive power schedules. Consideration should be given to adding a requirement for the Reliability Coordinator to monitor and take action if reactive power falls outside identified limits.

The project will incorporate the interpretation of VAR-002 Requirement 1 and Requirement 2.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ ~~2008~~ 2009 Annual plan):
Annual Plan Item 1

Justification for NAESB consideration:
Industry recommendations

SRS Recommendation:
This project may need NAESB attention in the future. The WEQ SRS will place this on its watch list. ~~The SRS wishes to know if this is still an active NERC project, as it is not included on their Standards under Development list.~~

Standards Development Status:

Project 2008-01 Voltage and Reactive project Web page

Project Schedule:

Project 2008-01 Project Schedule

Standard Drafting Team Roster:

TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
VAR-001-1 — Voltage and Reactive Control	
FERC Order 693	"Address reactive power requirements for LSEs on a comparable basis with purchasing-selling entities. Paragraph 1856. The Commission agrees with SoCal Edison that not all LSEs are purchasing selling entities, because not all LSEs purchase or sell power from outside of their balancing authority area. This understanding is consistent with the NERC functional model and NERC glossary. Both LSEs and purchasing-selling entities should have some requirements to provide reactive power to appropriately compensate for the demand they are meeting for their customers. Neither a purchasing-selling entity nor a LSE should depend on the transmission operator to supply reactive power for their loads during normal or emergency conditions."
	"Expand the applicability to include LSEs and reliability coordinators and define the reliability coordinators monitoring responsibilities. Paragraph 1854. In a complex power grid such as the one that exists in North America, reliable operations can only be ensured by coordinated efforts from all operating entities in long-term planning, operational planning and real-time operations. To that end, the Staff Preliminary Assessment recommended and the NOPR proposed that the applicability of VAR-001-1 extend to reliability coordinators and LSEs. 1855. Since a reliability coordinator is the highest level of authority overseeing the reliability of the Bulk-Power System, the Commission believes that it is important to include the reliability coordinator as an applicable entity to assure that adequate voltage and reactive resources are being maintained. As MISO points out, other Reliability Standards address responsibilities of reliability coordinators, but we agree with EEI that it is important to include reliability coordinators in VAR-001-1 as well. Reliability coordinators have responsibilities in the IRO and TOP Reliability Standards, but not the specific responsibilities for voltage levels and reactive resources addressed by VAR-001-1, which have a great impact on system reliability. For example, voltage levels and reactive resources are important factors to ensure that IROLs are valid and operating voltages are within limits, and that reliability coordinators should have responsibilities in VAR-001-1 to monitor that sufficient reactive resources are available for reliable system operations. Accordingly, the ERO should modify VAR-001-1 to include reliability coordinators as applicable entities and include a new requirement(s) that identifies the reliability coordinator's monitoring responsibilities."
	"Include APPA's comments regarding varying power factor requirements due to system conditions and equipment in the standards development process. Paragraph 1860. APPA contends that it may be difficult to reach an agreement on acceptable ranges of net power factors at the interfaces where LSEs receive service from the Bulk-Power System because the acceptable range of power factors at any particular point on the electrical system varies based on many location-specific factors. APPA further states that system power factors will be affected by the transmission infrastructure used to supply the load. As an example, APPA states that an overhead circuit may operate at a higher power factor than an underground cable due to a substantial amount of reactive line charging, and that a transmission circuit carrying low levels of real power will tend to provide more reactive power, which will affect the need to switch off capacitor banks at the delivery point to manage delivery power factors."
	"Includes detailed and definitive requirements on "established limits" and "sufficient reactive resources", and identifies acceptable margins above the voltage instability points. Paragraph 1868. In the NOPR, the Commission expressed concern that the technical requirements containing terms such as "established limits" or "sufficient reactive resources" are not definitive enough to address voltage instability and ensure reliable operations.475 To address this concern, the NOPR proposed directing the ERO to modify VAR-001-1 to include more detailed

Source	Language
	and definitive requirements on “established limits” and “sufficient reactive resources” and identify acceptable margins (i.e. voltage and/or reactive power margins) above voltage instability points to prevent voltage instability and to ensure reliable operations. We will keep this direction, and direct the ERO to include this modification in this Reliability Standard. 1869. We recognize that our proposed modification does not identify what definitive requirements the Reliability Standard should use for “established limits” and “sufficient reactive resources.” Rather, the ERO should develop appropriate requirements that address the Commission’s concerns through the ERO Reliability Standards development process. The Commission believes that the concerns of Dynegy, EEI and MISO are best addressed by the ERO in the Reliability Standards development process. 1870. In response to EEI’s concerns about a prescriptive analytical methodology, we clarify that the Commission is not asking that the Reliability Standard dictate what methodology must be used to determine reactive power needs. Rather, the Commission believes that the Reliability Standard would benefit from having more defined requirements that clearly define what voltage limits are used and how much reactive resources are needed to ensure voltage instability will not occur under normal and emergency conditions. For example, in the NOPR, the Commission suggested that NERC consider WECC’s Reliability Criteria, which contain specific and definitive technical requirements on voltage and margin application. While we are not directing that the WECC reliability criteria be adopted, we believe they represent a good example of clearly-defined requirements for voltage and reactive margins. 1871. In sum, the Commission believes that minimum requirements for voltage levels and reactive resources should be clearly defined by placing more detailed requirements on the terms “established limits” and “sufficient reactive resources” in the Reliability Standard as discussed in the NOPR and the Staff Preliminary Assessment. As mentioned above, EEI’s concerns should be considered in the ERO’s Reliability Standards development process."
	Address the concerns of Dynegy, EEI, and MISO through the standards development process. Paragraph 1864. Dynegy supports the Commission’s proposal to include more definitive requirements on “established limits” and “sufficient reactive resources.” It recommends that VAR-001-1 be further modified to require the transmission operator to have more detailed and definitive requirements when setting the voltage schedule and associated tolerance band that is to be maintained by the generator operator. Dynegy states that the transmission operator should not be allowed to arbitrarily set these values, but rather should be required to have a technical basis for setting the required voltage schedule and tolerance band that takes into account system needs and any limitations of the specific generator. Dynegy believes that such a requirement would eliminate the potential for undue discrimination, as well as the possibility of imposing overly conservative and burdensome voltage schedules and tolerance bands on generator operators that could be detrimental to grid reliability, or conversely, the imposition of too low a voltage schedule and too wide a tolerance band that could also be detrimental to grid reliability. 1865. While MISO supports the concept of including more detailed requirements, it believes that there needs to be a definitive reason for establishing voltage schedules and tolerances, and that any situations monitored in this Reliability Standard need to be limited to core reliability requirements. 1866. EEI seeks clarification about whether the Commission is suggesting that reactive requirements should aim for significantly greater precision, especially in terms of planning for various emergency conditions. If so, EEI cautions the Commission against “‘putting too many eggs’ in the reactive power ‘basket.’”474 To the extent compliance takes place pursuant to all other modeling and planning assessments under the other Reliability Standards, EEI strongly believes that the Commission should have some high level of confidence that the system’s reactive power needs can be met satisfactorily across a broad range of contingencies that planners might reasonably anticipate. Moreover, EEI believes that requirements to successfully predict reactive power requirements in conditions of near-system collapse would require significantly more creative guesswork than solid analysis and contingency planning. For example, EEI notes that the combinations and permutations of how a voltage collapse could occur on a system as large as the eastern Interconnection are numerous. 1867. EEI suggests that, alternatively, the Commission should consider that reactive power evaluations

Source	Language
	should be conducted within a process that is documented in detail and includes a range of contingencies that might be reasonably anticipated, because this would avoid the 'one size fits all' problem, where a prescriptive analytical methodology does not fit with a particular system configuration. EEI believes that this flexible approach would provide a more effective planning tool for the industry, while satisfying the Commission's concerns over potentially inadequate reactive reserves. MRO notes that the need for, and method of providing for, reactive resources varies greatly, and if this Reliability Standard is expanded it must be done carefully. MRO believes that all entities should not be required to follow the same methodology to accomplish the goal of a reliable system.
	Address the power factor range at the interface between LSEs and the transmission grid. Paragraph 1861. In the NOPR, the Commission asked for comments on acceptable ranges of net power factor at the interface at which the LSEs receive service from the Bulk-Power System during normal and extreme load conditions. The Commission asked for these comments in response to concerns that during high loads, if the power factor at the interface between many LSEs and the Bulk-Power System is so low as to result in low voltages at key busses on the Bulk-Power System, then there is risk for voltage collapse. The Commission believes that Reliability Standard VAR-001-1 is an appropriate place for the ERO to take steps to address these concerns by setting out requirements for transmission owners and LSEs to maintain an appropriate power factor range at their interface. We direct the ERO to develop appropriate modifications to this Reliability Standard to address the power factor range at the interface between LSEs and the Bulk-Power System. 1862. We direct the ERO to include APPA's concern in the Reliability Standards development process. We note that transmission operators currently have access to data through their energy management systems to determine a range of power factors at which load operates during various conditions, and we suggest that the ERO use this type of data as a starting point for developing this modification. 1863. The Commission expects that the appropriate power factor range developed for the interface between the bulk electric system and the LSE from VAR-001-1 would be used as an input to the transmission and operations planning Reliability Standards. The range of power factors developed in this Reliability Standard provides the input to the range of power factors identified in the modifications to the TPL Reliability Standards. In the NOPR, the Commission suggested that sensitivity studies for the TPL Reliability Standards should consider the range of load power factors.
	Include controllable load among the reactive resources to satisfy reactive requirements, considering the comments of Southern California Edison and SMA in the development of the standard. Paragraph 1879. The Commission noted in the NOPR that in many cases, load response and demand-side investment can reduce the need for reactive power capability in the system.476 Based on this assertion, the Commission proposed to direct the ERO to include controllable load among the reactive resources to satisfy reactive requirements for incorporation into Reliability Standard VAR-001-1. While we affirm this requirement, we expect the ERO to consider the comments of SoCal Edison with regard to reliability and SMA in its process for developing the technical capability requirements for using controllable load as a reactive resource in the applicable Reliability Standards. 1877. SMA supports adoption of the proposal to include controllable load as a reactive resource. SMA notes that its members' facilities often include significant capacitor banks, and further, reducing load can reduce local reactive requirements. 1878. SoCal Edison suggests caution regarding the Commission's proposal to include controllable load as a reactive resource. It agrees that, when load is reduced, voltage will increase and for that reason controllable load can lessen the need for reactive power. However, SoCal Edison believes that controllable load is typically an energy product and there are other impacts not considered by the Commission's proposal to include controllable load as a reactive resource. For example, activating controllable load for system voltage control lessens system demand, requiring generation to be backed down. It is not clear to SoCal Edison whether any consideration has been given to the potential reliability or commercial impacts of the

Source	Language
	Commission's proposal.
	Perform voltage analysis periodically, using on-line techniques where commercially available and off-line techniques where not available on-line, to assist real-time operations, for areas susceptible to voltage instability. Paragraph 1875. In response to the concerns of APPA, SDG&E and EEI on the availability of tools, the Commission recognizes that transient voltage stability analysis is often conducted as an offline study, and that steady-state voltage stability analysis can be done online. The Commission clarifies that it does not wish to require anyone to use tools that are not validated for real-time operations. Taking these comments into consideration, the Commission clarifies its proposed modification from the NOPR. For the Final Rule, we direct the ERO, through its Reliability Standards development process, to modify Reliability Standard VAR-001-1 to include Requirements to perform voltage stability analysis periodically, using online techniques where commercially-available, and offline simulation tools where online tools are not available, to assist real-time operations. The ERO should consider the available technologies and software as it develops this modification to VAR-001-1 and identify a process to assure that the Reliability Standard is not limiting the application of validated software or other tools.
Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan: 2010-2012	Requirement R2 requires the TOP to acquire sufficient reactive resources. The statement probably ought to clearly delineate that this requirement is applicable to the operating horizon only and that the TP is responsible for adequate reactive resources in the planning horizon.
NERC Audit Observation Team	If the TOP does not supply the GOP with a voltage or reactive power schedule is that a noncompliance for the TOP?
Phase III/IV Team	Consolidate R8 and R9
	No criteria for what is an acceptable reactive margin.
	No requirement for verifying that the reactive resources are truly available.
	R10 remove "first" so as not to limit this requirement to first contingency conditions. As written with or without removing "first", R10 provides no additional information not already required in R3.
	R10.1 does 'disperse and locate' mean the same as 'dispatch'? If so, changing the wording to 'dispatch' would make the meaning clearer.
	R11 — Redundant with TOP-007
	R3 covers normal and contingency conditions, while R10 mentions only first contingency conditions. Is there a reason for this difference?
	R3 Suggest changing the phrase…"to protect the voltage"…. To "maintain the voltage"
	R3, R6, R10 go beyond the control of the responsible entity noted.
	R3, the Transmission Operator only has the reactive resources that exist in the area — how does the TO "acquire sufficient reactive resources" if existing resources are not adequate?
	R5 This requirement is an Open Access Transmission Tariff requirement and does not belong in a reliability standard.

Source	Language
	R6 and R10.1 presume that sufficient reactive resources are available.
	R7 and R8 — consider adding more specificity to distinguish the TOP's authority to direct others to operate (Each Transmission Operator shall operate owned devices or direct the operation of, within their normal operating parameters and capabilities, capacitive and inductive reactive resources within its area-including reactive generation scheduling; transmission line and reactive resource switching; and, if necessary, load shedding- to maintain system and Interconnection voltages within established limits.)
	R7 obligates Transmission Operators to know the status of all reactive power sources including AVRs and PSSs. Clarify that this means the generator is available and if dispatched will operate in voltage control mode and with the PSS active.
	R9.1 This requirement is not feasible. Cannot dictate where generation resources are to be disbursed or located.
	Should R3 be assigned to the TP?
	Should the word "acquire" in R3 be replaced with the word "operate"?
	The language in the measures and compliance sections such as "2.1.2 One incident of failing to maintain a voltage or reactive power schedule" is too vague and does not specify any duration that is acceptable or unacceptable to be off schedule.
	VAR-001 requirements (R1, R2, R7, R8, R9, R10, and R12) are redundant to the TOP standards
	What does the second sentence in R3 mean by the phrase 'transmission operator's share of the reactive requirements of interconnecting transmission circuits'? What would be the reactive requirements of transmission circuits?
	Will R6 also apply to wind generation absorbing reactive power at the point of interconnection?
Version 0 Team	• Add BA (R1 & 3)and RA (R5, 7, 8, 10 & 11) • Add GO as entity • Clarify if this includes distribution • Clarify responsibility for voltage support • Define high probability • Define voltage levels • Delete SOL violations • Expand to include relays • Mention power factor requirements for distribution • Move R9 to 5.2 • Not a standard but a business practice
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules	
FERC Order 693	Consider Dynegy's suggestion to improve the standard. Paragraph 1883. Dynegy believes that VAR-002-1 should be modified to require more detailed and definitive requirements when defining the time frame associated with an "incident" of non compliance (i.e., each 4-second scan, 10-minute integrated value, hourly integrated value). Dynegy states that, as written, this Reliability Standard does not define the time frame associated with an "incident" of non-compliance, but apparently leaves this decision to the transmission operator. Dynegy believes that either more detail should be added to the Reliability Standard to cure this omission, or the

Source	Language
	Reliability Standard should require the transmission operator to have a technical basis for setting the time frame that takes into account system needs and any limitations of the generator. Dynegy believes that this approach will eliminate the potential for undue discrimination and the imposition of overly conservative or excessively wide time frame requirements, both of which could be detrimental to grid reliability.
NERC Audit Observation Team	If a generator does not have an automatic voltage regulator do they need to install one?
Phase III/IV Team	R5 of VAR-002: Recognizing that such action would require the generator to change its loading level or cycle, the transmission operator should not rely on tap position changes on a step-up transformer with a no-load tap changer (NLTC) for periodic or seasonal system control, unless there is an explicit voluntary arrangement with the Generator Operator. For each instance of an urgent directive for such action, the transmission operator must justify its action to affected parties

Project 2008-02 Undervoltage Load Shedding

Standards Involved:
PRC-010-0 — Assessment of the Design and Effectiveness of UVLS Program
PRC-022-1 — Under-Voltage Load Shedding Program Performance

Research Needed:
Criteria for installing UVLS need to be identified. The "Technical Reference Paper Fault-Induced Delayed Voltage Recovery" was accepted by the NERC Planning Committee in June of 2009. This reference paper identifies a Fault Induced Delayed Voltage Recovery (FIDVR) as the phenomenon whereby system voltage remains at significantly reduced levels for several seconds after a transmission, sub transmission, or distribution fault has been cleared. Significant load loss due to motor protective device action can result, as can significant loss of generation, with a potential secondary effect of high system voltage due to load loss. A severe event can result in fast voltage collapse. This phenomenon should be addressed in the development of UVLS criteria.

Brief Description:
These standards should be consolidated. Missing are any criteria for identifying where UVLS should be installed.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster:
TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
PRC-010-0 — Technical Assessment of the Design and Effectiveness of Undervoltage Load Shedding Program	
FERC Order 693	Require that an integrated and coordinated approach be included in all protection systems on the bulk power system, including generators and transmission lines, generators' low-voltage ride-through capabilities, and UFLS and UVLS systems. Paragraph 1509. We appreciate MEAG's feedback to our response in the NOPR. For the reasons discussed in the NOPR, as well as our explanation above, the Commission approves Reliability Standard PRC-010-0 as mandatory and enforceable. In addition, the Commission directs the ERO to develop a modification to PRC-010-0 through the Reliability Standards development process that requires that an integrated and coordinated approach be included in all protection systems on the Bulk-Power System, including generators and transmission lines, generators' low voltage ride-through capabilities, and UFLS and UVLS programs.
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Fill in the Blank Team	Placeholder

Source	Language
Phase III/IV Team	• PRC-010 is a very weak standard — it only requires documentation and, in very broad terms, 'coordination' — it doesn't specify any level of desired performance or any specific scope for coordination. There should be some details to identify what the coordination must achieve — such as verification that the UVLS will trip when voltage drops to a specified voltage and verification that only a specified amount of load will be tripped and that other special protection systems will not be activated by the UVLS program. • There is no requirement that identifies the desired performance of a UVLS program (what voltage set points and timing are acceptable?). • What is the reliability-related need for the RRO to collect data on misoperations and operations of UVLS programs? Is this information used for anything?
Team Comments	Provide clarity where the Planning Authority is mentioned
Version 0 Team	• Define evidence • Exemptions for some who use shunt reactors • Level 4 vs. level 1 changes
PRC-022-1 — Under-Voltage Load Shedding Program Performance	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
FERC Order 693	Consider FirstEnergy's suggestions to revise requirement R1.3 as part of the standards development process. Paragraph 1564. FirstEnergy comments that Requirement R1.3 requires "a simulation of the event, if deemed appropriate by the RRO" and believes that the applicable entities such as transmission operators may not be able to simulate large system events. FirstEnergy suggests that Requirement R1.3 be revised to state that "a simulation of the event, if deemed appropriate, and assisted by the [regional reliability organization]."

Source	Language
Phase III/IV Team	• Consider incorporating into this family of standards a requirement that each TO should study, and implement if found effective, a UVLS program to mitigate the risk of voltage collapse or voltage instability in the BES. • The reliability-related need for the RRO to collect data on operations and misoperations isn't clear — should this be revised and made available instead to the Compliance Monitor or to the Planning Authority? • The TO should also be required to demonstrate that its UVLS program is coordinated with adjacent TOs.

Project 2008-06 Cyber Security — Order 706

Standards Involved:
CIP-002-1 — Critical Cyber Asset Identification
CIP-003-1 — Security Management Controls
CIP-004-1 — Personnel & Training
CIP-005-1 — Electronic Security Perimeter(s)
CIP-006-1 — Physical Security of Critical Cyber Assets
CIP-007-1 — Systems Security Management
CIP-008-1 — Incident Reporting and Response Planning
CIP-009-1 — Recovery Plans for Critical Cyber Assets

Research Needed:
None

Brief Description:
Implement changes to the Cyber Security Standards (above) as indicated in FERC Order 706.

This set of revisions in this project includes:

- Modifying the standards so they conform to the latest approved versions of the ERO Rules of Procedure as outlined in the Standard Review Guidelines identified in Attachment 1.
- Addressing the directives issued by FERC, in Order 706 relative to the approved Cyber Security Standards CIP-002-1 through CIP-009-1. Refer to http://www.ferc.gov/whats-new/comm-meet/2008/011708/E-2.pdf for the complete text of the final order. Specific requirements from the Order are identified in Attachment 2.
    - Emphasis on Order 706 directive for NERC to address revisions to the CIP standards considering applicable feature of the NIST Security Risk Management Framework among other resources.
- Incorporating clarifications from the Interpretation of CIP-006-1 Requirement 1.1.

Additional issues identified by stakeholders during the posting of this SAR are listed in Attachment 3.

Revisions should consider other Cyber-related standards, guidelines and activities:

- Consider adopting the NIST Security Risk Management Framework (includes GAO, OMB and FIPS)
- Consider other cyber security related documents such as NIST, ISO 27000 Family, CIPC WG Risk Assessment Guideline, MITRE corporation technical report, DHS, National Laboratories papers, DOE 417, IEC, ISA, etc.
- Stay apprised of coordination work between FERC, NEI and NRC in regard to the nuclear facility exemption issue with respect to regulatory gaps. As necessary modify the standards to reflect current determinations.

Standards Development Status:
Project 2008-06 Cyber Security Web page

Project Schedule:
TBD

Standard Drafting Team Roster:

Chairman	Jeri Domingo Brewer	U.S. Bureau of Reclamation
Vice Chairman	Kevin B. Perry	Southwest Power Pool Regional Entity
	Robert Antonishen	Ontario Power Generation Inc.
	Jim Brenton	Electric Reliability Council of Texas, Inc.
	Jackie Collett	Manitoba Hydro
	Jay S. Cribb	Southern Company Services, Inc.
	Joe Doetzl	Kansas City Power & Light Co.
	Sharon Edwards	Duke Energy
	Scott W. Fixmer	Exelon Corporation
	Gerald S. Freese	American Electric Power
	Philip Huff	Arkansas Electric Cooperative Corporation
	Frank Kim	Hydro One Networks, Inc.
	Richard Kinas	Orlando Utilities Commission
	John Lim, CISSP	Consolidated Edison Co. of New York
	David L. Norton	Entergy Corporation
	Christopher Peters	ICF International
	David S Revill	Georgia Transmission Corporation
	Scott Rosenberger	Luminant Energy
	Kevin Sherlin	Sacramento Municipal Utility District
	Jon Stanford	Bonneville Power Administration
	Keith Stouffer	National Institute of Standards & Technology
	John D. Varnell	Tenaska Power Services Co.
	William Winters	Arizona Public Service Co.
Consultant to NERC	Hal Beardall	Florida State University
Consultant to NERC	Joseph Bucciero	Bucciero Consulting, LLC
Consultant to NERC	Robert M. Jones	Florida State University
Consultant to NERC	Stuart Langton, PhD	Florida State University

NERC Staff	Tom Hofstetter	North American Electric Reliability Corporation
NERC Staff	Roger Lampila	North American Electric Reliability Corporation
NERC Staff	Scott Mix	North American Electric Reliability Corporation
NERC Staff	David Taylor	North American Electric Reliability Corporation
NERC Staff	Todd Thompson	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
	CIP-001-1 — Sabotage Reporting
FERC Order 693	Consider the need for wider application of the standard. Consider whether separate, less burdensome requirements for smaller entities may be appropriate. Paragraph 458. The Commission acknowledges the concerns of the commenter's about the applicability of CIP-001-1 to small entities and has addressed the concerns of small entities generally earlier in this Final Rule. Our approval of the ERO Compliance Registry criteria to determine which users, owners and operators are responsible for compliance addresses the concerns of APPA and others. 459. However, the Commission believes that there are specific reasons for applying this Reliability Standard to such entities, as discussed in the NOPR. APPA indicates that some small LSEs do not own or operate "hard assets" that are normally thought of as "at risk" to sabotage. The Commission is concerned that, an adversary might determine that a small LSE is the appropriate target when the adversary aims at a particular population or facility. Or an adversary may target a small user, owner or operator because it may have similar equipment or protections as a larger facility, that is, the adversary may use an attack against a smaller facility as a training "exercise." The knowledge of sabotage events that occur at any facility (including small facilities) may be helpful to those facilities that are traditionally considered to be the primary targets of adversaries as well as to all members of the electric sector, the law enforcement community and other critical infrastructures. 460. For these reasons, the Commission remains concerned that a wider application of CIP-001-1 may be appropriate for Bulk-Power System reliability. Balancing these concerns with our earlier discussion of the applicability of Reliability Standards to smaller entities, we will not direct the ERO to make any specific modification to CIP-001-1 to address applicability. However, we direct the ERO, as part of its Work Plan, to consider in the Reliability Standards development process, possible revisions to CIP-001-1 that address our concerns regarding the need for wider application of the Reliability Standard. Further, when addressing such applicability issues, the ERO should consider whether separate, less burdensome requirements for smaller entities may be appropriate to address these concerns.
	"Define "sabotage" and provide guidance on triggering events that would cause an entity to report an event. Paragraph 461. Several commenter's agree with the Commission's concern that the term "sabotage" should be defined. For the reasons stated in the NOPR, we direct that the ERO further define the term and provide guidance on triggering events that would cause an entity to report an event. However, we disagree with those commenter's that suggest the term "sabotage" is so vague as to justify a delay in approval or the application of monetary penalties. As explained in the NOPR, we believe that the term sabotage is commonly understood and that common understanding should suffice in most instances. Further, in the interim while the matter is being addressed by the Reliability Standards development process, we direct the ERO to provide advice to entities that have concerns about the reporting of particular circumstances as they arise. 462. Further, in defining sabotage, the ERO should consider FirstEnergy's suggestions to differentiate between cyber and physical sabotage and develop a threshold of materiality. However, regarding the latter suggestion, the Commission directs that guidance for a threshold of materiality must be designed carefully to mitigate the risk that an unsuccessful sabotage event is not correctly reported because it did not cause sufficient harm. 463. Requirement R1 of CIP-001-1 provides that an applicable entity must have procedures "for the recognition of and for making their operational personnel aware of sabotage events on its facilities and multi-site sabotage affecting larger portions of the Interconnection." The NOPR expressed concern that the provision does not establish baseline requirements regarding what

Source	Language
	issues should be addressed by the developed procedures. APPA goes even further and, characterizing it as an entity specific fill-in the-blank standard, contends that it lacks sufficient detail upon which the ERO can base compliance and enforcement efforts. 464. While the Commission believes that this Reliability Standard can and should be enhanced by specifying baseline requirements regarding what issues should be addressed in the procedures for recognizing sabotage events and making personnel aware of such events, it disagrees with APPA that Requirement R1 lacks sufficient detail on which to base ERO compliance and enforcement efforts. As indicated in Measure M1, an applicable entity must have and maintain the procedure as defined by Requirement R1. Thus, if an applicable entity cannot provide the required procedure to the ERO or a Regional Entity auditor upon request, it would likely be subject to an enforcement action. While we expect that an applicable entity that has made a good faith effort to develop a meaningful procedure to comply with Requirement R1 (and Measure M1) would not be subject to an enforcement action, an ERO or Regional Entity audit team may provide steps to improve the individual entity's procedure, which would serve as a baseline for that entity for any subsequent audit. Such an approach would be acceptable and allow for meaningful compliance in the interim until CIP-001-1 is modified pursuant to our directive."
	In the interim, provide advice to entities about the reporting of particular circumstances as they arise. Paragraph 461. Several commenter's agree with the Commission's concern that the term "sabotage" should be defined. For the reasons stated in the NOPR, we direct that the ERO further define the term and provide guidance on triggering events that would cause an entity to report an event.209 However, we disagree with those commenter's that suggest the term "sabotage" is so vague as to justify a delay in approval or the application of monetary penalties. As explained in the NOPR, we believe that the term sabotage is commonly understood and that common understanding should suffice in most instances.210 Further, in the interim while the matter is being addressed by the Reliability Standards development process, we direct the ERO to provide advice to entities that have concerns about the reporting of particular circumstances as they arise.
	Consider FirstEnergy's suggestions to differentiate between cyber and physical security sabotage and develop a threshold of materiality. Paragraph 451. A number of commenter's agree with the Commission's concern that the term "sabotage" needs to be better defined and guidance provided on the triggering events that would cause an entity to report an event. FirstEnergy states that this definition should differentiate between cyber and physical sabotage and should exclude unintentional operator error. It advocates a threshold of materiality to exclude acts that do not threaten to reduce the ability to provide service or compromise safety and security. SoCal Edison states that clarification regarding the meaning of sabotage and the triggering event for reporting would be helpful and prevent over-reporting.
	Incorporate a periodic review or updating of the sabotage reporting procedures and for their periodic testing. Consider a staggered schedule of annual testing and formal review every two to three years. Paragraph 466. The Commission affirms the NOPR directive and directs the ERO to incorporate a periodic review or updating of the sabotage reporting procedures and for the periodic testing of the sabotage reporting procedures. At this time, the Commission does not specify a review period as suggested by FirstEnergy and MRO and, rather, believes that the appropriate period should be determined through the ERO's Reliability Standards development process. However, the Commission directs that the ERO begin this process by considering a staggered schedule of annual testing of the procedures with modifications made when warranted formal review of the procedures every two or three years.
	"Include a requirement to report a sabotage event to the proper government authorities. Develop the language to specifically implement this directive. Paragraph 467. CIP-001-1, Requirement R4, requires that each applicable entity establish communications contacts, as applicable, with

Source	Language
	the local FBI or Royal Canadian Mounted Police officials and develop reporting procedures as appropriate to its circumstances. The Commission in the NOPR expressed concern that the Reliability Standard does not require an applicable entity to actually contact the appropriate governmental or regulatory body in the event of sabotage. Therefore, the Commission proposed that NERC modify the Reliability Standard to require an applicable entity to "contact appropriate federal authorities, such as the Department of Homeland Security, in the event of sabotage within a specified period of time."212 468. As mentioned above, NERC and others object to the wording of the proposed directive as overly prescriptive and note that the reference to "appropriate federal authorities" fails to recognize the international application of the Reliability Standard. The example of the Department of Homeland Security as an "appropriate federal authority" was not intended to be an exclusive designation. Nonetheless, the Commission agrees that a reference to "federal authorities" could create confusion. Accordingly, we modify the direction in the NOPR and now direct the ERO to address our underlying concern regarding mandatory reporting of a sabotage event. The ERO's Reliability Standards development process should develop the language to implement this directive."
	Explore ways to reduce redundant reporting, including central coordination of sabotage reports and a uniform reporting format. Paragraph 469. As noted above, FirstEnergy, EEI and others express concern regarding the potential for redundant reporting under CIP-001-1 and other government reporting standards, and the need for greater coordination. The Commission understands the concern about multiple reporting channels that may arise and the burden that this may present to applicable entities. We direct the ERO to explore ways to address these concerns — including central coordination of sabotage reports and a uniform reporting format — in developing modifications to the Reliability Standard with the appropriate governmental agencies that have levied the reporting requirements.
NERC Audit Observation Team	• Registered Entities have sabotage reporting processes and procedures in place but not all personnel has been trained. • "What is meant by: "establish contact with the FBI"? Is a phone number adequate? Many entities which call the FBI are referred back to the local authority. The AOT noted that on the FBI website it states to contact the local authorities. Is this a question for Homeland Security to deal with for us?" • Establish communications contacts, as applicable with local FBI and RAMP officials. Some entities are very remote and the sheriff is the only local authority does the FBI still need to be contacted? • Question: How do you "and make the operator aware" • How does this standard pertain to Load Serving Entities, LSE's?
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-

Source	Language
	040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Version 0 Team	• Object to multi-site requirement • Definition of sabotage required
VRFs Team	Adequate procedures will insure it is unlikely to lead to bulk electric system instability, separation, or cascading failures.
CIP-002-1 — Critical Cyber Asset Identification	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
CIP-003-1 — Cyber Security — Security Management Controls	
NERC Audit Observation Team	Security Management Controls specifies the minimum Critical Cyber Asset information to be protected in requirement R4.1. Among the information asset types identified by R4.1. are network topology diagrams. The context of this requirement is clear and applies to computer network topology diagrams relating to Critical Cyber Asset information only.
VRFs Team	R4.2 — only an administrative requirement
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf)

Source	Language
	• NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
CIP-004-1 — Cyber Security — Personnel & Training	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
VRFs Team	R3 - This needs to be looked at for 30 days - should be done prior to access being granted.
CIP-005-1 — Cyber Security — Electronic Security Perimeter(s)	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Source	Language
VRFs Team	• R1.3 — administrative definition • R1.5 — standard to comply with a standard = double jeopardy
CIP-006-1 — Cyber Security — Physical Security of Critical Cyber Assets	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
VRFs Team	• R1.5 & .9 — Should be consistent with CIP-005 • R1.8 - A requirement to meet other standard requirements - double jeopardy • R2.1, .2, .3 & .4 - These are 4 things from which to choose one or more, so no one of them is required. Should be a bulleted list, not subrequirements. • R3.1 — May statement
CIP-007-1 — Cyber Security — Systems Security Management	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Source	Language
VRFs Team	• R2 & 2.3 — An open port can lead to loss of system integrity. • R3 — An improper patch can lead to loss of system integrity.
	CIP-008-1 — Incident Reporting and Response Planning
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
	CIP-009-1 — Recovery Plans for Critical Cyber Assets
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Project 2008-12 Coordinate Interchange Standards

Standards Involved:
INT-001-3 — Interchange Transaction Tagging
INT-003-2 — Interchange Transaction Implementation
INT-004-1 — Interchange Transaction Modifications
INT-005-2 — Interchange Authority Distributes Arranged Interchange
INT-006-2 — Response to Interchange Authority
INT-007-1 — Interchange Confirmation
INT-008-2 — Interchange Authority Distributes Status
INT-009-1 — Implementation of Interchange
INT-010-1 — Interchange Coordination Exemptions

Research Needed:
None

Brief Description:
The modifications in the set of Coordinate Interchange Standards should address the following:

- Determine if the activities in the Coordinate Interchange standards correctly identify the responsible entity.
- Consider requiring the Sink Balancing Authority responsibility for Interchange Authority functions, using an interchange transaction tool process as defined in the latest approved version of the e-Tag Specifications.
- The existing requirements are tool-neutral — consider adding specific references to the e-Tagging process in the requirements
- Consider adding a requirement to have backup capability for use when the interchange transaction tool fails.
- Consider combining requirements into a fewer number of standards so that the resultant set of requirements follows a chronological sequence that is easier to follow.
- Address the directives issued by FERC in Order 693, and the stakeholder comments from the V0 drafting team and the Violation Risk Factor drafting team. (See Attachment 1)
- Determine if there is industry-wide support for the Interchange Subcommittee's Principles and definition supporting dynamic transfers and pseudo-ties and if there is support, modify the requirements and add definitions accordingly. Make other changes to the standards to bring them into conformance with the latest version of the Reliability Standards Development Procedure, Sanctions Guidelines and Uniform Compliance Monitoring and Enforcement Program.
- The work in this project should be done in two phases, with the first phase focused solely on clarifying the applicability of each requirement in the existing set of standards. All other revisions should take place in a second phase.

Coordination with NAESB:

The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ ~~2008~~ 2009 Annual plan):

~~Annual Plan Item 1~~

Annual Plan Item 3.a.viii

Justification for NAESB consideration:

Industry recommendations

SRS Recommendation:

The NERC/NAESB JESS was assigned to review and correct WEQ-004 Coordinate Interchange Business Practice Standard as needed based on activities in NERC Project 2008-12, Coordinate Interchange Standards Revisions and supporting EOP-002-2 R4 and R6.

~~The WEQ SRS will coordinate with the JISWG on this project.~~

Standards Development Status:

Project 2008-12 Coordinate Interchange Standards Web page

Project Schedule:

Project 2008-12 Project Schedule

Standard Drafting Team Roster:

Chairman	Joseph Gardner	Midwest ISO, Inc.
	Clint Aymond	Entergy Services, Inc.
	Kelly W Bertholet	Manitoba Hydro
	Eric Grau	Tennessee Valley Authority
	James Michael Hansen	Seattle City Light
	Peter Harris	ISO New England, Inc.
	Robert H. Harshbarger	Puget Sound Energy, Inc.
	Donald P. Lacen	Public Service Company of New Mexico
	Marcus V Lotto	Southern California Edison Co.
	Gregory D Maxfield	PacifiCorp
	David McRee	Duke Energy Carolina
	Joel L Mickey	Electric Reliability Council of Texas, Inc.
	Brian Neal	Bonneville Power Administration
	Michael Oatts	Southern Company Services, Inc.
	Christopher Pacella	PJM Interconnection, L.L.C.
NERC Staff	Andrew J. Rodriquez	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
NAESB Standards Review Subcommittee	NAESB Standards Review Subcommittee as input to the Reliability Standards Development Plan: 2010-2012: NAESB requests that NERC engage in coordination with them as needed on this project as it relates to item 3.a.viii in the NAESB WEQ 2009 Annual Plan.
INT-001-2 — Interchange Information	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
FERC Order 693	• Include a requirement that interchange information must be submitted for all point-to-point transfers entirely within a balancing authority area, including all grandfathered and "non-Order No. 888" transfers. • Consider Santa Clara's comments about the applicability of the LSE in the standard as part of the standards development process.
Regional Difference to INT-001/4: WECC Tagging Dynamic Schedules and Inadvertent Payback	Submit a filing within 90 days of the Order that provides the needed information or withdraws the regional variance.
VRF comments	• R1, 1.1, 2, 2.1, 2.2 – commercial and administrative
V0 Industry Comments	• R1 - Too stringent • R1 – Who tags dynamic schedules? • Load PSE responsibility is new restriction • Clarify tagging of reserves • R2.2 – 60 minute time frame questioned • Question on generation scheduling

Source	Language
	• Onerous to BA's • More commercial problem than reliability • Lack of compliance
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-003-2 — Interchange Transaction Implementation	
VRF Comments	R1, 1.1, 1.1.2, 1.2 – commercial and administrative
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-004-1 — Dynamic Interchange Transaction Modifications	
FERC Order 693	Consider adding levels of non-compliance to the standard.
Regional Difference to INT-001/4:	WECC Tagging Dynamic Schedules and Inadvertent Payback: Submit a filing within 90 days of the Order that provides the needed information or withdraws the regional variance.
V0 Industry Comments	• Replace TSP with TOP • Need to address tag curtailment • Suggested non-compliance levels • Non-compliance based on % • Use WECC criteria
VRF comments	R2, 2.2, 2.3 – commercial and administrative
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-005-2 — Interchange Authority Distributes Arranged Interchange	
FERC Order 693	Consider adding levels of non-compliance to the standard.
VRF comment	R5 – administrative
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-006-2 — Response to Interchange Authority	
FERC Order 693	• Include reliability coordinators and transmission operators as applicable entities. • Require reliability coordinators and transmission operators to review energy interchange transactions from the wide-area and local area reliability viewpoints respectively and, where their review indicates a potential detrimental reliability impact, communicate to the sink balancing authorities' necessary transaction modifications before implementation. • Consider the suggestions made by EEI and TVA and address questions raised by

Source	Language
	Entergy and Northern Indiana as part of the standard development process.
NERC Audit and Observation Team	Does confirmed action mean direct action needs to be taken or, does confirmed action mean that a process has been put in place that will take action and, the entity agrees with such since they have employed the program.
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-007-1 — Interchange Confirmation	
VRF comment	R1, 1.1, 1.3, 1.3.1, 1.3.2, 1.3.3, 1.3.4, 1.4 – administrative
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-008-2 — Interchange Authority Distributes Status	
FERC Order 693	Consider APPA's suggestion to clarify what reliability entity the standard applies as part of the standard development process.
VRF comments	R1.1.1 & 1.1.2 – commercial and administrative
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-009-1 — Implementation of Interchange	
FERC Order 693	Consider APPA's suggestion to clarify what reliability entity the standard applies as part of the standard development process.
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-010-1 — Interchange Coordination Exemptions	
FERC Order 693	Consider Northern Indiana's and ISO-NE's suggestions in the standards development process.
VRF comments	R1 & 3 – administrative
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA

Project 2009-01 Disturbance and Sabotage Reporting

Standards Involved:
CIP-001-0 — Sabotage Reporting
EOP-004-1 — Disturbance Reporting

Research Needed:
None

Brief Description:
The existing requirements need to be revised to be more specific — and there needs to be more clarity in what sabotage looks like.

CIP-001 may be merged with EOP-004 to eliminate redundancies. Acts of sabotage have to be reported to the DOE as part of EOP-004. Specific references to the DOE form need to be eliminated.

EOP-004 has some 'fill-in-the-blank' components to eliminate.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2009-01 Disturbance and Sabotage Reporting Web page

Project Schedule:
Project 2009-01 Project Schedule

Standard Drafting Team Roster:

Chairman	Ed Seddon	Orlando Utilities Commission
Vice Chairman	Judith A. James	Texas Regional Entity
SAR Requester	Patrick Brown	PJM Interconnection, L.L.C.
	Joseph G. DePoorter	Madison Gas and Electric Co.
	Brandy A Dunn	Western Area Power Administration
	Brian Evans-Mongeon	Utility Services LLC
	Brian M Harrell	SERC Reliability Corporation
	James E. Hartmann, Jr.	Electric Reliability Council of Texas, Inc.
	Tom Jones	Midwest ISO, Inc.
	David McRee	Duke Energy Carolina
	Mark Mullen	Xcel Energy, Inc.
	Drew Phillips	Independent Electricity System Operator
	Lewe Sessions	NextEra Energy Resources, LLC
	Raymond Tran	Ascendant Energy Services, LLC
NERC Staff	Stephen Crutchfield	North American Electric Reliability Corporation
NERC Staff	Scott Mix	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
EOP-004-1 — Disturbance Reporting	
Events Analysis Team	Reliability Issue: Coordination and follow up on lessons learned from event analyses Consider adding to EOP-004 – Disturbance Reporting Proposed requirement: Regional Entities (REs) shall work together with Reliability Coordinators, Transmission Owners, and Generation Owners to develop an Event Analysis Process to prevent similar events from happening and follow up with the recommendations. This process shall be defined within the appropriate NERC Standard
FERC Order 693	Ensure NERC's Rules of Procedure are revised to assure the Commission receives these reports in the same frame as the DOE. Paragraph 618: Requirement R3 addresses the reporting of disturbances to the regional reliability organizations and NERC. The Commission directs the ERO to change its Rules of Procedure to assure that the Commission also receives these reports within the same time frames as DOE. ~~Change NERC's Rules of Procedure to assure the Commission receives these reports in the same frame as the DOE. Paragraph 618. requirement R3 addresses the reporting of disturbances to the regional reliability organizations and NERC. The Commission directs the ERO to change its Rules of Procedure to assure that the Commission also receives these reports within the same time frames as DOE.~~
	Consider all comments offered in a future modification of the reliability standard. Comments begin at paragraph 606 of the order. 606. EEI and FirstEnergy support the Commission's proposed modifications to the Reliability Standard. EEI states that data reporting requirements and other process requirements should be contained in enforceable Reliability Standards. FirstEnergy states that the proposed modification corresponds to good utility practice and that explicitly stating the requirement to provide data to NERC brings clarity to the expectations of NERC and the Commission. 607. APPA is concerned about the scope of Requirement R2 because, in its opinion, Requirement R2 appears to impose an open-ended obligation on entities such as generation operators and LSEs that may have neither the data nor the tools to promptly analyze disturbances that could have originated elsewhere. APPA proposes that Requirement R2 be modified to require affected entities to promptly begin analyses to ensure timely reporting to NERC and DOE. 608. Xcel expresses concern regarding what constitutes a reportable event for each applicable entity and recommends that the Reliability Standard be revised to define what a reportable event is for each entity that has reporting obligations. Further, Xcel states that the requirement in Requirement R3.4 for a final report within 60 days may not be feasible given the current WECC process, which among other things, requires the creation of a group to prepare the report and a 30-day posting of a draft report before it becomes final. Xcel also states that if the ultimate purpose of the report is to provide information to avoid a recurrence of a system disturbance, then the Reliability Standard should be revised to require the distribution of the report to similarly situated entities. 609. FirstEnergy states that, since nuclear units have their own NRC reporting procedures covering the Requirements under EOP-004-1, the Reliability Standard should specify that compliance with such operating procedures is sufficient to satisfy the requirements of EOP-004-1. FirstEnergy also states that the title of this Reliability Standard should be changed to "Disturbance Event Reporting" to indicate that the events covered under this Reliability Standard include a broad range of events that go beyond the events for which reports may be required under Reliability Standard BAL-002-0. 610. APPA states that NERC's November 15, 2006 revision partially fulfills the proposed modification to include Measures and Levels of Non-Compliance. APPA notes that EOP-004-1 did not provide Measures for R2, R3.2, R3.4, R4 and R5.
	Consider APPA's concern about generator operators and LSEs analyzing performance of their equipment and provide data and information on the equipment to assist others with analysis. Paragraph 607. APPA is concerned about the scope of Requirement R2 because, in its

Source	Language
	opinion, Requirement R2 appears to impose an open-ended obligation on entities such as generation operators and LSEs that may have neither the data nor the tools to promptly analyze disturbances that could have originated elsewhere. APPA proposes that Requirement R2 be modified to require affected entities to promptly begin analyses to ensure timely reporting to NERC and DOE.
	Include any requirements for users, owners, and operators of the bulk power system to provide data that will assist NERC in the investigation of a blackout or disturbance. Paragraph 617. While the Commission has identified concerns with regard to EOP-004-1, we believe that the proposal serves an important purpose in establishing requirements for reporting and analysis of system disturbances. Accordingly, the Commission approves Reliability Standard EOP-004-1 as mandatory and enforceable. In addition, pursuant to section 215(d) (5) of the FPA and § 39.5(f) of our regulations, the Commission directs the ERO to develop a modification to EOP-004-1 through the Reliability Standards development process that includes any Requirements necessary for users, owners and operators of the Bulk-Power System to provide data that will assist NERC in the investigation of a blackout or disturbance.
Fill in the Blank Team	• Consider changes to R1 and R3.4 to standardize the disturbance reporting requirements (requirements for disturbance reporting need to be added to this standard) • Regions currently have procedures, but not in the form of a standard. The drafting team will need to review regional requirements to determine reporting requirements for the North American standard.
NERC Audit Observation Team	Can there be a violation without an event?
~~Other~~	~~From: David Cook Sent: Wednesday, July 16, 2008 6:06 PM To: Rick Sergel; Dave Nevius; David A. Whiteley; Management Subject: RE: FERC request for DOE-417s I agree the real fix is to revise the EOP-004 standard. I agree that we can't (and shouldn't try) to do that by way of amendments to our Rules of Procedure. So we should include that fix in the standards work plan, do the best we can in the meantime to provide FERC with the 417s, and I'll have the conversation with Joe McClelland about not being able to do what the Commission directed in Order 693 (i.e., change the standards by way of a change in the Rules of Procedure). David ---------- From: Rick Sergel Sent: Wednesday, July 16, 2008 5:26 PM To: Dave Nevius; David A. Whiteley; David Cook; Management Subject: RE: FERC request for DOE-417s Dave, thanks. My tongue-in-cheek remark assumes the CSO will have Situation Awareness -- a growing possibility. Rick ---------- From: Dave Nevius Sent: Wed 7/16/2008 5:23 PM To: Rick Sergel; David A. Whiteley; David Cook; Management Subject: RE: FERC request for DOE-417s Rick The reporting requirements of the EOP standards go beyond physical and cyber security issues. I think this is just a case of our standard catching up with the fact that FERC now has some reliability responsibilities that they didn't have when the standard was written and when the DOE-417 requirements were established. Dave N ---------- From: Rick Sergel Sent: Wednesday, July 16, 2008 5:06 PM To: David A. Whiteley; David Cook; Management Subject: RE: FERC request for DOE-417s Let's not take all the fun out of the CSO job--shouldn't they have the chance to solve this one! Rick ---------- From: David A. Whiteley Sent: Wed 7/16/2008 2:19 PM To: David Cook; Management Subject: RE: FERC request for DOE-417s Dave C -- It appears to me that if we simply change the RoP per the Order, that would effectively change the standard which sets forth the reporting requirement (currently EOP-004 R3 says reports go to the RRO and NERC). Recognizing the Commission's desire, would the better approach be to include this change as part of standards project 2009-01 (CIP-001 and EOP-004 review) to be completed in the fourth quarter of 2010? The change would simply require US entities to include FERC in their~~

Source	Language
	~~reporting requirement along with NERC and their Regional Entity (another clean-up item). Dave W ---------- From: David Cook Sent: Wednesday, July 16, 2008 11:57 AM To: Management Subject: FERC request for DOE-417s Management Team Joe McClelland has raised again the DOE-417 issue. Please see the attached memo for additional details. This continues to be an irritant with the Commission staff, and I believe we need to take steps to resolve it. In the memo, I have asked for your response to a few questions to assist in that regard. Thanks. David N. Cook~~
Version 0 Team	• How does this apply to generator operator? • R3 – too many reports, narrow requirement to RC
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Project 2009-02 Real-time Tools

Standards Involved:
New

Research Needed:
No additional research needed. The NERC Real-Time Tools Best Practices Task Force (RTBPTF) performed an extensive, three-year process of fact finding and analysis supported by the results of their Real-Time Tools Survey, the most comprehensive survey ever conducted of current electric industry practices.

The RTBPTF summarized their findings in a report titled *Real-Time Tools Survey Analysis and Recommendations* dated March 13, 2008. The report includes the RTBPTF's recommendations for minimum acceptable capabilities and best practices for real-time tools necessary to ensure reliable electric system operation and reliability coordination.

Brief Description:
The scope of the SAR is to establish requirements for the functionality, performance, and management of tools used in support of Real-time System Operations. The intent is to describe 'what' needs to be done but not 'how' to do it.

This project will be responsive to the U.S.-Canada Power System Outage Task Force blackout recommendation 10: Establish Guidelines for Real-Time Operating Tools.

Standards Development Status:
Project 2009-02 Real-time Tools Web page

Project Schedule:
TBD

SAR Drafting Team Roster:

Chairman	Sam Brattini	KEMA
Vice Chairman	Chuck Abell	Ameren
SAR Requester	Jack Kerr	Dominion
	Greg Campbell	WECC
	Jay Dondetti	MISO
	Vinit Gupta	Entergy
	Mike Richardson	AEP
	Bob Savage	APS
	Bob Staton	Xcel
	Scott Vidler	Hydro One
	Jerry Whooley	PJM
NERC Staff	Edd Dobrowolski	North American Electric Reliability Corporation

Project 2009-03 Emergency Operations

Standards Involved:
EOP-001-0 — Emergency Operations Planning
EOP-002-2 — Capacity and Energy Emergencies
EOP-003-1 — Load Shedding Plans
IRO-001-1 — Reliability Coordination — Responsibilities and Authorities

Research Needed:
None

Brief Description:
The first three standards in the list above may be merged into a single standard. There are some requirements in IRO-001 that may be improved and merged into the new EOP standard

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ ~~2008~~ 2009 Annual plan):
Annual Plan Item ~~1~~3.a.viii

Justification for NAESB consideration:
WEQ SRS analysis
Industry recommendations

SRS recommendation:
Refer to Project 2007-18 Reliability Based Control

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster:
TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
EOP-001-0 — Emergency Operations Planning	
Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan: 2010-2012	• The NERC Glossary of terms defines a BA as: "The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time." In other words, responsible for supply and demand balance in the operating horizon. With this definition in mind, why is the BA responsible for EOP-001-1 R2.2 "Develop, maintain, and implement a set of plans to mitigate operating emergencies on the transmission system"? • The NERC Glossary of terms defines a TOP as: "(t)he entity responsible for the reliability of its 'local' transmission system, and that operates or directs the operations of the transmission facilities." With this definition in mind, why is the TOP made responsible for EOP-001-1 R2.1: "(d)evelop, maintain, and implement a set of plans to mitigate operating emergencies for insufficient generating capacity"? • Requirement R4 (and by reference Attachment 1-EOP-001-0) is applicable to both the Transmission Operator and Balancing Authority but includes items that are not applicable to the TOP and are only applicable to the BA, e.g., why is a TOP responsible for fuel supply? Why is a TOP responsible for R6.2 concerning emergency energy? Why is a TOP responsible for fuel supply in R6.4, and why is the TOP responsible for arranging energy delivery?
Real-time Best Practices Standards Study Group	Establish document plans and procedures for conservative operations
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
EOP-002-2 — Capacity and Energy Emergencies	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Other	Modify standard to conform to the latest version of NERC's Reliability Standards

Source	Language
	Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
EOP-003-1 — Load Shedding Plans	
Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan: 2010-2012	• With regard to requirement R2, why is the BA responsible for Under Frequency Load Shedding (UFLS) when PRC-006-0 and PRC-007-0 make it the responsibility of the Regional Entities, the TOPs, the Distribution Providers and the LSEs? Why is the BA responsible for Under Voltage Load Shedding (UVLS) when the responsibility should probably be just the TOP's? Isn't this requirement redundant with PRC-006-0 and PRC-007-0? • Requirement R2 of EOP-003-1 states: "Each Transmission Operator and Balancing Authority shall establish plans for automatic load shedding for underfrequency or undervoltage conditions." The standards drafting team for Project 2007-01 Underfequency Load Shedding should consider modifying this requirement as part of their project.
Real-time Best Practices Standards Study Group	Provide the location, Real-time status, and MWs of Load available to be shed.
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
INT-001-1 — Interchange Information	
FERC Order 693	Regional Difference to INT-001/4: WECC Tagging Dynamic Schedules and Inadvertent Payback: Submit a filing within 90 days of the Order that provides the needed information or withdraws the regional variance.
Version 0 Team	Lack of compliance
	More commercial problem than reliability
	Onerous to BA's
	Question on generation scheduling
	R2.2 – 60 minute time frame questioned
	Clarify tagging of reserves
	Load PSE responsibility is new restriction
	R1 – Who tags dynamic schedules?
	R1 - Too stringent
VRFs Team	R1, 1.1, 2, 2.1, 2.2 – commercial and administrative
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
INT-001-2 — Interchange Information	
FERC's December 20, 2007 Order in Docket Nos.	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC)

Source	Language
RC07-004-000, RC07-6-000, and RC07-7-000	footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
FERC Order 693	Consider Santa Clara's comments about the applicability of the LSE in the standard as part of the standards development process.
	Include a requirement that interchange information must be submitted for all point-to-point transfers entirely within a balancing authority area, including all grandfathered and "non-Order No. 888" transfers.
INT-003-1 — Interchange Transaction Implementation	
VRFs Team	R1, 1.1, 1.1.2, 1.2 – commercial and administrative
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
INT-004-1 — Dynamic Interchange Transaction Modifications	
FERC Order 693	Consider adding levels of non-compliance to the standard.
Version 0 Team	Suggested non-compliance levels
	Non-compliance based on %
	Need to address tag curtailment
	Replace TSP with TOP
	Use WECC criteria
VRFs Team	R2, 2.2, 2.3 – commercial and administrative
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Source	Language
INT-005-2 — Interchange Authority Distributes Arranged Interchange	
FERC Order 693	Consider adding levels of non-compliance to the standard.
VRFs Team	R5 – administrative
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
INT-006-1 — Response to Interchange Authority	
FERC Order 693	Consider the suggestions made by EEI and TVA and address questions raised by Entergy and Northern Indiana as part of the standard development process.
	Include reliability coordinators and transmission operators as applicable entities.
	Require reliability coordinators and transmission operators to review energy interchange transactions from the wide-area and local area reliability viewpoints respectively and, where their review indicates a potential detrimental reliability impact, communicate to the sink balancing authorities necessary transaction modifications before implementation.
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
INT-006-2 — Response to Interchange Authority	
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
NERC Audit Observation Team	Does confirmed action mean direct action needs to be taken or, does confirmed action mean that a process has been put in place that will take action and, the entity agrees with such since they have employed the program.
INT-007-1 — Interchange Confirmation	
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
VRFs Team	R1, 1.1, 1.3, 1.3.1, 1.3.2, 1.3.3, 1.3.4, 1.4 – administrative
INT-008-2 — Interchange Authority Distributes Status	
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
FERC Order 693	Consider APPA's suggestion to clarify what reliability entity the standard applies as part of the standard development process.
VRFs Team	R1.1.1 & 1.1.2 – commercial and administrative
INT-009-1 — Implementation of Interchange	

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
FERC Order 693	Consider APPA's suggestion to clarify what reliability entity the standard applies as part of the standard development process.
INT-010-1 — Interchange Coordination Exemptions	
FERC Order 693	Consider Northern Indiana's and ISO-NE's suggestions in the standards development process.
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
VRFs Team	R1 & 3 – administrative

Project 2009-04 Phasor Measurement Units

Standards Involved:
New

Research Needed:
Analysis of existing research needs to be conducted.

Brief Description:
This is a new project that was identified in 2006 in support of a blackout recommendation. Several industry studies were recently issued and these studies need to be analyzed to determine appropriate requirements for a NERC standard.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster:
TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
MOD-010-0 — Steady-State Data for Modeling and Simulation of the Interconnected Transmission System	
FERC Order 693	Require users, owners, and operators to submit data to the regional entities as needed for modeling studies and assessments.
	Require transmission planners to provide the contingency lists they use in performing system operation and planning studies.
	Expand the applicability to include transmission operators and the planning authority.
	Address critical energy infrastructure confidentiality issues as part of the standard development process.
	290. The Commission directs public utilities, working through NERC, to modify the reliability standards MOD-010 through MOD-025 to incorporate a requirement for the periodic review and modification of models for (1) load flow base cases with contingency, subsystem, and monitoring files, (2) short circuit data, and (3) transient and dynamic stability simulation data, in order to ensure that they are up to date. This means that the models should be updated and benchmarked to actual events. We find that this requirement is essential in order to have an accurate simulation of the performance of the grid and from which to comparably calculate ATC, therefore increasing transparency and decreasing the potential for undue discrimination by transmission providers.
Fill-in-the-Blank Team	•Review MOD-010, MOD-011, MOD-012, and MOD-013 concurrently for modeling requirements and reporting. •This standard is directly related to MOD-011. •Coordinate the revision of this standard with the revision to MOD-011. MOD-011 needs to be written as a North American standard with requirements for each interconnection. Once MOD-011 is modified, the only changes needed to MOD-010 are the references to the appropriate requirements in MOD-011.
Version 0 Team	•Non-compliance does not have time elements •Don't provide data to NERC •Confidentiality needs not cited •Don't need schedules for transactions within RTO •Not a standalone standard
MOD-011-0 — Maintenance and Distribution of Steady-State Data Requirements and Reporting Procedures	
FERC Order 693	•Expand the applicability to include the planning authority. •Develop a work plan and submit a compliance filing that will facilitate the ongoing collection of the steady-state modeling and simulation data specified in this standard.

Source	Language
Fill in the Blank Team	•Revise NERC MOD-011 to clarify that the data reporting requirements must be uniform across each interconnection. •This should be a North American Standard containing requirements which are interconnection-wide. •MOD-010 and 011 are related. This is the MMWG work for the eastern interconnection. •Review MOD-010, MOD-011, MOD-012, and MOD-013 concurrently for modeling requirements and reporting. •Coordinate the revision of this standard with the revision to MOD-010. MOD-011 needs to be written as a North American standard with requirements for each interconnection.
Version 0 Team	•Consistency across standards for non-compliance •Confidentiality of data •Add equipment types and variables •Not a standalone standard •Time element not cited in non-compliance •Several semantics issues •Locations of substations should be deleted
MOD-012-0 — Dynamics Data for Modeling and Simulation of the Interconnected Transmission System	
FERC Order 693	•Provide a list of faults and disturbances used in performing dynamics system studies for operation and planning. •Address critical energy infrastructure confidentiality issues as part of the standard development process. •Expand the applicability to include transmission operators, planning authorities, and transmission planners. •Require users, owners, and operators to submit data to the regional entities as needed for modeling studies and assessments.
Fill in the Blank Team	•This standard is directly related to MOD-013. •Coordinate the revision of this standard with the revision to MOD-013. MOD-013 needs to be written as a North American standard with requirements for each interconnection. Once MOD-013 is modified, the only changes needed to MOD-012 are the references to the appropriate requirements in MOD-013. •Review MOD-010, MOD-011, MOD-012, and MOD-013 concurrently for modeling requirements and reporting.
Version 0 Team	•Not a standalone standard •Time element missing in non-compliance •Consistency of non-compliance •Confidentiality of data
MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures	
ATFNSDT	MOD-013 needs to ask for voltage ride through data from generators as per 693.

Source	Language
FERC Order 693	•Permit entities to estimate dynamics stat if they are unable to obtain unit specific information. •Require verification of the dynamic models with actual disturbance data. •Expand the applicability to include transmission operators, planning authorities, and transmission planners. •Develop a work plan and submit a compliance filing that will facilitate the ongoing collection of the dynamics modeling and simulation data specified in this standard.
Fill in the Blank Team	•Review MOD-010, MOD-011, MOD-012 and MOD-013 concurrently for modeling requirements and reporting. •This should be a North American Standard containing requirements which are interconnection-wide. •Revise MOD-013 to clarify that the data reporting requirements must be uniform across each interconnection. •MOD-012 and MOD-013 are related. This is the MMWG work for the Eastern Interconnection.
Version 0 Team	•Several semantics issues •Consistency in non-compliance •Confidentiality of data •Timing element not mentioned in non-compliance •Not a standalone standard •5 business days not sufficient
MOD-014-0 — Development of Steady-State System Models	
FERC Order 693	•If model output is not within the accuracy required, the model shall be modified to achieve the necessary accuracy. •Require models to be validated against actual system response. •Require users, owners, and operators to provide the validated models to regional reliability organizations. •Develop a work plan that will facilitate ongoing validation of steady-state models and submit a compliance filing to the Commission.
Fill in the Blank Team	No action
Version 0 Team	•Define near-term vs. long-term •Timing element missing in non-compliance •Solved cases should not have violations •Consistency of non-compliance
MOD-015-0 — Development of Dynamics System Models	

Source	Language
FERC Order 693	•Require actual system events be simulated and dynamics system model output be validated against actual system response. •Require users, owners, and operators to provide the validated models to regional entity. •Develop a work plan that will facilitate ongoing validation of dynamics models and submit a compliance filing to the Commission.
Fill in the Blank Team	No action
Version 0 Team	•Consistency of non-compliance •Timing element of non-compliance •Confidentiality of data
PRC-013-0 — Special Protection System Database	
FERC Order 693	Consider APPA's suggestions for interconnection wide consistency in the standards development process.
Fill in the Blank Team	•Related to PRC-015. •Review PRC-013 and PRC-015 together to properly reference regional standards (see notes of PRC-015 for options).
Version 0 Team	•Define evidence •Not a standalone standard
PRC-015-0 — Special Protection System Data and Documentation	
Fill in the Blank Team	•Consider impact of removing R1.2 from PRC-012-0 and revision of PRC-013-0, R1.1, 1.2, & 1.3 to include a specific list of items to be included in the RRO SPS database. The same list could be added to PRC-015, R1.1. However, it may be cleaner to move PRC-015-0, R1.1 and the data portion of R1.3 to PRC-013. (Note: revisions to PRC-012 are identified for a separate drafting team and are expected to take place after revisions to PRC-013 and PRC-015 are completed.) •Tied to PRC-013. •Review PRC-013 and PRC-015 together to properly reference regional standards (see notes of PRC-015 for options).
Version 0 Team	•Define evidence •Already covered elsewhere
PRC-020-1 — Under-Voltage Load Shedding Program Database	
Fill in the Blank Team	No action required
Phase III/IV Team	The reliability-related need for the RRO to have the data isn't clear
Team Comments	Provide clarity where the Planning Authority is mentioned
PRC-021-1 — Under-Voltage Load Shedding Program Data	
Fill in the Blank Team	No action required

Project 2009-05 Resource Adequacy Assessments

Standards Involved:
New

Research Needed:
None

Brief Description:
This is a continuation of a project from 2006 that was delayed for higher priority projects. The purpose of this standard is to implement some of the recommendations from the Resource and Transmission Adequacy Task Force Report and the Gas/Electricity Interdependency Task Force Report approved by the NERC BOT in 2004 related to resource adequacy.

As envisioned, the standard will require entities to create metrics to assess resource adequacy that takes into account various factors such as fuel deliverability, performing resource adequacy assessments, sharing the results of those assessments. The standard would also require that resource adequacy assessments be conducted according to those metrics.

NERC Staff is developing a paper discussing the options regarding resource adequacy issues. This issue may be better served through the NERC Rules of Procedure rather than a specific Reliability Standard. Two Regional Entities have developed draft standards relating to resource adequacy and these are being included in the consideration of options.

Standard Development Steps Completed:
The SAR has been posted for two comment periods but has not been finalized due to other conflicting higher priority projects. The SAR will be finalized and then work will be delayed on drafting the standard until 2008.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2009-05 Resource Adequacy Assessments

Project Schedule:
Project 2009-05 Project Schedule

Standard Drafting Team Roster:

Chairman	Mary H. Johannis	Bonneville Power Administration
Vice Chairman	Phil Fedora	Northeast Power Coordinating Council, Inc.
	Yong Cai	Sacramento Municipal Utility District
	Curt J. Dahl, P.E.	KeySpan Corp.
	Gregory S. Drake	New York Independent System Operator
	Andrew Fusco	North Carolina Eastern Municipal Power Agency
	William J. Head	Midwest Reliability Organization
	Daniel Huffman	FirstEnergy Corp.
	Tom Kaslow	Calpine Corporation
	Richard Kosch	Lincoln Electric System
	Garey C. Rozier	Southern Company Services, Inc.
	Donald M. Schlegel	American Electric Power
	Steve Scroggs	Florida Power & Light Co.
	Sam Waters	Progress Energy
NERC Staff	Stephen Crutchfield	North American Electric Reliability Corporation

Issues to be Considered by Drafting Team

Source	Language
MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands	
FERC Order 693	Expand the applicability to include transmission planners. Paragraph 1224. In the NOPR, the Commission proposed to approve Reliability Standard MOD-016-1 as mandatory and enforceable. In addition, the Commission proposed to direct NERC to submit a modification to MOD-016-1 that expands the applicability section to include the transmission planner.
	Modify the definition of DSM to include any other entities that undertake activities or programs to influence the amount or timing of electricity they use without violating other reliability standards requirements. Paragraph 1232. Supported by many commenter's, the Commission directs the ERO to modify MOD-016-1 and expand the applicability section to include the transmission planner, on the basis that under the NERC Functional Model the transmission planner is responsible for collecting system modeling data, including actual and forecast load, to evaluate transmission expansion plans. We disagree with EEI that this Reliability Standard should not be applied to the transmission planner because load-related data for controllable DSM is not only needed for distribution and transmission operations, but is also necessary for the transmission planner to take controllable DSM into account in planning the transmission system. Requirement R1.1 relates to data submittal, and requires data to be consistent with that supplied for the TPL-005 and TPL-006 standards, which clearly apply to transmission planners. We approve the ERO's definition in the glossary of DSM as "all activities or programs undertaken by a Load-Serving Entity or its customers to influence the amount or timing of electricity they use." Only activities or programs that meet the ERO definition, with the modification directed below, may be treated as DSM for purposes of the Reliability Standards. Recognizing the potential role that industrial customers who do not take service through an LSE and load aggregators, for example, may play in meeting the Reliability Standards, we direct the ERO to modify the definition of DSM. Specifically, we direct the ERO to add to its definition of DSM "any other entities" that undertake activities or programs to influence the amount or timing of electricity they use without violating other Reliability Standard Requirement.
Fill in the Blank Team	• Review MOD-016, MOD-017, and MOD-019 concurrently to develop uniform North American Standards for reporting of actual and forecast demand and NEL data to be reported to RRO for system modeling and analysis. • Standard should address quality and accuracy of the forecast; need to avoid double-counting, etc. • MOD-016 is the NERC requirement on region; MOD-017 and MOD-019 are the entity requirements to comply with the region. Includes MOD-016 through MOD-021.

Source	Language
Phase III/IV Team	•Expand the applicability to include Load Serving Entities and Purchasing/Selling entities •Add specificity to identify what must be considered in identifying the demand load forecast – is this expected to be the 'peak' demand and should it include such factors as economic, demographic, and customer trends; conservation, improvements in the efficiency of electrical energy use, and other changes in the end uses of electricity; and weather effects? Should the peak demand load forecast have a 50% probability of not being exceeded (expected peak demand)? This load forecast is commonly referred to as the 1-in-2 peak load forecast. •Purpose – revise to add 'best available' where noted. Ensure that accurate, actual demand data is available to support assessments and validation of past events and databases. Forecast demand data is needed to perform future system assessments to identify the need for system reinforcements for continued reliability. In addition, to assist in proper real-time operating, best available load information related to controllable demand-side management (DSM) programs is needed. A clear definition of forecast demand is needed. •R1 - Transmission providers who serve customers who have retail access may have difficulty obtaining documentation identifying the scope and details of actual and forecast data. These transmission providers' can provide the actual and forecast data using their own data sets, but they may not have access to an individual retail choice customer's documentation for historical and forecast data. Often concerns about loss of competitive advantage or confidentiality issues are expressed about providing the data to the transmission provider. •R1.2 – needs to identify the type of forecast •R1.2 – revise to recognize that service territories may host multiple LSEs •R2 and R3 – clarify what entity is providing the approval •Explicitly state that LSEs are required to provide the documentation for actual and load forecast data for the loads they serve to the PAs and RROs. •Where Purchasing/ Selling entities are retail access customers who perform load forecasts, specify that these entities also need to provide similar documentation to PAsnd RROS •There is a disconnect between LSE load forecasting and planning and the control area reporting as a major issue in the reporting of quality load and resources data to WECC. Confidentiality issues and other communication issues have contributed to making this an issue of concern therefore the following are action needs:
Team Comments	Provide clarity where the Planning Authority is mentioned
Version 0 Team	•Consistency in non-compliance •Weather data needed
MOD-017-0 — Aggregated Actual and Forecast Demands and Net Energy for Load	
FERC Order 693	Reporting of accuracy, error and bias of load forecasts compared to actual loads taking temperature and humidity conditions into account. Paragraph 1251. The Commission adopts the NOPR proposal directing the ERO to modify the Reliability Standard to require reporting of the accuracy, error and bias of load forecasts compared to actual loads with due regard to temperature and humidity variations. This requirement will measure the

Source	Language
	closeness of the load forecast to the actual value. We understand that load forecasting is a primary factor in achieving Reliable Operation. Underestimating load growth can result in insufficient or inadequate generation and transmission facilities, causing unreliability in real-time operations. Measuring the accuracy, error and bias of load forecasts is important information for system planners to include in their studies, and also improves load forecasts themselves.
	Include requirements for reporting of temperature and humidity along with the peak loads. Paragraph 1249. The Commission also directs the ERO to modify the Reliability Standard to require reporting of temperature and humidity along with peak load because actual load must be weather normalized for meaningful comparison with forecasted values.361 In response to MidAmerican's observation that it sees little value in collecting this data, we believe that collecting it will allow all load data to be weather-normalized, which will provide greater confidence when comparing data accuracy, which ultimately will enhance reliability. As a result, we reject Xcel's proposal that the standard be revised to include only the generic term "peak producing weather conditions" because it is too generic for a mandatory Reliability Standard.
	Expand the applicability to include transmission planners. Paragraph 1257. The Commission approves Reliability Standard MOD-017-0 as mandatory and enforceable. In addition, the Commission directs the ERO to develop a modification to MOD-017-0 through the Reliability Standards development process that includes requirements for: (1) reporting of temperature and humidity along with the peak loads; (2) reporting of accuracy, error and bias of load forecasts compared to actual loads taking temperature and humidity variations into account; (3) addressing methods to correct forecasts to minimize prior inaccuracies, errors and bias and (4) including the transmission planner in the applicability section.
	"Address methods to correct forecasts to minimize prior inaccuracies, errors, and bias. Paragraph 1252. The Commission agrees with APPA that accuracy, error and bias of load forecasts alone will not increase the reliability of load forecasts, and, as a result, will not affect system reliability. Understanding of the differences without action based on that understanding would not change anything. Therefore, we direct the ERO to add a Requirement that addresses correcting forecasts based on prior inaccuracies, errors and bias."
Fill in the Blank Team	•Correct reference to MOD-016 when MOD-016 is revised (MOD-016-1) •Review MOD-016, MOD-017, and MOD-019 concurrently to develop uniform North American Standards for reporting of actual and forecast demand and NEL data to be reported to RRO for system modeling and analysis.
Team Comments	Provide clarity where the Planning Authority is mentioned
MOD-018-0 — Treatment of Nonmember Demand Data and How Uncertainties are Addressed in the Forecasts of Demand and Net Energy for Load	
FERC Order 693	Provide a work plan and compliance filing regarding the collection of information specified for standards that are deferred. Paragraph 1264. As an initial matter, we disagree that MOD-018-0 cannot be implemented because it is dependent on various unapproved standards. As previously stated, we direct the ERO to provide a Work Plan and compliance filing regarding the collection of information specified for standards that are deferred, and believe there should be no difficulties complying with this Reliability Standard. We reiterate that ongoing collection of data is necessary to maintain system reliability, and approval of MOD-018-0 will help to achieve this goal.

Source	Language
Team Comments	Provide clarity where the Planning Authority is mentioned
Version 0 Team	•Need to define uncertainty •Confidentiality of data
MOD-019-0 — Reporting of Interruptible Demands and Direct Control Load Management	
FERC Order 693	Require users, owners, and operators to provide to the regional entity information related to forecasts of interruptible demands and direct control load management. Paragraph 1275. As an initial matter, we disagree that MOD-019-0 cannot be implemented because it is dependent on MOD-016-0, which further depends on various unapproved standards. As previously stated, we direct the ERO to provide a Work Plan and compliance filing regarding the collection of information specified under related standards that are deferred, and believe there should be no difficulties complying with this Reliability Standard. We reiterate that ongoing collection of data is necessary to maintain system reliability, and approval of MOD-019-0 will help to achieve this goal. We therefore direct the ERO to use its authority pursuant to § 39.2(d) of our regulations to require users, owners and operators to provide to the Regional Entity information related to forecasts of interruptible demands and direct control load management.
	Analyze differences between actual and forecasted demands for five years of actual controllable load and identify what corrective actions should be taken to approve controllable load forecasting for the 10-year planning horizon. Paragraph 1277. We direct the ERO to include APPA's proposal in the Reliability Standards development process to add a new requirement to MOD-019-0 that would oblige resource planners to analyze differences between actual and forecasted demands for the five years of actual controllable load and identify what corrective actions should be taken to improve controllable load forecasting for the 10-year planning horizon.
	Require reporting of the accuracy, error, bias of controllable load forecasts. Paragraph 1276. The Commission adopts the NOPR proposal directing the ERO to modify this standard to require reporting of the accuracy, error and bias of controllable load forecasts. This requirement will enable planners to get a more reliable picture of the amount of controllable load that is actually available, therefore allowing planners to conduct more accurate system reliability assessments. The Commission finds that controllable load can be as reliable as other resources, and therefore should also be subject to the same reporting requirements. Although we recognize that verifying load control devices and interruptible loads may be complex, we do not believe that it is overly so. Further, we believe that the ERO, through its Reliability Standards development process can develop innovative solutions to the Commission's concern. We also note that EEI is concerned about such testing at times of peak load. We clarify that we are not requiring the testing to be conducted at peak load conditions. Consequently, we reject the proposals of EEI, FirstEnergy and International Transmission to discard the requirement for reporting of the accuracy, error and bias of controllable load forecasts.
Fill in the Blank Team	•Review MOD-016, MOD-017, and MOD-019 concurrently to develop uniform North American Standards for reporting of actual and forecast demand and NEL data to be reported to RRO for system modeling and analysis. •Correct reference to MOD-016 when MOD-016 is revised (MOD-016-1)
Team Comments	Provide clarity where the Planning Authority is mentioned

Source	Language
Version 0 Team	•Level 4 non-compliance is harsh •Confidentiality of data
MOD-020-0 — Providing Interruptible Demands and Direct Control Load Management Data to System Operators and Reliability Coordinators	
FERC Order 693	Require reporting of the accuracy, error, and bias of controllable load forecasts. Paragraph 1289. The Commission approves Reliability Standard MOD-020-0 as mandatory and enforceable and directs the ERO to develop a modification to MOD-020-0 through the Reliability Standards development process to require reporting of the accuracy, error and bias of controllable load forecasts.
MOD-021-0 — Documentation of the Accounting Methodology for the Effects of Controllable DSM in Demand and Energy Forecasts	
FERC Order 693	Standardize principles on reporting and validation of DSM program information. Paragraph 1298. We agree with FirstEnergy and SMA that standardization of principles on reporting and validating DSM program information will provide consistent and uniform evaluation of demand response to facilitate system operator confidence in relying on such resources, which will further increase accuracy of transmission system reliability assessment and consequently enhance overall reliability. We direct the ERO to modify this Reliability Standard to allow resource planners to analyze the causes of differences between actual and forecasted demands, and to identify any corrective actions that should be taken to improve forecasted demand responses for future forecasts. Therefore, we adopt the NOPR proposal and direct the ERO to modify MOD-021-0 by adding a requirement for standardization of principles on reporting and validating DSM program information.
	Require users, owners, and operators to provide to the regional entity information related to this standard. Paragraph 1297. As an initial matter, we disagree that MOD-021-0 cannot be implemented because it is based on MOD-016-0, and through it on various unapproved standards, which creates an implementation problem. As previously stated, we direct the ERO to provide a Work Plan and compliance filing regarding collection of information specified under related standards that are deferred, and believe there should be no difficulty complying with this Reliability Standard. We reiterate that ongoing collection of data is necessary to maintain system reliability, and approval of MOD-21-0 will help to achieve this goal. Therefore, we direct the ERO to use its authority pursuant to § 39.2(d) of our regulations to require users, owners and operators to provide to the Regional Entity the information required by this Reliability Standard.
	Modify the title and purpose statement to remove the word “controllable”. Paragraph 1300. The Commission directs the ERO to modify the title and purpose statement to remove the word “controllable.” We note that no commenter disagrees.
	Allow resource planners to analyze the causes of differences between actual and forecasted demands, and identify any corrective actions that should be taken to improve forecasted demand responses for future forecasts. Paragraph 1298. We agree with FirstEnergy and SMA that standardization of principles on reporting and validating DSM program information will provide consistent and uniform evaluation of demand response to facilitate system operator confidence in relying on such resources, which will further increase accuracy of transmission system reliability assessment and consequently enhance overall reliability. We direct the ERO to modify this Reliability Standard to allow resource planners to analyze the causes of differences between actual and forecasted demands, and to identify any corrective actions that should be taken to improve

Source	Language
	forecasted demand responses for future forecasts. Therefore, we adopt the NOPR proposal and direct the ERO to modify MOD-021-0 by adding a requirement for standardization of principles on reporting and validating DSM program information.
Team Comments	Provide clarity where the Planning Authority is mentioned

Project 2009-06 Facility Ratings

Standards Involved:
FAC-008-1 — Facility Ratings
FAC-009-1 — Establish and Communicate Facility Ratings

Research Needed:
None

Brief Description:
The revisions to these two standards will result in a single standard that is responsive to the recommended changes identified in the Standard Review Guidelines attached to this SAR and also to two of the three applicable FERC directives in Order 693.

The proposed changes to FAC-008 and FAC-009 have already been through stakeholder review and reached consensus in 2008 on all requirements except the requirement (R7) developed to meet the FERC directive in Order 693 that required identification of the most limiting component of a facility and the theoretical increase in rating if the limitation were removed. Stakeholders indicated that this requirement (R7) did not have a reliability-related benefit, and voted against the inclusion of a requirement to meet this directive. Thus, this SAR proposes the same standard that was developed and balloted in late 2008, but without the requirement (R7).

Standards Development Status:
Project 2009-06 Facility Ratings Web page

Project Schedule:
TBD

Standard Drafting Team Roster:

Chairman	Paul B. Johnson, P.E.	American Electric Power
	Robert A. Birch	Florida Power & Light Co.
	Terry L. Crawley	Southern Company Services, Inc.
	Robert Kluge	American Transmission Company, LLC
	Robert W. Millard	ReliabilityFirst Corporation
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Philip Riley	Public Service Commission of South Carolina
	Tapani Seppa	The Valley Group, Inc.
	Vladimir Stanisic	Ontario Power Generation Inc.
	Ronald F. Szymczak	Exelon Corporation
	Chifong L. Thomas	Pacific Gas and Electric Company
NERC Staff	Stephen Crutchfield	North American Electric Reliability Corporation

Project 2009-07 Reliability of Protection Systems

Standards Involved:
New

Research Needed:
None

Brief Description:
The proposed standard requires facility owners to have protection system equipment installed such that, if there were a failure to a specified component of that protection system, the failure would not prevent meeting the BES performance identified in the TPL standards.

Standards Development Status:
Project 2009-07 Reliability of Protection Systems Web page

Project Schedule:
TBD

Standard Drafting Team Roster:

Chairman	Ed Taylor	Pacific Gas and Electric Co.
	Robert Johnson	Allegheny Power
	Clarence Bradley	Georgia Transmission Co.
	Jonathon Glidewell	Southern Company Transmission Co.
	James Hubertus	Public Service Electric and Gas Co.
	Steve Leistner	PacifiCorp
	Stanley J. Lewis	Consolidated Edison Co. of New York
	Susan L. McGill	PJM
	John Mulhausen	Florida Power & Light Co.
	Jill Muller	American Transmission Co., L.L.C.
	Bill Newell	Progress Energy
	Don Oatman, Jr.	Electric Reliability Council of Texas, Inc.
	Richard P. Quest	Xcel Energy
	Dean Sorensen	National Grid
	Xiaodong Sun	Ontario Power Generation, Inc.
	Roger Whitaker	Bonneville Power Administration
NERC Staff	Darrel Richardson	North American Electric Reliability Corporation

Project 2009-18 Withdraw Three Midwest ISO Waivers

Standards Involved:
BAL-006-2 — Inadvertent Interchange
INT-003-3 — Interchange Transaction Implementation

Research Needed:
None

Brief Description:
During their April 15-16, 2009 meeting the Standards Committee approved a SAR for removing waivers in the current NERC Standards associated with accommodating the operation of the Midwest ISO market in a multi-Balancing Authority environment. These waivers are no longer needed by the Midwest ISO now that the Midwest ISO is a Balancing authority:

- References to the Midwest ISO should be removed from the "Scheduling Agent Waiver" associated with INT-003-2 — Interchange Transaction Implementation.
- The "Enhanced Scheduling Agent Waiver" associated with INT-003-2 should be retired.
- References to the Midwest ISO should be removed from the "RTO Inadvertent Interchange Accounting Waiver" associated with BAL-006-1 — Inadvertent Interchange.

The purpose/industry need is to provide clarity in the applicability of the standard.

Standards Development Status:
Project 2009-18 Withdraw Three Midwest ISO Waivers Web page

Project Schedule:
TBD

Standard Drafting Team Roster:

Terry Bilke	Midwest ISO
Stephen Crutchfield	NERC Staff Coordinator

Project 2010-01 Support Personnel Training

Standards Involved:
New

Research Needed:
None

Brief Description:
This is a new project that was identified in support of a blackout recommendation. Stakeholders indicated a preference for completing work on a standard for real-time system operators before beginning work on this standard, due to resource limitations. The standard will require the use of a systematic approach to determining training needs of generator operators and operations planning and support staff with a direct impact on the reliable operations of the bulk power system.

The standard will require that entities have evidence that this systematic approach is used and require that each responsible entity have evidence that each of applicable personnel is competent to perform each assigned task that is on its company-specific list of reliability-related tasks.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster:
TBD

Project 2010-02 Connecting New Facilities to the Grid

Standards Involved:
FAC-001-0 — Facility Connection Requirements
FAC-002-0 — Coordination of Plans for New Facilities

Research Needed:
None

Brief Description:
A broad review needs to take place to ensure that all of the elements that should be addressed when a new facility is connected to the grid are included in the revised standard. New requirements are needed to require that the facility connection requirements are followed.

FAC-001 and FAC-002 have some 'fill-in-the-blank' components to eliminate.
The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ ~~2008~~ 2009 Annual plan):
Annual Plan Item 1

Justification for NAESB consideration:
Industry recommendations

SRS Recommendation:
The WEQ SRS will add this project to its watch list.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster:
TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Phillip R. Kleckley (SERC EC Planning Standards Subcommittee (PSS)) as input to the Reliability Standards Development Plan:2010-2012	Consider adding a definition of "end user" to the NERC Glossary. (Note: This recommendation was received as part of the comments on Question 3 of the comments form for the "Draft Revision 6 of the SERC Facility Connection Requirements (FCR) Guideline".)
FAC-002-0 — Coordination of Plans for New Facilities	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Project 2010-03 Modeling Data

Standards Involved:

MOD-010-0 — Steady-State Data for Transmission System Modeling and Simulation
MOD-011-0 — Regional Steady-State Data Requirements and Reporting Procedures
MOD-012-0 — Dynamics Data for Transmission System Modeling and Simulation
MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures
MOD-014-0 — Development of Interconnection-Specific Steady State System Models
MOD-015-0 — Development of Interconnection-Specific Dynamics System Models
PRC-013-0 — Special Protection System Database
PRC-015-0 — Special Protection System Data and Documentation
PRC-020-1 — Under-Voltage Load Shedding Program Database
PRC-021-1 — Under-Voltage Load Shedding Program Data

Research Needed:

18 months study for dynamics modeling of load in simulations and analyses

Brief Description:

This is one of two projects aimed at identifying all the 'data provision' requirements and consolidating the requirements into fewer standards. Research is needed to clearly identify what data is needed to accurately model load in simulations and analyses. The requirements need to be more specific to clearly identify the format, etc., for providing data.

As envisioned, this project will result in the elimination of most if not all region-specific requirements and the revised requirements would include much more specificity. MOD-010 through MOD-015 has some 'fill-in-the-blank' components to eliminate.

Many of the requirements need to be realigned so that the data that is needed is provided to the entity that needs the data. In several of the existing standards, the data is provided to the RRO who then provides the data to the Planning Authority or other entities.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project has not started.

Project Schedule:

TBD

Standard Drafting Team Roster:

TBD

Issues to be Considered by the Standard Drafting Team:

MOD-010-0 — Steady-State Data for Modeling and Simulation of the Interconnected Transmission System	
ATFNSDT	The ATFNSDT identified several issues with regard to modeling data during their deliberations on revising the TPL standards. At one time, they talked about incorporating the gaps they found in TPL but after some deliberation and multiple comments, it was decided to pass them over to the eventual MOD SDT for inclusion in their SAR and the ultimate revisions to MOD-010. These items need to be entered in the issues database so that they are accurately passed on to that SDT: Each Distribution Provider shall provide its respective Planning Coordinator with modeling information for real and reactive Load forecast data for each year of the Transmission planning horizon at Transmission nodes based on expected or historical System performance including the expected mix of industrial, commercial, and residential Loads, within ninety days of a request for such information. Each Transmission Planner shall provide its respective Planning Coordinator with modeling information for Firm Transmission Service data, Interchange Schedules, and resources required to supply Load for each of its Balancing Authorities for each year of the Transmission planning horizon, within ninety days of a request for such information. Each Transmission Owner shall provide its respective Planning Coordinator with modeling information for known planned outages and long-term outages for Transmission equipment for each year of the Transmission planning horizon with consideration given to spare equipment strategy, within ninety days of a request for such information. Each Generator Owner shall provide its respective Planning Coordinator with modeling information for known planned outages and long-term outages for generation equipment for each year of the Transmission planning horizon, within ninety days of a request for such information. Each Resource Planner shall provide its respective Planning Coordinator with the modeling information for new planned Facilities for each year of the Transmission planning horizon including but not limited to generators, Reactive Power devices, and new technologies, within ninety days of a request for such information. Each Transmission Planner shall provide its respective Planning Coordinator with modeling information for new planned Facilities for each year of the Transmission planning horizon including but not limited to Transmission Lines, circuit breakers, Reactive Power devices, Protection System equipment and control devices, and new technologies, within ninety days of a request for such information. These items are seen as gaps in the supply of modeling data that need to be filled. The revised TPL standards will require that a TP/PC use this data and place the onus on acquiring it on the TP/PC. FERC staff is concerned that this approach is lacking in that it doesn't have a corresponding requirement for the applicable entities to supply said data and want to make certain that this 'gap' is eventually closed in MOD.
MOD-011-0 — Maintenance and Distribution of Steady-State Data Requirements and Reporting Procedures	
FERC Order 693	• Expand the applicability to include the planning authority. • Develop a work plan and submit a compliance filing that will facilitate the ongoing collection of the steady-state modeling and simulation data specified in this standard.

Fill in the Blank Team	• Revise NERC MOD-011 to clarify that the data reporting requirements must be uniform across each interconnection. • This should be a North American Standard containing requirements which are interconnection-wide. • MOD-010 and 011 are related. This is the MMWG work for the eastern interconnection. • Review MOD-010, MOD-011, MOD-012, and MOD-013 concurrently for modeling requirements and reporting. • Coordinate the revision of this standard with the revision to MOD-010. MOD-011 needs to be written as a North American standard with requirements for each interconnection.
Other	• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Version 0 Team	• Consistency across standards for non-compliance • Confidentiality of data • Add equipment types and variables • Not a standalone standard • Time element not cited in non-compliance • Several semantics issues • Locations of substations should be deleted
MOD-012-0 — Dynamics Data for Modeling and Simulation of the Interconnected Transmission System	
FERC Order 693	• Provide a list of faults and disturbances used in performing dynamics system studies for operation and planning. • Address critical energy infrastructure confidentiality issues as part of the standard development process. • Expand the applicability to include transmission operators, planning authorities, and transmission planners. • Require users, owners, and operators to submit data to the regional entities as needed for modeling studies and assessments.
Fill in the Blank Team	• This standard is directly related to MOD-013. • Coordinate the revision of this standard with the revision to MOD-013. MOD-013 needs to be written as a North American standard with requirements for each interconnection. Once MOD-013 is modified, the only changes needed to MOD-012 are the references to the appropriate requirements in MOD-013. • Review MOD-010, MOD-011, MOD-012, and MOD-013 concurrently for modeling requirements and reporting.
Other	• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Version 0 Team	• Not a standalone standard • Time element missing in non-compliance • Consistency of non-compliance • Confidentiality of data

MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures	
ATFNSDT	MOD-013 needs to ask for voltage ride through data from generators as per 693.
FERC Order 693	• Permit entities to estimate dynamics stat if they are unable to obtain unit specific information. • Require verification of the dynamic models with actual disturbance data. • Expand the applicability to include transmission operators, planning authorities, and transmission planners. • Develop a work plan and submit a compliance filing that will facilitate the ongoing collection of the dynamics modeling and simulation data specified in this standard.
Fill in the Blank Team	• Review MOD-010, MOD-011, MOD-012 and MOD-013 concurrently for modeling requirements and reporting. • This should be a North American Standard containing requirements which are interconnection-wide. • Revise MOD-013 to clarify that the data reporting requirements must be uniform across each interconnection. • MOD-012 and MOD-013 are related. This is the MMWG work for the Eastern Interconnection.
Other	• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Version 0 Team	• Several semantics issues • Consistency in non-compliance • Confidentiality of data • Timing element not mentioned in non-compliance • Not a standalone standard • 5 business days not sufficient
MOD-014-0 — Development of Steady-State System Models	
FERC Order 693	• If model output is not within the accuracy required, the model shall be modified to achieve the necessary accuracy. • Require models to be validated against actual system response. • Require users, owners, and operators to provide the validated models to regional reliability organizations. • Develop a work plan that will facilitate ongoing validation of steady-state models and submit a compliance filing to the Commission.
Fill in the Blank Team	No action
Other	• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Version 0 Team	• Define near-term vs. long-term • Timing element missing in non-compliance • Solved cases should not have violations • Consistency of non-compliance
MOD-015-0 — Development of Dynamics System Models	
FERC Order 693	• Require actual system events be simulated and dynamics system model output be validated against actual system response. • Require users, owners, and operators to provide the validated models to regional entity. • Develop a work plan that will facilitate ongoing validation of dynamics models and submit a compliance filing to the Commission.
Fill in the Blank Team	No action
Other	• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Version 0 Team	• Consistency of non-compliance • Timing element of non-compliance • Confidentiality of data
PRC-013-0 — Special Protection System Database	
FERC Order 693	Consider APPA's suggestions for interconnection-wide consistency in the standards development process.
Other	• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Fill in the Blank Team	• Related to PRC-015. • Review PRC-013 and PRC-015 together to properly reference regional standards (see notes of PRC-015 for options).
Version 0 Team	• Define evidence • Not a standalone standard
PRC-015-0 — Special Protection System Data and Documentation	
Fill in the Blank Team	• Consider impact of removing R1.2 from PRC-012-0 and revision of PRC-013-0, R1.1, 1.2, & 1.3 to include a specific list of items to be included in the RRO SPS database. The same list could be added to PRC-015, R1.1. However, it may be cleaner to move PRC-015-0, R1.1 and the data portion of R1.3 to PRC-013. (Note: revisions to PRC-012 are identified for a separate drafting team and are expected to take place after revisions to PRC-013 and PRC-015 are completed.) • Tied to PRC-013. • Review PRC-013 and PRC-015 together to properly reference regional standards (see notes of PRC-015 for options).
Other	• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO

	Rules of Procedure.
Version 0 Team	• Define evidence • Already covered elsewhere
PRC-020-1 — Under-Voltage Load Shedding Program Database	
Fill in the Blank Team	No action required
Phase III/IV Team	The reliability-related need for the RRO to have the data isn't clear
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Team Comments	Provide clarity where the Planning Authority is mentioned
PRC-021-1 — Under-Voltage Load Shedding Program Data	
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Fill in the Blank Team	No action required

Project 2010-04 Demand Data

Standards Involved:
MOD-016-1 — Actual and Forecast Demands, Net Energy for Load, Controllable DSM
MOD-017-0 — Aggregated Actual and Forecast Demands and Net Energy for Load
MOD-018-0 — Reports of Actual and Forecast Demand Data
MOD-019-0 — Forecasts of Interruptible Demands and DCLM Data
MOD-020-0 — Providing Interruptible Demands and DCLM Data
MOD-021-0 — Accounting Methodology for Effects of Controllable DSM in Forecasts

Research Needed:
None

Brief Description:
This is one of two projects aimed at identifying all the 'data provision' requirements and consolidating the requirements into fewer standards. As envisioned, this project will result in two standards — with MOD-016 through MOD-020 in a single standard, and MOD-021 in a separate standard. The requirements need to be more specific to clearly identify the format, etc., for providing data.

MOD-016, MOD-017, and MOD-019 have some 'fill-in-the-blank' components to eliminate. The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual plan):
Annual Plan Item 4.b

Justification for NAESB consideration:
Industry recommendations

SRS Recommendation:
The WEQ SRS will add this project to its watch list.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster:
TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
MOD-017-0 — Aggregated Actual and Forecast Demands and Net Energy for Load	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
MOD-018-0 — Reports of Actual and Forecast Demand Data	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
MOD-019-0 — Forecasts of Interruptible Demands and DCLM Data	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000,	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and

RC07-6-000, and RC07-7-000	associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
	MOD-020-0 — Providing Interruptible Demands and DCLM Data
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
	MOD-021-0 — Accounting Methodology for Effects of Controllable DSM in Forecasts
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Project 2010-05 Protection Systems

Standards Involved:
PRC-003-1 — Regional Requirements for Transmission and Generation Protection System Misoperations
PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations
PRC-012-0 — Special Protection System Review Procedure
PRC-014-0 — Special Protection System Assessment
PRC-016-0 — Special Protection System Misoperations

Research Needed:
None

Brief Description:
Consideration should be given to merging some of the standards to eliminate the need for cross-referencing.

PRC-003, PRC-004, PRC-014, and PRC-016 have some 'fill-in-the-blank' components to eliminate.

PRC-012 is one of the few 'fill-in-the-blank' standards that was identified by the Regional Reliability Standards Working Group as a standard that has some requirements that need to remain in regional standards.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster
TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
PRC-003-1 — Regional Requirements for Transmission and Generation Protection System Misoperations	
FERC Order 693	Consider if greater consistency can be achieved in the standard as suggested by APPA.
Fill in the Blank Team	• Modify PRC-003 to include specific requirements for each functional entity. Each of the regional plans needs to be reviewed to determine what should be included in the North American standard. The current PRC-003 defines requirements for RROs. The drafting team should revise PRC-004 to include proper references to the new PRC-003. • This is a North American Standard as written which places requirements on the regions to develop a procedure. However, PRC-004 requires functional entities to comply with the procedures the RROs develop. Craft a new PRC-003 as a North American standard containing the specific requirements for each functional entity. • Review PRC-003 and PRC-004 together to identify the specific requirements of the functional entities (include specific requirements for each functional entity).
Phase III/IV Team	• All transmission circuits 200 kV and above • Enhance the applicability section to clarify that the systems addressed by the requirements are limited to: • All transmission circuits 100 kV to 200 kV operationally significant circuits, as defined by the RROs • In R1.2 change format to content • The RRO should be required to demonstrate that the requirements developed in accordance with R1 produce the desired result. • Generator protection systems, whose misoperations impact the bulk electric system
Version 0 Team	• Change wording to reporting instead of monitoring • Need to define evidence
PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations	
FERC Order 693	• Consider ISO-NE's suggestion that LSEs and transmission operators should be listed as applicable entities. • The regional entity should develop procedures for corrective action plans.
Fill in the Blank Team	• Coordinate the revision of this standard with the revision to standard PRC-003. PRC-003 needs to be written as a North American standard with requirements for each functional entity as appropriate. Once PRC-003 is modified, the only changes needed to PRC-004 are the references to the appropriate requirements in PRC-003. • See notes for PRC-003-1. • Review PRC-003 and PRC-004 together to identify the specific requirements of the functional entities.
NERC Audit Observation Team	• "Document the process" • The Generator Owner shall analyze its generator protection system misoperations and

Source	Language
	implement corrective action plans to avoid future misoperations.
Phase III/IV Team	This standard should apply to all protection systems on the Bulk Electric System (BES) not just those that 'impact' the BES
Version 0 Team	Levels of non-compliance need to be redefined

Project 2010-06 Performance-based Reliability StandardsResults-based Reliability Standards~~Results-based Reliability Standards~~

Standards Involved:
Entire set of NERC Reliability Standards

Research Needed:
In 2008 the NERC Standards Committee Process Subcommittee conducted a review of the then existing NERC reliability standards and identified those that contained requirements that are administrative in nature or are simply explanatory text and which do not appear to contribute directly to meeting reliability objectives. The review results were presented to the Standards Committee at their April 16-17, 2009 meeting, and were adopted as the starting point for prioritizing standard changes and a basis for removing the administrative type of requirements. Detailed review results were included as Attachments 7di, 7dii and 7diii of the April 15-16, 2009 Standards Committee meeting agenda package.

In addition, as documented in Attachment 2 of the ERO Three-Year Assessment dated July 20, 2009 stakeholders recommend that the industry should "focus existing reliability standards and reliability standards development on areas that will lead to the greatest improvement in bulk power system reliability." Suggestions include: "(1) focus the development of new reliability standards on those that will lead to the greatest improvement in reliability; i.e., address the greatest risks of wide-area cascading outages; (2) reduce the number of existing reliability standards to just those that have a critical impact on reliability of the bulk power system and convert the remaining reliability standards to guidelines; and (3) develop a more systematic process for prioritizing new reliability standards development projects based on risks to the bulk power system."

In August 2009 an ad-hoc group was organized made up of representatives from the Standards Committee, Regional Entity staff, and NERC standards staff for developing a plan for transitioning the exiting set of NERC reliability standards into a set of revised reliability standards. The goal of the plan is to define a more focused set of reliability requirements that are predominantly performance-based, with a direct relation to bulk power system reliability. The plan is anticipated to be presented to the NERC Board of Trustees (BOT) at their November 4, 2009 meeting for consideration and approval.

Project Description:
Implement the plan approved by the NERC Board of Trustees (BOT) for improving the set of NERC reliability standards to be more focused on reliability performance. The plan is anticipated to be presented to the BOT during their November 4, 2009 meeting for consideration and approval.

Project 2010-07 Transmission Requirements at the Generator Interface

Standards Involved:

New

Research Needed:

None.

Project Description:

This project was proposed Mr. Gerry Adamski during the 2009 revision of the Reliability Standards Development Plan.

The Ad Hoc Group for Transmission Requirements at the Generator Interface plans to issue a final report document in October, 2009. This report contains a SAR and redline standards for a number of recommended changes to existing reliability standards requirements and the addition of several new requirements. These additions and modifications will add greater specificity and clarity to the expectations of those responsible for owning and operating the interconnection facilities that connect generators to the transmission grid. The changes address a significant concern for generator owners and generator operators regarding the believed improper assignment of transmission owner and operator requirements by virtue of their interconnection facilities.

If further information or discussion is required, please contact:

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Project 2012-01 Equipment Monitoring and Diagnostic Devices

Standards Involved:
New

Research Needed:
None

Brief Description:
This project was proposed Mr. R. W. Kenyon, J.D., P.E. during the 2008 revision of the Reliability Standards Development Plan.

The drafting team will propose Reliability Standard(s) covering the application of major equipment monitoring and diagnostic devices and procedures. As proposed by Mr. Kenyon, the Reliability Standard(s) will address dissolved gas and moisture sampling processes and the application on on-line monitoring devices to detect incipient faults within BES major components, such as EHV transformers. These processes and devices enable the equipment owner to detect evolving internal faults, allowing corrective action under controlled conditions. In some instances, early warning of evolving faults can permit field repair of the unit, avoiding a system fault and destruction of a major piece of equipment. In other circumstances, the warning obtained permits the equipment owner to monitor the situation and to schedule unit replacement in a deliberate, controlled manner. Again, occurrence of a major system fault and unscheduled loss of a major unit can be avoided. Obviously, such measures can contribute significantly to reliability of the Bulk Electric System.

Ideally, the proposed Reliability Standard(s) would make the application of this technology mandatory for classes of critical equipment, with EHV transformers and shunt reactors an obvious example. Similar diagnostic approaches could be taken on critical EHV and/or major generator Gas Insulated Switchgear. The general approach could follow PRC-005, where the owner must have a system, but particulars are left to the equipment owner. The proposed Reliability Standard(s) could extend to other equipment condition monitoring such as Doble testing.

In many instances, equipment owners already recognize the value of major equipment monitoring and have equipment and/or procedures in place addressing this technology. However, there is far less assurance that monitoring equipment is properly maintained, that scheduled routine sampling is being fully performed, and that full use is being made of data obtained. Again, as with the Protective Relay Standard PRC-005, the proposed Reliability Standard(s) would contribute to insuring that equipment owners have a program addressing this technology and are indeed following their program. In other instances, equipment owners without such equipment might be obligated to establish a monitoring program.

Project 2012-02 Physical Protection

Standards Involved:
New

Research Needed:
None

Project Description:
This project was proposed Mr. Wayne E. Guthrie during the 2009 revision of the Reliability Standards Development Plan.

The development of reliability standards for the physical protection of essential equipment, buildings and people located in power generation, transmission, or distribution system locations should be considered in on order to mitigate the associated reliability risks to the bulk power system. The ANSI NFPA 850 standard "Recommended Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations" provides a potential starting reference for such standards.

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Attachment 1

Standard Authorization Request Form

Title of Proposed Standard	Protection Misoperations Revisions to PRC-003, PRC-004, PRC-012, and PRC-016
Request Date	June 10, 2009

SAR Requester Information		**SAR Type** (*Check a box for each one that applies.*)	
Name	System Protection and Control Subcommittee	☐	New Standard
Primary Contact	John Ciufo, Chairman	X	Revision to existing Standard
Telephone Fax	(416) 345-5258 (416) 345-5406	X	Withdrawal of existing Standard (PRC-016)
E-mail	john.ciufo@HydroOne.com	☐	Urgent Action

Purpose (Describe what the standard action will achieve in support of bulk power system reliability.)

A key element of bulk power system reliability is the performance of the Protection Systems. To properly gage Protection System performance, is necessary to have a consistent set of metrics on Protection System Misoperations. Current PRC standards and definitions related to Protection System Misoperations are confusing and do not support a good metric for measurement of Protection System performance.

Industry Need (Provide a justification for the development or revision of the standard, including an assessment of the reliability and market interface impacts of implementing or not implementing the standard action.)

Current PRC standards and definitions related to Protection System Misoperations are confusing and do not support a good metric for measurement of Protection System performance.

Brief Description (Provide a paragraph that describes the scope of this standard action.)

SPCS recommends creation of a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016.

Detailed Description (Provide a description of the proposed project with sufficient details for

the standard drafting team to execute the SAR.)

Standard PRC-003 is intended to ensure that all System Protection Misoperations are analyzed and mitigated according to guidelines established by the regions. The FERC, in Order 693, dated March 16, 2007, declared this standard as a "fill in the blank" type of standard that does not merit approval unless it is modified to make it more specific and consistent for all Regions. The SPCS concurs with the FERC order and provides recommendations on how the standard can be rewritten.

Because the procedures for analyzing and mitigating Misoperations were to be established by the regions, there is significant dissimilarity between the Misoperation data reported by each region, resulting in a virtually unusable misoperation metric for North America. SPCS recommends a change to the definition of Misoperation (Reportable Protection Misoperation) to provide uniformity to the misoperation data reported to the regions and NERC.

Protection System elements used for Special Protection Systems (SPS) or Remedial Action Schemes (RAS) are no different from those used for non Special Protection Systems. The revision to Standard PRC-003 should therefore apply to all Protection Systems, including SPS and RAS.

The SPCS also recommends that Standard PRC-016-0 – Special Protection System Misoperations, be requirements, merging its SPS/RAS Misoperation reporting, Corrective Action Plans, and tracking requirements into PRC-004 – Analysis and Mitigation of Transmission and Generation Protection System Misoperations.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and is coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should be modified to refer to that review process.

SPCS recommends creation of a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016.

See attached Technical Review document for additional details.

Reliability Functions

The Standard will Apply to the Following Functions *(Check box for each one that applies.)*		
☐	Reliability Coordinator	Responsible for the real-time operating reliability of its Reliability Coordinator Area in coordination with its neighboring Reliability Coordinator's wide area view.
☐	Balancing Authority	Integrates resource plans ahead of time, and maintains load-interchange-resource balance within a Balancing Authority Area and supports Interconnection frequency in real time.
☐	Interchange Authority	Ensures communication of interchange transactions for reliability evaluation purposes and coordinates implementation of valid and balanced interchange schedules between Balancing Authority Areas.
☐	Planning Coordinator	Assesses the longer-term reliability of its Planning Coordinator Area.
☐	Resource Planner	Develops a >one year plan for the resource adequacy of its specific loads within a Planning Coordinator area.
☐	Transmission Planner	Develops a >one year plan for the reliability of the interconnected Bulk Electric System within its portion of the Planning Coordinator area.
☐	Transmission Service Provider	Administers the transmission tariff and provides transmission services under applicable transmission service agreements (e.g., the pro forma tariff).
X	Transmission Owner	Owns and maintains transmission facilities.
☐	Transmission Operator	Ensures the real-time operating reliability of the transmission assets within a Transmission Operator Area.
X	Distribution Provider	Delivers electrical energy to the End-use customer.
X	Generator Owner	Owns and maintains generation facilities.
☐	Generator Operator	Operates generation unit(s) to provide real and reactive power.
☐	Purchasing-Selling Entity	Purchases or sells energy, capacity, and necessary reliability-related services as required.
☐	Market Operator	Interface point for reliability functions with commercial functions.
☐	Load-Serving Entity	Secures energy and transmission service (and reliability-related services) to serve the End-use Customer.

Reliability and Market Interface Principles

Applicable Reliability Principles *(Check box for all that apply.)*	
X	1. Interconnected bulk power systems shall be planned and operated in a coordinated manner to perform reliably under normal and abnormal conditions as defined in the NERC Standards.
☐	2. The frequency and voltage of interconnected bulk power systems shall be controlled within defined limits through the balancing of real and reactive power supply and demand.
☐	3. Information necessary for the planning and operation of interconnected bulk power systems shall be made available to those entities responsible for planning and operating the systems reliably.
☐	4. Plans for emergency operation and system restoration of interconnected bulk power systems shall be developed, coordinated, maintained and implemented.
☐	5. Facilities for communication, monitoring and control shall be provided, used and maintained for the reliability of interconnected bulk power systems.
☐	6. Personnel responsible for planning and operating interconnected bulk power systems shall be trained, qualified, and have the responsibility and authority to implement actions.
X	7. The security of the interconnected bulk power systems shall be assessed, monitored and maintained on a wide area basis.
☐	8. Bulk power systems shall be protected from malicious physical or cyber attacks.
Does the proposed Standard comply with all of the following Market Interface Principles? *(Select 'yes' or 'no' from the drop-down box.)*	
1. A reliability standard shall not give any market participant an unfair competitive advantage. Yes	
2. A reliability standard shall neither mandate nor prohibit any specific market structure. Yes	
3. A reliability standard shall not preclude market solutions to achieving compliance with that standard. Yes	
4. A reliability standard shall not require the public disclosure of commercially sensitive information. All market participants shall have equal opportunity to access commercially non-sensitive information that is required for compliance with reliability standards. Yes	

Related Standards

Standard No.	**Explanation**
PRC-003	Revise
PRC-004	Revise
PRC-012	Revise

PRC-016	Retire

Related SARs

SAR ID	Explanation

Regional Variances

Region	Explanation
ERCOT	
FRCC	
MRO	
NPCC	
SERC	
RFC	
SPP	
WECC	

NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

NERC SPCS Assessment of Standards:

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations
- PRC-016-1 — Special Protection System Misoperations

A Technical Review of Standards Prepared by the System Protection and Controls Subcommittee of the NERC Planning Committee

May 2009

to ensure the reliability of the bulk power system

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Table of Contents

This report was approved by the Planning Committee on June 10, 2009, for forwarding to the Standards Committee.

Introduction

When the original scope for the System Protection and Control Task Force (SPCTF, now the System Protection and Control Subcommittee – SPCS) was developed, one of the assigned items was to review all of the existing PRC-series of Reliability Standards, to advise the Planning Committee, and to develop Standards Authorization Requests, as appropriate, to address any perceived deficiencies.

This report presents the SPCS' assessment of three of the PRC standards pertaining to relay misoperations:

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations
- PRC-016-1 — Special Protection System Misoperations

This report serves as a precursor for a Standards Authorization Request (SAR) for modifications to PRC-003 that will be submitted by the SPCS.

Executive Summary

Standard PRC-003 is intended to ensure that all System Protection Misoperations are analyzed and mitigated according to guidelines established by the regions. The FERC, in Order 693, dated March 16, 2007, declared this standard as a "fill in the blank" type of standard that does not merit approval unless it is modified to make it more specific and consistent for all Regions. The SPCS concurs with the FERC order and provides recommendations on how the standard can be rewritten.

Because the procedures for analyzing and mitigating Misoperations were to be established by the regions, there is significant dissimilarity between the Misoperation data reported by each region, resulting in a virtually unusable misoperation metric for North America. SPCS recommends a change to the definition of Misoperation (Reportable Protection Misoperation) to provide uniformity to the misoperation data reported to the regions and NERC.

Protection System elements used for Special Protection Systems (SPS) or Remedial Action Schemes (RAS) are no different from those used for non Special Protection Systems. The revision to Standard PRC-003 should therefore apply to all Protection Systems, including SPS and RAS.

The SPCS also recommends that Standard PRC-016-0 — Special Protection System Misoperations, be requirements, merging its SPS/RAS Misoperation reporting, Corrective Action Plans, and tracking requirements into PRC-004 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and is coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should be modified to refer to that review process.

A Standards Authorization Request (SAR) will be submitted by the SPCS calling for a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016.

Assessment of PRC-003-1

PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems requires the regions to establish procedures for analysis of Misoperations. This has resulted in significant and substantive differences in regional procedures and this was noted in FERC's recommendation for "greater uniformity."

SPCS proposes updating the PRC-003-1 standard to be applicable to all regions based on following tenets:

1. **Applicability** — The existing standard says that the Protection Systems shall be reviewed but does not specify which systems apply to this standard.

   It is necessary for the new standard to define the protections systems to which the standard applies:

   - Transmission Protection Systems which trip:
     a. Transmission system elements 200-kV and above
     b. Operationally significant system elements 100-kV to 200-kV
     c. Transformers with 100-kV or higher on the low side
     d. GSU transformers with high side voltages of 100-kV or higher
   - Generation Protection Systems which trip:
     a. Transmission system elements 200-kV and above
     b. Operationally significant system elements 100-kV to 200-kV
     c. Transformers with 100-kV or higher on the low side
     d. GSU transformers with high side voltages of 100-kV or higher
     e. Generators connected through GSU transformers with high side voltages of 100-kV or higher
   - Protection Systems that trip aggregate generation of 75 MW or more (such as wind farms, geothermal, or solar) connected to the transmission system at 100-kV or higher.

2. **Definitions** — The NERC Glossary of Terms currently defines Misoperation as:

   Misoperation (current definition)

   - Any failure of a Protection System element to operate within the specified time when a fault or abnormal condition occurs within a zone of protection.
   - Any operation for a fault not within a zone of protection (other than operation as backup protection for a fault in an adjacent zone that is not cleared within a specified time for the protection for that zone).
   - Any unintentional Protection System operation when no fault or other abnormal condition has occurred unrelated to on-site maintenance and testing activity

   The existing definition does not address what are reportable and non-reportable misoperations. Reportable misoperations should be redefined in terms of both

dependability and security, as a function of the impact of the Protection Systems on the electric system performance. SPCS recommends the following definition:

Reportable Protection Misoperation (proposed definition)

Dependability (failure to operate):

- Failure of the composite Protection System to initiate the isolation of a faulted power system Element as designed or within its designed operating time.
- Failure of the composite Protection System to operate as intended for a non-fault condition, such as out-of-step, overload, etc., within its designed operating time.
- Failure of an SPS/RAS, UVLS system, or UFLS system to operate for an intended condition or within its designed operating time.

Security (false or undesirable operations):

- Improper operation of a Protection System in absence of a fault on the power system Element it is designed to protect.
- Improper operation of a Protection System during a fault on any other power system Element it is not designed to protect.
- Improper operation of an SPS/RAS, UVLS system, or UFLS system in absence of its designed trigger conditions.
- Over-response of an SPS/RAS, UVLS system, or UFLS system

Notes to the proposed definition:

A. The composite Protection System in the context of this standard is the total complement of protection for a system Element (line, bus, transformer, generator, etc). Primary and secondary protection of a given Element is considered as the composite Protection System, not two separate Protection Systems.

B. Delayed clearing, where a high-speed system is employed and is essential for transmission system performance, is considered a reportable misoperation of the high-speed system.

C. Lack of targeting of the high-speed system, such as when it is beat out by a high-speed zone, is not considered a reportable misoperation.

D. Multiple misoperations of a Protection System before it can be reasonably investigated and remedied should be considered as a single misoperation.

E. Failure to automatically reclose after a fault is not a reportable misoperation.

F. Human errors made in protection settings either as calculated or as installed, or wiring errors, which result in a misoperation are reportable.

G. Protection System operations related to on-site maintenance, testing, construction and or commissioning activities for that Protection System, when no fault or other abnormal condition has occurred, are not considered reportable Protection System misoperations.

H. Operations which are initiated by control systems (not by the Protection Systems), such as those associated with generator controls or turbine/boiler controls, SVCs,

FACTS, HVDC, circuit breaker mechanism, or insulation media, or other facility control systems, are not reportable Protection System misoperations.

I. Protection System operations which occur with the protected element already out of service, that do not trip any in-service elements, are not reportable Protection System misoperations.

3. **Reporting of Misoperations** — Because the current PRC-003 calls for regional procedures and reporting requirements, there is a wide variation in those requirements from region to region, making comparison of misoperations metrics at the NERC level virtually impossible. Since any assessment of the success or failure of the NERC protection-related standards to maintain or improve reliability depends on those metrics, it is important to provide for uniformity. The variations in definitions can be corrected by the adoption of the Reportable Protection Misoperation definition above. Uniform reporting can be addressed by following proposed reporting requirements:

   - Transmission Owner or Generation Owners that own Protection Systems shall submit a quarterly report of the total number of events , the number of Protection System misoperations, and the number of events still under analysis, in a prescribed format (to be part of the revised PRC-003 standard) no later than two calendar months after each quarter.
   - The regions shall, in turn, submit a quarterly report to NERC – consolidated data for the Region in a prescribed format (also part of the revised PRC-003 standard).
   - The regions shall provide any additional information on misoperations to NERC as requested.

4. **Peer Review of Misoperations —** Peer review of misoperations and tracking of mitigation plans is an important part of improving Protection System performance. Logically, that function should be done by the Regional Entities. However, since standards requirements cannot be placed on the Regional Entities, the following suggestions are made but the mechanics are left open.

   - The regions, through their appropriate committees or subcommittee, shall review the misoperation reports. This review should determine whether further analysis, data, or other documentation is required, and it will confirm that appropriate mitigation is defined and scheduled.
   - The regions should maintain records of the quarterly reports and confirm the implementation of any proposed mitigation plan.
   - The regions should track the mitigation of reported misoperations to avoid further occurrences.

Assessment of PRC-004 and PRC-016-0

NERC standards PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations, and PRC-016 – Special Protection System Misoperations both require that Protection System misoperations are analyzed and reported, and that corrective actions are taken where necessary. However, PRC-016 exclusively applies to special protection systems (SPS) also know as remedial action schemes (RAS). Since analysis and reporting of protection system misoperations is the same regardless of whether or not a SPS/RAS is involved; there is no need for a separate standard. Standard PRC-004-1 should be revised to include SPS/RAS, and PRC-016 should be retired.

SPS Corrective Action Plan Review

PRC-012-0 — Special Protection System Review Procedure is intended to provide a review procedure to ensure that all SPS/RAS are properly designed, meet performance requirements, and are coordinated with other Protection Systems.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and are coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should refer to that review process.

Proposed PRC-004-1 Revisions

SPCS recommends the following revisions to PRC-004-1 requirements to encompass those of PRC-016:

R1. The Transmission Owner and any Distribution Provider that owns a transmission Protection System or SPS shall each analyze its transmission Protection System or SPS Misoperations and shall develop and implement a Corrective Action Plan to avoid future Misoperations of a similar nature in accordance with Standard PRC-003 (revised).

R2. The Generator Owner shall analyze its generator Protection System or SPS Misoperations, and shall develop and implement a Corrective Action Plan to avoid future Misoperations of a similar nature in accordance with Standard PRC-003 (revised).

R3. The Transmission Owner, Generator Owner, and Distribution Provider that owns a transmission Protection System or an SPS shall provide documentation of the misoperation analyses and the Corrective Action Plans to its Regional Reliability Organization and NERC upon request (within 90 calendar days).

R4. All Corrective Action Plans for SPS shall be subject to SPS Review Procedures in accordance with Standard PRC-012.

Appendix A — System Protection and Control Subcommittee

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NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Reliability Standards Development Plan: 2010–2012

Volume III — Regional Reliability Standards Projects

to ensure the reliability of the bulk power system

October 7, 2009

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Introduction

NERC's Rules of Procedure Section 300 allows for a regional entity to develop regional reliability standards. A regional entity developing regional reliability standards must adhere to a NERC-approved regional reliability standards development procedure when developing its regional reliability standards. Each regional entity's regional standards development procedure is in Exhibit C of its regional delegation agreement with NERC.

NERC shall rebuttably presume that a regional reliability standard developed by a regional entity organized on an interconnection-wide basis in accordance with a regional reliability standards development process approved by NERC is just, reasonable, and not unduly discriminatory or preferential, and in the public interest, and consistent with such other applicable standards of governmental authorities. Regional reliability standards that are not proposed to be applied on an interconnection-wide basis are not presumed to be valid but may be demonstrated by the proponent to be valid. NERC's process for reviewing and approving proposed regional standards is delineated in its rules of procedure.

No regional reliability standard shall be effective within a region unless approved and filed by NERC with the Commission and the applicable authorities in Canada and Mexico and approved by such regulatory authorities. Regional reliability standards, when approved by FERC and the applicable authorities in Canada and Mexico, shall be made part of the body of NERC reliability standards and shall be enforced upon all applicable bulk-power system owners, operators, and users within the applicable regional entity's region, regardless of membership in the region.

Regional reliability standards shall provide for as much uniformity as possible with reliability standards across the interconnected bulk power system of the North American continent. A regional reliability standard shall be:

- more stringent than a continent-wide reliability standard, including regional standards that address matters that continent-wide reliability standards do not; or
- necessitated by a physical difference in the bulk power system.

This Volume III of NERC's Reliability Standards Development Plan identifies the standards anticipated to be developed by the individual regions over the next three years. With the exception of regional standards developed in support of continent-wide standards, the regional entities may independently initiate regional standards development and forward such standards to NERC for review and approval. NERC has identified 10 regional standards that are currently under development as listed in the index that follows this discussion. Additionally, four continent-wide standards projects identified in Volume II may require each of the eight regional entities to develop a companion regional standard, a total of 32 regional entity standards. Of this number, 13 projects have already been initiated by the Regional Entities. The NERC continent-wide projects that may require each regional entity to develop companion regional standards are:

- Project 2007-01 — Underfrequency Load Shedding
- Project 2007-05 — Balancing Authority Controls
- Project 2007-11 — Disturbance Monitoring
- Project 2008-04 — Protection Systems

In total, NERC has identified 42 proposed regional entity standards it expects to be developed over the course of the timeframe contemplated by this work plan.

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Regional Projects Possibly Requiring Coordination with NERC Continent-wide Projects

In this section, four regional reliability standards development projects are described. These four regional projects are:

Project 2007-01-RE — Underfrequency Load Shedding
Project 2007-05-RE — Balancing Authority Controls
Project 2007-11-RE — Disturbance Monitoring
Project 2008-04-RE — Protection Systems

These projects are being coordinated with NERC's continent-wide standards projects as described in Volume II of this three-year development plan. In general, the standard drafting team of the NERC continent-wide project working with industry stakeholders shall propose which requirements should be continent-wide and which should be included in regional standards. Further, the timing of these regional projects is driven to large degree by the timeline of the corresponding continent-wide project.

Additional information is found in the individual projects that follow.

2007-01-RE — Underfrequency Load Shedding — Regional Standards Development

Standards Involved:
Eight regional reliability standards (one for each of the eight regions) identifying regional requirements in support of the following continent-wide standards:

- PRC-006 — Development and Documentation of Regional Reliability Organizations' Underfrequency Load Shedding Programs
- PRC-007 — Assuring Consistency with Regional UFLS Programs
- PRC-009 — UFLS Performance Following an Underfrequency Event

Research Needed:
None

Brief Description:
This is a continuation of the corresponding project in Volume II of this work plan. Depending on the findings and determinations of the NERC standard draft team for Project 2007-01 Underfrequency Load Shedding (NERC UFLS SDT), it is anticipated that each region may be required to develop a regional standard that supports the continent-wide standard(s) developed for underfrequency load shedding.

PRC-006 is one of the few reliability standards identified by the Regional Reliability Standards Working Group as a standard that has some requirements that may need to be defined by each regional entity in a regional standard.

The NERC UFLS SDT will work with stakeholders to review PRC-006 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the UFLS program documentation. The NERC UFLS SDT working with industry stakeholders shall propose which requirements should be continent-wide requirements and which requirements should be included in regional standards.

PRC-007 and PRC-009 have some 'fill-in-the-blank' characteristics, as identified in the Regional Reliability Standards Working Group work plan, which need to be removed. These standards shall be included with PRC-006 for consideration as one or more revised standards as necessary for consistency and clarity of overall program requirements and any other associated programs and/or requirements that affect or impact the UFLS program.

Standard Development Status:
See NERC Project 2007-01 UFLS

Milestone Timeline:
See NERC UFLS SDT schedule

Related Links:

NERC Regional Reliability Standards Under Development
Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool, Inc. (SPP)
Texas Regional Entity (Texas RE)
Western Electricity Coordinating Council (WECC)

2007-05-RE — Balancing Authority Controls — Regional Standards Development

Standards Involved:
Eight regional reliability standards (one for each of the eight regions) identifying regional requirements in support of the following continent-wide standard:

- BAL-002 — Disturbance Control Performance

Research Needed:
None

Brief Description:
This is a continuation of the corresponding project in Volume II of this work plan. Depending on the findings and determinations of the NERC standard draft team for Project 2007-05 Balancing Authority Controls (NERC BAC SDT), it is anticipated that each region may be required to develop a regional standard that supports the continent-wide standard(s) developed for disturbance control performance.

BAL-002 is one of the few reliability standards identified by the Regional Reliability Standards Working Group (RRSWG) as a standard that has some requirements that may need to be defined by each regional entity in a regional standard. In particular, its October 2006 report, the RRSWG suggested the following related to BAL-002:

- In the long-term, regional reliability standards should be developed in support of North American standard BAL-002.
- Each regional entity should create a regional standard specifying its Contingency Reserve policy.
- The continent-wide BAL-002 should be modified to:
  - address FERC's May 11 comments and
  - revise R2 to remove reference to "sub-Regional Reliability Organization or Reserve Sharing Group".

The NERC BAC SDT will work with stakeholders to review BAL-002 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the BAC program documentation. The NERC BAC SDT shall determine which requirements should be continent-wide requirements and which requirements should be included in regional standards.

Standards Development Status:
See NERC Project 2007-05 Balancing Authority Controls

Milestone Timeline:
See NERC BAC SDT schedule

Related Links:

NERC Regional Reliability Standards Under Development
Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool, Inc. (SPP)
Texas Regional Entity (Texas RE)
Western Electricity Coordinating Council (WECC)

2007-11-RE — Disturbance Monitoring — Regional Standards Development

Standards Involved:
Eight regional reliability standards (one for each of the eight regions) identifying regional requirements in support of the following continent-wide standard:

- PRC-002 — Define and Document Disturbance Monitoring Equipment Requirements

Research Needed:
None

Brief Description:
This is a continuation of the corresponding project in Volume II of this work plan. Depending on the findings and determinations of the NERC standard draft team for Project 2007-11 Disturbance Monitoring (NERC DM SDT), it is anticipated that each region may be required to develop a regional standard that supports the continent-wide standard(s) developed for disturbance monitoring.

PRC-002 is one of the few reliability standards identified by the Regional Reliability Standards Working Group (RRSWG) as a standard that has some requirements that may need to be defined by each regional entity in a regional standard. In particular, in its October 2006 report the RRSWG suggested the following related to PRC-002:

- In the long-term, this should be a Regional Reliability Standard.
- As written, it is a requirement for each RRO to develop a comprehensive set of requirements for DME and can be enforced that way.
- PRC-002 is directly related to PRC-018. PRC-018 requires the functional entities to comply with the requirements developed by each RRO. Any references to each other embedded in the requirements of the two standards need verified.
- Need regions to develop and submit regional standards.

The NERC DM SDT will work with stakeholders to review PRC-002 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the DM program documentation. The NERC DM SDT working with industry stakeholders shall propose which requirements should be continent-wide requirements and which requirements should be included in regional standards.

Standards Development Status:
See NERC Project 2007-11 Disturbance Monitoring.

Milestone Timeline:
See NERC DM SDT schedule.

Related Links:
NERC Regional Reliability Standards Under Development

Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool, Inc. (SPP)
Texas Regional Entity (Texas RE)
Western Electricity Coordinating Council (WECC)

2008-04-RE — Protection Systems — Regional Standards Development

Standards Involved:
Eight regional reliability standards (one for each of the eight regions) identifying regional requirements in support of the following continent-wide standard:

- PRC-012 — Special Protection System Review Procedure

Research Needed:
None

Brief Description:
This is a continuation of the corresponding project in Volume II of this work plan. Depending on the findings and determinations of the NERC standard draft team for Project 2008-04 Protection Systems (NERC PS SDT), it is anticipated that each region may be required to develop a regional standard that supports the continent-wide standard(s) developed for special protection systems/schemes.

PRC-012 is one of the few reliability standards identified by the Regional Reliability Standards Working Group (RRSWG) as a standard that has some requirements that may need to be defined by each regional entity in a regional standard.

The NERC PS SDT will work with stakeholders to review PRC-012 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the special protection system program documentation. The NERC PS SDT working with industry stakeholders shall propose which requirements should be continent-wide requirements and which requirements should be included in regional standards.

Standards Development Status:
This project has not yet started.

Milestone Timeline:
The timeline for this project has not yet been established.

Related Links:
NERC Regional Reliability Standards Under Development
Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool, Inc. (SPP)
Texas Regional Entity (Texas RE)
Western Electricity Coordinating Council (WECC)

Florida Reliability Coordinating Council (FRCC)
Regional Reliability Standards Development Projects

PRC-002-FRCC-01 — Definition of FRCC Regional Disturbance Monitoring and Reporting Requirements — FRCC

Standards Involved:
PRC-002-FRCC-01 — Definition of FRCC Regional Disturbance Monitoring and Reporting Requirements — FRCC

Research Needed:
None

Brief Description:
FRCC plans to convert the existing handbook document, "FRCC Requirements for Disturbance Monitoring Equipment", revision dated June, 2006 into a new regional reliability standard, that complies with the requirements of NERC Reliability Standard, PRC-002-1 — "Define Regional Disturbance Monitoring and Reporting Requirements".

Standards Development Status:
See FRCC Definition of FRCC Regional Disturbance Monitoring and Reporting Requirements

Related Links:
See Florida Reliability Coordinating Council (FRCC) Standards Under Development page.

PRC-003-FRCC-01 — Misoperation of Protection Systems — FRCC

Standards Involved:
PRC-003 — FRCC-01 — Analysis of Misoperations of Transmission and Generation Protection Systems — FRCC

Research Needed:
None

Brief Description:
FRCC plans to convert the existing handbook document, "FRCC Requirements for Analysis of Protection Mis-operations & Corrective Actions Reporting", revision dated October 2003 into a new regional reliability standard, that complies with the requirements of NERC Reliability Standard, PRC-003-1 — "Regional Procedure for Analysis of Mis-operations of Transmission and Generation Protection Systems".

Standards Development Status:
See FRCC Regional Procedure for Analysis of Mis-operations of Transmission and Generation Protection Systems.

Related Links:
See Florida Reliability Coordinating Council (FRCC) Standards Under Development page.

PRC-006-FRCC-01 — FRCC Automatic Underfrequency Load Shedding Program

Standards Involved:
PRC-006-FRCC-01 — FRCC Automatic Underfrequency Load Shedding Program

Research Needed:
None

Brief Description:
FRCC plans to develop a regional standard to provide last resort system preservation measures by implementing an Underfrequency Load Shedding (UFLS) program.

In accordance with NERC Reliability Standard, PRC-006-0, "Development and Documentation of Regional Reliability Organizations' Underfrequency Load Shedding Programs", the FRCC plans to develop, coordinate, and document an UFLS program. These procedures are to be provided to the Load Serving Entities within the Region that are affected by the procedures.

Standards Development Status:
See FRCC Automatic Underfrequency Load Shedding Program

Related Links:
See Florida Reliability Coordinating Council (FRCC) Standards Under Development page.

PRC-024-FRCC-01 — Generator Performance During Frequency and Voltage Excursions — FRCC

Standards Involved:
PRC-024 — FRCC-01 — Generator Performance during Frequency and Voltage Excursions — FRCC

Research Needed:
None

Brief Description:
FRCC is developing a standard to establish “ride through” requirements for generators in the FRCC Region with respect to temporary grid voltage or frequency deviations from their normal range.

Standards Development Status:
See FRCC Regional Generator Performance During Frequency and Voltage Excursions.

Related Links:
See Florida Reliability Coordinating Council (FRCC) Standards Under Development page.

Midwest Reliability Organization (MRO) Regional Reliability Standards Development Projects

TPL-503-MRO-01 — System Performance Requirement — MRO

Standards Involved:
TPL-503-MRO-01 — System Performance Requirement — MRO

Research Needed:
None

Brief Description:
The MRO is developing a regional standard to ensure adequate interconnected transmission system performance in the MRO.

Standards Development Status:
See MRO System Performance Requirement.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

TPL-504-MRO-01 — Sub synchronous Resonance Requirement — MRO

Standards Involved:
TPL-504-MRO-01 — Subsynchronous Resonance Requirement — MRO

Research Needed:
None

Brief Description:
The MRO is developing a regional standard to ensure subsynchronous resonance with series compensated lines, torsional interaction with power system controls and generator shaft damage or excessive torsional fatigue due to network switching does not occur in the Midwest Reliability Organization ("MRO").

Standards Development Status:
See MRO Subsynchronous Resonance Requirement.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

PRC-502-MRO-01 — Power System Stabilizer Requirement — MRO

Standards Involved:
PRC-502-MRO-01 — Power System Stabilizer Requirement — MRO

Research Needed:
None

Brief Description:
The MRO is developing a regional standard to ensure that power system stabilizers are designed, installed and tuned as required to dampen power system oscillations in the Midwest Reliability Organization ("MRO"). To ensure small signal stability assessments are performed. To ensure testing programs are developed and poorly damped oscillations are analyzed and corrected.

Standards Development Status:
See MRO Power System Stabilizer Requirement.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

RES-501-MRO-01 — Generation Planning Reserve Requirements — MRO

Standards Involved:
RES-501-MRO-01 — Generation Planning Reserve Requirements — MRO

Research Needed:
None

Brief Description:
The MRO is developing a regional standard to establish common criteria by which to assess Resource Adequacy in the MRO for the short term and long term planning horizon.

Standards Development Status:
See MRO Generation Planning Reserve Requirements.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

PRC-006-MRO-01 — Development and Documentation of Regional UFLS Programs — MRO

Standards Involved:
PRC-006-MRO-01 — Development and Documentation of Regional UFLS Programs — MRO

Research Needed:
None

Brief Description:
The MRO will develop a regional reliability standard (Standard) with requirements for automatic Underfrequency Load Shedding (UFLS) programs. The regional Standards will require that UFLS programs arrest declining frequency and assist recovery of frequency following a frequency excursion. This standard will address the UFLS Regional Reliability Standard Characteristics developed by the NERC UFLS standard draft team.

Standards Development Status:
See MRO Development and Documentation of Regional UFLS Programs.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

Northeast Power Coordinating Council (NPCC) Regional Reliability Standards Development Projects

At this time, NPCC will be developing at least four regional standards projects as required to support reliability objectives and as may be required to support their associated continent-wide NERC reliability standards identified in the first part of this volume. NPCC will develop the initial four regional standards in conjunction with, and as set forth by the schedules associated with the continent-wide standards, or schedules set forth by FERC, or our members.

In conjunction with this effort, a project is underway to translate the NPCC Criteria into "Directories" to demonstrate consistency with the NERC Reliability Standards. These Directories will utilize the applicable NERC Functional Model language, contain reference to related NERC standards, clearly identify applicability and utilize NERC glossary terms and when no term is available, use NPCC defined terms. These Directories are updated and submitted to NERC periodically to satisfy the NERC requirement as outlined in the Rules of Procedure to maintain a catalog of regional criteria. The Directories may be viewed on the "Regional Documents" section of the NPCC website or accessed through a link on the NERC website.

PRC-006-NPCC-01 — Underfrequency Load Shedding Program — NPCC

Standards Involved:
PRC-006-NPCC-01 — Underfrequency Load Shedding Program — NPCC

Research Needed:
None

Brief Description:
This Standard will provide the detailed requirements and measures to automatically provide system preservation by implementing an automatic underfrequency load shedding program to respond to system underfrequency events. The Standard will also emphasize the need for coordination amongst the NPCC region's members, and those areas outside the NPCC footprint, and provide direction for refinements of underfrequency systems already in place. The standard will address issues that smaller entities may have due to reduced amounts of distribution feeders.

The Standard will ensure that all requirements will be identified to ensure compliance with relevant NERC standards.

The NPCC regional UFLS standard shall apply to Balancing Authority Areas "BA Areas" that are both synchronous and asynchronous to the eastern interconnection. BA Areas that are asynchronous (e.g. Quebec) will develop UFLS parameters with a different technical basis and requirements.

Standards Development Status:
The NPCC Regional Standards Committee has approved the Regional Standards Authorization Request, RSAR, drafting has begun and an open process posting for comments has been completed and in accordance with NPCC's, FERC filed and approved Regional Standards Development Procedure. NPCC is targeting member approvals by December 2009 with submission to NERC and FERC targeted for 2010.

Related Links:
See Northeast Power Coordinating Council's NPCC "Standards Under Development" page.

PRC-012-NPCC-01 — Special Protection Systems — NPCC

Standards Involved:
PRC-012-NPCC-01 — Special Protection Systems — NPCC

Research Needed:
None

Brief Description:
The proposed Standard will describe the requirements for the design of Special Protection Systems, and the technical criteria required to support its implementation. The Standard will also identify the need for close coordination among various parties to ensure that the Special Protection Systems are implemented correctly, and triggers and resulting actions are made known and communicated in an on-line database.

Standards Development Status:
The NPCC Regional Standards Committee has approved the Regional Standards Authorization Request, RSAR, drafting will begin shortly in accordance with NPCC's, FERC filed and approved Regional Standards Development Procedure. NPCC is targeting member approval the standard by December 2010 and submission to NERC and FERC is targeted for 2011.

Related Links:
See Northeast Power Coordinating Council's NPCC "Standards Under Development" page.

PRC-002-NPCC-01 — Disturbance Monitoring — NPCC

Standards Involved:
PRC-002-NPCC-01 — Disturbance Monitoring— NPCC

Research Needed:
None

Brief Description:
The Standard will establish the technical requirements for disturbance monitoring equipment, including:

- system operating parameters that are to be measured and recorded,
- how to determine/select a preferred location of this equipment,
- installation and equipment minimum technical requirements,
- data communication requirements,
- analysis tools.

Criteria for facility owner requirements for reporting disturbance data will also be defined.

Standards Development Status:
The NPCC Regional Standards Committee has approved the Regional Standards Authorization Request, RSAR, drafting has begun and an open process posting for comment has been completed in accordance with NPCC's, FERC filed and approved Regional Standards Development Procedure. NPCC is targeting member approval for this standard by December 2009 with submission to NERC and FERC targeted for 2010.

Related Links:
See Northeast Power Coordinating Council's NPCC "Standards Under Development" page.

ReliabilityFirst Corporation (RFC) Regional Reliability Standards Development Projects

MOD-024-RFC-01 — Generator Real (MW) Power Capability — RFC

Standards Involved:
MOD-024-RFC-01 — Verification of Generator Real (MW) Power Capability — RFC

Research Needed:
None

Brief Description:
RFC plans to develop a regional standard to ensure accurate information on generator gross and net Real (MWs) Power capability is available for steady-state models used to assess Bulk Electric System reliability.

Standards Development Status:
See RFC Verification and Data Reporting of Generator Gross and Net Real Power Capability project.

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page.

MOD-025-RFC-01 — Generator Reactive (MVAR) Power Capability — RFC

Standards Involved:
MOD-025-RFC-01 — Verification of Generator Reactive (MVAr) Power Capability — RFC

Research Needed:
None

Brief Description:
RFC plans to develop a regional standard to ensure accurate information on generator gross and net Reactive (MVAR) Power capability is available for steady-state models used to assess Bulk Electric System reliability.

Standards Development Status:
See RFC Verification and Data Reporting of Generator Gross and Net Reactive Power Capability project

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page.

BAL-502-RFC-02 — Resource Planning Reserve Requirement Standard — RFC

Standards Involved:
BAL-502-RFC-02 — Resource Planning Reserve Requirement Standard — RFC

Research Needed:
None

Brief Description:
RFC is developing a regional standard to establish requirements for a minimum level of resource adequacy to reliably serve all load in the ReliabilityFirst (RFC) corporate region.

Standards Development Status:
See RFC Planning Resource Adequacy Analysis, Assessment and Documentation.

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page.

PRC-006-RFC-01 — Automatic Underfrequency Load Shedding Requirements — RFC

Standards Involved:
PRC-006-RFC-01 — Automatic Underfrequency Load Shedding Requirements — RFC

Research Needed:
None

Brief Description:
RFC is developing a regional standard to establish requirements for automatic underfrequency load shedding (UFLS) to support NERC Reliability Standard PRC-006.

Standards Development Status:
See RFC Automatic Underfrequency Load Shedding Requirements.

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page

PRC-002-RFC-01 — Disturbance Monitoring and Reporting Requirements — RFC

Standards Involved:
PRC-002-RFC-01 — Disturbance Monitoring and Reporting Requirements — RFC

Research Needed:
None

Brief Description:
RFC is developing a regional standard to establish requirements establish requirements for Disturbance monitoring and reporting to support NERC Reliability Standard PRC-002.

Standards Development Status:
See RFC Disturbance Monitoring and Reporting Requirements

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page

PRC-012-RFC-01 — Special Protection System Requirements — RFC

Standards Involved:
PRC-012-RFC-01 — Special Protection System Requirements — RFC

Research Needed:
None

Brief Description:
RFC is developing a regional standard to establish requirements for the review, development and application of Special Protection Systems (SPS) in one RFC standard allowing the retirement of the associated legacy documents. The standard will ultimately be mandated by NERC in support of NERC PRC-012-1 as related to a review process as well as a unique RFC application criterion.

Standards Development Status:
See RFC Special Protection System Requirements Standard.

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page

SERC Reliability Corporation (SERC) Regional Reliability Standards Development Projects

SERC has no additional regional standards planned at this time beyond the four regional standards projects required to support their associated continent-wide NERC reliability standards identified in first part of this volume. SERC will develop these four regional standards in conjunction with, and as set forth by the schedules associated with, the continent-wide standards.

PRC-006-SERC-01 — Underfrequency Load Shedding Program — SERC

Standards Involved:
PRC-006-SERC-01 — Underfrequency Load Shedding Program — SERC

Research Needed:
None

Brief Description:
This standard will provide the measures to automatically provide system preservation by implementing an automatic underfrequency load shedding (UFLS) program to respond to system underfrequency events. The standard will also emphasize the need for coordination amongst the entities within the SERC footprint, and with those areas outside the SERC footprint. The standard requirements will ensure compliance with the NERC PRC-006-1 continent-wide standard, and other relevant NERC standards.

Standards Development Status:
The SERC Standards Committee accepted the SAR to develop a SERC UFLS Regional Reliability Standard on February 27, 2008 and assigned to the SERC Engineering Committee (EC). It was approved by the EC Executive Committee on April 25, 2008 and a standard draft team (or Responsible SERC Subgroup—RSS) was appointed on June 19, 2008. The first draft of the standard was posted for comments on September 19, 2008; second draft posted for comments on November 21, 2008; and the third draft was posted for information on February 9, 2009. Currently in Step 6 (*Drafting of a SERC Regional Reliability Standard*) of the 13 steps SERC Regional Standards Development Procedure. Plans are to update the third draft to make it consistent with the NERC continent-wide standard, post it for one more comment period, and take the final draft to ballot in the fourth quarter of 2009.

Related Links:
See the SERC Reliability Corporation Standards page

Southwest Power Pool, Inc. (SPP) Regional Reliability Standards Development Projects

PRC-006-SPP-01 — Automatic Underfrequency Load Shedding Program — SPP

Standards Involved:
PRC-006-SPP-01 — Automatic Underfrequency Load Shedding Program — SPP

Research Needed:
None

Brief Description:
The SPP Standard Drafting Team is in a process developing first draft of SPP regional standard for Underfrequency Load Shedding Program. The regional Standards will require that UFLS programs arrest declining frequency and assist recovery of frequency following a frequency excursion. This standard will consider the UFLS Regional Reliability Standard Characteristics developed by the NERC UFLS standard draft team.

Standards Development Status:
See SPP Standard Development Page

Related Links:
See Southwest Power Pool's (SPP) Standards Under Development page

Texas Regional Entity (Texas RE) Regional Reliability Standards Development Projects

BAL-001-TRE-01 — Regional Variance for CPS2 — Texas RE

Standards Involved:
BAL-001-TRE-01 Regional Variance for CPS2 — Texas RE

Research Needed:
None

Brief Description:
A Texas RE standard drafting team is drafting a regional variance to R2 of BAL-001-0 that still meets the purpose of the standard: Maintain Interconnection steady-state frequency within defined limits by balancing real power demand and supply in real-time. ERCOT currently has a NERC waiver for the CPS2 method (11/21/02) described in R2. This regional variance will provide what ERCOT employs instead of CPS2 to achieve the overall purpose of the BAL standard.

This variance will be the modification that was ordered by FERC in Order 693: As with other new regional differences, the commission expects that the ERCOT regional difference will include Requirements, Measures, and Levels of Non-Compliance sections. This regional variance will incorporate Section 5.9 of the ERCOT Protocols (and the applicable Nodal Protocol) to accomplish this objective. This variance as currently drafted will apply to the Balancing Authority that is ERCOT , GOs and GOPs.

Standards Development Status:
See Texas Regional Entity (Texas RE) Reliability Standards Tracking Status

Related Links:
SAR-003 Standard Drafting Team: Modification to ERCOT Waiver to R2 of BAL-001-0 CPS2

PRC-006-TRE-01 — Development and Documentation of Regional UFLS Program — Texas RE

Standards Involved:
PRC-006-TRE-01 — Development and Documentation of Regional UFLS Program — Texas RE

Research Needed:
None

Brief Description:
A Texas RE standard drafting team is currently following, reviewing, and commenting upon the characteristics of the NERC UFLS continent-wide standard that is under development (Project 2007-01). Depending on the specific characteristics and requirements of the continent-wide standard, and if necessary, the team will develop a regional reliability standard with requirements for automatic UFLS programs that will require that UFLS programs arrest declining frequency and assist recovery of frequency following a frequency excursion.

Standards Development Status:
See Texas Regional Entity (Texas RE) Reliability Standards Tracking Status

Related Links:
SAR-002 Standard Drafting Team: Development and Documentation of Regional UFLS Programs

Western Electricity Coordinating Council (WECC) Regional Reliability Standards Development Projects

VAR-001-WECC-1 — Voltage and Reactive Control — WECC

Standards Involved:
VAR-001-WECC-1 — Voltage and Reactive Control — WECC

Research Needed:
None

Brief Description:
The purpose of this standard is to ensure that voltage levels, reactive flows, and reactive resources are monitored, controlled, and maintained within limits in real time to protect equipment and the reliable operation of the Interconnection.

In the Western Interconnection, System Operating Limits for transmission paths in the Bulk Electric System assume that Automatic Voltage Regulators are in service to control voltage to support the transfer capability.

During the VAR-002-WECC-1 standard development process it was identified that not all WECC Transmission Operators provided voltage schedules to their Generation Operators. They are allowed to do this because Transmission Operators the NERC VAR-001-1a requirement R4 allows the option of providing reactive power schedules rather than voltage schedules. The practice of providing reactive power or power factor schedules forces Generation Operators to manually adjust their automatic voltage regulator (AVR) voltage setting by trial and error to find a voltage setting that will provide the exact amount of reactive power directed by the Transmission Operator. Since the voltage on the transmission grid varies throughout the day, the Generation Operator is forced to continuously reset the voltage on the AVR. This is an unnecessary and distracting manual control burden on the Generation Operator.

NERC VAR-002 requires the Generation Operator to comply exactly with the voltage schedule or reactive power schedule directed by the Transmission Operator. If the Transmission Operator provides a voltage schedule, the AVR can automatically maintain compliance with the NERC requirement. If the Transmission Operator refuses to provide a voltage schedule, and instead insists on providing a reactive power schedule, compliance can no longer depend on the automatic operation of the AVR. The VAR-002-WECC-1 standard prohibits the AVR from being switched to a constant reactive power mode of operation. Instead compliance becomes totally dependent on constant attention and readjustment by the Generation Operator. This significantly increases the risk of non-compliance for the Generator Operator.

Even more disturbing is the fact that this situation (the Transmission Operator specifying a constant reactive power output rather than a constant voltage level) defeats the intended purpose of the WECC VAR-002-WECC-1 standard, to prevent a voltage collapse. If the voltage does begin to collapse, the generator AVR, operating in constant voltage mode, will increase the reactive power output from the unit. That increase in reactive output means that the generator will no longer be producing the amount of reactive power specified by the Transmission Operator's reactive power schedule. Once this occurs, the Generation Operator must immediately reduce the reactive power provided by the generator or risk noncompliance with

NERC standard VAR-002, R2. That will result in the generator doing the exact opposite of what is needed to prevent a voltage collapse and exposes the Interconnection to a risk of blackout.

Therefore, the VAR-001-WECC-1 standard drafting team was form to develop a standard to require Transmission Operators to issue voltage schedules. The drafting team surveyed Transmission Operators and Generator Operators to identify scheduling practices that are causing confusion between Transmission Operators and Generator Operators. The first draft of a proposed VAR-001-WECC-1 Standard is expected to be posted for an initial 45 day comment period during the fourth quarter of 2009. The drafting team anticipates balloting and requesting WECC Board of Director approval during the second have of 2010.

WECC Standard VAR-001-WECC-1 is more stringent than a continent wide standard.

Standards Development Status:

See WECC Standards Development page at:
http://www.wecc.biz/Standards/Development/Pages/default.aspx

Related Links:

See http://www.wecc.biz/Standards/Development/WECC0046/default.aspx

NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Reliability Standards Development Plan: 2010–2012

Volume III — Regional Reliability Standards Projects

to ensure the reliability of the bulk power system

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Introduction

NERC's Rules of Procedure Section 300 allows for a regional entity to develop regional reliability standards. A regional entity developing regional reliability standards must adhere to a NERC-approved regional reliability standards development procedure when developing its regional reliability standards. Each regional entity's regional standards development procedure is in Exhibit C of its regional delegation agreement with NERC.

NERC shall rebuttably presume that a regional reliability standard developed by a regional entity organized on an interconnection-wide basis in accordance with a regional reliability standards development process approved by NERC is just, reasonable, and not unduly discriminatory or preferential, and in the public interest, and consistent with such other applicable standards of governmental authorities. Regional reliability standards that are not proposed to be applied on an interconnection-wide basis are not presumed to be valid but may be demonstrated by the proponent to be valid. NERC's process for reviewing and approving proposed regional standards is delineated in its rules of procedure.

No regional reliability standard shall be effective within a region unless approved and filed by NERC with the Commission and the applicable authorities in Canada and Mexico and approved by such regulatory authorities. Regional reliability standards, when approved by FERC and the applicable authorities in Canada and Mexico, shall be made part of the body of NERC reliability standards and shall be enforced upon all applicable bulk-power system owners, operators, and users within the applicable regional entity's region, regardless of membership in the region.

Regional reliability standards shall provide for as much uniformity as possible with reliability standards across the interconnected bulk power system of the North American continent. A regional reliability standard shall be:

- more stringent than a continent-wide reliability standard, including regional standards that address matters that continent-wide reliability standards do not; or
- necessitated by a physical difference in the bulk power system.

This Volume III of NERC's Reliability Standards Development Plan identifies the standards anticipated to be developed by the individual regions over the next three years. With the exception of regional standards developed in support of continent-wide standards, the regional entities may independently initiate regional standards development and forward such standards to NERC for review and approval. NERC has identified 10~~19~~ regional standards that are currently under development as listed in the index that follows this discussion. Additionally, four continent-wide standards projects identified in Volume II may require each of the eight regional entities~~y~~ to develop a companion regional standard, a total of 32 regional entity standards. Of this number, 13 projects have already been initiated by the Regional Entities. The NERC continent-wide projects that may require each regional entity to develop companion regional standards are:

- Project 2007-01 — Underfrequency Load Shedding
- Project 2007-05 — Balancing Authority Controls
- Project 2007-11 — Disturbance Monitoring
- Project 2008-04 — Protection Systems

In total, NERC has identified ~~a total of 51~~42 proposed regional entity standards it expects to ~~receive~~be developed over the course of the timeframe contemplated by this work plan.

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Regional Projects Possibly Requiring Coordination with NERC Continent-wide Projects

In this section, four regional reliability standards development projects are described. These four regional projects are:

Project 2007-01-RE — Underfrequency Load Shedding
Project 2007-05-RE — Balancing Authority Controls
Project 2007-11-RE — Disturbance Monitoring
Project 2008-04-RE — Protection Systems

These projects are being coordinated with NERC's continent-wide standards projects as described in Volume II of this three-year development plan. In general, the standard drafting team of the NERC continent-wide project working with industry stakeholders shall propose which requirements should be continent-wide and which should be included in regional standards. Further, the timing of these regional projects is driven to large degree by the timeline of the corresponding continent-wide project.

Additional information is found in the individual projects that follow.

2007-01-RE — Underfrequency Load Shedding — Regional Standards Development

Standards Involved:
Eight regional reliability standards (one for each of the eight regions) identifying regional requirements in support of the following continent-wide standards:

- PRC-006 — Development and Documentation of Regional Reliability Organizations' Underfrequency Load Shedding Programs
- PRC-007 — Assuring Consistency with Regional UFLS Programs
- PRC-009 — UFLS Performance Following an Underfrequency Event

Research Needed:
None

Brief Description:
This is a continuation of the corresponding project in Volume II of this work plan. Depending on the findings and determinations of the NERC standard draft team for Project 2007-01 Underfrequency Load Shedding (NERC UFLS SDT), it is anticipated that each region may be required to develop a regional standard that supports the continent-wide standard(s) developed for underfrequency load shedding.

PRC-006 is one of the few reliability standards identified by the Regional Reliability Standards Working Group as a standard that has some requirements that may need to be defined by each regional entity in a regional standard.

The NERC UFLS SDT will work with stakeholders to review PRC-006 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the UFLS program documentation. The NERC UFLS SDT working with industry stakeholders shall propose which requirements should be continent-wide requirements and which requirements should be included in regional standards.

PRC-007 and PRC-009 have some 'fill-in-the-blank' characteristics, as identified in the Regional Reliability Standards Working Group work plan, which need to be removed. These standards shall be included with PRC-006 for consideration as one or more revised standards as necessary for consistency and clarity of overall program requirements and any other associated programs and/or requirements that affect or impact the UFLS program.

Standard Development Status:
See NERC Project 2007-01 UFLS

Milestone Timeline:
See NERC UFLS SDT schedule

Related Links:

NERC Regional Reliability Standards Under Development
Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool, Inc. (SPP)
Texas Regional Entity (Texas RE)
Western Electricity Coordinating Council (WECC)

2007-05-RE — Balancing Authority Controls — Regional Standards Development

Standards Involved:
Eight regional reliability standards (one for each of the eight regions) identifying regional requirements in support of the following continent-wide standard:

- BAL-002 — Disturbance Control Performance

Research Needed:
None

Brief Description:
This is a continuation of the corresponding project in Volume II of this work plan. Depending on the findings and determinations of the NERC standard draft team for Project 2007-05 Balancing Authority Controls (NERC BAC SDT), it is anticipated that each region may be required to develop a regional standard that supports the continent-wide standard(s) developed for disturbance control performance.

BAL-002 is one of the few reliability standards identified by the Regional Reliability Standards Working Group (RRSWG) as a standard that has some requirements that may need to be defined by each regional entity in a regional standard. In particular, its October 2006 report, the RRSWG suggested the following related to BAL-002:

- In the long-term, regional reliability standards should be developed in support of North American standard BAL-002.
- Each regional entity should create a regional standard specifying its Contingency Reserve policy.
- The continent-wide BAL-002 should be modified to:
  - address FERC's May 11 comments and
  - revise R2 to remove reference to "sub-Regional Reliability Organization or Reserve Sharing Group".

The NERC BAC SDT will work with stakeholders to review BAL-002 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the BAC program documentation. The NERC BAC SDT shall determine which requirements should be continent-wide requirements and which requirements should be included in regional standards.

Standards Development Status:
See NERC Project 2007-05 Balancing Authority Controls

Milestone Timeline:
See NERC BAC SDT schedule

Related Links:

NERC Regional Reliability Standards Under Development
Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool, Inc. (SPP)
Texas Regional Entity (Texas RE)
Western Electricity Coordinating Council (WECC)

2007-11-RE — Disturbance Monitoring — Regional Standards Development

Standards Involved:
Eight regional reliability standards (one for each of the eight regions) identifying regional requirements in support of the following continent-wide standard:

- PRC-002 — Define and Document Disturbance Monitoring Equipment Requirements

Research Needed:
None

Brief Description:
This is a continuation of the corresponding project in Volume II of this work plan. Depending on the findings and determinations of the NERC standard draft team for Project 2007-11 Disturbance Monitoring (NERC DM SDT), it is anticipated that each region may be required to develop a regional standard that supports the continent-wide standard(s) developed for disturbance monitoring.

PRC-002 is one of the few reliability standards identified by the Regional Reliability Standards Working Group (RRSWG) as a standard that has some requirements that may need to be defined by each regional entity in a regional standard. In particular, in its October 2006 report the RRSWG suggested the following related to PRC-002:

- In the long-term, this should be a Regional Reliability Standard.
- As written, it is a requirement for each RRO to develop a comprehensive set of requirements for DME and can be enforced that way.
- PRC-002 is directly related to PRC-018. PRC-018 requires the functional entities to comply with the requirements developed by each RRO. Any references to each other embedded in the requirements of the two standards need verified.
- Need regions to develop and submit regional standards.

The NERC DM SDT will work with stakeholders to review PRC-002 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the DM program documentation. The NERC DM SDT working with industry stakeholders shall propose which requirements should be continent-wide requirements and which requirements should be included in regional standards.

Standards Development Status:
See NERC Project 2007-11 Disturbance Monitoring.

Milestone Timeline:
See NERC DM SDT schedule.

Related Links:
NERC Regional Reliability Standards Under Development

Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool, Inc. (SPP)
Texas Regional Entity (Texas RE)
Western Electricity Coordinating Council (WECC)

2008-04-RE — Protection Systems — Regional Standards Development

Standards Involved:
Eight regional reliability standards (one for each of the eight regions) identifying regional requirements in support of the following continent-wide standard:

- PRC-012 — Special Protection System Review Procedure

Research Needed:
None

Brief Description:
This is a continuation of the corresponding project in Volume II of this work plan. Depending on the findings and determinations of the NERC standard draft team for Project 2008-04 Protection Systems (NERC PS SDT), it is anticipated that each region may be required to develop a regional standard that supports the continent-wide standard(s) developed for special protection systems/schemes.

PRC-012 is one of the few reliability standards identified by the Regional Reliability Standards Working Group (RRSWG) as a standard that has some requirements that may need to be defined by each regional entity in a regional standard.

The NERC PS SDT will work with stakeholders to review PRC-012 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the special protection system program documentation. The NERC PS SDT working with industry stakeholders shall propose which requirements should be continent-wide requirements and which requirements should be included in regional standards.

Standards Development Status:
This project has not yet started.

Milestone Timeline:
The timeline for this project has not yet been established.

Related Links:
NERC Regional Reliability Standards Under Development
Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool, Inc. (SPP)
Texas Regional Entity (Texas RE)
Western Electricity Coordinating Council (WECC)

Florida Reliability Coordinating Council (FRCC)
Regional Reliability Standards Development Projects

PRC-002-FRCC-01 — Definition of FRCC Regional Disturbance Monitoring and Reporting Requirements — FRCC

Standards Involved:
PRC-002-FRCC-01 — Definition of FRCC Regional Disturbance Monitoring and Reporting Requirements — FRCC

Research Needed:
None

Brief Description:
FRCC plans to convert the existing handbook document, "FRCC Requirements for Disturbance Monitoring Equipment", revision dated June, 2006 into a new regional reliability standard, that complies with the requirements of NERC Reliability Standard, PRC-002-1 — "Define Regional Disturbance Monitoring and Reporting Requirements".

Standards Development Status:
See FRCC Definition of FRCC Regional Disturbance Monitoring and Reporting Requirements

Related Links:
See Florida Reliability Coordinating Council (FRCC) Standards Under Development page.

PRC-003-FRCC-01 — Misoperation of Protection Systems — FRCC

Standards Involved:
PRC-003 — FRCC-01 — Analysis of Misoperations of Transmission and Generation Protection Systems — FRCC

Research Needed:
None

Brief Description:
FRCC plans to convert the existing handbook document, "FRCC Requirements for Analysis of Protection Mis-operations & Corrective Actions Reporting", revision dated October 2003 into a new regional reliability standard, that complies with the requirements of NERC Reliability Standard, PRC-003-1 — "Regional Procedure for Analysis of Mis-operations of Transmission and Generation Protection Systems".

Standards Development Status:
See FRCC Regional Procedure for Analysis of Mis-operations of Transmission and Generation Protection Systems.

Related Links:
See Florida Reliability Coordinating Council (FRCC) Standards Under Development page.

PRC-006-FRCC-01 — FRCC Automatic Underfrequency Load Shedding Program

Standards Involved:
PRC-006-FRCC-01 — FRCC Automatic Underfrequency Load Shedding Program

Research Needed:
None

Brief Description:
FRCC plans to develop a regional standard to provide last resort system preservation measures by implementing an Underfrequency Load Shedding (UFLS) program.

In accordance with NERC Reliability Standard, PRC-006-0, "Development and Documentation of Regional Reliability Organizations' Underfrequency Load Shedding Programs", the FRCC plans to develop, coordinate, and document an UFLS program. These procedures are to be provided to the Load Serving Entities within the Region that are affected by the procedures.

Standards Development Status:
See FRCC Automatic Underfrequency Load Shedding Program

Related Links:
See Florida Reliability Coordinating Council (FRCC) Standards Under Development page.

PRC-024-FRCC-01 — Generator Performance During Frequency and Voltage Excursions — FRCC

Standards Involved:
PRC-024 — FRCC-01 — Generator Performance during Frequency and Voltage Excursions — FRCC

Research Needed:
None

Brief Description:
FRCC is developing a standard to establish “ride through” requirements for generators in the FRCC Region with respect to temporary grid voltage or frequency deviations from their normal range.

Standards Development Status:
See FRCC Regional Generator Performance During Frequency and Voltage Excursions.

Related Links:
See Florida Reliability Coordinating Council (FRCC) Standards Under Development page.

Midwest Reliability Organization (MRO) Regional Reliability Standards Development Projects

TPL-503-MRO-01 — System Performance Requirement — MRO

Standards Involved:
TPL-503-MRO-01 — System Performance Requirement — MRO

Research Needed:
None

Brief Description:
The MRO is developing a regional standard to ensure adequate interconnected transmission system performance in the MRO.

Standards Development Status:
See MRO System Performance Requirement.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

TPL-504-MRO-01 — Sub synchronous Resonance Requirement — MRO

Standards Involved:
TPL-504-MRO-01 — Subsynchronous Resonance Requirement — MRO

Research Needed:
None

Brief Description:
The MRO is developing a regional standard to ensure subsynchronous resonance with series compensated lines, torsional interaction with power system controls and generator shaft damage or excessive torsional fatigue due to network switching does not occur in the Midwest Reliability Organization ("MRO").

Standards Development Status:
See MRO Subsynchronous Resonance Requirement.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

PRC-502-MRO-01 — Power System Stabilizer Requirement — MRO

Standards Involved:
PRC-502-MRO-01 — Power System Stabilizer Requirement — MRO

Research Needed:
None

Brief Description:
The MRO is developing a regional standard to ensure that power system stabilizers are designed, installed and tuned as required to dampen power system oscillations in the Midwest Reliability Organization ("MRO"). To ensure small signal stability assessments are performed. To ensure testing programs are developed and poorly damped oscillations are analyzed and corrected.

Standards Development Status:
See MRO Power System Stabilizer Requirement.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

RES-501-MRO-01 — Generation Planning Reserve Requirements — MRO

Standards Involved:
RES-501-MRO-01 — Generation Planning Reserve Requirements — MRO

Research Needed:
None

Brief Description:
The MRO is developing a regional standard to establish common criteria by which to assess Resource Adequacy in the MRO for the short term and long term planning horizon.

Standards Development Status:
See MRO Generation Planning Reserve Requirements.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

PRC-006-MRO-01 — Development and Documentation of Regional UFLS Programs — MRO

Standards Involved:
PRC-006-MRO-01 — Development and Documentation of Regional UFLS Programs — MRO

Research Needed:
None

Brief Description:
The MRO will develop a regional reliability standard (Standard) with requirements for automatic Underfrequency Load Shedding (UFLS) programs. The regional Standards will require that UFLS programs arrest declining frequency and assist recovery of frequency following a frequency excursion. This standard will address the UFLS Regional Reliability Standard Characteristics developed by the NERC UFLS standard draft team.

Standards Development Status:
See MRO Development and Documentation of Regional UFLS Programs.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

~~BAL-002-MRO-01 — Disturbance Control Performance — MRO~~

~~Standards Involved:~~

~~BAL-002-MRO-01 — Disturbance Control Performance — MRO~~

~~Research Needed:~~

~~None~~

~~Brief Description:~~

~~The MRO will update the current regional standard that supports the continent-wide standard(s) developed for disturbance control performance. The regional Standards will specify regional Contingency Reserve policy.~~

~~Standards Development Status:~~

~~See MRO Disturbance Control Performance.~~

~~Related Links:~~

~~See Midwest Reliability Organization (MRO) Standards Under Development page.~~

~~PRC-012-MRO-01 — Special Protection System Review Procedure — MRO~~

~~Standards Involved:~~

~~PRC-012-MRO-01 — Special Protection System Review Procedure — MRO~~

~~Research Needed:~~

~~None~~

~~Brief Description:~~

~~The MRO will develop the requirements for the design, performance, coordination, maintenance and testing of Special Protection Systems; to ensure misoperations are properly analyzed and corrected. The MRO will develop the technical criteria required to support its implementation.~~

~~Standards Development Status:~~

~~See MRO Special Protection System Review Procedure.~~

~~Related Links:~~

~~See Midwest Reliability Organization (MRO) Standards Under Development page.~~

PRC-018-MRO-01 — Disturbance Monitoring — MRO

Standards Involved:
PRC-018-MRO-01 — Disturbance Monitoring — MRO

Research Needed:
None

Brief Description:
The MRO will develop requirements for recording and reporting sequence of events (SOE) data, fault recording (FR) data, and dynamic disturbance recording (DDR) data to facilitate analysis of Disturbances including:

- how to determine / select a preferred location of this equipment,
- installation and equipment minimum technical requirements,
- data communication requirements,

Standards Development Status:
See MRO Disturbance Monitoring.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

Northeast Power Coordinating Council (NPCC) Regional Reliability Standards Development Projects

At this time, NPCC will be developing at least four regional standards projects as required to support reliability objectives and as may be required to support their associated continent-wide NERC reliability standards identified in the first part of this volume. NPCC will develop the initial four regional standards in conjunction with, and as set forth by the schedules associated with the continent-wide standards, or schedules set forth by FERC, or our members.

In conjunction with this effort, a project is underway to translate the NPCC Criteria into "Directories" to demonstrate consistency with the NERC Reliability Standards. These Directories will utilize the applicable NERC Functional Model language, contain reference to related NERC standards, clearly identify applicability and utilize NERC glossary terms and when no term is available, use NPCC defined terms. These Directories are updated and submitted to NERC periodically to satisfy the NERC requirement as outlined in the Rules of Procedure to maintain a catalog of regional criteria. The Directories may be viewed on the "Regional Documents" section of the NPCC website or accessed through a link on the NERC website.

~~BES-501-NPCC-01 — Classification of Bulk Power Systems Elements — NPCC~~

~~Standards Involved:~~

~~BES-501-NPCC-01 — Classification of Bulk Power System Elements — NPCC~~

~~Research Needed:~~

~~None~~

~~Brief Description:~~

~~NPCC has begun the development of a standard that outlines the methodology of how the BPS in the NPCC region is determined through analytical studies. The Standard will be based on the NPCC A-10 Classification of Bulk Power System Elements, criteria.~~

~~Standards Development Status:~~

~~The NPCC Regional Standards Committee has approved the Regional Standards Authorization Request, RSAR, drafting will begin shortly and in accordance with NPCC's, FERC filed and approved Regional Standards Development Procedure.~~

~~Related Links:~~

~~See Northeast Power Coordinating Council's NPCC "Standards Under Development" page.~~

PRC-006-NPCC-01 — Underfrequency Load Shedding Program — NPCC

Standards Involved:
PRC-006-NPCC-01 — Underfrequency Load Shedding Program — NPCC

Research Needed:
None

Brief Description:
This Standard will provide the detailed requirements and measures to automatically provide system preservation by implementing an automatic underfrequency load shedding program to respond to system underfrequency events. The Standard will also emphasize the need for coordination amongst the NPCC region's members, and those areas outside the NPCC footprint, and provide direction for refinements of underfrequency systems already in place. The standard will address issues that smaller entities may have due to reduced amounts of distribution feeders.

The Standard will ensure that all requirements will be identified to ensure compliance with relevant NERC standards.

The NPCC regional UFLS standard shall apply to Balancing Authority Areas "BA Areas" that are both synchronous and asynchronous to the eastern interconnection. BA Areas that are asynchronous (e.g. Quebec) will develop UFLS parameters with a different technical basis and requirements.

Standards Development Status:
The NPCC Regional Standards Committee has approved the Regional Standards Authorization Request, RSAR, drafting has begun and an open process posting for comments has been completed and in accordance with NPCC's, FERC filed and approved Regional Standards Development Procedure. NPCC is targeting member approvals by December 2009 with submission to NERC and FERC targeted for 2010.

Related Links:
See Northeast Power Coordinating Council's NPCC "Standards Under Development" page.

PRC-012-NPCC-01 — Special Protection Systems — NPCC

Standards Involved:
PRC-012-NPCC-01 — Special Protection Systems — NPCC

Research Needed:
None

Brief Description:
The proposed Standard will describe the requirements for the design of Special Protection Systems, and the technical criteria required to support its implementation. The Standard will also identify the need for close coordination among various parties to ensure that the Special Protection Systems are implemented correctly, and triggers and resulting actions are made known and communicated in an on-line database.

Standards Development Status:
The NPCC Regional Standards Committee has approved the Regional Standards Authorization Request, RSAR, drafting will begin shortly in accordance with NPCC's, FERC filed and approved Regional Standards Development Procedure. NPCC is targeting member approval the standard by December 2010 and submission to NERC and FERC is targeted for 2011.

Related Links:
See Northeast Power Coordinating Council's NPCC "Standards Under Development" page.

PRC-002-NPCC-01 — Disturbance Monitoring — NPCC

Standards Involved:
PRC-002-NPCC-01 — Disturbance Monitoring— NPCC

Research Needed:
None

Brief Description:
The Standard will establish the technical requirements for disturbance monitoring equipment, including:

- system operating parameters that are to be measured and recorded,
- how to determine/select a preferred location of this equipment,
- installation and equipment minimum technical requirements,
- data communication requirements,
- analysis tools.

Criteria for facility owner requirements for reporting disturbance data will also be defined.

Standards Development Status:
The NPCC Regional Standards Committee has approved the Regional Standards Authorization Request, RSAR, drafting has begun and an open process posting for comment has been completed in accordance with NPCC's, FERC filed and approved Regional Standards Development Procedure. NPCC is targeting member approval for this standard by December 2009 with submission to NERC and FERC targeted for 2010.

Related Links:
See Northeast Power Coordinating Council's NPCC "Standards Under Development" page.

ReliabilityFirst Corporation (RFC) Regional Reliability Standards Development Projects

MOD-024-RFC-01 — Generator Real (MW) Power Capability — RFC

Standards Involved:
MOD-024-RFC-01 — Verification of Generator Real (MW) Power Capability — RFC

Research Needed:
None

Brief Description:
RFC plans to develop a regional standard to ensure accurate information on generator gross and net Real (MWs) Power capability is available for steady-state models used to assess Bulk Electric System reliability.

Standards Development Status:
See RFC Verification and Data Reporting of Generator Gross and Net Real Power Capability project.

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page.

MOD-025-RFC-01 — Generator Reactive (MVAR) Power Capability — RFC

Standards Involved:
MOD-025-RFC-01 — Verification of Generator Reactive (MVAr) Power Capability — RFC

Research Needed:
None

Brief Description:
RFC plans to develop a regional standard to ensure accurate information on generator gross and net Reactive (MVAR) Power capability is available for steady-state models used to assess Bulk Electric System reliability.

Standards Development Status:
See RFC Verification and Data Reporting of Generator Gross and Net Reactive Power Capability project

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page.

BAL-502-RFC-02 — Resource Planning Reserve Requirement Standard — RFC

Standards Involved:
BAL-502-RFC-02 — Resource Planning Reserve Requirement Standard — RFC

Research Needed:
None

Brief Description:
RFC is developing a regional standard to establish requirements for a minimum level of resource adequacy to reliably serve all load in the ReliabilityFirst (RFC) corporate region.

Standards Development Status:
See RFC Planning Resource Adequacy Analysis, Assessment and Documentation.

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page.

PRC-006-RFC-01 — Automatic Underfrequency Load Shedding Requirements — RFC

Standards Involved:
PRC-006-RFC-01 — Automatic Underfrequency Load Shedding Requirements — RFC

Research Needed:
None

Brief Description:
RFC is developing a regional standard to establish requirements for automatic underfrequency load shedding (UFLS) to support NERC Reliability Standard PRC-006.

Standards Development Status:
See RFC Automatic Underfrequency Load Shedding Requirements.

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page

PRC-002-RFC-01 — Disturbance Monitoring and Reporting Requirements — RFC

Standards Involved:
PRC-002-RFC-01 — Disturbance Monitoring and Reporting Requirements — RFC

Research Needed:
None

Brief Description:
RFC is developing a regional standard to establish requirements establish requirements for Disturbance monitoring and reporting to support NERC Reliability Standard PRC-002.

Standards Development Status:
See RFC Disturbance Monitoring and Reporting Requirements

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page

PRC-012-RFC-01 — Special Protection System Requirements — RFC

Standards Involved:
PRC-012-RFC-01 — Special Protection System Requirements — RFC

Research Needed:
None

Brief Description:
RFC is developing a regional standard to establish requirements for the review, development and application of Special Protection Systems (SPS) in one RFC standard allowing the retirement of the associated legacy documents. The standard will ultimately be mandated by NERC in support of NERC PRC-012-1 as related to a review process as well as a unique RFC application criterion.

Standards Development Status:
See RFC Special Protection System Requirements Standard.

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page

SERC Reliability Corporation (SERC) Regional Reliability Standards Development Projects

SERC has no additional regional standards planned at this time beyond the four regional standards projects required to support their associated continent-wide NERC reliability standards identified in first part of this volume. SERC will develop these four regional standards in conjunction with, and as set forth by the schedules associated with, the continent-wide standards.

PRC-006-SERC-01 — Underfrequency Load Shedding Program — SERC

Standards Involved:
PRC-006-SERC-01 — Underfrequency Load Shedding Program — SERC

Research Needed:
None

Brief Description:
This standard will provide the measures to automatically provide system preservation by implementing an automatic underfrequency load shedding (UFLS) program to respond to system underfrequency events. The standard will also emphasize the need for coordination amongst the entities within the SERC footprint, and with those areas outside the SERC footprint. The standard requirements will ensure compliance with the NERC PRC-006-1 continent-wide standard, and other relevant NERC standards.

Standards Development Status:
The SERC Standards Committee accepted the SAR to develop a SERC UFLS Regional Reliability Standard on February 27, 2008 and assigned to the SERC Engineering Committee (EC). It was approved by the EC Executive Committee on April 25, 2008 and a standard draft team (or Responsible SERC Subgroup—RSS) was appointed on June 19, 2008. The first draft of the standard was posted for comments on September 19, 2008; second draft posted for comments on November 21, 2008; and the third draft was posted for information on February 9, 2009. Currently in Step 6 (*Drafting of a SERC Regional Reliability Standard*) of the 13 steps SERC Regional Standards Development Procedure. Plans are to update the third draft to make it consistent with the NERC continent-wide standard, post it for one more comment period, and take the final draft to ballot in the fourth quarter of 2009.

Related Links:
See the SERC Reliability Corporation Standards page

Southwest Power Pool, Inc. (SPP) Regional Reliability Standards Development Projects

PRC-~~3~~006-SPP-01 — Automatic Underfrequency Load Shedding Program — SPP

Standards Involved:
PRC-~~3~~006-SPP-01 — Automatic Underfrequency Load Shedding Program — SPP

Research Needed:
None

Brief Description:
The SPP Standard Drafting Team is in a process developing first draft of SPP regional standard for Underfrequency Load Shedding Program. The regional Standards will require that UFLS programs arrest declining frequency and assist recovery of frequency following a frequency excursion. This standard will consider the UFLS Regional Reliability Standard Characteristics developed by the NERC UFLS standard draft team.

Standards Development Status:
See SPP Standard Development Page

Related Links:
See Southwest Power Pool's (SPP) Standards Under Development page

Texas Regional Entity (Texas RE) Regional Reliability Standards Development Projects

BAL-001-TRE-01 — Regional Variance for CPS2 — Texas RE

Standards Involved:
BAL-001-TRE-01 Regional Variance for CPS2 — Texas RE

Research Needed:
None

Brief Description:
A Texas RE standard drafting team is drafting a regional variance to R2 of BAL-001-0 that still meets the purpose of the standard: Maintain Interconnection steady-state frequency within defined limits by balancing real power demand and supply in real-time. ERCOT currently has a NERC waiver for the CPS2 method (11/21/02) described in R2. This regional variance will provide what ERCOT employs instead of CPS2 to achieve the overall purpose of the BAL standard.

This variance will be the modification that was ordered by FERC in Order 693: As with other new regional differences, the commission expects that the ERCOT regional difference will include Requirements, Measures, and Levels of Non-Compliance sections. This regional variance will incorporate Section 5.9 of the ERCOT Protocols (and the applicable Nodal Protocol) to accomplish this objective. This variance as currently drafted will apply to the Balancing Authority that is ERCOT , GOs and GOPs.

Standards Development Status:
See Texas Regional Entity (Texas RE) Reliability Standards Tracking Status

Related Links:
SAR-003 Standard Drafting Team: Modification to ERCOT Waiver to R2 of BAL-001-0 CPS2

PRC-006-TRE-01 — Development and Documentation of Regional UFLS Program — Texas RE

Standards Involved:
PRC-006-TRE-01 — Development and Documentation of Regional UFLS Program — Texas RE

Research Needed:
None

Brief Description:
A Texas RE standard drafting team is currently following, reviewing, and commenting upon the characteristics of the NERC UFLS continent-wide standard that is under development (Project 2007-01). Depending on the specific characteristics and requirements of the continent-wide standard, and if necessary, the team will develop a regional reliability standard with requirements for automatic UFLS programs that will require that UFLS programs arrest declining frequency and assist recovery of frequency following a frequency excursion.

Standards Development Status:
See Texas Regional Entity (Texas RE) Reliability Standards Tracking Status

Related Links:
SAR-002 Standard Drafting Team: Development and Documentation of Regional UFLS Programs

Western Electricity Coordinating Council (WECC) Regional Reliability Standards Development Projects

~~(Note: WECC is currently undergoing an extensive study of what regional standards need to be developed. The study should be completed by the end of 2007 at which time WECC may add to the list of WECC regional reliability standards to be developed.)~~

TOP-007-WECC-1 — Operating Transfer Capability — WECC

Standards Involved:
TOP-007-WECC-1 — Operating Transfer Capability — WECC

Research Needed:
None

Brief Description:
The purpose of this standard is to create a permanent replacement standard for TOP-STD-007-0. TOP-007-WECC-1 is designed to implement the directives of FERC and recommendations of NERC when TOP-STD-007-0 was approved as a NERC reliability standard.

This draft standard incorporates the following refinements to the first draft of TOP-007-WECC-1 in response to comments received during the first comment period that ended November 5, 2007 and the second comment period that ended January 2, 2008.

1. Refine R1 to remove the requirement to return a path to within its limit in 20 minute for SOLs based upon Transient Stability and Voltage Stability.
2. Refine R2 to limit the compliance period for the Net Scheduled Interchange to the real-time schedules for the next hour.
3. Refine R2 to permit 30 minutes to adjust Net Scheduled Interchange when SOLs reduce within 20 minutes of the start of the hour.
4. Change M2 based upon the refinements to R2.
5. Base the violation severity levels for R2 upon magnitude.

This version of the TOP-007-WECC-1 standard is for NERC Board of Trustee ballot. The WECC Board of Directors approved the standard April 16, 2008. WECC Operating Committee approved the standard March 6, 2008. The WECC Board of Directors and Operating Committee request that the NERC Board of Trustees approve the TOP-007-WECC-1 Standard as a permanent replacement standard for TOP-STD-007-0 and that the NERC Board of Trustees submits the standard to FERC for approval and replacement of TOP-STD-007-0.

Justification for a Regional Standard
The NERC standard (TOP-STD-007-0) has requirements for reducing actual flows to within System Operating Limits (SOL) on Major WECC Transfer Paths in the Bulk Electric System. The major paths listed in the Table titled "Major WECC Transfer Paths in the Bulk Electric System" are significant components for reliable delivery of power in the Western Interconnection. System Operating Limits for these paths are critical because they transfer energy from remotely located generation to population/load centers. The entities of the Western Interconnection through studies and operation see the need for optimizing the capacity of these paths. The lack of redundant transmission in these corridors raises the level of scrutiny for these paths; therefore, this standard is designed to add emphasis to reducing flows to within SOL to maintain reliable Western Interconnection operation.

~~NERC TOP-007-0 (R2) requires the Transmission Operator to return its transmission path flows to within Interconnection Reliability Operating Limits (IROL) as soon as possible, but no longer than 30 minutes following a contingency or event. This requirement applies only to those limits that are defined as IROL. Depending on the current system conditions, the limits for the paths identified in this TOP-007-WECC-1 standard are SOL that would not result in cascading outages. There is no NERC requirement to return the transmission system to within SOL limits, only a requirement to report to the Reliability Coordinator. TOP-007-WECC-1 specifically applies to the major paths in the Western Interconnection regardless of whether the limit is defined as an IROL or the less severe SOL.~~

~~In Order No. 693 and Docket No. RR07-11-000, the FERC expressed concern that TOP-007-0 could be interpreted as allowing a system operator to respect IROLs in one of two ways: (1) allowing IROL to be exceeded during normal operations, *i.e.*, prior to a contingency, provided that corrective actions are taken within 30 minutes; or (2) allowing IROL to be exceeded only after a contingency and subsequently returning the system to a secure condition as soon as possible, but no longer than 30 minutes. FERC explained that the system could be one contingency away from potential cascading failure if operated under the first interpretation and two contingencies away from cascading failure under the second interpretation. FERC directed NERC to conduct a survey on IROL practices and actual operating experiences of managing within IROL. The survey results will provide guidance on the frequency, duration, and magnitude of IROL violations and whether these IROL violations occur during normal or contingency conditions.~~

~~WECC and NERC responded to FERC's June 8, 2007 Order (Docket No. RR007-11-000) in its compliance filing of July 9, 2007. The compliance filing document is posted with this standard for reference. On November 2, 2007, FERC accepted NERC's and WECC's filing and indicated that the filling satisfactorily responds to the Commission's directive, *Order Approving Regional Reliability Standards for the Western Interconnection and Directing Modifications*, 119 FERC ¶ 61,260 (2007) at P 108.~~

~~Standards Development Status:~~
~~See WECC Development Status page~~

~~Related Links:~~
~~See WECC Approved Standards page~~

~~**PRC-STD-001-1 — Certification of Protective Relay — WECC**~~

~~**Standards Involved:**~~
~~PRC-STD-001-1 — Certification of Protective Relay — WECC~~

~~**Research Needed:**~~
~~None~~

~~**Brief Description:**~~
~~The PRC-STD-001 standard will be retired.~~

~~**Standards Development Status:**~~

~~**Related Links:**~~

~~PRC-004-WECC-1 — Protective Relay and RAS Misoperation — WECC~~

~~Standards Involved:~~

~~PRC-004-WECC-1 — Protective Relay and RAS Misoperation — WECC~~

~~Research Needed:~~

~~None~~

~~Brief Description:~~

~~The purpose of this standard is to create a permanent replacement standard for PRC-STD-001-1 and PRC-STD-003-1. PRC-004-WECC-1 is designed to implement the directives of FERC and recommendations of NERC when PRC-STD-001-1 and PRC-STD-003-1 were approved as NERC reliability standards. The new standard addresses the following areas:~~

1. ~~Requirements for investigating operations to check for Misoperations.~~
2. ~~Mitigation requirements after security-based Misoperations for redundant or non-redundant Protection Systems or Remedial Action Schemes.~~
3. ~~Mitigation requirements after dependability-based Misoperations that do not adversely affect the reliability of the Bulk Electric System.~~

~~Several significant changes were made to PRC-STD-001 and PRC-STD-003 and they are itemized here:~~

1. ~~PRC-STD-003 was renumbered to PRC-004-WECC-1. This makes both the PRC-004 and the Regional PRC-004-WECC-1 standards applicable to similar entities. PRC-003 is applicable to the RRO.~~
2. ~~Standard PRC-STD-001 will be retracted because the requirements are covered by other standards per description below:~~
    a. ~~PRC-STD-001 requirements B-WR1-a,b,c are covered under PRC-001~~
    b. ~~PRC-STD-001 requirement B-WR1-d is covered in this standard PRC-004-WECC-1~~
    c. ~~PRC-STD-001 requirement B-WR1-e is covered under TOP-005-1~~

~~The WECC Operating Committee approved the PRC-004-WECC-1 standard as a permanent replacement standard for PRC-STD-001-1 and PRC-STD-003-1 on March 6, 2008. The WECC Board of Directors approved this standard April 16, 2008. The WECC Board of Directors recommends that the NERC Board of Trustees approve the PRC-004-WECC-1 as a permanent replacement standard for PRC-STD-001-1 and PRC-STD-003-1. In addition, the WECC Board of Directors recommends that the NERC Board of Trustees submits the standard to FERC for approval.~~

~~Justification for a Regional Standard~~

~~The NERC standard PRC-003-1 has requirements for Regional Reliability Organizations to establish procedures for review, analysis, reporting, and mitigation of transmission and generation Protection System Misoperations but does not address the owners of the transmission and generation facilities. The NERC standard PRC-004-1 has requirements for Protection~~

~~System Misoperations but does not provide for the additional requirements as listed in PRC-004-WECC-1. The WECC Transmission Paths listed in the table titled "Major WECC Transfer Paths in the Bulk Electric System" and WECC RAS listed in table titled "Major WECC Remedial Action Schemes (RAS)" of PRC-004-WECC-1 are significant components for reliable delivery of power in the Western Interconnection. Protection System Misoperations and failures can cause reductions to the System Operating Limits (SOL) for those paths, and thus limit transfers between remotely located generation in the Western Interconnection and population/load centers. WECC identified the need for the timely mitigation of relaying problems and implemented such actions under the Reliability Management System (RMS). PRC-004-WECC-1 incorporates the RMS criteria and provides:~~

~~1.More robust requirements for review and analysis of all operations of those elements by operating and system protection personnel, and~~

~~2.Timely actions that must be taken to ensure that Misoperations of those elements are not repeated.~~

~~This standard is designed to minimize the SOL reductions required to maintain reliable Western Interconnection operation.~~

~~Standards Development Status:~~

~~See WECC Standards Development page~~

~~Related Links:~~

~~See WECC Approved Standards page~~

~~IRO-006-WECC-1 — Unscheduled Flow — WECC~~

~~Standards Involved:~~

~~IRO-006-WECC-1 — Unscheduled Flow — WECC~~

~~Research Needed:~~

~~None~~

~~Brief Description:~~

~~The WECC Regional Standards Task Force (RSTF) has identified the Qualified Path Unscheduled Flow (USF) Relief Criterion included in Reliability Management System (RMS) Reliability Criteria Agreement as a criterion that the RSTF desires to translate to the newly approved WECC Standards format for submittal to the ERO for approval for mandatory compliance. All requirements and compliance elements associated with the Qualified Path Unscheduled Flow Relief requirements are already identified in the existing RMS Agreement, so development of these components is not necessary. This is a translation effort to put the requirements in the approved format and seek WECC approval for submittal to the ERO for mandatory enforcement.~~

~~The purpose of this standard is to create a permanent replacement standard for IRO-STD-006-0 that implements key requirements from WECC's Unscheduled Flow Mitigation Plan (UFMP). The standard called IRO-006-WECC-1 is designed to implement the FERC directives and NERC recommendations when IRO-STD-006-0 was approved as a NERC reliability standard. In the UFMP the Qualified Path Unscheduled Flow Relief responsibilities do not conform to the current NERC functional model. This RMS Criterion and currently-approved standard assigns Load Serving Entities (LSEs) the responsibility of curtailing schedules to reduce unscheduled flow, a reliability function that the NERC functional model now assigns to Reliability Coordinators and Balancing Authorities. The existing RMS and IRO-STD-006 standards place the sole responsibility for providing relief upon the LSE without providing the ability for the LSE to ensure compliance (e.g. the Balancing Authority does not have to approve a curtailment request made by the LSE).~~

~~In the proposed IRO-006-WECC-1 standard, responsibility for initiating schedule curtailment is assigned to the Reliability Coordinators, and the responsibility for implementing the curtailments is assigned to Balancing Authorities. The proposed standard should improve the efficiency of the program including improved compliance, more certain Unscheduled Flow relief, and fewer complications associated with multiple entities taking partial responsibility for curtailment activity.~~

~~Standards Development Status:~~

~~See WECC Standards Development page~~

~~Related Links:~~

~~See WECC Approved Standards page~~

FAC-501-WECC-1 — Transmission Maintenance — WECC

Standards Involved:
FAC-501-WECC-1 — Transmission Maintenance — WECC

Research Needed:
None

Brief Description:
The purpose of this standard is to create a permanent replacement standard for PRC-STD-005-1. In response to comments, the drafting team changed the name of the standard from PRC-005-WECC-1 to FAC-501-WECC-1 to better align with the NERC numbering system. FAC-501-WECC-1 is designed to implement the directives of FERC and recommendations of NERC when PRC-STD-005-1 was approved as a NERC reliability standard. This version of the FAC-501-WECC-1standard is for NERC Board of Trustee ballot. The WECC Board of Directors approved the standard April 16, 2008. WECC Operating Committee approved the standard March 6, 2008. The WECC Board of Directors and Operating Committee request that the NERC Board of Trustees approve the FAC-501-WECC-1 Standard as a permanent replacement standard for PRC-STD-005-1 and that the NERC Board of Trustees submits the standard to FERC for approval and replacement of PRC-STD-005-1.

Standards Development Status:
See WECC Standards Development page

Related Links:
See WECC Approved Standards page

VAR-0012-WECC-1 — Automatic Voltage and Reactive Control Regulators — WECC

Standards Involved:

VAR-0012-WECC-1 — Automatic Voltage RegulatorsVoltage and Reactive Control — WECC

Research Needed:

None

Brief Description:

The purpose of this standard is to ensure that voltage levels, reactive flows, and reactive resources are monitored, controlled, and maintained within limits in real time to protect equipment and the reliable operation of the Interconnection.
to create a permanent replacement standard for VAR-STD-002a-1. VAR-002-WECC-1 is designed to implement the directives of FERC and recommendations of NERC when VAR-STD-002a-1 was approved as a NERC reliability standard.

In the Western Interconnection, System Operating Limits for transmission paths in the Bulk Electric System assume that Automatic Voltage Regulators are in service to control voltage to support the transfer capability. The requirements in VAR-002-WECC-1 are to ensure that the generator provides the proper voltage support when generation and transmission outages occur.

During the VAR-002-WECC-1 standard development process it was identified that not all WECC Transmission Operators provided voltage schedules to their Generation Operators. They are allowed to do this because Transmission Operators the NERC VAR-001-1a requirement R4 allows the option of providing reactive power schedules rather than voltage schedules. The practice of providing reactive power or power factor schedules forces Generation Operators to manually adjust their automatic voltage regulator (AVR) voltage setting by trial and error to find a voltage setting that will provide the exact amount of reactive power directed by the Transmission Operator. Since the voltage on the transmission grid varies throughout the day, the Generation Operator is forced to continuously reset the voltage on the AVR. This is an unnecessary and distracting manual control burden on the Generation Operator.

NERC VAR-002 requires the Generation Operator to comply exactly with the voltage schedule or reactive power schedule directed by the Transmission Operator. If the Transmission Operator provides a voltage schedule, the AVR can automatically maintain compliance with the NERC requirement. If the Transmission Operator refuses to provide a voltage schedule, and instead insists on providing a reactive power schedule, compliance can no longer depend on the automatic operation of the AVR. The VAR-002-WECC-1 standard prohibits the AVR from being switched to a constant reactive power mode of operation. Instead compliance becomes totally dependent on constant attention and readjustment by the Generation Operator. This significantly increases the risk of non-compliance for the Generator Operator.

Even more disturbing is the fact that this situation (the Transmission Operator specifying a constant reactive power output rather than a constant voltage level) defeats the intended purpose of the WECC VAR-002-WECC-1 standard, to prevent a voltage collapse. If the voltage does begin to collapse, the generator AVR, operating in constant voltage mode, will increase the

reactive power output from the unit. That increase in reactive output means that the generator will no longer be producing the amount of reactive power specified by the Transmission Operator's reactive power schedule. Once this occurs, the Generation Operator must immediately reduce the reactive power provided by the generator or risk noncompliance with NERC standard VAR-002, R2. That will result in the generator doing the exact opposite of what is needed to prevent a voltage collapse and exposes the Interconnection to a risk of blackout.

Therefore, the VAR-001-WECC-1 standard drafting team was form to develop a standard to require Transmission Operators to issue voltage schedules. The drafting team surveyed Transmission Operators and Generator Operators to identify scheduling practices that are causing confusion between Transmission Operators and Generator Operators. The first draft of a proposed VAR-001-WECC-1 Standard is expected to be posted for an initial 45 day comment period during the fourth quarter of 2009. The drafting team anticipates balloting and requesting WECC Board of Director approval during the second have of 2010.
~~This version of the VAR-002-WECC-1 standard is for NERC Board of Trustee ballot. The WECC Board of Directors approved the standard April 16, 2008. WECC Operating Committee approved the standard March 6, 2008. The WECC Board of Directors and Operating Committee request that the NERC Board of Trustees approve the VAR-002-WECC-1 Standard as a permanent replacement standard for VAR-STD-002a-1 and that the NERC Board of Trustees submits the standard to FERC for approval and replacement of VAR-STD-002a-1.~~

WECC Standard VAR-001-WECC-1 is more stringent than a continent wide standard.
~~VAR-002-WECC-1 is more stringent than a continent wide standard.~~

Standards Development Status:

See WECC Standards Development page at:
http://www.wecc.biz/Standards/Development/Pages/default.aspx
~~See WECC Standards Development page~~

Related Links:

See http://www.wecc.biz/Standards/Development/WECC0046/default.aspx ~~WECC Approved Standards page~~

~~VAR-501-WECC-1 — Power System Stabilizers — WECC~~

~~Standards Involved:~~

~~VAR-501-WECC-1 — Power System Stabilizers — WECC~~

~~Research Needed:~~

~~None~~

~~Brief Description:~~

~~The WECC Regional Standards Task Force (RSTF) has identified the Power System Stabilizers (PSS) Criterion included in Reliability Management System (RMS) Reliability Criteria Agreement as a criterion that the RSTF desires to translate to the newly approved WECC Standards format for submittal to the ERO for approval for mandatory compliance. All requirements and compliance elements associated with the PSS requirements are already identified in the existing RMS Agreement, so development of these components is not necessary. This is a translation effort to put the requirements in the approved format and seek WECC approval for submittal to the ERO for mandatory enforcement.~~

~~The purpose of this standard is to create a permanent replacement standard for VAR-STD-002b-1. VAR-501-WECC-1 is designed to implement the directives of FERC and recommendations of NERC when VAR-STD-002b-1 was approved as a NERC reliability standard. NERC Standard VAR-002-1 only requires that Transmission operators know the status of Power System Stabilizers (PSS). WECC's proposed VAR-501-WECC-1 standard requires that PSS to be in service 98% of all operating hours for synchronous generators, unless very specific with restrictive repair and operational conditions exist. The permanent replacement standard VAR-STD-002b-1 addresses requirements for which there is no similar NERC Standard.~~

~~Standards Development Status:~~

~~Related Links:~~

~~See WECC Approved Standards page~~

BAL-004-WECC-01 — Automatic Time Error Correction Standard — WECC

Standards Involved:

BAL-004-WECC-01 — Automatic Time Error Correction Standard — WECC

Research Needed:

None

Brief Description:

WECC is developing a regional standard to maintain Interconnection frequency within a predefined frequency profile under all conditions (i.e. normal and abnormal), and to ensure that Time Error Corrections are effectively conducted in a manner that does not adversely affect the reliability of the Interconnection.

The Automatic Time Error Correction standard is designed to:

1. Ensure that Automatic Time Error Correction is an enforceable mandatory standard in the Western Interconnection
2. Ensure participation from all Balancing Authorities in the Western Interconnection
3. Ensure continuous and equitable payback of accumulated Inadvertent Interchange between Balancing Authorities in the Western Interconnection
4. Ensure continuous reduction in time error correction

Submitted to FERC for approval.

Standards Development Status:

Related Links:

See WECC Approved Standards page

BAL-002-WECC-1 — Contingency Reserves — WECC

Standards Involved:
BAL-002-WECC-01 Contingency Reserves Standard — WECC

Research Needed:
None

Brief Description:
The purpose of this standard is to create a permanent replacement standard for BAL-STD-002-0. BAL-002-WECC-1 is designed to implement the directives of FERC and recommendations of NERC when BAL-STD-002-0 was approved as a NERC reliability standard. The drafting team implemented in the standard additional refinements to address concerns as explained in the document titled, "WECC Standard BAL-002-WECC-1 Contingency Reserves." To assist in understanding the refinements made to the standard, the drafting team has developed a document that compares BAL-002-WECC-1, the permanent replacement standard, with the existing BAL-STD-002-0 (see BAL-002-WECC-1 Comparison).

This version of the BAL-002-WECC-1 standard is for NERC Board of Trustee ballot. The WECC Board of Directors approved the standard April 16, 2008. WECC Operating Committee approved the standard March 6, 2008. The WECC Board of Directors and Operating Committee request that the NERC Board of Trustees approve the BAL-002-WECC-1 Standard as a permanent replacement standard for BAL-STD-002-0 and that the NERC Board of Trustees submits the standard to FERC for approval and replacement of BAL-STD-002-0.

Standards Development Status:
See WECC Standards Development Status page:

Related Links:
See WECC Approved Standards page

NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Reliability Standards Development Plan: 2010–2012

Volume I — Overview

to ensure the reliability of the bulk power system

October 7, 2009

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Acknowledgement

The NERC Reliability Standards Program would like to thank all the individuals who invest their time and expertise in the development of NERC Reliability Standards and in the annual revision of this *Reliability Standards Development Plan*. The plan reflects comments and input from stakeholders, staff, the NERC technical community, and government agencies with oversight for electric reliability. Through collaboration and industry consensus, we expect to develop NERC Reliability Standards that are technically accurate, clear, enforceable, and provide an Adequate Level of Reliability for the North American bulk power system.

Table of Contents

Volume III: Regional Reliability Standards Projects (provided separately)

Introduction

Purpose

The North American Electric Reliability Corporation (NERC) is committed to developing reliability standards that deliver an Adequate Level of Reliability for the North American bulk power system. The NERC *Reliability Standards Development Plan* serves as the foundation for reliability standards development efforts. The plan serves as the management tool that guides, prioritizes, and coordinates revision or retirement of existing reliability standards and the development of new reliability standards for the immediate 3-year time horizon.

The initial 3-year plan was developed in 2006 and has been since updated annually. In doing so, NERC seeks input from the other program areas within NERC, as well as from NERC's technical committees and industry groups, on the need for and prioritization of new or revised reliability standards.

The objectives of the plan include but are not limited to:

- Addressing the recommendations for new or revised reliability standards identified in the *U.S.-Canada Power System Outage Task Force Final Report on the August 14, 2003 Blackout in the United States and Canada: Causes and Recommendations*.
- Addressing comments from industry, the Federal Energy Regulatory Commission (FERC), and others suggesting improvements to each reliability standard, including those comments received from industry stakeholders during public comment periods.
- Addressing quality issues to ensure each reliability standard has a clear statement of purpose, and has results-based requirements that are clear and measurable.
- Ensuring measures and compliance elements are aligned to support the requirements within the reliability standards and follow definitions outlined in the reliability standards template.
- Eliminating requirements that do not have an impact on bulk power system reliability; retiring redundant requirements; retiring or converting (into guidelines) lower-level "facilitating" requirements that are already measured through compliance with higher-level requirements; and moving basic "capability" requirements that are routinely used into the NERC certification process.
- Improving reliability standard requirements by incorporating approved interpretations.
- Incorporating feedback from other NERC program areas such as compliance monitoring and enforcement, reliability assessments, and event analysis.
- Satisfying the requirement in section 300 of the Rules of Procedure of the North American Electric Reliability Corporation for a five-year review of all reliability standards.

Developing excellent reliability standards is a long-term effort. This plan best supports the effort in that it is flexible and can be continuously adapted to circumstances and changing priorities.

The plan is reviewed and maintained by the NERC Standards Committee and Standards staff, and is updated on an annual basis or more frequently if necessary.

Summary

This revised *Reliability Standards Development Plan: 2010-2012* identifies a total of 37 continent-wide standards development projects. These projects are:

Projects initiated in 2006:
2006-02 Assess Transmission Future Needs
2006-04 Backup Facilities
2006-06 Reliability Coordination
2006-08 Transmission Loading Relief

Projects initiated in 2007:
2007-01 Underfrequency Load Shedding
2007-02 Operating Personnel Communications Protocols
2007-03 Real-time Operations
2007-04 Certifying System Operators
2007-05 Balancing Authority Controls
2007-06 System Protection Coordination
2007-07 Vegetation Management
2007-09 Generator Verification
2007-11 Disturbance Monitoring
2007-12 Frequency Response
2007-17 Protection System Maintenance and Testing
2007-18 Reliability-based Control

Projects initiated in 2008:
2008-01 Voltage and Reactive Control
2008-02 Undervoltage Load Shedding
2008-06 Cyber Security — Order 706
2008-12 Coordinate Interchange Standards

Projects initiated in 2009:
2009-01 Disturbance and Sabotage Reporting
2009-02 Real-time Tools
2009-03 Emergency Operations
2009-04 Phasor Measurements Units
2009-05 Resource Adequacy Assessments
2009-06 Facility Ratings
2009-07 Reliability of Protection Systems
2009-18 Withdraw Three Midwest ISO Waivers

Projects anticipated commencing in 2010:
2010-01 Support Personnel Training
2010-02 Connecting New Facilities to the Grid
2010-03 Modeling Data
2010-04 Demand Data
2010-05 Protection Systems
2010-06 Results-based Reliability Standards
2010-07 Generator Requirements at the Transmission Interface

Projects anticipated commencing in 2011:
None

Projects anticipated commencing in 2012:
2012-01 Equipment Monitoring and Diagnostic Devices
2012-02 Physical Protection

Projects within this Plan:

The number of projects proposed in this plan decreased to 37 from the 39 listed in the 2009-2011 version of the plan:

- The following seven projects identified in the 2009-2011 plan have been completed and removed from this revised plan:

Projects initiated in 2006:
2006-01 System Personnel Training
2006-03 System Restoration and Blackstart
2006-07 Transfer Capabilities: ATC, TTC, CBM, and TRM
2006-09 Facility Ratings

Projects initiated in 2007:
2007-14 Permanent Changes to CI Timing Table
2007-23 Violation Severity Levels

Projects initiated in 2008:
2008-08 EOP Violation Severity Levels Revisions

- Project 2008-05 Credible Multiple Element Contingencies which was identified in the 2009-2011 plan was removed from this revised plan as the requester of the Standard Authorization Request (SAR) withdrew their request from further development and consideration by the industry.

- The following six projects are new to the Reliability Standards Development Plan:

Projects initiated in 2009:
2009-06 Facility Ratings
2009-07 Reliability of Protection Systems
2009-18 Withdraw Three Midwest ISO Waivers

Projects anticipated commencing in 2010:
2010-06 Results-based Reliability Standards
2010-07 Generator Requirements at the Transmission Interface

Projects anticipated commencing in 2012:
2012-02 Physical Protection

To summarize, the *Reliability Standards Development Plan: 2009-2011* identified a total of 39 continent-wide standards development projects. Seven of those 39 projects have been completed and one was withdrawn leaving 31 currently active projects from the 2009-2011 plan. Six new projects have been added to the 2010-2012 plan, three of which were unanticipated but initiated in 2009 and three new projects, bringing to a total of 37 continent-wide standards development projects in this Reliability Standards Development Plan: 2010-2012.

Focus on Impact to Reliability

As part of the process employed in 2009 for revising the *Reliability Standards Development Plan,* NERC staff reached out to all stakeholders and asked for input on the plan. Similar to the last two years, several stakeholders indicated a concern that too many projects were under development concurrently which is stretching the industry resources available to work on standards development to their limits. They recommended that the plan focus industry resources on the projects having the greatest impact on reliability in the near-term, while deferring those of less immediate reliability benefit.

In addition, during the development of NERC's Three-year Assessment of its performance as the electric reliability organization, several stakeholders recommended that the industry focus existing reliability standards and reliability standards development on areas that will lead to the greatest improvement in bulk power system reliability. Suggestions included: (1) focus the development of new reliability standards on those that will lead to the greatest improvement in reliability; i.e., address the greatest risks of wide-area cascading outages; (2) reduce the number of existing reliability standards to just those that have a critical impact on reliability of the bulk power system and convert the remaining reliability standards to guidelines; and (3) develop a more systematic process for prioritizing new reliability standards development projects based on risks to the bulk power system.

Accordingly, this version of the plan establishes a new project (Project 2010-06 Results-based Reliability Standards) aimed at focusing NERC Reliability Standards to be more focused on reliability performance. This version also realigns one project, Project 2012-01 Equipment Monitoring and Diagnostic Devices, from 2011 to 2012 in order to ensure NERC and industry

resources are available to devote the needed level of expertise to Project 2010-06 Results-based Reliability Standards. There are no other projects planned for initiation in 2011 as a result.

Fill-in-the-blank Standards

The phrase "fill-in-the-blank standards" refers to standards that require a bulk power system user, owner, or operator to implement regional criteria that are not specifically part of a NERC Reliability Standard. While an acceptable practice, the regional criteria needs regulatory approval for proper evaluation in support of the NERC Reliability Standards or needs to be replaced with mandatory and enforceable standards that incorporate the needed reliability aspects.

NERC recognized this issue at the time it applied to become the ERO. Working with the Regional Entities, NERC provided dedicated staff to coordinate the development of regional standards and address the "fill-in-the-blank" issue. As a result, the action plans and schedules to resolve each "fill-in-the-blank" standard were provided in Volume III of the original 2007-2009 plan and has since been wholly incorporated into the projects identified in Volume II of each of the succeeding work plans.

Priority of Projects

All currently active projects are considered to be high priority projects meriting continuation.

For proposed standards development projects identified in the *Reliability Standards Development Plan*, the NERC Standards Committee, comprised of industry representatives, assists NERC staff in prioritizing the initiation of these projects.

Those projects anticipated to be started in 2010 represent the next highest priority set of projects. Each will be initiated in 2010 as determined by the NERC Standards Committee in coordination with NERC staff as other projects are concluded and coordinator and drafting team resources become available:

- Project 2010-01 Support Personnel Training is a priority project as it was proposed in support of a 2003 blackout recommendation.
- The following projects involve the original "Version 0" standards originally approved in 2005. They all are required to be reviewed in 2010 pursuant to the Rules of Procedure of the North American Electric Reliability Corporation which state in part "each reliability standard shall be reviewed at least once every five years from the effective date of the standard or the latest revision to the standard, whichever is later."
    - Project 2010-02 Connecting New Facilities to the Grid involves revisions to FAC-001 and FAC-002.
    - Project 2010-03 Modeling Data involves revisions to MOD-010, MOD-011, MOD-012, MOD-014, PRC-013, and PRC-015.
    - Project 2010-04 Demand Data involves revisions to MOD-018, MOD-020, and MOD-021
    - Project 2010-05 Protection Systems involves revisions to PRC-012 and PRC-014.

- Project 2010-06 Results-based Reliability Standards is a priority project as discussed in the "Focus on Impact to Reliability" section above. The project provides for improving the set of NERC Reliability Standards to be more focused on reliability performance.
- Project 2010-07 Generator Requirements at the Transmission Interface is a priority project as it will add greater specificity and clarity to the expectations of those responsible for owning and operating the interconnection facilities that connect generators to the transmission grid.

As noted earlier, the single project anticipated to commence in 2011 pursuant to the 2009-2011 plan has been moved to 2012 in this revised plan to ensure industry and NERC staff resources are available to devote to Project 2010-06 Results-based Reliability Standards, identified as a higher priority in the plan.

Other modifications

As part of the process employed in 2009 for revising the *Reliability Standards Development Plan*, NERC staff reached out to the stakeholder community seeking input on how to improve and update the plan. In so doing, NERC received a number of comments that led to various modifications and improvements to the plan. Appendix A to Volume I summarizes the comments received and NERC's response to the comments.

In conjunction with this year's project to revise the plan, NERC staff reviewed the items in what is termed the "NERC Standards Issues Database (Issues Database)." The Issues Database is used by the NERC standards program staff to track the issues and concerns identified with a particular standard. These 'issues" are then used to populate the "Issues to be Considered by the Standard Drafting Team" tables included for each project in Volume II. As such, projects in Volume II include the "issues" identified to date.

The update to this year's plan also includes another improvement in the form of a set of more detailed project schedules. The revised project schedules include a more detailed list of tasks needed to be undertaken as part of the standards development project and has been modified based on "lessons learned" from prior projects. In doing so the timeline for the majority of projects has been extended, but at the same time provides a better estimate for the completion of each of the projects. Further, a link to each of the project schedules (for the projects currently under development) has been posted on the "Related Files" page on the NERC website.

NERC has also developed specific initiatives related to compliance monitoring and enforcement, reliability assessment and performance analysis, and event analysis to identify possible "high impact" reliability standard development projects that may have significant impact on the reliability of the bulk power system. For example, lessons learned and trends identified from system events tracked for the last three years that have been causal or contributory to the severity of system disturbances are helping NERC focus efforts and provide the technical foundation for standards development and modification efforts on issues that are most critical to bulk power system reliability. NERC has developed a broad-based reliability initiative that addresses issues in the area of system protection and control which is the basis for Project 2010-05 System Protection and a number of other ongoing standards development projects in the area of system protection and control. That initiative identified a compendium of system protection and control

issues that have contributed to many system events. This ongoing collaborative effort between the Event Analysis program and Standards development will continue to be used to identify specific changes to reliability standards to ensure an Adequate Level of Reliability of the North American bulk power system.

Organization of the Plan

The *Reliability Standards Development Plan: 2010-2012* is organized into three volumes:

- Volume I provides an overview of the plan and the modifications made to the plan as compared to the prior year.
- Volume II provides project descriptions for current and planned standards development project.
- Volume III summarizes the regional reliability standards development activity anticipated over the next three years.

Background

Authority

Through the enactment of the Energy Policy Act of 2005, Congress created Section 215 of the Federal Power Act (FPA). Section 215 assigns to the Commission the responsibility and authority for overseeing the reliability of the bulk power systems in the United States, including the setting and enforcing of mandatory reliability standards. In February 2006, the Commission issued Order No. 672 establishing its requirements for certifying an industry, self-regulating ERO, as envisioned in the legislation. On the basis of that order, NERC filed its application to become the ERO in the United States on April 4, 2006. NERC concurrently filed for similar recognition with the federal and provincial governments in Canada.

On July 20, 2006, the Commission issued its *Order Certifying the North American Electric Reliability Corporation as the Electric Reliability Organization and Ordering Compliance Filing*, finding that NERC met the requirements of Order No. 672. NERC's filings with FERC[1] and the Commission's orders[2] can be found on the NERC Web site.[3]

NERC has been similarly acknowledged to be the international electric reliability organization in many of the provinces in Canada and by the National Energy Board. NERC continues to formalize these relationships through Memoranda of Understanding (MOU) recognizing NERC as the ERO in Canada and hopes to achieve this status in all provinces by 2010.

Standards Development Process

NERC uses a process for refining, developing, and approving reliability standards that has received national, formal accreditation and approval by federal regulators in the United States. A key element of the development plan is to review and upgrade all the existing standards based on the directives in the FERC's final rules on standards, previous industry comments, and actual experience gathered from using the standards. Additionally, NERC's rules and a condition of accreditation by the American National Standards Institute (ANSI)[4] require that each standard be reviewed at least every five years. NERC received ANSI accreditation on March 24, 2003. Through the remaining projects in 2010, NERC anticipates completing its review and upgrade of standards identified in this development plan in support of these accreditation requirements.

The *Reliability Standards Development Procedure*[5] provides a systematic approach to improve the standards and to document the basis for those improvements, and it will serve as the mechanism for achieving the improvements detailed in this plan. The standards development process includes active involvement of industry experts and stakeholders tasked with developing excellent standards.

[1] NERC filings to FERC, http://www.nerc.com/page.php?cid=1|8|170
[2] FERC orders, http://www.nerc.com/page.php?cid=1|8|170
[3] NERC Web site, http://www.nerc.com/
[4] ANSI accreditation, http://www.nerc.com/filez/ansi.html
[5] Reliability Standards Development Procedure, http://www.nerc.com/fileUploads/File/Standards/RSDP_V6_1_12Mar07.pdf

In its April 2006 application to be certified as the ERO, NERC proposed to develop reliability standards in accordance with Section 300 (Reliability Standards Development) of its Rules of Procedure[6] and the *Reliability Standards Development Procedure*[7], which was incorporated into the Rules of Procedure as Appendix A. In its June 2006 ERO Certification Order, the Commission found that NERC's proposed rules provide for reasonable notice and opportunity for public comment, due process, openness, and a balance of interests in developing reliability standards. The Commission noted that NERC's procedure calls for notifying and involving the public in developing a reliability standard. The development process is open to any person or entity with a legitimate interest in the reliability of the bulk power system. NERC considers the comments of all stakeholders, and a vote of stakeholders is required to approve a reliability standard before it is submitted for NERC Board action and regulatory approval.

Furthermore, NERC also coordinates its reliability standards development activities with the business practices developed by the North American Energy Standards Board[8] (NAESB).

Strategy for Project Resources

Reliability Standards Development Plan: 2010-2012 is designed recognizing there are limited available staff and industry resources to complete the projects immediately and concurrently. While the volume of work and schedules are aggressive, they are manageable because the work is being extended over several years, and because much of the work involves revising and improving existing standards for which the issues are already well-defined. However, the development of regional standards, the influx of formal interpretation requests, and the progress of the existing projects has impacted the deliverables noted in the plan and has been reflected in the proposed projects for 2010, 2011, and 2012. In 2009, NERC standards program staff includes seven project coordinators in support of the development plan activities, supported by various support and management resources, as well as consulting resources in support of the fast-track Order 706 Cyber Security project team.

[6] NERC Rules of Procedure, http://www.nerc.com/files/NERC_Rules_of_Procedure_EFFECTIVE_20080321.pdf
[7] Reliability Standards Development Procedure, http://www.nerc.com/fileUploads/File/Standards/RSDP_V6_1_12Mar07.pdf
[8] NAESB http://www.nerc.com/page.php?cid=2|247|248

Global Improvements

The standard drafting team for each of the projects identified in this plan is expected to review the assigned standards and modify the standards to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure as described in this "Global Improvements" section.

Statutory Criteria

In accordance with Section 215 of the Federal Power Act, FERC may approve, by rule or order, a proposed reliability standard or modification to a reliability standard if it determines that "the standard is just, reasonable, not unduly discriminatory or preferential, and in the public interest."

The first three of these criteria can be addressed in large part by the diligent adherence to NERC's *Reliability Standards Development Procedure*, which has been certified by the ANSI as being open, inclusive, balanced, and fair. Users, owners, and operators of the bulk power system that must comply with the standards, as well as the end-users who benefit from a reliable supply of electricity and the public in general, gain some assurance that standards are just, reasonable, and not unduly discriminatory or preferential because the standards are developed through an ANSI-accredited procedure.

The remaining portion of the statutory test is whether the standard is "in the public interest." Implicit in the public-interest test is that a standard is technically sound and ensures a level of reliability that should be reasonably expected by end-users of electricity. Additionally, each standard must be clearly written, so that bulk power system users, owners, and operators are put on notice of the expected behavior. Ultimately, the standards should be defensible in the event of a governmental authority review or court action that may result from enforcing the standard and applying a financial penalty.

The standards must collectively provide a comprehensive and complete set of technically sound requirements that establish an acceptable threshold of performance necessary to ensure the reliability of the bulk power system. "An adequate level of reliability" would argue for both a complete set of standards addressing all aspects of bulk power system design, planning, and operation that materially affect reliability, and for the technical efficacy of each standard. The Commission directed NERC to define the term, "adequate level of reliability" as part of its January 18, 2007 Order on Compliance Filing. Accordingly, NERC's Operating and Planning Committees prepared the definition and the NERC Board approved it at its February 2008 meeting for filing with regulatory authorities. The NERC Standards Committee was then tasked to integrate the definition into the development of future reliability standards.

Quality Objectives

To achieve the goals outlined above, NERC has developed 10 quality objectives for the development of reliability standards. Drafting teams working on assigned projects are charged to ensure their work adheres to the following quality objectives:

1. **Applicability** — Each reliability standard shall clearly identify the functional classes of entities responsible for complying with the reliability standard, with any specific additions or exceptions noted. Such functional classes[9] include: ERO, Regional Entities, reliability coordinators, balancing authorities, transmission operators, transmission owners, generator operators, generator owners, interchange authorities, transmission service providers, market operators, planning coordinators, transmission planners, resource planners, load-serving entities, purchasing-selling entities, and distribution providers. Each reliability standard that does not apply to the entire North American bulk power system shall also identify the geographic applicability of the standard, such as an interconnection, or within a regional entity area. The applicability section of the standard should also include any limitations on the applicability of the standard based on electric facility characteristics, such as a requirement that applies only to the subset of distribution providers that own or operate underfrequency load shedding systems.
2. **Purpose** — Each reliability standard shall have a clear statement of purpose that shall describe how the standard contributes to the reliability of the bulk power system.
3. **Performance Requirements** — Each reliability standard shall state one or more performance requirements, which if achieved by the applicable entities, will provide for a reliable bulk power system, consistent with good utility practices and the public interest. Each requirement is not a "lowest common denominator" compromise, but instead achieves an objective that is the best approach for bulk power system reliability, taking account of the costs and benefits of implementing the proposal.
4. **Measurability** — Each performance requirement shall be stated so as to be objectively measurable by a third party with knowledge or expertise in the area addressed by that requirement. Each performance requirement shall have one or more associated measures used to objectively evaluate compliance with the requirement. If performance results can be practically measured quantitatively, metrics shall be provided within the requirement to indicate satisfactory performance.
5. **Technical Basis in Engineering and Operations** — Each reliability standard shall be based upon sound engineering and operating judgment, analysis, or experience, as determined by expert practitioners in that particular field.
6. **Completeness** — Each reliability standard shall be complete and self-contained. The standards shall not depend on external information to determine the required level of performance.
7. **Consequences for Noncompliance** — Each reliability standard shall make clearly known to the responsible entities the consequences of violating a standard, in combination with guidelines for penalties and sanctions, as well as other ERO and Regional Entity compliance documents.
8. **Clear Language** — Each reliability standard shall be stated using clear and unambiguous language. Responsible entities, using reasonable judgment and in keeping with good

[9] These functional classes of entities are derived from NERC's Reliability Functional Model. When a standard identifies a class of entities to which it applies, that class must be defined in the Glossary of Terms Used in Reliability Standards.

utility practices, are able to arrive at a consistent interpretation of the required performance.

9. **Practicality** — Each reliability standard shall establish requirements that can be practically implemented by the assigned responsible entities within the specified effective date and thereafter.
10. **Consistent Terminology** — Each reliability standard, to the extent possible, shall use a set of standard terms and definitions that are approved through the NERC Reliability Standards Development Process.

In addition to these factors, standard drafting teams also contemplate the following factors the Commission uses to approve a proposed reliability standard as outlined in Order No. 672. A standard proposed to be approved:

1. **Must be designed to achieve a specified reliability goal**
   "321. The proposed Reliability Standard must address a reliability concern that falls within the requirements of section 215 of the FPA. That is, it must provide for the reliable operation of bulk power system facilities. It may not extend beyond reliable operation of such facilities or apply to other facilities. Such facilities include all those necessary for operating an interconnected electric energy transmission network, or any portion of that network, including control systems. The proposed Reliability Standard may apply to any design of planned additions or modifications of such facilities that is necessary to provide for reliable operation. It may also apply to cyber security protection."

   "324. The proposed Reliability Standard must be designed to achieve a specified reliability goal and must contain a technically sound means to achieve this goal. Although any person may propose a topic for a Reliability Standard to the ERO, in the ERO's process, the specific proposed Reliability Standard should be developed initially by persons within the electric power industry and community with a high level of technical expertise and be based on sound technical and engineering criteria. It should be based on actual data and lessons learned from past operating incidents, where appropriate. The process for ERO approval of a proposed Reliability Standard should be fair and open to all interested persons."

2. **Must contain a technically sound method to achieve the goal**
   "324. The proposed Reliability Standard must be designed to achieve a specified reliability goal and must contain a technically sound means to achieve this goal.

   Although any person may propose a topic for a Reliability Standard to the ERO, in the ERO's process, the specific proposed Reliability Standard should be developed initially by persons within the electric power industry and community with a high level of technical expertise and be based on sound technical and engineering criteria. It should be based on actual data and lessons learned from past operating incidents, where appropriate. The process for ERO approval of a proposed Reliability Standard should be fair and open to all interested persons."

3. **Must be applicable to users, owners, and operators of the bulk power system, and not others**
   "322. The proposed Reliability Standard may impose a requirement on any user, owner, or operator of such facilities, but not on others."

4. **Must be clear and unambiguous as to what is required and who is required to comply**
   "325. The proposed Reliability Standard should be clear and unambiguous regarding what is required and who is required to comply. Users, owners, and operators of the Bulk-Power System must know what they are required to do to maintain reliability."

5. **Must include clear and understandable consequences and a range of penalties (monetary and/or non-monetary) for a violation**
   "326. The possible consequences, including range of possible penalties, for violating a proposed Reliability Standard should be clear and understandable by those who must comply."

6. **Must identify clear and objective criterion or measure for compliance, so that it can be enforced in a consistent and non-preferential manner**
   "327. There should be a clear criterion or measure of whether an entity is in compliance with a proposed Reliability Standard. It should contain or be accompanied by an objective measure of compliance so that it can be enforced and so that enforcement can be applied in a consistent and non-preferential manner."

7. **Should achieve a reliability goal effectively and efficiently - but does not necessarily have to reflect "best practices" without regard to implementation cost**
   "328. The proposed Reliability Standard does not necessarily have to reflect the optimal method, or "best practice," for achieving its reliability goal without regard to implementation cost or historical regional infrastructure design. It should however achieve its reliability goal effectively and efficiently."

8. **Cannot be "lowest common denominator," i.e., cannot reflect a compromise that does not adequately protect bulk power system reliability**
   "329. The proposed Reliability Standard must not simply reflect a compromise in the ERO's Reliability Standard development process based on the least effective North American practice — the so-called "lowest common denominator"—if such practice does not adequately protect Bulk-Power System reliability. Although the Commission will give due weight to the technical expertise of the ERO, we will not hesitate to remand a proposed Reliability Standard if we are convinced it is not adequate to protect reliability."

9. **Costs to be considered for smaller entities but not at consequence of less than excellence in operating system reliability**
   "330. A proposed Reliability Standard may take into account the size of the entity that must comply with the Reliability Standard and the cost to those entities of implementing the proposed Reliability Standard. However, the ERO should not propose a "lowest common denominator" Reliability Standard that would achieve less than excellence in

operating system reliability solely to protect against reasonable expenses for supporting this vital national infrastructure. For example, a small owner or operator of the Bulk-Power System must bear the cost of complying with each Reliability Standard that applies to it."

10. **Must be designed to apply throughout North American to the maximum extent achievable with a single reliability standard while not favoring one area or approach**
"331. A proposed Reliability Standard should be designed to apply throughout the interconnected North American Bulk-Power System, to the maximum extent this is achievable with a single Reliability Standard. The proposed Reliability Standard should not be based on a single geographic or regional model but should take into account geographic variations in grid characteristics, terrain, weather, and other such factors; it should also take into account regional variations in the organizational and corporate structures of transmission owners and operators, variations in generation fuel type and ownership patterns, and regional variations in market design if these affect the proposed Reliability Standard."

11. **No undue negative effect on competition or restriction of the grid**
"332. As directed by section 215 of the FPA, the Commission itself will give special attention to the effect of a proposed Reliability Standard on competition. The ERO should attempt to develop a proposed Reliability Standard that has no undue negative effect on competition. Among other possible considerations, a proposed Reliability Standard should not unreasonably restrict available transmission capability on the Bulk-Power System beyond any restriction necessary for reliability and should not limit use of the Bulk-Power System in an unduly preferential manner. It should not create an undue advantage for one competitor over another."

12. **Implementation time**
"333. In considering whether a proposed Reliability Standard is just and reasonable, the Commission will consider also the timetable for implementation of the new requirements, including how the proposal balances any urgency in the need to implement it against the reasonableness of the time allowed for those who must comply to develop the necessary procedures, software, facilities, staffing or other relevant capability."

13. **Whether the reliability standard process was open and fair**
"334. Further, in considering whether a proposed Reliability Standard meets the legal standard of review, we will entertain comments about whether the ERO implemented its Commission-approved Reliability Standard development process for the development of the particular proposed Reliability Standard in a proper manner, especially whether the process was open and fair. However, we caution that we will not be sympathetic to arguments by interested parties that choose, for whatever reason, not to participate in the ERO's Reliability Standard development process if it is conducted in good faith in accordance with the procedures approved by the Commission."

14. **Balance with other vital public interests**

"335. Finally, we understand that at times development of a proposed Reliability Standard may require that a particular reliability goal must be balanced against other vital public interests, such as environmental, social and other goals. We expect the ERO to explain any such balancing in its application for approval of a proposed Reliability Standard."

15. **Any other relevant factors**

"323. In considering whether a proposed Reliability Standard is just and reasonable, we will consider the following general factors, as well as other factors that are appropriate for the particular Reliability Standard proposed."

"337. In applying the legal standard to review of a proposed Reliability Standard, the Commission will consider the general factors above. The ERO should explain in its application for approval of a proposed Reliability Standard how well the proposal meets these factors and explain how the Reliability Standard balances conflicting factors, if any. The Commission may consider any other factors it deems appropriate for determining if the proposed Reliability Standard is just and reasonable, not unduly discriminatory or preferential, and in the public interest. The ERO applicant may, if it chooses, propose other such general factors in its ERO application and may propose additional specific factors for consideration with a particular proposed reliability standard."

Issues Related to the Applicability of a Standard

In Order No. 672, the Commission states that a proposed reliability standard should be clear and unambiguous regarding what is required and who is required to comply. Users, owners, and operators of the bulk power system must know what they are required to do to maintain reliability. Section 215(b) of the FPA requires all "users, owners and operators of the bulk power system" to comply with Commission-approved reliability standards.

The term "users, owners, and operators of the bulk power system" defines the statutory applicability of the reliability standards. NERC's Reliability Functional Model (Functional Model) further refines the set of users, owners, and operators by identifying categories of functions that entities perform so the applicability of each standard can be more clearly defined. Applicability is clear if a standard precisely states the applicability using the functions an entity performs. For example, "Each Generator Operator shall verify the reactive power output capability of each of its generating units" states clear applicability compared with a standard that states "a bulk power system user shall verify the reactive power output capability of each generating unit." The use of the Functional Model in the standards narrows the applicability of the standard to a particular class or classes of bulk power system users, owners, and operators. A standard is more clearly enforceable when it narrows the applicability to a specific class of entities than if the standard simply references a wide range of entities, e.g., all bulk power system users, owners, and operators.

In determining the applicability of each standard and the requirements within a standard, the drafting team should follow the definitions provided in the NERC Glossary of Terms Used in Reliability Standards and should also be guided by the Functional Model.

In addition to applying definitions from the Functional Model, the revised standards must address more specific applicability criteria that identify only those entities and facilities that are material to bulk power system reliability with regard to the particular standard.

The drafting team should review the registration criteria provided in the NERC Statement of Compliance Registry Criteria, which is the criteria for applicability. The registration criteria identify the criteria NERC uses to identify those entities responsible for compliance to the reliability standards. Any deviations from the criteria used in the Statement of Compliance Registry Criteria must be identified in the applicability section of the. It is also important to note that standard drafting teams cannot set the applicability of reliability standards to extend to entities beyond the scope established by the criteria for inclusion on NERC's Compliance Registry. This is expressly prohibited by Commission Order No. 693-A.

The goal is to place obligations on the entities whose performance will impact the reliability of the bulk power system, but to avoid painting the applicability with such a broad brush that entities are obligated even when meeting a requirement will make no material contribution to bulk power system reliability.

Every entity class described in the Functional Model performs functions that are essential to the reliability of the bulk power system. This point is best highlighted with the example that might be the most difficult to understand, the inclusion of distribution providers. Section 215 of the FPA specifically excludes facilities used in the local distribution of electric energy. Nonetheless, some of the NERC standards apply to a class of entities called Distribution Providers. Distribution Providers are covered because, although they own and operate facilities in the local distribution of electric energy, they also perform functions affecting and essential to the reliability of the bulk power system. With regard to these facilities and functions that are material to the reliability of the bulk power system, a distribution provider is a bulk power system user. For example, requirements for distribution providers in the reliability standards apply to the underfrequency load shedding relays that are maintained and operated within the distribution system to protect the reliability of the bulk power system. There are also requirements for distribution providers to provide demand forecast information for the planning of reliable operations of the bulk power system.

A similar line of thinking can apply to every other entity in the Functional Model, including Load-serving Entities and Purchasing-selling Entities, which are users of the bulk power system to the extent they transact business for the use of transmission service or to transfer power across the bulk power system. NERC has specific requirements for these entities based on how these uses may impact the reliability of the bulk power systems. Other functional entities are more obviously bulk power system owners and operators, such as Reliability Coordinators, Transmission Owners and Operators, Generator Owners and Operators, Planning Coordinators, Transmission Planners, and Resource Planners. It is the extent to which these entities provide for a reliable bulk power system or perform functions that materially affect the reliability of the bulk power system that these entities fall under the jurisdiction of Section 215 of the FPA and the reliability standards. The use of the Functional Model simply groups these entities into logical functional areas to enable the standards to more clearly define the applicability.

Issues Related to Regional Entities and Reliability Organizations

Because of the transition from voluntary reliability standards to mandatory reliability standards, confusion has occurred over the distinction between Regional Entities and Regional Reliability Organizations. The regional councils have traditionally been the owners and members of NERC. They have been referred to as Regional Reliability Organizations in the Functional Model and in the reliability standards. In an era of voluntary standards and guides, it was acceptable that a number of the standards included requirements for Regional Reliability Organizations to develop regional criteria, procedures, and plans, and included requirements for entities within the region to follow those requirements. Section 215 of the FPA introduced a new term, called "Regional Entity." Regional Entities have specific delegated authorities, under agreements with NERC, to propose and enforce reliability standards within the region, and to perform other functions in support of the electric reliability organization. The former Regional Reliability Organizations have entered into delegation agreements with NERC to become Regional Entities for this purpose.

With regard to distinguishing between the terms Regional Reliability Organizations and Regional Entities, the following guidance should be used. The corporations that provide regional reliability services on behalf of their members are Regional Reliability Organizations. NERC may delegate to these entities a set of regional entity functions. The Regional Reliability Organizations perform delegated regional entity functions much like NERC is the organization that performs the ERO function. Regional Reliability Organizations may do things other than their statutory or delegated regional entity functions.

With the regions having responsibility for enforcement, it is no longer appropriate for the regions to be named as responsible entities within the standards. The plan calls for removing requirements from the standards that refer to Regional Reliability Organizations, either by deleting the requirements or redirecting the responsibilities to the most applicable functions in the Functional Model, such as Planning Coordinators, Reliability Coordinators, or Resource Planners. In instances where a regional standard or criteria are needed, the ERO may direct the Regional Entities to propose a regional standard in accordance with ERO Rule 312.2, which states NERC, may "direct regional entities to develop regional reliability standards." There is no need to have a NERC standard that directs the regions to develop a regional standard. NERC standards should only include requirements for Regional Entities in those rare instances where the regions have a specific operational, planning, or security responsibility. In this case, Regional Entities (or NERC) may be noted as the applicable entity. However, these Regional Entities (or NERC) are held accountable for compliance to these requirements through NERC's rules of procedure that, by delegation agreement, extend to the Regional Entities. The Regional Entities are not users, owners, or operators of the bulk power system and cannot be held responsible for compliance through the compliance monitoring and enforcement program. However, NERC and the Regional Entities can be held by the Commission to be in violation of its rules of procedure for failing to comply with the standards requirements to which it is assigned.

Issues Related to Ambiguity

Drafting teams should strive to remove all potential ambiguities in the language of each standard, particularly in the performance requirements. Redundancies should also be eliminated.

Specifically, each performance requirement must be written to include four elements:

- **Who** — defines which functional entity or entities are responsible for the requirements, including any narrowing or qualifying limits on the applicability to or of an entity, based on material impact to reliability.
- **Shall do what —** describes an action the responsible entity must perform.
- **To what outcome** — describes the expected, measurable outcome from the action.
- **Under what conditions** — describes specific conditions under which the action must be performed. If blank, the action is assumed to be required at all times and under all conditions.

Each requirement should identify a product or activity that makes a definite contribution to reliability.

Drafting teams should focus on defining measurable outcomes for each requirement, and not on prescribing *how* a requirement is to be met. While being more prescriptive may provide a sense of being more measurable, it does not add reliability benefits and may be inefficient and restrict innovation.

Issues Related to Technical Adequacy

In May 2006, the Commission issued an assessment on the then proposed reliability standards. The Commussion noted under a "technical adequacy" section that requirements specified in some standards may not be sufficient to ensure an adequate level of reliability. While Order No. 672 notes that "best practice" may be an inappropriately high standard, it also warns that a "lowest common denominator" approach will not be acceptable if it is not sufficient to ensure system reliability.

Each standard should clearly meet the statutory test of providing an adequate level of reliability to the bulk power system. Each requirement should be evaluated and the bar raised as needed, consistent with good practice and as supported by consensus.

Issues Related to Compliance Elements

Each reliability standard includes a section to address measures and a section to address compliance. Most of the major changes made to the template for reliability standards over the past year have been focused on re-aligning the content of standards to include the various elements needed to support mandatory compliance. The Uniform Compliance Enforcement Guidelines, ERO Sanctions Guidelines, and Compliance Registry Criteria have been modified and have been approved by the Commission. As each standard is revised, or as new standards

are developed, drafting teams need to familiarize themselves with these documents to ensure that each standard proposed for ballot is in a format that includes all the elements needed to support reliability and to ensure that the standard can be enforced for compliance.

The compliance-related elements of standards that may need to be modified to meet the latest approved versions of the various compliance documents noted above include the following:

- Each requirement must have an associated Violation Risk Factor.
- Each requirement must have an associated Time Horizon.
- The term, "Compliance Monitor" has been replaced with the term, "Compliance Enforcement Authority." Either the Regional Entity or the ERO may serve as the compliance enforcement authority. For most standards, the Regional Entity will serve as the compliance enforcement authority. In the situation where a Regional Entity has authority over a reliability coordinator, for example, the ERO will serve as the compliance enforcement authority to eliminate any conflict of interest.
- The eight processes used to monitor and enforce compliance have been assigned new names.
    - Compliance Audits
    - Self-Certifications
    - Spot Checking
    - Compliance Violation Investigations
    - Self-Reporting
    - Periodic Data Submittals
    - Exception Reporting
    - Complaints
- The audit cycles for various entities have been standardized so that the Reliability Coordinator, Transmission Operator, and Balancing Authority will undergo a routine audit to assess compliance with each applicable requirement once every three years while all other responsible entities will undergo a routine audit once every six years.
- Levels of Non-compliance have been replaced with "Violation Severity Levels."

All requirements are subject to compliance audits, self-certification, spot checking, compliance violation investigations, self-reporting and complaints. Only a subset of requirements is subject to monitoring through periodic data submittals and exception reporting.

Measures: While a measure can be used for more than one requirement, there must be at least one measure for each requirement. A measure states what a responsible entity must have or do to demonstrate compliance to a third party, i.e., the compliance enforcement authority. Measures are "yardsticks" used to evaluate whether required performance or outcomes have been achieved. Measures do not add new requirements or expand the details of the requirements. Each measure shall be tangible, practical, and objective. A measure should be written so that achieving full compliance with the measure provides the compliance monitor with the necessary and sufficient

information to demonstrate that the associated requirement was met by the responsible entity. Each measure should clearly refer to the requirement(s) to which it applies.

Violation Severity Levels: The Violation Severity Levels (formerly known as Levels of Non-Compliance) indicate how severely an entity violated a requirement. Historically, there has been confusion about Levels of Non-Compliance. Some of the previously existing Levels of Non-Compliance incorporate reliability-related risk impacts or consequences. Going forward, the risk or consequences component should be addressed only by the Violation Risk Factor, while the Violation Severity Levels should only be used to categorize how badly the requirement was violated. A set of Commission-approved VSLs exists for each of the original 83 reliability standards as a result of the work of the Project 2007-23 drafting team.

Criteria for determining which VSL to use:
It is preferable to have four VSLs representing a spectrum of performance, but where that does not work, the VSLs should be defensible in supporting the criteria in the table below.

Lower VSL	Moderate VSL	High VSL	Severe VSL
The performance or product measured almost meets the full intent of the requirement.	The performance or product measured meets the majority of the intent of the requirement.	The performance or product measured does not meet the majority of the intent of the requirement, but does meet some of the intent.	The performance or product measured does not substantively meet the intent of the requirement.

Violation Risk Factors: Each drafting team is also instructed to develop a Violation Risk Factor for each requirement in a standard in accordance with the following definitions:

- **High Risk Requirement** — A requirement that, if violated, could directly cause or contribute to bulk power system instability, separation, or a cascading sequence of failures, or could place the bulk power system at an unacceptable risk of instability, separation, or cascading failures; or a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly cause or contribute to bulk power system instability, separation, or a cascading sequence of failures, or could place the bulk power system at an unacceptable risk of instability, separation, or cascading failures, or could hinder restoration to a normal condition.
- **Medium Risk Requirement** — A requirement that, if violated, could directly affect the electrical state or the capability of the bulk power system, or the ability to effectively monitor and control the bulk power system. However, violation of a medium risk requirement is unlikely to lead to bulk electric system instability, separation, or cascading failures; or a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly and adversely affect the electrical state or capability of the bulk power system, or the ability to effectively monitor, control, or restore the bulk power system. However, violation of a medium risk requirement is unlikely, under emergency, abnormal, or restoration conditions anticipated by the preparations, to lead to bulk power system

instability, separation, or cascading failures, nor to hinder restoration to a normal condition.

- **Lower Risk Requirement** — A requirement that is administrative in nature and, a requirement that, if violated, would not be expected to affect the electrical state or capability of the bulk power system, or the ability to effectively monitor and control the bulk power system. A requirement that is administrative in nature; or a requirement in a planning time frame that, if violated, would not, under the emergency, abnormal, or restorative conditions anticipated by the preparations, be expected to affect the electrical state or capability of the bulk power system, or the ability to effectively monitor, control, or restore the bulk power system.

Time Horizons: The drafting team must also indicate the time horizon available for mitigating a violation to the requirement:

- **Long-term planning** — a planning horizon of one year or longer.
- **Operations planning** — operating and resource plans from day ahead up to and including seasonal.
- **Same-day operations** — routine actions required within the timeframe of a day, but not real time.
- **Real-time operations** — actions required within one hour or less to preserve the reliability of the bulk electric system.
- **Operations assessment** — follow-up evaluations and reporting of real time operations.

Note that some requirements occur in multiple time horizons, and it is acceptable to have more than one time horizon for a single requirement.

The drafting team should seek input and review of all measures and compliance information from the compliance elements drafting team members assigned to support each standard drafting team or from the NERC compliance staff.

Coordination with NAESB

Many of the existing NERC standards are related to business practices, although their primary purpose is to support reliability. Reliability standards, business practices, and commercial interests are inextricably linked. An example of an existing standard that is both a reliability standard and a business practice is the Transmission Loading Relief (TLR) Procedure currently used as an interconnection-wide congestion management method in the Eastern Interconnection.

It would be safe to conclude that every reliability standard has some degree of commercial impact and therefore impacts competition. The statutory test to be applied by the Commission is whether the reliability standard has an "undue adverse effect" on competition.

NERC has taken several steps to ensure its reliability standards do not have any undue, adverse impact on business practices or competition. First, NERC coordinates the development of all

standards with the North American Energy Standards Board (NAESB). In addition to this formal process, drafting teams work with NAESB groups to ensure effective coordination of wholesale electric business practice standards and reliability standards. NERC and NAESB follow their procedure for the joint development of standards in areas that have both reliability and business practice elements. This procedure is being implemented for all standards in which the reliability and business practice elements are closely related, thereby making joint development a more efficient approach.

This work plan includes several projects that require close coordination and joint development with NAESB:

- Project 2006-08 — Transmission Loading Relief
- Project 2007-05 — Balancing Authority Controls
- Project 2007-18 — Reliability Based Control
- Project 2008-01 — Voltage and Reactive Control
- Project 2008-12 — Coordinate Interchange Standards
- Project 2009-03 — Emergency Operations
- Project 2010-02 — Connecting New Facilities to the Grid
- Project 2010-04 — Demand Data

To ensure each reliability standard does not have an undue adverse effect on competition, NERC requires that each standard meet the following criteria:

- Competition — A reliability standard shall not give any market participant an unfair competitive advantage.
- Market Structures — A reliability standard shall neither mandate nor prohibit any specific market structure.
- Market Solutions — A reliability standard shall not preclude market solutions to achieve compliance with that standard.
- Commercially Sensitive Information — A reliability standard shall not require the public disclosure of commercially sensitive information. All market participants shall have equal opportunity to access commercially non-sensitive information that is required for compliance with reliability standards.

During the standards development process, each Standards Authorization Request (SAR) drafting team asks the following question to determine if there is a need to develop a business practice associated with the proposed standard:

- Are you aware of any associated business practices that we should consider with this SAR?

Each standard drafting team also asks the following question to determine if there is a potential conflict between a reliability standard and business practice:

- Are you aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement? If yes, please identify the conflict.

Additional Considerations

Drafting teams should consider the following in reviewing and revising their assigned standards:

- **Title**: In general, the title should be concise and to the point. Care should be taken not to try to fully describe a standard through its title. The title should fit a single line in both the header and in the body of the standard.
- **Purpose**: Current purpose statements are inconsistent. The purpose should clearly state a benefit to the industry (value proposition) in fulfilling the requirements. The purpose should not simply state "the purpose is to develop a standard to…" The purpose should be tied to one or more of the reliability principles.
- **References**: Section (F) provides a place to list associated references that support implementation of the standard. Drafting teams may develop or reference supporting documents with approval of the Standards Committee.
- **Version histories**: Version histories should be expanded to include complete listings of what has been changed from version to version so that end-users can easily keep track of changes to standards. This will also serve as a type of audit trail for changes.

Resource Documents Used

NERC used several references when preparing this plan. These references provide detailed descriptions of the issues and comments that need to be considered by the drafting teams, which are included in the second volume of the work plan, as they work on the standards projects defined in the plan. The references include:

- FERC NOPR on Reliability Standards, October 20, 2006.
- FERC Staff Preliminary Assessment of Proposed Reliability Standards, May 11, 2006.
- FERC Order No. 693 Mandatory Reliability standards for the Bulk Power System, March 16, 2007.
- FERC Order No. 693-A Mandatory Reliability Standards for the Bulk Power System, July 19, 2007.
- FERC Order No. 890 Preventing Undue Discrimination and Preference in Transmission Service, February 16, 2007.
- Comments of the North American Electric Reliability Council and North American Electric Reliability Corporation on Staff Preliminary Assessment of Reliability Standards, June 26, 2006.
- Comments of the North American Electric Reliability Corporation on Staff Preliminary Assessment of NERC Standards CIP-002 through CIP-009, February 12, 2007.

- Comments of the North American Electric Reliability Corporation on the Notice of Proposed Rulemaking for Facilities Design, Connections and Maintenance Reliability standards, September 19, 2007.
- Comments received during the development of Version 0 reliability standards.
- Consideration of comments of the Missing Compliance Elements drafting team.
- Consideration of comments of the Violation Risk Factors drafting team.
- Consideration of comments in the Phase III–IV standards.
- Comments received during industry comment period on work plan.
- Q&A for Standards and Compliance.

Appendix A — Summary of Industry Comments

Reliability Standards Development Plan 2010-2012
As of September 29, 2009

Comment 1
Name: Carol Gerou
Organization: Midwest Reliability Organization

Suggestion or Comment: NERC should sponsor an industry triage of the standards to identify the core requirements and flag those that are minutia. This will allow all of industry (NERC, Regional Entities and Registered Entities) to focus resources on what will support reliability rather than push paper to demonstrate compliance with requirements that don't support reliability.

Example: A simple example is the DCS. The true core requirements are to recover from all reportable events in 15 minutes and replentish reserves in 90 minutes thereafter. The rest of the Rs are an explanation of what that means, how it's handled in a Reserve Sharing Group and also the procedural reporting items. However, we are now moving down a path to assign measures and sanctions to 20 different things in this standard.

Recommendation for improvement: A first step for any standards improvement effort would be the creation of a database companion to the standards. This would not only be a platform to capture the triage comments, the database could be used by registered entities to identify all the requirements that apply to them. Presently it is impossible to say with assurance you have found all applicable requirements. For example, there are several cases where an entity is mentioned in a requirement, but that entity is not identified in the "applicability" section of the standards.

Once you have the triage complete, format changes are just a matter of programming.

If you look at the present V0 and V1 standards, many things labled as requirements are actually criteria, procedures, administrative directions and explanitory text.

As an example of what can be done to improve the final format after the triage, refer to Europe's Policy 1 at: http://www.ucte.org/resources/publications/ophandbook/

The bullets in their policies are broken into a few categories:

- C for Criteria (goals and background of the standard)
- R for Requirements (generally attributes that are yes/no go/no-go)
- S for Standards (things measured on a scale)
- P for Procedures (administrative information)
- G for guides (while we have moved away from guides, the issue still remains what to do with the good practices that are being lost from institutional memory)

If there is information beyond this, it is likely reference information and should be moved to an appendix in the standard (using A for paragraph numbers).

The benefit in making such a format change is that the industry can focus on those things that are important for reliability. It also allows NERC and the Regions to focus on the important things.

Compliance elements would be applied to the requirements and standards. There still could be notification to regulatory bodies on procedural deficiencies.

This is not a suggestion for any change to content in the standards, just a reformatting.

NERC Response:

In response to your recommendation (as well as similar recommendations from others) we have added Project 2010-06 Results-based Reliability Standards to the *Reliability Standards Development Plan: 2010-2012* for a project focused on:

- triaging the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all,
- developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis,
- promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and
- revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability.

Note that the "applicability" section of each standard doesn't identify all functional entities mentioned in a standard – the "applicability" section of the standard identifies just those functional entities with responsibility for compliance with one or more requirements in the standard.

There is an effort underway to put the standards into a relational database, until this is ready for stakeholder use, we have published a list of all requirements in all standards that have been approved by FERC that can be sorted by functional entity. This excel spreadsheet is posted at the following site:

http://www.nerc.com/docs/standards/rs/VRF_Standards_Applicability_Matrix_2009June25.xls

Project Number(s): 2007-09

Project Title(s): Generation Verification

Suggestion or Comment: In Volume 2, Reliability Standards Development Plan Overall Project Schedules, the Generation Verification project looks like it's mislabeled as Project 2007-08.

Recommendation for improvement: Update Overall Project Schdeules or connect hyperlink to current project summary calendar (called "Standards Under Development Anticipated Posting Calendar") provided on the NERC sStandards Under Deveopment webpage.

NERC Response:

The label for Project 2007-09 Generator Verification in the Overall Project Schedules in Volume II of the Reliability Standards Development Plan: 2010-2012 has been corrected.

Reliability Issue: List of projects

Suggestion or Comment: The plan lists several projects but it indicates that limited resources exist, it would seem partical to pick a set of projects which have a high priority and complete that set and then move on to less priority projects. Plus, in the plan Volume 1 mentions that some project have a higher proirity then other. The plan even expresses the objectives for determining the priority (Volume 1, page 5, and section titled "Objectives as Part of the Goal") but the actual projects are not priortized.

Example: A set of projects would be the fill-in-the-blank standards. If the industry could take an approach on this set alone, it would not be spinning it wheels so to speak. The technical expertise used to develop both regional and continental wide standards could be free to work on other standards.

Recommendation for improvement: Pick a set of projects which have a high priority and complete

that set then work on less priority projects.

NERC Response:

You touch upon two distinct concepts in your comments above. The first being the need to work on high priority projects before moving on to lower priority projects. With respect to this issue, what might be a high priority project in the eyes of one entity might not be in the eyes of another entity. NERC staff coordinates all standards development activities through the NERC Standards Committee. In compliance with the *NERC Reliability Standards Development Procedure*, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. NERC staff works with the NERC Standards Committee to identify the projects of highest overall industry importance before working on lower priority projects. In some cases a high priority project is delayed while waiting for research or analysis needed to develop a set of technically-based requirements. This was the case with the Voltage and VAR Control project, the Real-time Tools project, and others. As we move forward, we are trying to have the technical foundation for each standard clearly identified before the SAR is initiated.

The second concept you touch upon in your comments above is the statement that actual projects are not prioritized. It might not obviously appear that projects in the *Reliability Standards Development Plan*: 2009-2011 are prioritized but in actuality the structure of the *Reliability Standards Development Plan: 2009-2011* as well as this revised plan is such that the projects are positioned in the plan so that the "higher priority" projects are designated to be initiated in the immediate year and the "lower priority" projects are designated to be initiated in the later years of the plan.

Suggestion or Comment: The plan should be updated to show actual status of the projects. Only show last major milestone.

Example: Starting from the Reliability Standards Development Plan Overall Project Schedule housed in the plan (Volume 2) add a diamond symbol to show latest milestone in the project. Milestones would be last posting for ballots or comments.

NERC Response:

Links to the current project schedule for each of the active projects are provided at the end of each project description in Volume II of the Reliability Standards Development Plan. The on-line project schedules are updated monthly and should provide the level of detail you suggest in your comment above.

Comment 2
Name: Denise Koehn
Organization: Bonneville Power Administration

Suggestion or Comment: BPA has no dispute regarding the revision needs; however, this is an aggressive schedule and will require considerable effort to accomplish as many items per year as scheduled. The schedule seems a little aggressive. Otherwise, plan looks good.

NERC Response:

We appreciate your comment relative to the "aggressiveness" of the schedules indicated in the *Reliability Standards Development Plan*. The standards development process continues to evolve as does the establishment of realistic project schedules to complement the process. With the publication of this *Reliability Standards Development Plan: 2010-2012* NERC staff, working in conjunction with the individual drafting teams, has attempted to publish more realistic schedules for each project.

Comment 3
Name: Dora Moreno
Organization: Southern California Edison Company

Standard Title(s): NERC Reliability Standards Development Plan 2009-2011

Suggestion or Comment: Southern California Edison Company ("SCE") hereby submits its comments on the North American Electric Reliability Corporation's ("NERC") annual revision to the NERC Reliability Standards Development Plan (Plan).

SCE greatly appreciates the work that went into developing the Plan, and commends NERC for the extensive overview and depth it provides with respect to the development of reliability standards. This being said, SCE is generally supportive of the document and goals NERC has set for the development of reliability standards. The timelines identified in the Plan, like the Plan itself, are too dynamic (non-static/ever changing) to be used as targets, and may need to be modified as projects are launched and the drafting teams proceed forward with them.

NERC Response:

NERC staff appreciates you comments and concurs with your specific comment that the timelines identified in the plan, like the plan itself, is dynamic. NERC staff will continue to coordinate all standards development activities through the NERC Standards Committee and be responsive to industry needs and will publish more realistic schedules for each project in the future.

Comment 4

Name: Doug Hohlbaugh

Organization: FirstEnergy

Project Number(s): 2009-03

Project Title(s): Emergency Operations (Covers standards EOP-001 "Emergency Operations Planning", EOP-002 "Capacity & Energy Emergencies", EOP-003 "Load Shedding Plans" and IRO-001 "Reliability Coordinator - Responsibilities and Authorities"

Suggestion or Comment Consider advancing project 2009-03 and including it in a list of High Priority projects that need addressed within NERC 3-year Work Plan. See FE comment 4B below stating a need to establish a list of High Priority projects and suggestions on how such a list may be compiled.

Project 2009-03 is an example project that addresses core real-time operations requirements that should be considered for advancement in NERC's work plan. This project has yet to start and there are reliability and compliance ambiguities that require mitigation. For example, in EOP-003, R5 states the following "A Transmission Operator or Balancing Authority shall implement load shedding in steps established to minimize the risk of further uncontrolled separation, loss of generation, or system

shutdown" This is a HIGH Violation Risk Factor requirement that should not lack clarity in compliance certainty related to who has the authority to shed load.

The purpose statement of the EOP-003 standard indicates that the BA and TOP must have the capability and authority to shed load. It is unclear what is meant by capability. Capability could range from ability to direct action to open breakers or an expectation to open breakers and drop load. However, the standard is not written clearly related to the expectations of the TOP and BA in regard to load shed. Within the EOP-003 standard, 50% of the requirements include a statement "A Transmission Operator or Balancing Authority shall …" and should be revised on a more expeditious schedule to improve reliability and compliance certainty.

Recommendation for improvement: Consider advancing project 2009-03 and including it in a list of High Priority projects that need addressed within NERC 3-year Work Plan. See FE comment 4B below stating a need to establish a list of High Priority projects and suggestions on how such a list may be compiled.

NERC Response:

NERC staff agrees with FirstEnergy's suggestion of the importance of Project 2009-03 Emergency Operations. As of this writing, Project 2009-03 has not been initiated; however, it is one of the next projects waiting to be initiated once one of the currently active projects has completed and the appropriate resources are made available.

Suggestion or Comment:

A) The industry -BES users, owners and operators as well as regulatory enforcement staff - is overwhelmed with compliance enforcement actions based on little or no BES reliability gap related to violations that are largely documentation related. This inefficiency is wasting valuable resources with no measured improvement in NERC's vision of Adequate Level of Reliability which the standards collectively aim to achieve. Requirements that are largely administrative should not be subjected to the compliance Sanctions Matrix and should be partitioned within the standards.

B) We are concerned with the large volume of work within the NERC work plan and the stress placed on its limited staff and industry resources. NERC needs to re-assess its projects and develop a short list of key High Priority projects that will drive the greatest reliability improvements within the industry. These select projects should receive detailed attention and priority by NERC staff, NERC SC and industry as they move through the standards development process.

The key projects should be held to greater scrutiny from a project management view. It should be expected that team members on these teams are held to a higher level of accountability, committed to providing significant time and energy to advance the industry in the key areas that will raise the adequate level of reliability. One example where this has been used is the CIP project.

c) Interpretation Request - NERC should allow sufficient bandwidth in their schedule to address interpretation requests which seem to be on the rise. It should be understood that the use of existing drafting teams to respond to interpretation requests causes delays in standard development work progress.

D) The NERC Work plan should cast a clear picture of the ERO/industry vision that clearly articulates a future target for the reliability standards and the core BES reliability goals they aim to achieve.

Recommendation for improvement:

A) The standards should be scrubbed to remove or re-classify administrative and documentation related requirements that do not serve a reliability related goal. To the extent retained, two levels of requirements should exist within the standard 1) Reliability Requirements and 2) Administrative Requirements. For example many requirements direct entities to provide some sort of documentation

within X calendar days, upon a request to do so. These types of requirements, if violated, should not bog the industry down in paperwork moving through the normal compliance enforcement process and should only be subject to a penalty for repeat offenders. When a penalty is warranted for Administrative Requirements, it should have a separate expedited process and the fine should escalate for repeat offenders with some consideration of the length of time between repeat violations.

B) We suggest a leadership team with representative members of each of the NERC Standing Committees (SC, PC, OC, CCC and CIPC) direct a working group aimed at developing a methodical review of the existing standards to develop the High Priority list of reliability standards that require sharp focus from industry. The prioritization should be based on a number of different aspects such as: 1) frequency of interpretation requests for a given standard - this could point to lack of clear requirement language; 2) the frequency of violations for a given standard - could point to a need to re-evaluate the metrics used to gauge compliance and determine if the proper industry expectations regarding a particular reliability target is being achieved. The standards should not expect perfection as their goal.; 3) requirement redundancy - this should remain a focus of the Work Plan to remove potential for multiple violations, the standards should remain clear and concise; 4) Clear expectations - many of the standards still lack measures. It's not clear why the industry is putting forth time and energy on developing both measures and Reliability Standards Audit Worksheets (RSAWs). It seems that clear written measures along with the requirements should suffice in providing a responsible entity the information needed to ensure compliance. The RSAWs should not be an on-going expecatation of the standards and the Work Plan should clearly cast this vision. Creating both RSAWs and measures creates unnecessary effort to maintain two sets of information serving the same function.

A presentation was made by the NERC Standards Process Subcommittee (a subcommittee of the SC) at the April 15-16, 2009 NERC Standards Committee meeting that describe a potential method for establishing a list of criteria for evaluating the standards, prioritizing the work needed with a focused effort of trimming down the requirements to core reliability requirements aimed at a particular reliability goal. It's suggested that the work of the NERC Process Subcommittee form the basis of establishing the High Priority list of standards which should ultimately rise to the top of NERC's Work Plan.

C) FE well understands the benefits of utilizing an already formed standards drafting team (SDT) to expedite a response to a standard interpretation request as the team already assembles the SMEs to address a particular subject matter. The SDT also benefits from the experience by being made acutely aware of confusion that exists within an existing standard it is addressing for improvement.

A potential downside to using SDT personnel is the distraction created by the interpretation request and a delay in the standards development work. NERC should closely monitor the workload placed on SDT's being asked to respond to interpretation requests and poll the SDT members to see if they believe there would be any benefit in an alternative approach for interpretation responses.

One potential alternative would be to form a separate sub-committee or work group under the CIPC, OC and PC that would address all interpretation requests related to various class of standards that each of these standing committees would be expected to address. This would allow the SDTs to remain focused on their work in developing new/revised reliability requirements.

D) The Work Plan should set the vision of what the ERO/industry will achieve as a 5-year target. This vision should foretell a 5-year plan of a strong, self supporting industrial model that will triage the standards to separate critical core reliability requirements from the lesser administrative tasks, a dedicated focus of reducing the reliability requirements to those that support NERC's Adequate Level of Reliability and clearly identify the High Priority projects being addressed on a expedited schedule. The 5-year target should seek to continuously improve and adjust as needed to raise the BES reliability where warranted by clear metrics and should not anticipate perfect reliability.

NERC Response:

A and B) In response to your recommendation (as well as similar recommendations from others) we

have added Project 2010-06 Results-based Reliability Standards to the *Reliability Standards Development Plan: 2010-2012* for a project focused on:

- triaging the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all,
- developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis,
- promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and
- revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability.

C) We appreciate your concern related to the process used for developing interpretations. This topic is one of many topics currently being vetted by the members of the NERC Standards Committee and your concerns are more appropriately addressed in that venue.

D) The Reliability Standards Development Plan is a short-term forward looking three-year plan for reliability standard development and not necessarily a master plan that sets the long-term goals of the standards program. NERC staff coordinates all standards development activities through the NERC Standards Committee whose membership consists of industry representatives. In compliance with the NERC Reliability Standards Development Procedure, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. The Standards Committee protects the integrity and credibility of the standards development process. NERC staff facilitation of the standards development process in coordination with the Standards Committee takes into consideration the potential impact on industry resources when planning standards related projects and activities.

Comment 5
Name: Frank Gaffney
Organization: Florida Municipal Power Agency

Standard Number(s): EOP-001-1, EOP-003-1, IRO-008-1, IRO-009-1, IRO-010-1, PRC-006-0, PRC-007-0, TOP-001-1, TOP-002-2a, TOP-003-1, TOP-006-2, VAR-001-1a

Standard Title(s): Emergency Operations Planning, Load Shedding Plans, Reliability Coordinator Operational Analyses and Real-Time Assessments, Reliability Coordinator Actions to Operate Within IROLs, Reliability Coordinator Data Specifications and Collection, Development and Documentation of Regional UFLS Programs, Assuring Consistency with Regional UFLS Programs, Reliability Responsibilities and Authorities, Monitoring System Conditions, Voltage and Reactive Control

Suggestion or Comment: The current standards are inconsistent with each other in certain areas and confuse the roles of a Balancing Authority (BA), Transmission Operator (TOP), Reliability Coordinator (RC), Regional Entity (RE), Generation Operator (GOP) and Transmission Planner (TP). The confusion manifests in a few ways. First, it causes the BA to be responsible for requirements that ought to be only applicable to the TOP (such as managing transmission line outages), and visa versa (such as managing fuel supply), probably thinking that most BAs are also TOPs. However, there are BAs that are not TOPs and visa versa. Secondly, it causes redundancy in roles and confusion in leadership in causing certain activities to happen. For instance, both the TOP and RC are responsible for managing IROLs without clear leadership between the two. Also, if a Load Serving Entity (LSE) or GOP receives directives from both the RC and the TOP that conflict with each other, what should the LSE or GOP do?

Example: The NERC Glossary of terms defines a BA as: "The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time." In other words, responsible for supply and demand balance in the operating horizon. With this definition in mind, why is the BA responsible for EOP-001-1 R2.2 "Develop, maintain, and implement a set of plans to mitigate operating emergencies on the transmission system"? Similarly, the TOP is defined as: "(t)he entity responsible for the reliability of its 'local' transmission system, and that operates or directs the operations of the transmission facilities." With this definition in mind, why is the TOP made responsible for EOP-001-1 R2.1: "(d)evelop, maintain, and implement a set of plans to mitigate operating emergencies for insufficient generating capacity"? There are more examples of this, and other inconsistencies between the BA, TOP, RC, RE, GOP and TP, as summarized below:

In EOP-001-1 R4, Appendix A includes items that are not applicable to the TOP and are only applicable to the BA, e.g., why is a TOP responsible for fuel supply? Why is a TOP responsible for R6.2 concerning emergency energy? Why is a TOP responsible for fuel supply in R6.4, and why is the TOP responsible for arranging energy delivery?

In EOP-003-1 R2, why is the BA responsible for Under Frequency Load Shedding (UFLS) when PRC-006-0 and PRC-007-0 make it the responsibility of the Regional Entities, the TOPs, the Distribution Providers and the LSEs? Why is the BA responsible for Under Voltage Load Shedding (UVLS) when the responsibility should probably be just the TOP's? Isn't this requirement redundant with PRC-006-0 and PRC-007-0?

IRO-008-1 and IRO-009-1 requires RCs to operationally plan for and operate within IROLs. TOP-004-2 and VAR-001-1a R10 requires the TOPs to do the same, yet there is no discussion in the standards of coordination between the RC and TOPs in the standards. Note that VAR-001-1a R10 and R12 are dedundant with TOP standards such as TOP-004-2.

TOP-001-1 R8, the requirement ought to clearly delineate that the BA is responsible for restoring real power balance, and the TOP reactive power balance.

TOP-002-2a, the standard is for Transmission Operations Planning yet there are numerous requirements for the BA that should probably be set apart as separate requirements under a new BAL standard for operational planning for supply and demand balance, contingency reserves, and regulation service, which are not related to Transmission Operations Planning.

TOP-002-2a R8, why is it the BA's responsibility to meet voltage or reactive reserves, isn't that the role of the TOP, as spelled out in the VAR standards? If the issue is to ensure enough generation is on-line in specific areas that might need reactive support, isn't that still the TOP's responsibility to coordinate with the BA and issue direction if necessary?

TOP-003-1 R1.2, why is the TOP responsible for providing generator outage information? Isn't that the BA's or GOP's responsibility and isn't this redundant with IRO-010-1?

TOP-006-2 R1, R1.2, why are BAs responsible for information regarding transmission resources available for use? Isn't that the role of the TOP?

TOP-006-2 R2, why is the BA responsible for monitoring transmission line status, voltage, load tap changer settings, and reactive power in general? Monitoring and managing reactive resources, voltage and tap settings is clearly made the responsibility of the TOP in VAR-001-1a.

TOP-006-2 R3 why does the BA need to understand protective relaying? Isn't that the role of the TOP and GOP?

VAR-001-1a R2 requires the TOP to acquire sufficient reactive resources. The statement probably ought to clearly delineate that this requirement is applicable to the operating horizon only and that the TP is responsible for adequate reactive resources in the planning horizon.

Recommendation for improvement: Revise the standards to clearly delineate the responsibilities of the various entities and clear up the redundancy and inconsistencies between the standards. The examples provided include some suggestions for changes to help make roles and responsibilities more clear.

NERC Response:

There are some inconsistencies in identifying the responsible entity – during the development of the Version 0 standards, the drafting team sometimes converted the term, "control area" to "Balancing Authority and Transmission Operator" when the conversion should have clearly assigned the requirement to either the Transmission Operator or the Balancing Authority, but not to both. We are trying to correct these applicability errors as we modify the standards.

Several of the recommended modifications have already been addressed, including deletion of TOP-001-1, Requirement R8; removal of BA requirements from TOP-002; deletion of TOP-003 Requirement R1.2;removal of BA from TOP-006; IRO-008 and IRO-009 require the RC to develop action plans for preventing and mitigating instances of exceeding IROLs and require sharing this information with the entities that need to take these actions – so there is coordination between the IRO standards and the TOP standards.

The following items have been added to the Issues Database to be addressed by the standard drafting team responsible for revising the standard:

Source: Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan:2010-2012

EOP-001-1	Project 2009-03	The NERC Glossary of terms defines a BA as: "The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time." In other words, responsible for supply and demand balance in the operating

		horizon. With this definition in mind, why is the BA responsible for EOP-001-1 R2.2 "Develop, maintain, and implement a set of plans to mitigate operating emergencies on the transmission system"?
EOP-001-1	Project 2009-03	The NERC Glossary of terms defines a TOP as: "(t)he entity responsible for the reliability of its 'local' transmission system, and that operates or directs the operations of the transmission facilities." With this definition in mind, why is the TOP made responsible for EOP-001-1 R2.1: "(d)evelop, maintain, and implement a set of plans to mitigate operating emergencies for insufficient generating capacity"?
EOP-001-1	Project 2009-03	Requirement R4 (and by reference Attachment 1-EOP-001-0) is applicable to both the Transmission Operator and Balancing Authority but includes items that are not applicable to the TOP and are only applicable to the BA, e.g., why is a TOP responsible for fuel supply? Why is a TOP responsible for R6.2 concerning emergency energy? Why is a TOP responsible for fuel supply in R6.4, and why is the TOP responsible for arranging energy delivery?
EOP-003-1	Project 2009-03	With regard to requirement R2, why is the BA responsible for Under Frequency Load Shedding (UFLS) when PRC-006-0 and PRC-007-0 make it the responsibility of the Regional Entities, the TOPs, the Distribution Providers and the LSEs? Why is the BA responsible for Under Voltage Load Shedding (UVLS) when the responsibility should probably be just the TOP's? Isn't this requirement redundant with PRC-006-0 and PRC-007-0?
EOP-003-1	Project 2007-01	Requirement R2 of EOP-003-1 states: “Each Transmission Operator and Balancing Authority shall establish plans for automatic load shedding for underfrequency or undervoltage conditions.” The standards drafting team for Project 2007-01 Underfrequency Load Shedding should consider modifying this requirement as part of their project.
VAR-001-1a	Project 2008-01	Requirement R2 requires the TOP to acquire sufficient reactive resources. The statement probably ought to clearly delineate that this requirement is applicable to the operating horizon only and that the TP is responsible for adequate reactive resources in the planning horizon.
VAR-001-1a TOP-004-2.	Project 2008-01	VAR-001-1a R10 and R12 are redundant with TOP standards such as

Comment 6
Name: Guy Zito
Organization: Northeast Power Coordinating Council

Suggestion or Comment: The initial draft of the intended "final" version of the document should be posted for comment. "Fill in the blank" projects versus blackout recommendation projects should be appropriately prioritzed.

Recommendation for improvement: The Reliability Standards Development Plan: 2010-2012 version should be the version that is posted for comments. Having the 2009-2011 version posted is contributing to industry confusion over what information to submit for comments.

NERC Response:

Thank you for your comment. We will consider incorporating your suggestion into next year's project for revising the *Reliability Standards Development Plan.*

Comment 7
Name: Hugh Francis
Organization: Southern Company

Suggestion or Comment: Page 9 of Appendix A has a list of projects that will be initiated each year. At the bottom of page 10 there is a strategy for project resources that addresses the resources needed to complete the standards projects in the project list. There are about the same number of projects in each year. What is not addressed is how these new projects are going to be started/completed without additional resources. This plan does not address the resources needed to keep the earlier projects revised and current. At this time there are 95 nation-wide standards and only 35 or less than 37% have not been revised.

Recommendation for improvement: The new Standards Development Plan needs to address current manpower requirements as well as future needs for manpower. Adjust the project list in the future years to levelize manpower needed to initiate new standards as well as keep the current standards up to date and revised as needed.

NERC Response:

NERC understands the amount of resources required (both industry and NERC specific resources) for the development of quality standards and is cognizant of the fact that industry resources are not limitless. NERC staff coordinates all standards development activities through the NERC Standards Committee whose membership consists of industry representatives. In compliance with the NERC Reliability Standards Development Procedure, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. NERC staff facilitation of the standards development process in coordination with the Standards Committee takes into consideration the potential impact on industry resources when planning standards related projects and activities.

One of the requirements of the Rules of Procedure of the North American Electric Reliability Corporation is to review each standard at least once every five years, and we are facing the "five-year" anniversary of the initial effective date for the "Version 0" standards. The majority of projects slated to commence in 2010 in this revised plan will enable NERC to meet this requirement as it relates to the initial set of reliability standards.

Comment 8

Name: Jalal Babik

Organization: Dominion Resources Inc.

Project Number(s): 2007-01-RE, 2007-05-RE, 2007-11-RE, 2008-04-RE.

Project Title(s): Underfrequency Load Shedding, Balancing Authority Contols, Disturbance Monitoring, Protection System

Suggestion or Comment: NERC must place more priority on fill-in the blank standards in its Reliability Standards Development Plan. Since several of these standards, have not gotten priority attention, Regional Councils are moving ahead with Regional Standards development on these standards, while a national standard would be more appropriate and prevent the development of unnecesary regional differences in standards that ultimately make standards compliance more difficult for registered entities operating in more then one Region. Further, a national standard on these important compliance topics would set the threshold and hence, regional differences or variences could be minimized. Without this prioritization, registered entities could face very different compliance requirements on simliar equipment in their fleet, based soley on what Region the equipment resides; making compliance management more difficult, yet for little to no benefit to the bulk power system and compliance costs. Additionally, given several of these projects were started in 2007, that reason alone should move these projects into the highest priority on NERC Development Plan.

Recommendation for improvement: These fill-in-the-blank standards should review top priority from NERC staff until they are balloted. Regional Standards that address then same compliance subjects should be put on hold until the national standard on the same compliance objective is addressed by ballot body. It is after that national balloting that Regions will know what regional differences are truly needed based on unique characteristics of their regional bulk electric system.

NERC Response:

The projects in question relative to the above comments are:

- Project 2007-01-RE — Underfrequency Load Shedding,
- Project 2007-05-RE — Balancing Authority Controls,
- Project 2007-11-RE — Disturbance Monitoring, and
- Project 2008-04-RE — Protection Systems

as described in Volume III of the *Reliability Standards Development Plan: 2009-2011* and the corresponding continent-wide projects currently underway or planned.

Three of the four corresponding continent-wide projects are well underway (those being Project 2007-01 Underfrequency Load Shedding, Project 2007-05 Balancing Authority Controls, and Project 2007-11 Disturbance Monitoring) and are subject to the schedule established by the associated standard drafting team. The fourth continent-wide project was identified in Volume II of the Reliability Standards Development Plan: 2009-2011 as Project 2010-05 Protection Systems. The work being performed in parallel by any particular region is subject to the oversight of the regional standards organization for that region and is not controlled by NERC staff. NERC standards staff is in regular contact with the individuals at each of the Regional Entities responsible for developing regional reliability standards. Coordination of the four projects referenced above is ongoing. In many instances, the Regional Entity has decided to commence work on the four 'fill-in-the blank' standards in order to able to better coordinate the development of the regional standard with the development of the continent-wide standard. This actually is to the benefit of those entities in the region affected by the standard.

Each Regional Entity has a FERC-approved regional standard development procedure. Embedded in the regional standard development process, a region seeking approval of a regional reliability standard must justify the need for the standard. It is incumbent on those that participate in the regional standards development process to determine the need to expend resources on developing a standard

as they deem appropriate. Each of the regional standards development procedures mandates a fair and open process for the development of standards. As such any interested party in the region should have a voice in which standards development projects are pursued and which standards are not. NERC cannot require a Regional Entity to justify a regional standard before it is developed.

Also, please see the "Fill-in-the-blank Standards" section of this Volume I for additional information related to fill-in-the-blank standards.

With respect to your comment regarding regional differences, we respectfully disagree with the assertion that only after national balloting will the need for a regional difference be known. It is optimal for all regional differences to be identified whether as part of the continent-wide standards development process or as part of a regional standards development effort prior to the continent-wide standard being balloted.

Comment 9

Name: Jason Marshall

Organization: Midwest ISO

Suggestion or Comment: NERC should sponsor an industry triage of the standards to identify the core requirements and flag those that are minutia. This will allow all of industry (NERC, Regional Entities and Registered Entities) to focus resources on what will support reliability rather than push paper to demonstrate compliance with requirements that don't support reliability.

Example: A simple example is the DCS. The true core requirements are to recover from all reportable events in 15 minutes and replenish reserves in 90 minutes thereafter. The rest of the Requirements are an explanation of what that means, how it's handled in a Reserve Sharing Group and also the procedural reporting items. However, we are now moving down a path to assign measures and sanctions to 20 different things in this standard.

Recommendation for improvement: A first step for any standards improvement effort would be the creation of a database companion to the standards. This would not only be a platform to capture the triage comments, the database could be used by registered entities to identify all the requirements that apply to them. Presently, it is impossible to say with assurance you have found all applicable requirements. For example, there are several cases where an entity is mentioned in a requirement, but that entity is not identified in the "applicability" section of the standards. In addition, the database would help to identify where there are redundant requirements in multiple standards and help to eliminate these redundancies and streamline the standards.

Once you have the triage complete, format changes are just a matter of programming.

If you look at the present V0 and V1 standards, many things labeled as requirements are actually criteria, procedures, administrative directions and explanatory text.

As an example of what can be done to improve the final format after the triage, refer to Europe's Policy 1 at: http://www.ucte.org/resources/publications/ophandbook/

The bullets in their policies are broken into a few categories:

- C for Criteria (goals and background of the standard)
- R for Requirements (generally attributes that are yes/no go/no-go)
- S for Standards (things measured on a scale)

- P for Procedures (administrative information)
- G for guides (while we have moved away from guides, the issue still remains what to do with the good practices that are being lost from institutional memory)

If there is information beyond this, it is likely reference information and should be moved to an appendix in the standard (using A for paragraph numbers).

The benefit in making such a format change is that the industry can focus on those things that are important for reliability. It also allows NERC and the Regions to focus on the important things.

Compliance elements would be applied to the requirements and standards. There still could be notification to regulatory bodies on procedural deficiencies.

This is not a suggestion for any change to content in the standards, just a reformatting.

NERC Response:

In response to your recommendation (as well as similar recommendations from others) we have added Project 2010-06 Results-based Reliability Standards to the *Reliability Standards Development Plan: 2010-2012* for a project focused on:

- triaging the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all,
- developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis,
- promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and
- revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability.

Project Number(s): Project 2009-04, Project 2011-01

Project Title(s): Phasor Measurement Units, Equipment Monitoring and Diagnostic Services

Suggestion or Comment: Project 2009-04 Phasor Measurement Units - While Midwest ISO supports continued and expanded use of PMUs, we believe that any standard developed should be a technical standard that facilitates a common implementation.

Project 2011-01 Equipment Monitoring and Diagnostic Services - While this project has some merit, it needs to be prioritized among all of the existing on-going standards work. There does not appear to be an overwhelming industry need to implement this standard to prevent the next system disturbance. One could even argue this standard is not about improving BES reliability because the BES must already be operated to withstand the next contingency.

Recommendation for improvement: Ensure the SAR for Project 2009-04 proposes to develop a technical standard only. Delay Project 2011-01 indefinitely until all version 0 standards have been approved by FERC with no additional revisions required. Then evaluate to determine if it is needed for reliability.

NERC Response:

With respect to your comment regarding Project 2009-04 Phasor Measurement Units the following item has been added to the Issues Database to be addressed by the standard drafting team responsible for revising the standard:

Source: Jason Marshall (Midwest ISO) as input to the Reliability Standards Development Plan:2010-2012

Project No.: 2009-04 Phasor Measurement Units

Language: While Midwest ISO supports continued and expanded use of Phasor Measurement Units, we believe that any standard developed should be a technical standard that facilitates a common implementation. Ensure the SAR for Project 2009-04 proposes to develop a technical standard only.

With respect to your comment regarding Project 2011-01 Equipment Monitoring and Diagnostic Services, the priority of this particular project remains relatively low in the revised Reliability Standards Development Plan.

Comment 10

Name: Jianmei Chai

Organization: Consumers Energy Company

Suggestion or Comment: When there are revisions to the NERC Glossary of Terms (Glossary), NERC should notify stakeholders of the change. New or revised terms are not added to the Glossary until they are approved by the NERC Board of Trustees. However, due to the volume of standards that go through the Standard Development Process, providing notice to stakeholders when the Glossary is revised provides the opportunity to validate that stakeholders are, in fact, adhering to the appropriate definitions. This is especially important with regard to revised terms. Currently, NERC provides notice to stakeholders for ballot results and when Standard Authorization Requests (SARs) and proposed Standards have been posted for comment. However, to our knowledge, no notice is provided when the Glossary is revised.

With regard to the Glossary itself, we offer the following suggestions:

1) Glossary terms should reference the Standards to which they apply. Not only would this be helpful in identifying how stakeholders should revise their compliance process, it would assist the Standards Drafting Teams, because they are required to determine if any existing Standards would be affected by a revision.

2) Clean and redline versions of the Glossary should be posted to allow stakeholders to more accurately track revisions.

3) Regional terms should state the region(s) to which they apply. This is especially important with respect to terms that subsequently may be incorporated into another region's Standards or into national Standards, particularly since stakeholders outside the region associated with the specific term(s) generally would not have had an opportunity to comment, except when the Regional Standard is posted for ballot at NERC.

4) Each Glossary term should appear in at least one Standard. We have identified terms that are not associate with any Standard.

5) When a term is revised, an effective date should be noted, as well as a termination date for the old definition.

6) Historical versions of the Glossary should be readily available on the NERC web site.

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In addition, we suggest that Requirements NOT include reporting data for compliance monitoring (this

should be in Measures), but only include data reporting where the data is used by the recipient for other reliability purposes. In other words, providing data to the RE periodically to demonstrate compliance should be a measure, but providing data to the RE periodically for RE model development should be a requirement.

NERC Response:

With regard to your first suggestion that NERC should notify the industry when a change is made to the NERC Glossary of Terms Used in Reliability Standards, NERC staff appreciates your concern and has begun revising our internal process by modifying our announcements to notify stakeholders when the NERC Board of Trustees approves a new/revised/retired definition.

With regard to your additional suggestions:

1. While this would be "nice" it is not "necessary." Each time a defined term is used in a reliability standard, the term is capitalized to indicate that the term uses the definition found in the glossary. If a drafting team proposes revising a standard, then the team must search all standards approved by the Board of Trustees and determine, with stakeholder feedback, if the modification to the term would adversely impact any of the already approved requirements. (You can see an example of this with the current posting for Project 2007-17 - Protection System Maintenance and Testing - the team is proposing to change the definition of Protection System and has provided a table with every instance where the term is used in an approved standard.)
2. While this would be "nice" it is not "necessary." The value of tracking past versions isn't clear.
3. We agree. The current version of the Glossary of Terms in Reliability Standards does not embed any regional definitions in the set of continent-wide definitions. In the future, additional sections may be added to the Glossary of Terms in Reliability Standards to provide a place to identify definitions that were developed and approved through a regional standards development process and approved by the NERC Board of Trustees.
4. We agree. We are unaware of any terms that aren't in any standards. Please forward the terms that you have discovered are no longer needed.
5. This is a good suggestion and can be adopted moving forward - however making this retroactive to provide the initial date for all terms would be labor intensive and isn't "necessary."
6. Because the glossary is updated after most Board of Trustee meetings, this would require retaining many versions of the glossary, and the benefit isn't clear.

Comment 11
Name: James H. Sorrels, Jr.
Organization: American Electric Power

Reliability Issue: With the addition of increasing volumes of new generation types and the current use of fossil fuel generation characteristics for such units, the accuracy of state estimator models are being adversely impacted.

Suggestion or Comment: Establish a Standards Drafting Team to address this reliability concern.

Example: Wind generators do not follow the typical reactive curves attributed to fossil fuel generator units. In fact, some types of wind units do not produce reactive support, while the state estimator model is reflecting that it does produce reactive support. Fossil fuel units produce dynamic reactor capability, while wind generators can be a combination of dynamic and static capability.

Recommendation for improvement: The developed standard, when effective, will improve the accuracy of state estimator models.

NERC Response:

Project 2009-02 Real-time Tools was initiated this year the Purpose of which states:

> "The new standard or standards will establish requirements for the functionality, performance, and management of Real-time tools for Reliability Coordinators, Transmission Operators, and Balancing Authorities for use by their System Operators in support of reliable System operations."

Please monitor and/or participate in this project to the extent possible with respect to the issue raised above. To encourage the drafting team to consider your concern we have added your issue to our Issues Database associated with the project.

Comment 12

Name: Laura Lee
Organization: Duke Energy

Suggestion or Comment:

#1 There are requirements in standards, and standards themselves, that do not clearly ensure the reliability of the bulk power system. Unnecessary requirements are detrimental to the reliability of the BES because they divert entities' resources from focusing on the core actions that are truly essential to maintaining reliability. In addition, there are so many standards development projects currently active that entities are devoting resources to, the industry has little time to reflect and identify what gaps may exist in the reliability standards or formulate recommendations for eliminating those gaps. The Reliability Standards Development Plan: 2009-2011 does not clearly identify the top few priorities and how the projects in the plan support those priorities.

#2 Development of regional standards in parallel with development of a continent wide standard on the same subject results in inefficency.

#3 There appear to have been more interpretation requests than were anticipated in the past year, and it is reasonable to expect this trend to continue.There is currently not a process to control the amount of resources that are devoted to developing reliability standards interpretations.

Recommendation for improvement:

#1 Duke advocates pausing non-essential standard development activity in order for NERC to engage the industry in an effort to identify the standards and requirements that are truly essential for maintaining an adequate level of reliability of the BES. This could take the form of a "clean slate" approach, similar to the effort underway prior to development of the version 0 standards to define about 13 core standards, or a stop/start/continue review of the current slate of standards and requirements. The Standards Committee would be a logical lead for this effort, providing directional definition in addition to their process leadership. The result should be a clearly articulated vision of where the reliability standards development efforts need to be applied, a plan to achieve that vision and an explanation of how each project in the plan supports that vision.

#2 Regional standard development needs to be more closely coordinated with continent wide standard development.

#3 Either more allawance needs to be given in the subsequent Reliability Standards Development Plan

for the actual and anticipated increase in reliability standards interpretation requests by defering the commencement of projects that have not been started or the process needs to be streamlined while still including industry input. A prioritization/classification effort as proposed in recommendation #1 above that resulted in fewer and more focused requirements would have the added benefit of reducing the volume of interpretation requests.

NERC Response:

#1 In response to your recommendation (as well as similar recommendations from others) we have added Project 2010-06 Results-based Reliability Standards to the Reliability Standards Development Plan: 2010-2012 for a project focused on:

- triaging the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all,
- developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis,
- promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and
- revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability.

#2 There are currently four continent-wide projects which may or may not require each regional entity to develop companion regional standards:

- Project 2007-01 Underfrequency Load Shedding
- Project 2007-05 Balancing Authority Controls
- Project 2007-11 Disturbance Monitoring
- Project 2010-05 Protection Systems (as identified in Volume II of *Reliability Standards Development Plan: 2009-2011*)

Three of the four corresponding continent-wide projects are well underway (those being Project 2007-01 Underfrequency Load Shedding, Project 2007-05 Balancing Authority Controls, and Project 2007-11 Disturbance Monitoring) and at this point in time may not even require regional standards. The fourth continent-wide project (Project 2010-05 Protection Systems) has yet to be initiated and it is unknown to what degree regional standards will need to be developed.

NERC standards staff is in regular contact with the individuals at each of the Regional Entities responsible for developing regional reliability standards. Coordination of the four projects referenced above is ongoing. In many instances, the Regional Entity has decided to commence work on the four 'fill-in-the blank' standards in order to able to better coordinate the development of the regional standard with the development of the continent-wide standard. This actually is to the benefit of those entities in the region affected by the standard.

Each Regional Entity has a FERC-approved regional standard development procedure. Embedded in the regional standard development process, a region seeking approval of a regional reliability standard must justify the need for the standard. It is incumbent on those that participate in the regional standards development process to determine the need to expend resources on developing a standard as they deem appropriate. Each of the regional standards development procedure mandates a fair and open process for the development of standards. As such any interested party in the region should have a voice in which standards development projects are pursued and which standards are not. NERC cannot require a Regional Entity to justify a regional standard before it is developed.

#3 We appreciate your concern related to the process of developing interpretations. This topic is one of many topics currently being vetted by the members of the NERC Standards Committee and your

concerns are more appropriately addressed in that venue.

Comment 13

Name: Michelle Rheault

Organization: Manitoba Hydro

Suggestion or Comment:

Over the past few years, there has been a modest improvement in the quality of some reliability standards. Manitoba Hydro would like to encourage NERC to continue its efforts at improving existing standards.

Manitoba Hydro is not satisfied with the Standards Under Development (SUD) 2009-2011 Plan. Many of our comments below mirror those previously provided to NERC from industry participants (Appendix A of the 2009-2011 plan). The fact that comments from previous years have not been addressed seems to indicate that the commenting process is a formality that consumes scarce entity resources with little reward for the effort. Nevertheless, we feel it is important to continue voicing our concerns.

We believe that the three issues outlined below are key to improving the SUD plan.

1. Standard Quality

   Manitoba Hydro feels that standard quality is vital to the reliability of the BES. More standards do not lead to better reliability; rather, this is achieved by fewer high-quality standards that focus on essentials for reliability.

   As per the Standard Development Plan (Volume I, page 8), "Order No. 672 provides guidance on the factors the Commission will consider when determining whether proposed reliability standards meet the statutory criteria." It states that standards must be "clear and unambiguous." We recommend that this guidance be used to develop a method to measure the quality attributes of a standard. This would allow industry and NERC to determine when they are satisfied with a standard and can move on to allocating resources to create new standards. The number of Requests for Interpretation put forth by industry is an indication that there are many standards which are neither clear nor unambiguous.

2. Project Prioritization

   Manitoba Hydro believes that in order to best improve the reliability of the BES, NERC needs to change the way it prioritizes projects.

   New projects are questionable given the greater need to improve the clarity of existing standards that are already auditable. Some proposed projects may be a good idea, but are not an immediate necessity for BES reliability and dilute the resources available to more critical projects. Some examples from the 2009-2011 plan include:

   - Project 2009-04 Phasor Measurement Units
   - Project 2010-01 Support Personnel Training
   - Project 2011-01 Equipment Monitoring and Diagnostic Devices
   - Project 2009-02: Real-time Tools

   Prioritization can be improved by developing a priority ranking tool. The Blackout report is getting stale as a source of priority in a changing environment. In developing the ranking tool, Manitoba Hydro has several suggestions to improve the prioritization of projects:

   - Survey the industry to obtain an indication of the greatest need for the reliability standards.

Focus on value added projects where deficiencies clearly exist today.

- Focus on cleaning up existing standards, rather than merging multiple standards, which requires significantly more effort to achieve a "clear and unambiguous" result.
- Limit the number of standards involved in the standards under development process: This type of limit would prevent the plan from using too many resources. Unless there is a high priority for it, new projects should not be added to the plan or started until old projects are finished. As an example, there are still nine projects initiated in 2006 which have not been completed, while limited NERC and industry resources are assigned to the start of 2009 projects.
- Do not create new standards which duplicate what is already found in other standards and only serve to prescribe the method to meet the original requirement. If requirements are clear and unambiguous, any method used by entities to comply with the standards will be appropriate and mitigate risk to the BES.
- Low-priority projects should not be scheduled for future years, but rather put on a to-do list which can be reviewed when resources are available.
- Develop a risk profile for the entirety of NERC Standards. NERC needs a more holistic approach to risk management. While VRFs identify risk for each requirement and are used for enforcement purposes, they do not lend themselves to a "big picture" assessment of risk and comparison of standards on a risk basis. Selecting projects for the current work plan based on the associated risk to the BES is very difficult using the VRFs. The Standards Committee should develop a risk profile that effectively compares standards on a risk basis and facilitates the targeting of activities on those key standards that mitigate the greatest risk to the reliability of the BES.

3. Management of the Plan

Like any project, the Standard Under Development plan must be properly managed. This includes three components as outlined below:

- Resourcing

  There are currently too many projects drawing on limited industry resources for both participation on drafting teams as well as commenting and voting on standards under development. An excessive number of projects may result in industry fatigue in the standards development process. If fewer requests for comments were sent out, the quality of the feedback received would be higher, which would lead to better quality standards.

  The SUD Plan must reflect the need for resources to focus on interpretation requests which come up during the year. The number of interpretations will not decrease until existing standards are updated to improve clarity and measures of compliance. Hence, this should be the focus of activities in the short term.

- Cost

  NERC should publish the cost of the SUD program implementation, so that industry can weigh the benefits of new projects versus the cost of implementing them.

- Metrics

  There is a need for metrics to evaluate the standards development process in order to understand how long it takes to complete a project and how many can be completed per year in order to better plan future work. Past performance is an indication of future performance; therefore, plans should not encompass more work than has been shown to be completed in the past. For example, only one project identified in the 2008-2010 plan has been completed, but four projects have been added. The concern is that as more projects are added than completed,

the plan will become unachievable and projects that actually improve reliability will not be completed.

These metrics should be published in the Standards Development Plan in an easy to understand format (tables, graphs, etc) to demonstrate what is achieved from year to year and predict what is achievable for future years. Possible metrics include:

- Number of projects completed each year
- Number of projects added each year
- Number of projects failed/withdrawn each year
- Number of projects rescheduled to future years
- Average time to complete a project
- Number of new requests for interpretations each year
- Summary of what phase the projects are at (i.e. percent started, percent voted on, percent waiting for BOT approval, etc)

NERC Response:

1. Standard Quality

In response to your recommendation (as well as similar recommendations from others) we have added Project 2010-06 Results-based Reliability Standards to the Reliability Standards Development Plan: 2010-2012 for a project focused on:

- triaging the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all,
- developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis,
- promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and
- revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability.

2. Project Prioritization

The concept of project prioritization is paramount to a successful reliability standards development plan. A high priority project in the eyes of one entity might not be in the eyes of another entity. NERC staff coordinates all standards development activities through the NERC Standards Committee. In compliance with the *NERC Reliability Standards Development Procedure*, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. NERC staff works with the NERC Standards Committee to identify the projects of highest overall industry importance before working on lower priority projects. In fact, the Standards Committee Process Subcommittee is currently discussing methodologies for prioritizing standards development projects. We encourage your company's participation on that subcommittee.

3. Management of the Plan

- Resourcing

  NERC appreciates the industry resources necessary for the development of quality standards and is cognizant of the fact that industry resources are not limitless. NERC staff coordinates all standards development activities through the NERC Standards Committee whose membership consists of industry representatives. In compliance with the NERC Reliability Standards

Development Procedure, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. NERC staff facilitation of the standards development process in coordination with the Standards Committee takes into consideration the potential impact on industry resources when planning standards related projects and activities. Specific comments in how this Reliability Standards Development Plan could be modified to more effectively use industry resources are welcome.

- Costs

  The costs of the NERC Standards program are detailed in the NERC Business Plan and Budget.

- Metrics

  A set of metrics related to the length if time to complete a standards development process was provided in Appendix A to Attachment 1 of the Three-Year Electric Reliability Organization Performance Assessment Report.

Comment 14

Name: Standards Review Subcommittee

Organization: North American Energy Standards Board

Suggestion or Comment:

2006-07 Transfer Capabilities - (ATC, TTC, CBM, TRM)

Comment - NAESB completed its original work under FERC Order 890 for ATC, TTC, CBM, and TRM, which was coordinated with NERC. In the NERC NOPR related to this project there was the identification of potential for additional work. NAESB requests that NERC continue to coordinate and notify NAESB if there are any addition changes to the NERC standards affected under this project which could have an impact on the NAESB Business Practice Standards.

A potential area of additional coordination between the NERC drafting team and NAESB's WEQ ESS/ITS may arise in the handling of designation and undesignation of network resources under NAESB WEQ 2009 Annual Plan item 3.a.i "Group 3: Network Service On OASIS." The ESS/ITS is developing business practice standards for Network Service on OASIS, that include OASIS formats and requirements for capturing information on designation and undesignation of network resources. The information captured in the NAESB standards may provide useful data for inter-BA communication of resource allocations.

2006-08 Transmission Loading Relief

Comment - This project has ongoing coordination with NAESB since it directly impact the NAESB Business Practice Standard WEQ-008 (Transmission Loading Relief - Eastern Interconnection). NAESB expects this coordination will continue as the project moves forward.

2007- 05 Balancing Authority Control

This project is currently being coordindated with the NAESB Time and Inadvertent Management Task Force. Changes to the NERC standards may have an impact on the NAESB Business Practice Standards WEQ-006 (Time Error Correction) and WEQ-007 (Inadvertent Interchange Payback). We request that the Reliability Standards Development Plan continue to reflect that the project be coordinated with NAESB and reference the NAESB WEQ 2009 Annual Plan Items:

1.d Time Error and Indavertent (BAL-004 and BAL-006) Coordination with NERC

1.e DCS and AGC (BAL-002 and BAL-005) Coordination with NERC

2007-18 Reliability Based Controls

Comment - The Joint Interchange Scheduling Working Group in first quarter 2009 reviewed EOP-002 and determined that there should be some level of coordination between NERC and NAESB. As a result of this review the NAESB WEQ 2009 Annual Plan item (3.a.viii) "Review and correct WEQ-004 Coordinate Interchange Business Practice Standard as needed based on activities in NERC Project 2008-12, Coordinate Interchange Standards Revisions and supporting EOP-002-2 R4 and R6" was added. We request that this project reference that coordination between NERC and NAESB needs to occur and the cross reference to the NAESB WEQ 2009 Annual Plan item be added in the 2010-2012 Reliability Standards Development Plan.

2008-12 Coordinate Interchange

Comment - The Joint Interchange Scheduling Working Group in first quarter 2009 reviewed EOP-002 and determined that there should be some level of coordination between NERC and NAESB. As a result of this review the NAESB WEQ 2009 Annual Plan item (3.a.viii) "Review and correct WEQ-004 Coordinate Interchange Business Practice Standard as needed based on activities in NERC Project 2008-12, Coordinate Interchange Standards Revisions and supporting EOP-002-2 R4 and R6" was added. We request that this project reference that coordination between NERC and NAESB needs to occur and the cross reference to the NAESB WEQ 2009 Annual Plan item be included in the 2010-2012 Reliability Standards Development Plan.

2009-03 Emergency Operations

Comment - This project indicates that it will affect EOP-002-2. As a result of the Joint Interchange Scheduling Working Group's review of EOP-002-2 R4 and R6 and the issues noted in the project could affect R6 this project should be coordinated with NAESB and reference the NAESB WEQ 2009 Annual Plan item (3.a.viii) "Review and correct WEQ-004 Coordinate Interchange Business Practice Standard as needed based on activities in NERC Project 2008-12, Coordinate Interchange Standards Revisions and supporting EOP-002-2 R4 and R6."

2009-05 Resource Adequacy

Comment - NAESB created Provisional Item 1 "Develop and or modify business practices related to support of NERC effort on the NERC Resources and Transmission Adequacy (Project 2009-05 Resource Adequacy Assessment)" in its NAESB WEQ 2009 Annual Plan. We are requesting that this project be noted as one which may require coordination with NAESB.

Reliability Issue: Gas/Electric Coordination

Suggestion or Comment: Coordinate with NAESB to determine if some or all of the requirements contained in the NAESB Business Practice Standards WEQ-011 (Gas/Electric Coordination) should be transitioned to NERC.

Example: Refer to WEQ-011-1.3 through WEQ-011-1.6

Recommendation for improvement: The WEQ-011 was developed so that entities received critical notices from gas Transportation Service Providers, such that the Power Plant Operators were notified of material changes in circumstances that may impact hourly flow rates. The ISO/RTOS and/or BAs, and/or Power Plant Operators are to develop procedures when extreme conditions occur. These NAESB standards appear to be of a reliability nature rather than commercial. NERC and NAESB should review the standards to determine if all or part of WEQ-011 should be transitioned to NERC.

NERC Response:

NERC believes that continued coordination with NAESB is an important component of bulk power

operations, and remains committed to work with NAESB as needed.

With regard to project 2006-07 Transfer Capabilities, NERC will work with NAESB to ensure that any changes to these standards, directed by the Commission in its final rule or otherwise, will be coordinated between the two organizations. NERC will add a statement to this effect in our Plan.

With regard to projects 2006-08 Transmission Loading Relief, 2007-05 Balancing Authority Controls, and 2008-12 Coordinate Interchange, NERC will add statements to our Annual Work Plan about NERC/NAESB Coordination.

Regarding Projects 2007-18 Reliability Based Controls, 2009-03 Emergency Operations, and 2009-05 Resource Adequacy, NERC agrees that continued coordination with NAESB is important and work with NAESB as needed to ensure our work products are complementary. Should any changes to standards occur related to these projects that have business practice implications, NERC will work to coordinate with NAESB. If the NAESB SRS is aware of proposed changes that they feel would impact business practices, please advise the NERC Manager of Business Practice Coordination.

As far as Gas/Electric Coordination, NERC appreciates this suggestion, and welcomes further discussion related to this item. NERC suggests that one or more members of the NAESB SRS develop a NERC Standards Authorization Request that proposes this transfer, at which point NERC can establish a team of industry representatives to work with the requester(s) and discuss this item in depth.

Comment 15

Name: Stephanie Monzon - Regional Reliability Standards Working Group
Organization: NERC, RFC, MRO, WECC, NPCC, SPP, TRE, SERC, FRCC

Suggestion or Comment:

- The process for updating the NERC Workplan should begin with industry input prior to posting the workplan. The current process posts the existing, approved version of the work plan to solicit industry input. Instead, NERC staff should conduct an industry webinar to collect initial thoughts followed by a posting of the revised version of the workplan.

- A status of the existing approved projects in the workplan should be provided as reference material to the industry either during the webinar or before the posting to faciliate the commenting process. The status of the existing projects will provide the industry with an understanding of how many projects are still open, nearing completion, or completed.

- In 2006 the RRSWG assisted in the development of the original Work Plan by performing a sweeping assessment of the "fill in the blank" standards. It provided as input to the Plan recommendations on how the "fill in the blank" characteristics could be eliminated by modifying then existing standards and set forth the possibility of the need for stand-alone regional standards or regional standards in support of continent wide standards. Since that time the UFLS and DM SDTs have been formed and posted at least one draft of the respective standards. Both drafting teams are proposing continent wide requirements/ standards in these subject areas. Given the evolution of standards development the original RRSWG recommendations should be deleted from the Work Plan. Regarding the remaining fill in the blank standards (SPS and BAL) the NERC standards projects are either in the infancy stages of development or have not commenced. The RRSWG recommendations to create regional standards in these areas should be considered "on hold" until the drafting efforts have matured and a technical determination can be made for the need of regional standards that includes consideration by the Regions and NERC.

Recommendation for improvement: - Conduct a webinar or other similar activity to get initial suggestions for the next version of the workplan instead of posting the existing version of the workplan. This should be followed by the first posting of a revised workplan.

- Provide the industry with a status of the existing projects in the work plan

- Remove the RRSWG recommendations for the UFLS and DME standards and place "on hold" the recommendations for SPS and BAL fill in the blank standards.

NERC Response:

- Conduct a webinar…

Thank you for your comment. We will consider incorporating your suggestion into next year's project for revising the *Reliability Standards Development Plan.*

- Provide the industry with a status …

Links to the current project schedule for each of the active projects are provided at the end of each project description in Volume II of the Reliability Standards Development Plan. The on-line project schedules are updated monthly and should provide the level of detail you suggest in your comment above.

- Remove the RRSWG recommendations for the UFLS and DME standards and place "on hold" the recommendations for SPS and BAL fill in the blank standards.

The recommendations of the RRSWG are noted in the Issues Database and do not need to be removed

at this time. The recommendations will be treated as any other recommendation in the database in that the standard drafting team working on the applicable standard will consider the recommendation but is not obligated to implement the recommendation. Maintaining it in the Issues database ensures that the recommendation is tracked and not lost in the standards development process.

Comment: 16

Name: Wayne Pourciau

Organization: Georgia System Operations Corp.

Reliability Issue: Interfering with compliance and enforcement of requirements essential for reliability

Suggestion or Comment: There are a number of requirements that are not essential to the reliability of the bulk power system (e.g., needed to prevent cascading outages). These requirements interfer with compliance by reliability entities with requirements essential to reliability and interfer with compliance enforcement by regional entities of those essential requirements. There is a need to place primary focus on the essential requirements. Reporting and other lesser requirements should be a secondary focus and only as long as they do not take away the focus on the essential requirements.

Example: BAL-006-1, R5: "Adjacent Balancing Authorities that cannot mutually agree upon their respective Net Actual Interchange or Net Scheduled Interchange quantities by the 15th calendar day of the following month shall, for the purposes of dispute resolution, submit a REPORT to their respective Regional Reliability Organization Survey Contact. The REPORT shall describe the nature and the cause of the dispute as well as a process for correcting the discrepancy."

This reporting is not a reliability requirement. A reliability requirement is one that focuses on operating the elements of the BES within system thermal, voltage, and stability limits so that instability, uncontrolled separation, or cascading failures of such system will not occur as a result of a sudden disturbance or unanticipated failure of system elements. A reliability requirement deals with the operation and maintenance of BES facilities and the design of planned additions or modifications to such facilities to the extent necessary to provide for reliable operation of the BES. The example above is an administrative requirement. It does not deal with current or future operation of the BES.

The reporting requirements of EOP-004, other than those relating to physical and cyber threats and attacks, are some more examples. These deal with information on past events (water under the bridge) and do not deal with operating the BES. This reporting is needed by NERC to investigate incidents, collect statistics on incidents, and other purposes relating to overseeing reliability (but such reporting is not needed for operating the BES).

Another example is TOP-005-1.1, R2 "As a condition of receiving data from the Interregional Security Network (ISN), each ISN data recipient shall sign the NERC Confidentiality Agreement for “Electric System Reliability Data.” " This is not a reliability requirement.

Recommendation for improvement: Review all existing FERC approved Reliability Standards to eliminate Reliability Standards that are not essential to the reliability of the bulk power system (e.g., needed to prevent cascading outages). Reduce less significant Reliability Standards to a lesser category, such as operating guides, policies or criteria and remove documentation related requirements from the requirements of Reliability Standards. Move documentation related requirements to compliance measures or some other component of the Reliability Standards. This is a high priority along with eliminating duplicative requirements, making existing requirements more clear, and securing the nation's electric system from attacks.

Although the reliability of the electric system in the United States and Canada is one of the most (if not THE most) reliable system in the world, it is always good to keep improving. However, NERC projects aimed at adding requirements to try to improve the reliability of the system are a lower priority at this time than the high priorities listed above. Fixing the existing standards is the best way to improve reliability and improve the monitoring and enforcement of the essential requirements. Adding more requirements to try to improve reliability should be pursued only as time and available resources allow.

NERC Response:

In response to your recommendation (as well as similar recommendations from others) we have added Project 2010-06 Results-based Reliability Standards to the *Reliability Standards Development Plan: 2010-2012* for a project focused on:

- triaging the existing standards to identify those requirements that directly impact reliability, those that are of secondary importance, and those that shouldn't be requirements at all,
- developing performance-based requirements to fill any missing reliability objectives noted in the gap analysis,
- promoting and refining performance-based requirements in the existing reliability standards so as to preserve and enhance their value, such as improved clarity and measures, and
- revising existing prescriptive requirements to be more performance-based if practical and beneficial to reliability.

Comment 17

Name: Phillip R. Kleckley

Organization: SERC EC Planning Standards Subcommittee (PSS)

Standard: FAC-001-0 - Facility Connection Requirements

Element(s) (i.e., Requirement R1.2., Measure M2., etc.): R1.3. End-user facilities

Suggestion or Comment: add a definition of "end user" to the NERC Glossary

Project: 2010-02 Facility Connection Requirements

Additional Information: The recommendation was received as part of the comments on Question 3 of the comments form for the "Draft Revision 6 of the SERC Facility Connection Requirements (FCR) Guideline".

NERC Response:

Due to your comment above the following item has been added to the Issues Database to be addressed by the standard drafting team responsible for revising the standard:

Source: Phillip R. Kleckley (SERC EC Planning Standards Subcommittee (PSS)) as input to the Reliability Standards Development Plan:2010-2012

Project No.: 2010-02 Facility Connection Requirements

Language: Consider adding a definition of "end user" to the NERC Glossary. (Note: This recommendation was received as part of the comments on Question 3 of the comments form for

the “Draft Revision 6 of the SERC Facility Connection Requirements (FCR) Guideline”.)

Comment 18

Name: John Ciufo

Organization: NERC System Protection and Control Subcommittee (SPCS)

Standards:

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations
- PRC-012-0 — Special Protection System Review Procedure
- PRC-016-0.1 — Special Protection System Misoperations

Suggestion or Comment: The NERC System Protection and Control Subcommittee (SPCS) recommends creation of a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016

Consistent with the attached Standard Authorization Request (see Attachment 1) and Technical Review of Standards Prepared by the System Protection and Controls Subcommittee of the NERC Planning Committee dated May 2009 (see Attachment 2).

NERC Response:

In response to your comment we have modified Project 2010-05 Protection Systems in to the *Reliability Standards Development Plan: 2010-2012* to consider the recommendations of the NERC System Protection and Control Subcommittee as identified in the Technical Review of Standards Prepared by the System Protection and Controls Subcommittee of the NERC Planning Committee dated May 2009.

Comment 19

Name: Wayne E. Guthrie

Organization: Construction Specialty Services, Inc. & Critical Systems, LLC

Standard: ANSI NFPA 850: Recommended Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations

Reliability Issue: Physical fire and blast protection of electrical transformers and other essential equipment, buildings and people located in power generation, transmission or distribution system locations.

Suggestion or Comment: Adopt a NFPA-850, which is a recommended fire protection practice for the power generation industry.

Example: If there is a catasthrophic failure of a transformer it can shut down a site for an indefinite period of time for repairs or replacement of equipment and facility. In the US there exists an aging fleet of transformers that are becoming more unreliable everyday because of age and lack of maintenance. In addition, many power companies build new facilities without thought to protection of their assets. As an example, it requires between 24 and 48 months to receive a new replacement transformer, if it fails beyond repair. In addition, placing fire & blast rated barriers between transformers and also have in place a functioning transformer oil collection and containment system in accordance with FM Global recommendations can mean the difference between a single transformer failure incident and a catasthrophic incident. There are also issues with where the generation transformers sit relative to the turbine building, that if a fire and or fire and blast event initiated could potentially preclude population of the building and control room in order to shut down the unit (s).

Recommendation for improvement: Consider adopting existing standards of performance so that a committee would not have to be formed to write something that already exists.

Suggestion or Comment: NERC may want to consider inviting professionals involved in the fire and blast protection engineering and assessments fields to assist in development of standards of performance or protection in accordance with readily obtainable existing recommendations, standards and codes.

Example: Go to NFPA and ask for assistance or I could put NERC in contact with individuals that could place NERC in contact.

Recommendation for improvement: As I understand the only reference to physical protection is that NERC states that utility entities are obligated to physically protect critical equipment and is not specific in reference to the measures that should be considered to improve or provide protection. Unfortunately in the utility industry many companies have eliminated or otherwise do not possess within their ranks individuals educated in the realm of physical fire and blast protection methodologies that exist, or even have the knowledge base to self assess and identify the potential need for protection.

Additional information: If further information or discussion is required, please contact the writer:

Wayne E. Guthrie

Construction Specialty Services, Inc. & Critical Systems, LLC

502-231-2402

wguthrie@cssi.win.net

NERC Response:

In response to your comment we have added Project 2012-02 Physical Protection to the *Reliability Standards Development Plan: 2010-2012* for a project to consider the development of a NERC Reliability Standard related to physical protection of essential equipment, buildings and people located in power generation, transmission or distribution system locations.

Comment 20

Name: Barry Lawson

Organization: National Rural Electric Cooperative Association (NRECA)

Suggestion or Comment: The industry cannot continue, without an end in sight, to support the development of the number of standards included in the current Reliability Standards Development

Plan. During the past year there has been an average of 30 to 40 Standard Drafting Teams (SDTs) functioning all at the same time. With this many SDTs in place, the expertise in the industry that voluntarily staffs these teams is spread too thin. NRECA believes that at any one time there should be an average of 10-15 SDTs in place. These SDTs should be focused on standards that are the most critical the enhancing the reliability of the Bulk Power System (BPS). Reducing the number of SDTs in place at one time will help to ensure that the best quality standards are developed by:

-- helping to ensure the best quality SDTs by increasing the number of available industry stakeholders; and

-- helping to ensure that the right industry experts are reviewing the posted standards they are most knowledgeable about.

The bottomline is that not every standard can be a top priority. There is not an endless supply of industry resources to staff SDTs and to review proposed/revised standards, and therefore, the present pace of an average of 30-40 SDTs in place at one time is not sustainable without the possibility of negative impacts on standards development activities. To address this a significant and urgent effort needs to be expended to determine the most critical standards development activities that are needed to enhance the reliabilty of the BPS. From this effort, the 10-15 most critical standards should be determined and these should be the standards that SDTs are formed to address in a particular year.

In addition, there should be particular attention placed on completing the fill-in-the-blank standards since many of the approved standards refer to the fill-in-the-blank standards that have not been approved.

Finally, several months ago the NERC Standards Committee approved a "Roles and Responsibilities" document which addressed the appropriate roles for SDT members, NERC and FERC staff regarding standards development activities. NRECA supported the development of this important document and is not yet confident that NERC and FERC staff are consistently operating under the roles identified in the document. We see a need to ensure that all parties involved clearly understand their appropriate roles and responsibilities and that they work in such a manner.

We look forward to working with you to make sure these issues are fully addressed.

NERC Response: With respect to your comments regarding the industry's ability to support the development of the number of standards included in the current Reliability Standards Development Plan, NERC understands the amount of resources required (both industry and NERC specific resources) for the development of quality standards and is cognizant of the fact that industry resources are not limitless. NERC staff coordinates all standards development activities through the NERC Standards Committee whose membership consists of industry representatives. In compliance with the NERC Reliability Standards Development Procedure, the Standards Committee manages the NERC standards development process to achieve broad bulk power system reliability goals for the industry. NERC staff facilitation of the standards development process in coordination with the Standards Committee takes into consideration the potential impact on industry resources when planning standards related projects and activities.

With respect to your comment regarding fill-in-the-blank standards NERC staff is working with staff representing each of the Regional Entities to develop a plan to address the issues with the fill-in-the-blank standards in the interim prior to the completion of the continent-wide revision of the standards. The interim plan for addressing the fill-in-the-blank standards will not replace the projects already identified in Volume II of this plan but rather will propose a solution to address the shortcomings of the existing fill-in-the-blank standards until the continent-wide revision of the standards can take place. It is anticipated that the interim plan will involve the use the standards development process in order that industry stakeholders will be able to participate in the process as it evolves.

With respect to your comments regarding the "Roles and Responsibilities" document, NERC staff does adhere to the document as it applies to the development of standards using the Reliability Standards

Development Process.

Comment 21

Name: Ben Li

Organization: IRC Standards Review Committee (Group)

Suggestion or Comment: We applaud the staff and the Standards Committee for taking a new approach to developing the 2010-2011 standards development work plan. We see changes that are a positive first step toward arriving at a consolidated set of reliability standards of good quality all of which contribute to reliability. In particular, we are encouraged by some of the objectives listed:

• Addressing quality issues to ensure each reliability standard has a clear statement of purpose, and has outcome-focused requirements that are clear and measurable.

• Ensuring measures and compliance elements are aligned to support the requirements within the reliability standards and follow definitions outlined in the reliability standards template.

• Reorganizing the reliability standards based on topic.

• Eliminating requirements that do not have an impact on bulk power system reliability; retiring redundant requirements; retiring or converting (into guidelines) lower-level "facilitating" requirements that are already measured through compliance with higher level requirements; and moving basic "capability" requirements that are routinely used for the certification processes.

We wish to express our strong support for the proposal to move toward developing the performance-based reliability standards. This work, together with improved standard quality, will give rise to a set of sustainable reliability standards which in our view will meet with FERC's acceptance and reduce the revision/maintenance requirements, reduce the number of requests for interpretation and even eliminate a good number of assessed violations owing to lack of clarity.

We are also pleased to see some general reduction in the number of projects planned for future years. However, recognizing that some existing standards are still being revised and some of them may be remanded by FERC when they are submitted for approval (as evidenced in past performance), we suggest the number of planned projects to be further reduced to provide a much needed "buffer" to respond to the FERC directives - not just for the remanded standards but also for any proposed new standards as initiated by the FERC and the industry. We suggest a reduction of the amount of standards in the plan based upon the historical increased workload from FERC remands of proposed standards so that the 3 year Work Plan schedule can be more closely adhered to.

NERC Response:

Thank you for your support of Project 2010-06 Performance-based Reliability Standards (recently renamed to Project 2010-06 Results-based Reliability Standards).

With respect to your comment regarding reducing the number of projects in the plan, at this point in time it is not practical to do so for the reasons stated in the "Priority of Projects" section of this report which begins on page 9 of Volume I. Certain projects are required to be initiated in 2010 pursuant to the Rules of Procedure of the North American Electric Reliability Corporation which state in part "each reliability standard shall be reviewed at least once every five years from the effective date of the

standard or the latest revision to the standard, whichever is later." Making a conscious decision to ignore these projects would cause NERC to violate the Rules of Procedure which NERC staff is not willing to do. NERC staff will continue to work with the Standards Committee to coordinate the initiation of future standards development projects.

Comment 22

Name: John Brockhan

Organization: CenterPoint Energy

Project Number(s): 2012-01 / 2012-02

Project Title(s): Equipment Monitoring and Diagnostic Devices / Physical Protection

Suggestion or Comment: CenterPoint Energy appreciates the efforts of the NERC Standards Program in recognizing the need to focus efforts and prioritize projects having the greatest impact on reliability. To that end, we believe that the two projects currently scheduled to begin in 2012 should be further delayed indefinitely or at least until the next Standards Development Plan cycle so that projects currently underway and those projects scheduled to begin later this year and in 2010 may be farther along (or completed) before additional projects are initiated.

Recommendation for improvement: CenterPoint Energy recommends delaying Projects 2012-01 and 2012-02 indefinitely or into 2013 or later and re-evaluating the need to begin these projects during the drafting of the 2011-2013 Reliability Standards Development Plan. The assessment of any new proposed standards should emphasize whether there is a true reliability need, or is simply a business growth opportunity. Furthermore, we recommend that no new projects be added to future Standards Development Plans until already identified projects are completed.

NERC Response:

The concept of project prioritization is paramount to a successful reliability standards development plan. NERC staff coordinates all standards development activities through the NERC Standards Committee. NERC staff works with the NERC Standards Committee to identify the projects of highest overall industry importance before working on lower priority projects. The Standards Committee Process Subcommittee is also currently discussing methodologies for prioritizing standards development projects. Consideration of delaying the initiation of Projects 2012-01 and 2012-02 will be given as other higher priority projects are completed and new projects are identified.

Reliability Issue: A. Proposed 2010-2012 Standards Development Plan / Developing Results-Based Standards as presented by the Ad Hoc Group on Results-Based Standards

B. Load Serving Entity/Distribution Provider Issue

Suggestion or Comment:

A. CenterPoint Energy shares the views of many previous commentors that the number of existing reliabiltiy standards and requirements should be reduced to only those that truly impact the reliability of the Bulk Electric System (BES). CenterPoint Energy also agrees that new projects should be prioritized and only those that truly improve the reliability of the BES should be included in the Standards Development Plan and initiated.

CenterPoint Energy supports efforts to alter (or, move away from) the current environment of prescriptive and unnecessary process-based reliability standards and requirements. As presented in the

webinar on September 17, the Ad Hoc Group proposal is promising in that results-based standards would be more likely to improve the reliability of the Bulk Electric System. In the current environment, the standards include many requirements that are overly prescriptive and are not necessary for the reliable operation of the BES.

B. CenterPoint Energy is concerned that there appears to be a lack of interest in resolving the Load Serving Entity (LSE)/Distribution Provider (DP) issue. The Functional Model SDT remarked that the LSE/DP issue is not a Functional Model issue but one of registration and commented that NERC was to begin a project to resolve this issue. NERC indicated it would begin a project to address this issue through the Reliablity Standards Development Plan. CenterPoint Energy failed to see such a project in this draft and believes it is an important issue with impacts to many entities.

Example: A. Underfrequency load shedding (UFLS) is an example of overly prescriptive requirements. PRC-007 requires consistency with Regional Reliability Organization's UFLS program requirements. There is also standard PRC-008 requiring preventive maintenance of UFLS components. If PRC-007 contained results-based requirements it would be sufficient to address the reliability need. As an entity worked to meet the performance criteria, concerns such as design, maintenance, testing, etc. would be addressed with a single standard.

Recommendation for improvement: A. Focus NERC and industry resources by accelerating Project 2010-06 Performance-Based Reliability Standards in the que. The work of the Ad Hoc Group on Results-based Standards could serve as a foundation for the Project team's efforts.

B. Add an accelerated project in the 2010-2012 Standards Development Plan to resolve the LSE/DP issue.

NERC Response:

A) Thank you for your support of Project 2010-06 Performance-based Reliability Standards (recently renamed to Project 2010-06 Results-based Reliability Standards).

B) As stated in last year's plan regarding this issue:

The following description has been incorporated into the scope for affected projects in this revised *Reliability Standards Development Plan* that includes a standard applicable to Load Serving Entities:

> **Source:** FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000
>
> **Issue:** In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see:
>
> - FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf)
> - NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf),
> - FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-

040408.pdf), and

- NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

This issue is best addressed on a case-by-case basis when an affected standard is opened for revision.

Comment 23

Name: Denise Koehn

Organization: Bonneville Power Administration

Project Number(s): 2008-12

Project Title(s): Coordinate Interchange Standards

Suggestion or Comment: BPA supports the consolidation effort currently underway in the drafting team's workload. BPA believes the consolidation described thus far will yield a more efficient demonstration of compliance with each requirement. The existing Standards require considerable duplication of explanation and documentation to prove compliance.

Recommendation for improvement: Continue with current effort.

NERC Response:

Thank you for your support of Project 2008-12 Coordinate Interchange Standards.

Suggestion or Comment: BPA agrees with the recommendations from other stakeholders that the industry should focus existing reliability standards and reliability standards development on areas that will lead to the greatest improvement in bulk power system reliability. BPA fully supports the suggestions that the industry should:

(1) focus the development of new reliability standards on those that will lead to the greatest improvement in reliability; i.e., address the greatest risks of widearea cascading outages;

(2) reduce the number of existing reliability standards to just those that have a critical impact on reliability of the bulk power system and convert the remaining reliability standards to guidelines; and

(3) develop a more systematic process for prioritizing new reliability standards development projects based on risks to the bulk power system.

However, BPA feels that it is an aggressive schedule and will require considerable effort to accomplish as many items per year as scheduled. The industry needs improved, clear, concise Standards asap, but it is the same staff that is needed to work on the improvements for nearly each of the revisions. Really tough balancing acts to get everything accomplished within the timeframes.

NERC Response:

Thank you for your support of Project 2010-06 Performance-based Reliability Standards (recently renamed to Project 2010-06 Results-based Reliability Standards).

We also appreciate your comment relative to the challenge we face for coordinating the implementation of Project 2010-06 Results-based Reliability Standards with the other standards development activities. It will be a challenge but one I'm sure NERC working with industry will be able to overcome.

Comment 24

Name: Ed Skiba, Co-chair, Narinder Saini, Co-chair

Organization: North American Energy Standard Board Wholesale Electric Quadrant Standards Review Subcommittee

Suggestion or Comment: Project 2006-08 Transmission Loading Relief - The Related NAESB Projects should be updated to reference the NAESB WEQ 2009 Annual Plan and the Annual Plan Item 1.b "Continuous support of TLR Procedure in alignment with NERC efforts on TLR Phase II and Phase III development." Additionally the reference to Annual Plan Item 1.d should be changed to 1.b under the section labeled SRS recommendation.

Project 2007-05 Balancing Authority Controls - The related NAESB Projects should be updated to reference the NAESB WEQ 2009 Annual Plan and the Annual Plan Items listed should include 1.d and 1.e. Under the SRS recommendation it should be noted that there is ongoing coordination between the BAC Standards Drafting Team and the NAESB WEQ Time and Inadvertent Management Task Force.

Project 2007-18 Reliability-based Control - Related NAESB projects should be updated to reference the NAESB WEQ 2009 Annual Plan and the Annual Plan Item listed should be 3.a.viii. Under the SRS Recommendation the language should be changed to indicate that the NERC/NAESB JESS has reviewed EOP-002-2 and identified that there is potential coordination opportunities.

Project 2008-01 Voltage and Reactive Control - The Related NAESB Projects should be updated to reference the NAESB WEQ 2009 Annual Plan. There is no need to change the Annual Plan Item Number. Under SRS Recommendation, the last sentence should be deleted since the project is now included on the NERC Standards Under Development webpage.

Project 2008-12 Coordinate Interchange Standards - The Related NAESB Projects should be updated to reference the NAESB WEQ 2009 Annual Plan. Additionally, the Annual Plan Items currently listed should be deleted and Annual Plan Item 3.a.viii should be added. Under the SRS recommendation it should state that the NERC/NAESB JESS was assigned an annual plan to "Review and correct WEQ-004 Coordinate Interchange Business Practice Standard as needed based on activities in NERC Project 2008-12, Coordinate Interchange Standards Revisions and supporting EOP-002-2 R4 and R6."

2009-03 Emergency Operations - The Related NAESB Projects should be updated to reference the NAESB 2009 WEQ Annual Plan. Additionally, the Annual Plan Item listed should be 3.a.viii.

Project 2010-02 Connecting NeW Facilities to the Grid - The Related NAESB Projects should be updated to reference the NAESB 2009 WEQ Annual Plan.

Project 2010-Demand Data - Suggest the following language be added:

Coordination with NAESB:

The NAESB WEQ Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual Plan_:

Annual Plan Item

Justification for NAESB Consideration

NAESB has developed Demand Response Measurement and Verification standards and have additional annual plan items related to Demand Response.

SRS Recommendation

Since this project has not started the WEQ will add this project to its watch list.

NERC Response:

Thank you for your comments. Volume II of the *Reliability Standards Development Plan: 2010-2012* has been modified to reflect the suggested changes.

Comment 25

Name: Jack Cashin

Organization: EPSA

Project Number(s): 2010-06

Project Title(s): Performance Based Reliability Standards

Suggestion or Comment: Based on the presentation by Gerry Cauley during the webinar on Sept. 17th, it appears that a great deal of work related to this project is currently underway. What is not clear is the sectoral composition of the ad hoc group carrying out this work to be presented to the Standards Committee in November 2009.

Recommendation for improvement: While EPSA is generally supportive of the direction in which this ad hoc group appears to be headed, we are concerned about the lack of broad stakeholder representation. It would be our expectation, that once this work product is presented to the Standards Committee and before it is used in any standard development work, there will be an opportunity for substantive stakeholder review and comment.

NERC Response:

In August 2009 an ad-hoc group was organized made up of representatives from the Standards Committee, Regional Entity staff, and NERC standards staff for developing a plan for transitioning the exiting set of NERC reliability standards into a set of revised reliability standards. As of the middle of September the ad hoc group consisted of:

- Gerry Cauley, SERC
- Ben Li*, Consultant
- Terry Bilke*, MISO
- Pete Heidrich, FRCC
- Carter Edge, SERC
- Gerry Adamski, NERC
- Dave Taylor, NERC
- Steve Rueckert*, WECC
- Pat Huntley, SERC
- Allen Mosher*, APPA

Since then others have either officially joined or are observing the activities of the group. It is not the intent to exclude participation on this group; however, it is desired that the group remain a manageable

size so that work can be performed quickly and efficiently. The intent is to turn over all aspects of implementing the project (including substantive stakeholder review and comment) to the Standards Committee once the NERC BOT considers the plan during their November 4, 2009 meeting.

Reliability Issue: Work of the GO/TO Team

Recommendation for improvement: At the May 2009 Board of Trustees meeting, a Task Force was established to review the applicability of a number of Transmission Owner/Operator standards to Generator Owners and Operators with respect to Generator Interconnections to the Transmission System. While the work of this group is still proceeding, it can be anticipated that their recommendations will necessitate standard development and the Standards Development Plan should take this into account. Given that this Task Force resulted from action of the Board of Trustees, this work should receive high priority.

NERC Response:

The work of the Ad Hoc Group for Transmission Requirements at the Generator Interface expects to complete its work in Fall 2009. In its report, the team expects to include a proposed SAR and associated standards changes to address the recommendations of the team. As such, Project 2010-07 Transmission Requirements at the Generator Interface has been added to reflect this expectation.

Suggestion or Comment: Review of standards related to Generator Relaying

Recommendation for improvement: The general subject of generator relaying has been the subject of numerous technical reviews over the last several months. The list of such reviews would include, FERC NOPR on PRC-023 issued May 21st, NERC Technical Reference on Power Plant and Transmission System Protection Coordination issued Sept. 2009 referencing PRC-001, Reliability of Protection Systems (Project 2009-07) and possibly others. EPSA would recommend that there be greater coordination of all of the work underway reviewing generator protection generally so that generator owners and operators may more rationally contribute to the development of any new or revised standards

NERC Response:

There continues to be a great interest in properly evaluating and if necessary developing reliability standards that address relaying and control aspects for generators. This work is largely been under the custody of the System Protection and Control Subcommittee. We agree that a consolidated approach is most efficient and effective in this regard and are awaiting further input regarding the expected availability of additional technical guidance upon which future standards development work will be based.

Comment 26

Name: Dan Rochester

Organization: Independent Electricity System Operator

Suggestion or Comment: Our comments are of a general nature and address the important issues of prioritization and scheduling. We commend the NERC Reliability Standards Program for their efforts to respond to industry comment and to develop a more realistic overall project schedule. By my count, there are 8 project scheduled for completion in 2010 with numerous others either continuing or being initiated. It is left to be seen whether or not this "aggressive" schedule will be met, given the unpredictable impact of requests for interpretation and SARs.

We support the effort to develop Perfformance-based reliability standards and believe this will produce standards that ultimately achieve their desired end.

NERC Response:

Thank you for your comments regarding the "aggressive" nature of the overall standards development effort. We have made a concerted effort over the past year to analyze the time it takes for a standards development project along with the timing of tasks for coordinating the projects more efficiently. Using the information we collected we adjusted all the project schedules in an attempt to provide the industry a more accurate representation of expectations. Even though not perfect, the revised schedules are a better representation of future expectations. We hope to continue to work closely with the industry to drive the projects to a timely and successful completion.

Thank you for your support of Project 2010-06 Performance-based Reliability Standards (recently renamed to Project 2010-06 Results-based Reliability Standards).

Comment 27

Name: Laura Lee

Organization: Duke Energy

Project Number(s): 2010-06

Project Title(s): Performance-based Reliability Standards

Suggestion or Comment: Duke would like to commend NERC for initiation of this project in response to industry input. It is vital that the industry concentrate its resources and attention on requirements that preserve BES reliability. We also appreciate the fact that no projects are currently scheduled to start in 2011 to facilitate concentration on this project and the others that will still be in progress.

Suggestion or Comment: No new standards should be initiated until completion of Project 2010-06. It is likely that the work on this project will result in a clearer consensus of what type of requirements and standards are truly essential for ensuring reliability of the BES, so it seems premaure to initiate development of new standards until this work is nearing completion. This would defer commencement of Projects 2009-04 and 2010-01.

Addition of a section expicitlyspecifying the alignment of the projects to NERC's priority initiatives (i.e., System Protection Initiative, System Modeling Improvement Initiative, etc.) would enhance the report - perhaps expand the last paragraph of "Other modifications" in the Summary section with additional specific details.

Another enhancement to the report would be an additional header in the Summary section explaining how reliability issues surrounding emerging technologies such as smart grid, energy efficiency, renewable resources, etc. are being addressed.

NERC Response:

Your suggestion that no new standards be initiated until completion of Project 2010-06 is not practical for the reasons stated in the "Priority of Projects" section of this report which begins on page 9 of Volume I. Certain projects are required to be initiated in 2010 pursuant to the Rules of Procedure of the North American Electric Reliability Corporation which state in part "each reliability standard shall be reviewed at least once every five years from the effective date of the standard or the latest revision to the standard, whichever is later." Making a conscious decision to ignore these projects would cause

NERC to violate the Rules of Procedure which NERC staff is not willing to do. NERC staff will continue to work with the Standards Committee to coordinate the initiation of future standards development projects.

With respect to your suggestions to add a section explicitly specifying the alignment of the projects to NERC's priority initiatives and to add an additional header in the Summary section explaining how reliability issues surrounding emerging technologies such as smart grid, energy efficiency, renewable resources, etc. are being addressed, we will consider these suggestion during next year's annual revision to the *Reliability Standards Development Plan*.

Comment 28

Name: Guy Zito

Organization: Northeast Power Coordinating Council

Suggestion or Comment: The document is primarily informational. The timelines for project development cannot be firm, given the statement on p. 10 in Volume I that the six projects anticipated to be started in 2010 will be worked on when "appropriate NERC staff and industry resources are freed up from other projects".

On p 16--It is stated "Reliability Standards Development Plan: 2009-2012." Shouldn't this be 2010-2012?

For project prioritization,on p. 10 (Volume I) it is stated that there are projects to have existing projects revised while there are high priority reliability projects still waiting to be developed. Projects important for system reliability that haven't been developed yet should be given priority over existing projects.

Recommendation for improvement: Add the criteria for determining the priority of projects. If this information is in another document, it should be repeated in the Reliability Standards Development Plan for ease of reference.

NERC Response:

Your comment that the document "document is primarily informational" is accurate and is consistent with the second sentence of the first paragraph in the "Purpose" section of this Volume I which states "The plan serves as the management tool that guides, prioritizes, and coordinates revision or retirement of existing reliability standards and the development of new reliability standards for the immediate 3-year time horizon." This is a dynamic document and is meant to change as circumstances change.

With respect to your comment regarding page 16 of this volume, the typographical error has been corrected.

With respect to your suggesting for adding the criteria for determining the priority of projects, once the Standards Committee Process Subcommittee and/or Communications and Planning Subcommittee finalize the criteria we can include it in a future revision to the plan.

Comment 29

Name: Martin Bauer

Organization: US Bureau of Reclamation

Reliability Issue: Report from the Ad Hoc Group for Generator Requirements at the Transmission

Interface
Suggestion or Comment: The report addresses a serious problem in the construction of the existing reliability standards. The recommendations in the report should be incorporated into the various projects currently underway. A new project should be initiated for those standards who have already been vetted and balloted. The recommendations should be added to the project description for all other standards.
Suggestion or Comment: This comment is reference to the lack of bilateral communication or coordination evident in the standards between the TO/TOP and GO/GOP entities. In most of the standards the communication or coordination requirement is from the GO/GOP to the TO/TOP. This unilateral requirement does not promote reliability and can result in the exclusion of the GO/GOP in critical system operation decisions or planning functions. In the cases cited below, there is no consideration that Transmission facilities could affect the Generator facilities.
Example: FAC008 R2, FAC 009 R2, PRC 001 R 2.1, R2.2, R3.1, R3.2, R5.1, R5.2, TOP 001 R7.2, R7.3, and TOP 003 R1.1
Recommendation for improvement: Review the listed standards and develop an appropriate requirements for communication and coordination for the TO/TOP with the GO/GOP entities.
NERC Response: The work of the Ad Hoc Group for Generator Requirements at the Transmission Interface expects to complete its work in the Fall 2009. In its report, the team expects to include a proposed SAR and associated standards changes to address the recommendations of the team. As such, a new project 2010-07 has been added to reflect this expectation. To the point regarding bilateral communication relative to the listed requirements, NERC will forward these comments to the ad hoc team for their consideration prior to completion of their activities.

Comment 30 **Name:** Wayne Pourciau **Organization:** Georgia System Operations Corp.
Suggestion or Comment: Project 2010-06 Performance-based Reliability Standards is the most important project for the 2010 to 2012 development period.
Recommendation for improvement: Implement the plan for improving the set of NERC reliability standards to be more focused on reliability performance with a direct relation to bulk power system reliability.
Project Number(s): Project 2010-06
Project Title(s): Performance-based Reliability Standards
Suggestion or Comment: Project 2010-06 Performance-based Reliability Standards is the most important project for the 2010 to 2012 development period.
Recommendation for improvement: Implement the plan for improving the set of NERC reliability

standards to be more focused on reliability performance.
Reliability Issue: Existing standards are unclear and confusing. Many requirements are repeated throughtout the set of standards. There are many requirements that are administrative in nature or are simply explanatory text and which do not appear to contribute directly to meeting reliability objectives. The resources of NERC, the Regional Entities, and the Registered Entities are wasted on duplicate and unnessary requirements.
Suggestion or Comment: Implement the Project 2010-06 Performance-based Reliability Standards for improving the set of NERC reliability standards to be more focused on reliability performance with a direct relation to bulk power system reliability. Failing to address this issue at this time in the standards development work plan serves to perpetuate the current course of adding requirements and detail to a set of requirements that has no discernable distinction between bulk power system performance-based outcomes and the other types of requirements. This current approach will continue to dilute resources needed for standards development, compliance monitoring and enforcement, and the compliance resources at registered entities across a spectrum of requirements that have mixed value for ensuring reliability. A plan is needed to shift the standards, and the efforts needed to develop and implement them, toward performance-based requirements that have a clear beneficial impact on reliability of the bulk power system. The same public interest that is served by having reliability standards is best served if the standards have a direct and material impact on the reliability of the bulk power system.
Recommendation for improvement: Implement the Project 2010-06 Performance-based Reliability Standards for improving the set of NERC reliability standards to be more focused on reliability performance with a direct relation to bulk power system reliability.
Additional information: A lack of clarity and direction with regard to some of the reliability standards has resulted in confusion. Where we once used language somewhat loosly in a voluntary environment and everyone had a general idea of what was meant, now sactions and penalties are dependent on the exact meaning of the words. Under the mandatory enforceable environment, words which were generally used are now being scrutinized and called into question. This is a result of the environment of exactly following prescribed actions. A change to a focus on the end result would change the environment from a legalistic, "letter of the law" environment to a more techincal, reliability-based, "intent of the law" environment. Additionally, this project should include an effort to develop at least one objective measurement for each requirement.
NERC Response: Thank you for your support of Project 2010-06 Performance-based Reliability Standards (recently renamed to Project 2010-06 Results-based Reliability Standards). Noting your apparent intense interest in the project we look forward to your active participation in the project.

Attachment 1

Standard Authorization Request Form

Title of Proposed Standard: Protection Misoperations Revisions to PRC-003, PRC-004, PRC-012, and PRC-016
Request Date: June 10, 2009

SAR Requester Information	**SAR Type** (*Check a box for each one that applies.*)	
Name: System Protection and Control Subcommittee	☐	New Standard
Primary Contact: John Ciufo, Chairman	X	Revision to existing Standard
Telephone: (416) 345-5258 Fax: (416) 345-5406	X	Withdrawal of existing Standard (PRC-016)
E-mail: john.ciufo@HydroOne.com	☐	Urgent Action

Purpose (Describe what the standard action will achieve in support of bulk power system reliability.)

A key element of bulk power system reliability is the performance of the Protection Systems. To properly gage Protection System performance, is necessary to have a consistent set of metrics on Protection System Misoperations. Current PRC standards and definitions related to Protection System Misoperations are confusing and do not support a good metric for measurement of Protection System performance.

Industry Need (Provide a justification for the development or revision of the standard, including an assessment of the reliability and market interface impacts of implementing or not implementing the standard action.)

Current PRC standards and definitions related to Protection System Misoperations are confusing and do not support a good metric for measurement of Protection System performance.

Brief Description (Provide a paragraph that describes the scope of this standard action.)

SPCS recommends creation of a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012

- Retire PRC-016.

Detailed Description (Provide a description of the proposed project with sufficient details for the standard drafting team to execute the SAR.)

Standard PRC-003 is intended to ensure that all System Protection Misoperations are analyzed and mitigated according to guidelines established by the regions. The FERC, in Order 693, dated March 16, 2007, declared this standard as a "fill in the blank" type of standard that does not merit approval unless it is modified to make it more specific and consistent for all Regions. The SPCS concurs with the FERC order and provides recommendations on how the standard can be rewritten.

Because the procedures for analyzing and mitigating Misoperations were to be established by the regions, there is significant dissimilarity between the Misoperation data reported by each region, resulting in a virtually unusable misoperation metric for North America. SPCS recommends a change to the definition of Misoperation (Reportable Protection Misoperation) to provide uniformity to the misoperation data reported to the regions and NERC.

Protection System elements used for Special Protection Systems (SPS) or Remedial Action Schemes (RAS) are no different from those used for non Special Protection Systems. The revision to Standard PRC-003 should therefore apply to all Protection Systems, including SPS and RAS.

The SPCS also recommends that Standard PRC-016-0 – Special Protection System Misoperations, be requirements, merging its SPS/RAS Misoperation reporting, Corrective Action Plans, and tracking requirements into PRC-004 – Analysis and Mitigation of Transmission and Generation Protection System Misoperations.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and is coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should be modified to refer to that review process.

SPCS recommends creation of a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016.

See attached Technical Review document for additional details.

Reliability Functions

The Standard will Apply to the Following Functions *(Check box for each one that applies.)*		
☐	Reliability Coordinator	Responsible for the real-time operating reliability of its Reliability Coordinator Area in coordination with its neighboring Reliability Coordinator's wide area view.
☐	Balancing Authority	Integrates resource plans ahead of time, and maintains load-interchange-resource balance within a Balancing Authority Area and supports Interconnection frequency in real time.
☐	Interchange Authority	Ensures communication of interchange transactions for reliability evaluation purposes and coordinates implementation of valid and balanced interchange schedules between Balancing Authority Areas.
☐	Planning Coordinator	Assesses the longer-term reliability of its Planning Coordinator Area.
☐	Resource Planner	Develops a >one year plan for the resource adequacy of its specific loads within a Planning Coordinator area.
☐	Transmission Planner	Develops a >one year plan for the reliability of the interconnected Bulk Electric System within its portion of the Planning Coordinator area.
☐	Transmission Service Provider	Administers the transmission tariff and provides transmission services under applicable transmission service agreements (e.g., the pro forma tariff).
X	Transmission Owner	Owns and maintains transmission facilities.
☐	Transmission Operator	Ensures the real-time operating reliability of the transmission assets within a Transmission Operator Area.
X	Distribution Provider	Delivers electrical energy to the End-use customer.
X	Generator Owner	Owns and maintains generation facilities.
☐	Generator Operator	Operates generation unit(s) to provide real and reactive power.
☐	Purchasing-Selling Entity	Purchases or sells energy, capacity, and necessary reliability-related services as required.
☐	Market Operator	Interface point for reliability functions with commercial functions.
☐	Load-Serving Entity	Secures energy and transmission service (and reliability-related services) to serve the End-use Customer.

Reliability and Market Interface Principles

Applicable Reliability Principles *(Check box for all that apply.)*	
X	1. Interconnected bulk power systems shall be planned and operated in a coordinated manner to perform reliably under normal and abnormal conditions as defined in the NERC Standards.
☐	2. The frequency and voltage of interconnected bulk power systems shall be controlled within defined limits through the balancing of real and reactive power supply and demand.
☐	3. Information necessary for the planning and operation of interconnected bulk power systems shall be made available to those entities responsible for planning and operating the systems reliably.
☐	4. Plans for emergency operation and system restoration of interconnected bulk power systems shall be developed, coordinated, maintained and implemented.
☐	5. Facilities for communication, monitoring and control shall be provided, used and maintained for the reliability of interconnected bulk power systems.
☐	6. Personnel responsible for planning and operating interconnected bulk power systems shall be trained, qualified, and have the responsibility and authority to implement actions.
X	7. The security of the interconnected bulk power systems shall be assessed, monitored and maintained on a wide area basis.
☐	8. Bulk power systems shall be protected from malicious physical or cyber attacks.
Does the proposed Standard comply with all of the following Market Interface Principles? *(Select 'yes' or 'no' from the drop-down box.)*	
1. A reliability standard shall not give any market participant an unfair competitive advantage. Yes	
2. A reliability standard shall neither mandate nor prohibit any specific market structure. Yes	
3. A reliability standard shall not preclude market solutions to achieving compliance with that standard. Yes	
4. A reliability standard shall not require the public disclosure of commercially sensitive information. All market participants shall have equal opportunity to access commercially non-sensitive information that is required for compliance with reliability standards. Yes	

Related Standards

Standard No.	**Explanation**
PRC-003	Revise
PRC-004	Revise
PRC-012	Revise

PRC-016	Retire

Related SARs

SAR ID	Explanation

Regional Variances

Region	Explanation
ERCOT	
FRCC	
MRO	
NPCC	
SERC	
RFC	
SPP	
WECC	

NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

NERC SPCS Assessment of Standards:

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations
- PRC-016-1 — Special Protection System Misoperations

A Technical Review of Standards Prepared by the System Protection and Controls Subcommittee of the NERC Planning Committee

May 2009

to ensure the reliability of the bulk power system

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Table of Contents

This report was approved by the Planning Committee on June 10, 2009, for forwarding to the Standards Committee.

Introduction

When the original scope for the System Protection and Control Task Force (SPCTF, now the System Protection and Control Subcommittee – SPCS) was developed, one of the assigned items was to review all of the existing PRC-series of Reliability Standards, to advise the Planning Committee, and to develop Standards Authorization Requests, as appropriate, to address any perceived deficiencies.

This report presents the SPCS' assessment of three of the PRC standards pertaining to relay misoperations:

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations
- PRC-016-1 — Special Protection System Misoperations

This report serves as a precursor for a Standards Authorization Request (SAR) for modifications to PRC-003 that will be submitted by the SPCS.

Executive Summary

Standard PRC-003 is intended to ensure that all System Protection Misoperations are analyzed and mitigated according to guidelines established by the regions. The FERC, in Order 693, dated March 16, 2007, declared this standard as a "fill in the blank" type of standard that does not merit approval unless it is modified to make it more specific and consistent for all Regions. The SPCS concurs with the FERC order and provides recommendations on how the standard can be rewritten.

Because the procedures for analyzing and mitigating Misoperations were to be established by the regions, there is significant dissimilarity between the Misoperation data reported by each region, resulting in a virtually unusable misoperation metric for North America. SPCS recommends a change to the definition of Misoperation (Reportable Protection Misoperation) to provide uniformity to the misoperation data reported to the regions and NERC.

Protection System elements used for Special Protection Systems (SPS) or Remedial Action Schemes (RAS) are no different from those used for non Special Protection Systems. The revision to Standard PRC-003 should therefore apply to all Protection Systems, including SPS and RAS.

The SPCS also recommends that Standard PRC-016-0 — Special Protection System Misoperations, be requirements, merging its SPS/RAS Misoperation reporting, Corrective Action Plans, and tracking requirements into PRC-004 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and is coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should be modified to refer to that review process.

A Standards Authorization Request (SAR) will be submitted by the SPCS calling for a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016.

Assessment of PRC-003-1

PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems requires the regions to establish procedures for analysis of Misoperations. This has resulted in significant and substantive differences in regional procedures and this was noted in FERC's recommendation for "greater uniformity."

SPCS proposes updating the PRC-003-1 standard to be applicable to all regions based on following tenets:

1. **Applicability** — The existing standard says that the Protection Systems shall be reviewed but does not specify which systems apply to this standard.

   It is necessary for the new standard to define the protections systems to which the standard applies:

   - Transmission Protection Systems which trip:
     a. Transmission system elements 200-kV and above
     b. Operationally significant system elements 100-kV to 200-kV
     c. Transformers with 100-kV or higher on the low side
     d. GSU transformers with high side voltages of 100-kV or higher
   - Generation Protection Systems which trip:
     a. Transmission system elements 200-kV and above
     b. Operationally significant system elements 100-kV to 200-kV
     c. Transformers with 100-kV or higher on the low side
     d. GSU transformers with high side voltages of 100-kV or higher
     e. Generators connected through GSU transformers with high side voltages of 100-kV or higher
   - Protection Systems that trip aggregate generation of 75 MW or more (such as wind farms, geothermal, or solar) connected to the transmission system at 100-kV or higher.

2. **Definitions** — The NERC Glossary of Terms currently defines Misoperation as:

   Misoperation (current definition)

   - Any failure of a Protection System element to operate within the specified time when a fault or abnormal condition occurs within a zone of protection.
   - Any operation for a fault not within a zone of protection (other than operation as backup protection for a fault in an adjacent zone that is not cleared within a specified time for the protection for that zone).
   - Any unintentional Protection System operation when no fault or other abnormal condition has occurred unrelated to on-site maintenance and testing activity

   The existing definition does not address what are reportable and non-reportable misoperations. Reportable misoperations should be redefined in terms of both dependability and security, as a function of the impact of the Protection Systems on the electric system performance. SPCS recommends the following definition:

   Reportable Protection Misoperation (proposed definition)

Dependability (failure to operate):

- Failure of the composite Protection System to initiate the isolation of a faulted power system Element as designed or within its designed operating time.
- Failure of the composite Protection System to operate as intended for a non-fault condition, such as out-of-step, overload, etc., within its designed operating time.
- Failure of an SPS/RAS, UVLS system, or UFLS system to operate for an intended condition or within its designed operating time.

Security (false or undesirable operations):

- Improper operation of a Protection System in absence of a fault on the power system Element it is designed to protect.
- Improper operation of a Protection System during a fault on any other power system Element it is not designed to protect.
- Improper operation of an SPS/RAS, UVLS system, or UFLS system in absence of its designed trigger conditions.
- Over-response of an SPS/RAS, UVLS system, or UFLS system

Notes to the proposed definition:

A. The composite Protection System in the context of this standard is the total complement of protection for a system Element (line, bus, transformer, generator, etc). Primary and secondary protection of a given Element is considered as the composite Protection System, not two separate Protection Systems.

B. Delayed clearing, where a high-speed system is employed and is essential for transmission system performance, is considered a reportable misoperation of the high-speed system.

C. Lack of targeting of the high-speed system, such as when it is beat out by a high-speed zone, is not considered a reportable misoperation.

D. Multiple misoperations of a Protection System before it can be reasonably investigated and remedied should be considered as a single misoperation.

E. Failure to automatically reclose after a fault is not a reportable misoperation.

F. Human errors made in protection settings either as calculated or as installed, or wiring errors, which result in a misoperation are reportable.

G. Protection System operations related to on-site maintenance, testing, construction and or commissioning activities for that Protection System, when no fault or other abnormal condition has occurred, are not considered reportable Protection System misoperations.

H. Operations which are initiated by control systems (not by the Protection Systems), such as those associated with generator controls or turbine/boiler controls, SVCs, FACTS, HVDC, circuit breaker mechanism, or insulation media, or other facility control systems, are not reportable Protection System misoperations.

I. Protection System operations which occur with the protected element already out of service, that do not trip any in-service elements, are not reportable Protection System misoperations.

3. **Reporting of Misoperations** — Because the current PRC-003 calls for regional procedures and reporting requirements, there is a wide variation in those requirements from region to region, making comparison of misoperations metrics at the NERC level virtually impossible. Since any

assessment of the success or failure of the NERC protection-related standards to maintain or improve reliability depends on those metrics, it is important to provide for uniformity. The variations in definitions can be corrected by the adoption of the Reportable Protection Misoperation definition above. Uniform reporting can be addressed by following proposed reporting requirements:

- Transmission Owner or Generation Owners that own Protection Systems shall submit a quarterly report of the total number of events , the number of Protection System misoperations, and the number of events still under analysis, in a prescribed format (to be part of the revised PRC-003 standard) no later than two calendar months after each quarter.
- The regions shall, in turn, submit a quarterly report to NERC – consolidated data for the Region in a prescribed format (also part of the revised PRC-003 standard).
- The regions shall provide any additional information on misoperations to NERC as requested.

4. **Peer Review of Misoperations —** Peer review of misoperations and tracking of mitigation plans is an important part of improving Protection System performance. Logically, that function should be done by the Regional Entities. However, since standards requirements cannot be placed on the Regional Entities, the following suggestions are made but the mechanics are left open.

   - The regions, through their appropriate committees or subcommittee, shall review the misoperation reports. This review should determine whether further analysis, data, or other documentation is required, and it will confirm that appropriate mitigation is defined and scheduled.
   - The regions should maintain records of the quarterly reports and confirm the implementation of any proposed mitigation plan.
   - The regions should track the mitigation of reported misoperations to avoid further occurrences.

Assessment of PRC-004 and PRC-016-0

NERC standards PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations, and PRC-016 – Special Protection System Misoperations both require that Protection System misoperations are analyzed and reported, and that corrective actions are taken where necessary. However, PRC-016 exclusively applies to special protection systems (SPS) also know as remedial action schemes (RAS). Since analysis and reporting of protection system misoperations is the same regardless of whether or not a SPS/RAS is involved; there is no need for a separate standard. Standard PRC-004-1 should be revised to include SPS/RAS, and PRC-016 should be retired.

SPS Corrective Action Plan Review

PRC-012-0 — Special Protection System Review Procedure is intended to provide a review procedure to ensure that all SPS/RAS are properly designed, meet performance requirements, and are coordinated with other Protection Systems.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and are coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should refer to that review process.

Proposed PRC-004-1 Revisions

SPCS recommends the following revisions to PRC-004-1 requirements to encompass those of PRC-016:

R1. The Transmission Owner and any Distribution Provider that owns a transmission Protection System or SPS shall each analyze its transmission Protection System or SPS Misoperations and shall develop and implement a Corrective Action Plan to avoid future Misoperations of a similar nature in accordance with Standard PRC-003 (revised).

R2. The Generator Owner shall analyze its generator Protection System or SPS Misoperations, and shall develop and implement a Corrective Action Plan to avoid future Misoperations of a similar nature in accordance with Standard PRC-003 (revised).

R3. The Transmission Owner, Generator Owner, and Distribution Provider that owns a transmission Protection System or an SPS shall provide documentation of the misoperation analyses and the Corrective Action Plans to its Regional Reliability Organization and NERC upon request (within 90 calendar days).

R4. All Corrective Action Plans for SPS shall be subject to SPS Review Procedures in accordance with Standard PRC-012.

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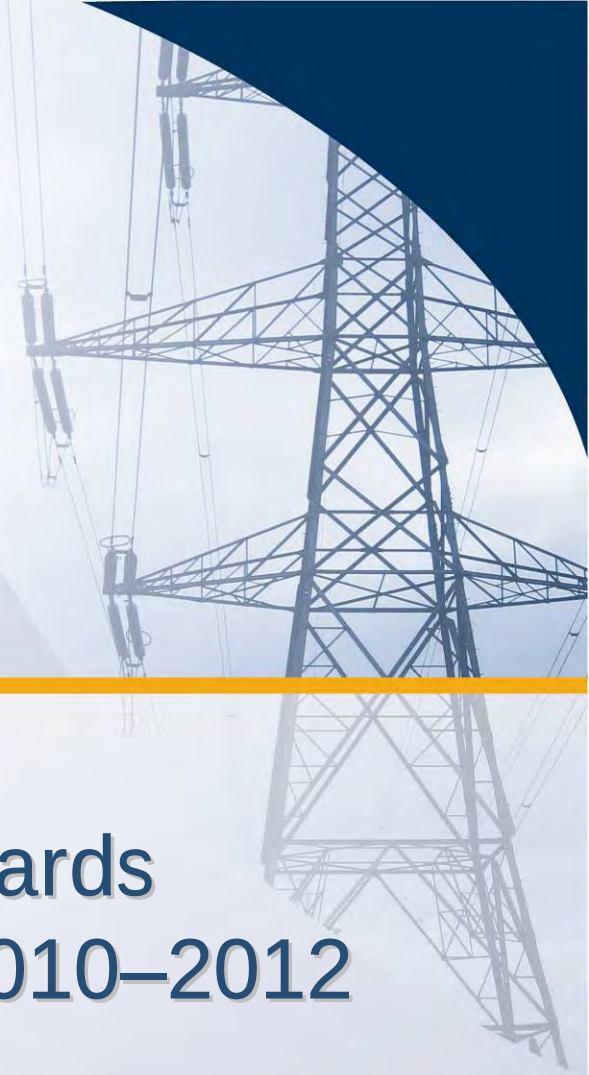

Reliability Standards Development Plan: 2010–2012

Volume II — List of Projects

to ensure the reliability of the bulk power system

October 7, 2009

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Table of Contents:

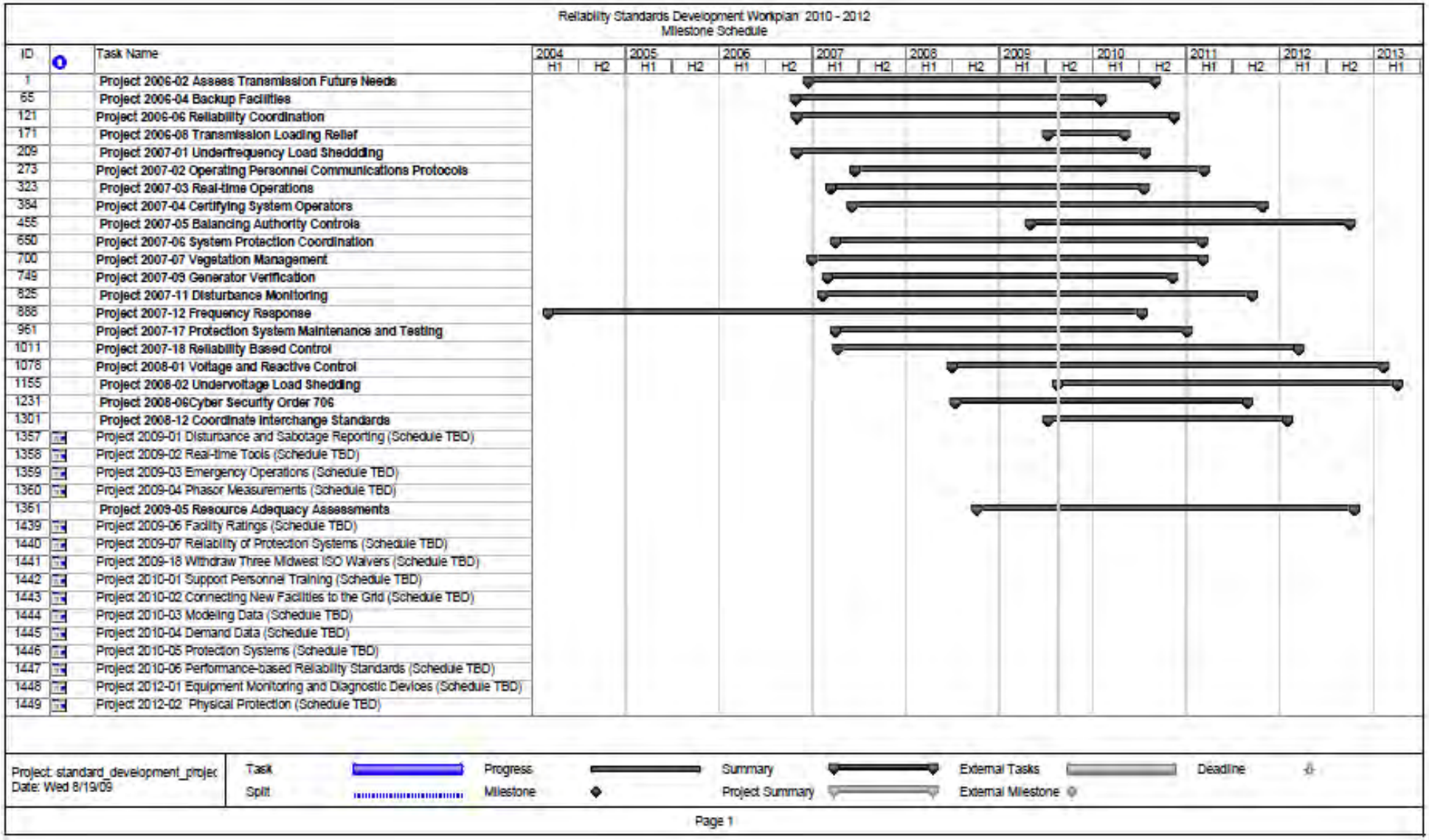
Introduction

This Volume II of the *Reliability Standards Development Plan* contains the project descriptions for each of the currently opened and planned reliability standards development projects. There are 37 projects in this plan. For each project, a description is provided that outlines the general overview and scope of improvements to be considered in conjunction with the project.

The three charts and tables on the pages which immediately follow have been provided as additional information for helping better understand each project:

- The first chart provides an overall Gantt chart for all currently open projects. More detailed project schedules are posted on the "Related Files" of each project. The intent of this overall Gantt chart is to provide a quick reference of the overall project schedule for each project.
- The next table provides a quick reference identifying which project is associated with a particular standard and is sorted by standard number.
- The final table provides a quick reference identifying which standards are associated with each project and is sorted by project number for those projects that have specifically identified standards to be included in their scope.

Reliability Standards Development Plan Overall Project Schedules



Reference Identifying the Standard in each Project Sorted by Standard Number

Standard	Standard Name	Project Number
Resource and Demand Balancing (BAL) Standards		
BAL-001-0a	Real Power Balancing Control Performance	Project 2007-18
BAL-002-0	Disturbance Control Performance	Project 2007-05, Project 2009-02, and Project 2007-18
BAL-003-0a	Frequency Response and Bias	Project 2007-12
BAL-004-0	Time Error Correction	Project 2007-05
BAL-004-1	Time Error Correction	Project 2007-05
BAL-005-0b	Automatic Generation Control	Project 2007-05 and Project 2009-02
BAL-006-1	Inadvertent Interchange	Project 2007-05
Critical Infrastructure Protection (CIP) Standards		
CIP-001-1	Sabotage Reporting	Project 2009-01
CIP-002-2	Critical Cyber Asset Identification	Project 2008-06
CIP-003-2	Security Management Controls	Project 2008-06
CIP-004-2	Personnel and Training	Project 2008-06
CIP-005-2	Electronic Security Perimeter(s)	Project 2008-06
CIP-006-2	Physical Security	Project 2008-06
CIP-006-1a	Cyber Security — Physical Security	Project 2008-06
CIP-007-2	Systems Security Management	Project 2008-06
CIP-008-2	Incident Reporting and Response Planning	Project 2008-06
CIP-009-2	Recovery Plans for Critical Cyber Assets	Project 2008-06
Communications (COM) Standards		
COM-001-1	Telecommunications	Project 2006-06 and Project 2009-02
COM-002-2	Communications and Coordination	Project 2006-06 and Project 2007-02
Emergency Preparedness and Operations (EOP) Standards		
EOP-001-0	Emergency Operations Planning	Project 2006-04, Project 2008-08 (VSLs only), and Project 2009-03
EOP-002-2	Capacity and Energy Emergencies	Project 2007-18, Project 2008-08 (VSLs only) and Project 2009-03
EOP-003-1	Load Shedding Plans	Project 2008-08 (VSLs only), Project 2009-02, and Project 2009-03
EOP-004-1	Disturbance Reporting	Project 2008-08 (VSLs only) and Project 2009-01
EOP-008-0	Plans for Loss of Control Center Functionality	Project 2006-04
Facilities Design, Connections, and Maintenance (FAC) Standards		

Standard	Standard Name	Project Number
FAC-001-0	Facility Connection Requirements	Project 2010-02
FAC-002-0	Coordination of Plans for New Facilities	Project 2010-02
FAC-003-1	Transmission Vegetation Management Program	Project 2007-07
FAC-008-1	Facility Ratings Methodology	Project 2009-06
FAC-009-1	Establish and Communicate Facility Ratings	Project 2009-06
FAC-010-2	System Operating Limits Methodology for the Planning Horizon	Project 2008-04
FAC-011-1	System Operating Limits Methodology for the Operations Horizon	Project 2008-05
FAC-011-2	System Operating Limits Methodology for the Operations Horizon	Project 2008-05 and Project 2008-04
FAC-012-1	Transfer Capability Methodology	Project 2006-07
FAC-013-1	Establish and Communicate Transfer Capabilities	Project 2006-07
FAC-014-2	Establish and Communicate System Operating Limits	Project 2008-04
Interchange Scheduling and Coordination (INT) Standards		
INT-001-3	Interchange Information	Project 2008-12
INT-003-2	Interchange Transaction Implementation	Project 2008-12
INT-004-1	Dynamic Interchange Transaction Modifications	Project 2008-12
INT-005-1	Interchange Authority Distributes Arranged Interchange	Project 2008-12 and Project 2010-03
INT-005-2	Interchange Authority Distributes Arranged Interchange	Project 2008-12
INT-006-2	Response to Interchange Authority	Project 2008-12
INT-007-1	Interchange Confirmation	Project 2008-12
INT-008-1	Interchange Authority Distributes Status	Project 2008-12
INT-008-2	Interchange Authority Distributes Status	Project 2008-12
INT-009-1	Implementation of Interchange	Project 2008-12
INT-010-1	Interchange Coordination Exemptions	Project 2008-12
Interconnection Reliability Operations and Coordination (IRO) Standards		
IRO-001-1	Reliability Coordination — Responsibilities and Authorities	Project 2006-06 and Project 2009-03
IRO-002-1	Reliability Coordination — Facilities	Project 2006-06 and Project 2009-02
IRO-003-2	Reliability Coordination — Wide-Area View	Project 2009-02
IRO-004-1	Reliability Coordination — Operations Planning	Project 2009-02
IRO-005-2	Reliability Coordination — Current-Day Operations	Project 2006-06, Project 2007-18, and Project 2009-02
IRO-006-4	Reliability Coordination — Transmission Loading Relief	Project 2006-08
IRO-014-1	Procedures, Processes, or Plans to Support Coordination Between Reliability Coordinators	Project 2006-06
IRO-015-1	Notifications and Information Exchange Between Reliability Coordinators	Project 2006-06
IRO-016-1	Coordination of Real-time Activities Between Reliability Coordinators	Project 2006-06
Modeling, Data, and Analysis (MOD) Standards		
MOD-010-0	Steady-State Data for Transmission System Modeling and Simulation	Project 2010-03

Standard	Standard Name	Project Number
MOD-011-0	Regional Steady-State Data Requirements and Reporting Procedures	Project 2010-03
MOD-012-0	Dynamics Data for Transmission System Modeling and Simulation	Project 2010-03
MOD-013-1	RRO Dynamics Data Requirements and Reporting Procedures	Project 2010-03
MOD-014-0	Development of Interconnection-Specific Steady State System Models	Project 2010-03
MOD-015-0	Development of Interconnection-Specific Dynamics System Models	Project 2010-03
MOD-016-1	Actual and Forecast Demands, Net Energy for Load, Controllable DSM	Project 2010-04
MOD-017-0	Aggregated Actual and Forecast Demands and Net Energy for Load	Project 2010-04
MOD-018-0	Reports of Actual and Forecast Demand Data	Project 2010-04
MOD 019-0	Forecasts of Interruptible Demands and DCLM Data	Project 2010-04
MOD-020-0	Providing Interruptible Demands and DCLM Data	Project 2010-04
MOD-021-0	Accounting Methodology for Effects of Controllable DSM in Forecasts	Project 2010-04
MOD-024-1	Verification of Generator Gross and Net Real Power Capability	Project 2007-09
MOD-025-1	Verification of Generator Gross and Net Reactive Power Capability	Project 2007-09
MOD-026-1	Verification of Models and Data for Generator Excitation System Functions	Project 2007-09
MOD-027-1	Verification of Generator Unit Frequency Response	Project 2007-09
Personnel Performance, Training, and Qualifications (PER) Standards		
PER-001-0	Operating Personnel Responsibility and Authority	Project 2007-03
PER-003-0	Operating Personnel Credentials	Project 2007-04
Protection and Control (PRC) Standards		
PRC-001-1	System Protection Coordination	Project 2007-06 and Project 2009-02
PRC-002-1	Define Regional Disturbance Monitoring and Reporting Requirements	Project 2007-11
PRC-003-1	Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems	Project 2010-05
PRC-004-1	Analysis and Mitigation of Transmission and Generation Protection System Misoperations	Project 2010-05
PRC-005-1	Transmission and Generation Protection System Maintenance and Testing	Project 2007-17
PRC-006-0	Development and Documentation of Regional UFLS Programs	Project 2007-01
PRC-007-0	Assuring Consistency with Regional UFLS Program Requirements	Project 2007-01
PRC-008-0	Underfrequency Load Shedding Equipment Maintenance Programs	Project 2007-17
PRC-009-0	UFLS Performance Following an Underfrequency Event	Project 2007-01
PRC-010-0	Assessment of the Design and Effectiveness of UVLS Program	Project 2008-02
PRC-011-0	UVLS System Maintenance and Testing	Project 2007-17
PRC-012-0	Special Protection System Review Procedure	Project 2010-05
PRC-013-0	Special Protection System Database	Project 2010-03
PRC-014-0	Special Protection System Assessment	Project 2010-05
PRC-015-0	Special Protection System Data and Documentation	Project 2010-03
PRC-016-0	Special Protection System Misoperations	Project 2010-05

Standard	Standard Name	Project Number
PRC-017-0	Special Protection System Maintenance and Testing	Project 2007-17
PRC-018-1	Disturbance Monitoring Equipment Installation and Data Reporting	Project 2007-11
PRC-019-1	Coordination of Generator Voltage Regulator Controls with Unit Capabilities and Protection	Project 2007-09
PRC-020-1	Under-Voltage Load Shedding Program Database	Project 2010-03
PRC-021-1	Under-Voltage Load Shedding Program Data	Project 2010-03
PRC-022-1	Under-Voltage Load Shedding Program Performance	Project 2008-02
PRC-024-1	Generator Performance During Frequency and Voltage Excursions	Project 2007-09
Transmission Operations (TOP) Standards		
TOP-001-1	Reliability Responsibilities and Authorities	Project 2007-03
TOP-002-2	Normal Operations Planning	Project 2007-03
TOP-003-0	Planned Outage Coordination	Project 2007-03
TOP-004-2	Transmission Operations	Project 2007-03
TOP-005-1	Operational Reliability Information	Project 2007-03
TOP-006-1	Monitoring System Conditions	Project 2007-03
TOP-007-0	Reporting SOL and IROL Violations	Project 2007-03
TOP-008-1	Response to Transmission Limit Violations	Project 2007-03
Transmission Planning (TPL) Standards		
TPL-001-0	System Performance Under Normal Conditions	Project 2006-02
TPL-002-0	System Performance Following Loss of a Single BES Element	Project 2006-02
TPL-003-0	System Performance Following Loss of Two or More BES Elements	Project 2006-02
TPL-004-0	System Performance Following Extreme BES Events	Project 2006-02
TPL-005-0	Regional and Interregional Self-Assessment Reliability Reports	Project 2006-02
TPL-006-0	Assessment Data from Regional Reliability Organizations	Project 2006-02
Voltage and Reactive (VAR) Standards		
VAR-001-1a	Voltage and Reactive Control	Project 2008-01 and Project 2009-02
VAR-002-1a	Generator Operation for Maintaining Network Voltage Schedules	Project 2008-01

Reference Identifying the Standard in each Project Sorted by Project Number

Project 2006-02 Assess Transmission Future Needs

- TPL-001-0 — System Performance Under Normal Conditions
- TPL-002-0 — System Performance Following Loss of a Single BES Element
- TPL-003-0 — System Performance Following Loss of Two or More BES Elements
- TPL-004-0 — System Performance Following Extreme BES Events
- TPL-005-0 — Regional and Interregional Self-Assessment Reliability Reports
- TPL-006-0 — Assessment Data from Regional Reliability Organizations

Project 2006-06 Reliability Coordination

- COM-001-1 — Telecommunications
- COM-002-2 — Communications and Coordination
- IRO-001-1 — Reliability Coordination — Responsibilities and Authorities
- IRO-002-1 — Reliability Coordination — Facilities
- IRO-005-2 — Reliability Coordination — Current-Day Operations
- IRO-014-1 — Procedures, Processes, or Plans to Support Coordination Between Reliability Coordinators
- IRO-015-1 — Notifications and Information Exchange Between Reliability Coordinators
- IRO-016-1 — Coordination of Real-time Activities Between Reliability Coordinators

Project 2006-08 Transmission Loading Relief

- IRO-006-3 — Reliability Coordination — Transmission Loading Relief
- IRO-006-4 — Reliability Coordination — Transmission Loading Relief

Project 2007-01 Underfrequency Load Shedding

- PRC-006-0 — Development and Documentation of Regional UFLS Programs
- PRC-007-0 — Assuring Consistency with Regional UFLS Program Requirements
- PRC-009-0 — UFLS Performance Following an Underfrequency Event

Project 2007-02 Operating Personnel Communications Protocols

- COM-003-1 — Operating Personnel Communications Protocols

Project 2007-03 Real-time Operations

- PER-001-0 — Operating Personnel Responsibility and Authority
- TOP-001-1 — Reliability Responsibilities and Authorities
- TOP-002-2 — Normal Operations Planning
- TOP-003-0 — Planned Outage Coordination
- TOP-004-1 — Transmission Operations
- TOP-004-2 — Transmission Operations
- TOP-005-1 — Operational Reliability Information
- TOP-006-1 — Monitoring System Conditions
- TOP-007-0 — Reporting SOL and IROL Violations
- TOP-008-1 — Response to Transmission Limit Violations

Project 2007-04 Certifying System Operators

- PER-003-0 — Operating Personnel Credentials

Project 2007-05 Balancing Authority Controls

- BAL-002-0 — Disturbance Control Performance
- BAL-004-0 — Time Error Correction
- BAL-004-1 — Time Error Correction
- BAL-005-0 — Automatic Generation Control
- BAL-005-0b — Automatic Generation Control
- BAL-006-1 — Inadvertent Interchange

Project 2007-06 System Protection Coordination

- PRC-001-1 — System Protection Coordination

Project 2007-07 Vegetation Management

- FAC-003-2 — Transmission Vegetation Management Program

Project 2007-09 Generator Verification

- MOD-024-1 — Verification of Generator Gross and Net Real Power Capability
- MOD-025-1 — Verification of Generator Gross and Net Reactive Power Capability
- MOD-026-1 — Verification of Models and Data for Generator Excitation System Functions
- MOD-027-1 — Verification of Generator Unit Frequency Response
- PRC-019-1 — Coordination of Generator Voltage Regulator Controls with Unit Capabilities and Protection
- PRC-024-1 — Generator Performance During Frequency and Voltage Excursions

Project 2007-11 Disturbance Monitoring

- PRC–002-1 — Define Regional Disturbance Monitoring and Reporting Requirements
- PRC–018-1 — Disturbance Monitoring Equipment Installation and Data Reporting

Project 2007-17 Protection System Maintenance and Testing

- PRC–005-1 — Transmission and Generation Protection System Maintenance and Testing
- PRC–008-0 — Underfrequency Load Shedding Equipment Maintenance Programs
- PRC–011-0 — UVLS System Maintenance and Testing
- PRC–017-0 — Special Protection System Maintenance and Testing

Project 2007-18 Reliability-based Control

- BAL–001-0 — Real Power Balancing Control Performance
- BAL–001-0a — Real Power Balancing Control Performance
- BAL–003-0a — Frequency Response and Bias
- EOP–002-2 — Capacity and Energy Emergencies
- IRO–005-2 — Reliability Coordination — Current-Day Operations

Project 2008-01 Voltage and Reactive Control

- VAR–001-1 — Voltage and Reactive Control
- VAR–001-1a — Voltage and Reactive Control
- VAR–002-1 — Generator Operation for Maintaining Network Voltage Schedules
- VAR–002-1a — Generator Operation for Maintaining Network Voltage Schedules

Project 2008-02 Undervoltage Load Shedding

- PRC–010-0 — Assessment of the Design and Effectiveness of UVLS Program
- PRC–022-1 — Under-Voltage Load Shedding Program Performance

Project 2008-06 Cyber Security — Order 706

- CIP–002–2 — Critical Cyber Asset Identification
- CIP–003–2 — Security Management Controls
- CIP–004–2 — Personnel and Training
- CIP–005–2 — Electronic Security Perimeter(s)
- CIP–006-2a — Cyber Security — Physical Security
- CIP–007–2 — Systems Security Management
- CIP–008–2 — Incident Reporting and Response Planning
- CIP–009–2 — Recovery Plans for Critical Cyber Assets

Project 2008-08 EOP VSL Revisions

- EOP-001-0 — Emergency Operations Planning
- EOP-002-2 — Capacity and Energy Emergencies
- EOP-003-1 — Load Shedding Plans

Project 2008-12 Coordinate Interchange Standards

- INT-001-3 — Interchange Information
- INT-003-2 — Interchange Transaction Implementation
- INT-004-1 — Dynamic Interchange Transaction Modifications
- INT-005-2 — Interchange Authority Distributes Arranged Interchange
- INT-006-2 — Response to Interchange Authority
- INT-007-1 — Interchange Confirmation
- INT-008-2 — Interchange Authority Distributes Status
- INT-009-1 — Implementation of Interchange
- INT-010-1 — Interchange Coordination Exemptions

Project 2009-01 Disturbance and Sabotage Reporting

- CIP-001-1 — Sabotage Reporting
- EOP-004-1 — Disturbance Reporting

Project 2009-02 Real-time Tools

- New Standard

Project 2009-05 Resource Adequacy Assessments

- New Standard

Project 2009-06 Facility Ratings

- FAC-008-1 — Facility Ratings Methodology

FAC-009-1 — Establish and Communicate Facility Ratings

Project 2010-02 Connecting New Facilities to the Grid

- FAC-001-0 — Facility Connection Requirements
- FAC-002-0 — Coordination of Plans for New Facilities

Project 2010-03 Modeling Data

- MOD-010-0 — Steady-State Data for Transmission System Modeling and Simulation
- MOD-011-0 — Regional Steady-State Data Requirements and Reporting Procedures
- MOD-012-0 — Dynamics Data for Transmission System Modeling and Simulation
- MOD-013-1 — RRO Dynamics Data Requirements and Reporting Procedures
- MOD-014-0 — Development of Interconnection-Specific Steady State System Models
- MOD-015-0 — Development of Interconnection-Specific Dynamics System Models
- PRC-013-0 — Special Protection System Database
- PRC-015-0 — Special Protection System Data and Documentation

Project 2010-04 Demand Data

- MOD-016-1 — Actual and Forecast Demands, Net Energy for Load, Controllable DSM
- MOD-017-0 — Aggregated Actual and Forecast Demands and Net Energy for Load
- MOD-018-0 — Reports of Actual and Forecast Demand Data
- MOD-019-0 — Forecasts of Interruptible Demands and DCLM Data
- MOD-020-0 — Providing Interruptible Demands and DCLM Data
- MOD-021-0 — Accounting Methodology for Effects of Controllable DSM in Forecasts

Project 2010-05 Protection Systems

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations
- PRC-012-0 — Special Protection System Review Procedure
- PRC-014-0 — Special Protection System Assessment
- PRC-016-0 — Special Protection System Misoperations

Project Descriptions

The following pages contain the project descriptions for each of the currently opened or planned Reliability Standards development projects. Each project description includes a cover page that provides an overview of the project, including the project number, title, list of affected reliability standards, hyperlinks to associated portions of the NERC standards web pages, and a brief description of the project. The cover page is followed by the drafting team roster for the project (if one exists – future/planned projects will not have a roster) and a list of "Issues to be Considered by Drafting Team" for each reliability standard associated with the specific project.

The standard drafting team for each of these projects will be expected to review the assigned standards and modify the standards to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure as described in the "Global Improvements" section of Volume I of this *Reliability Standards Development Plan*.

Each list of "Issues to be Considered by Drafting Team" identifies the FERC directives from various orders, items from the Issues Database, and also includes comments provided by:

- The team working on identifying the "fill-in-the-blank" characteristics of the NERC reliability standards,
- Industry stakeholders,
- NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS),
- Version 0, Phase III & IV, Violation Risk Factors (VRFs), and Missing Measures and Compliance Elements drafting teams and others as noted.

The majority of comments provided by these entities can be found in the following references:

- FERC Order 693 Mandatory Reliability Standards for the Bulk-Power System
- FERC Order 693 — A, Order on Rehearing
- FERC Order 706 Mandatory Reliability Standards for Critical Infrastructure Protection
- FERC Order 706–A Mandatory Reliability Standards for Critical Infrastructure Protection
- FERC Order 890 Preventing Undue Discrimination and Preference in Transmission Service
- FERC NOPR Mandatory Reliability Standards for Critical Infrastructure Protection
- FERC NOPR — Mandatory Reliability Standards for the Bulk-Power System, dated October 20, 2006 — *Explanatory comments from NERC staff's discussion with FERC personnel on the NOPR are indicated in italic text contained within parenthesis*
- Summary of Comments for Addressing Fill-in-the-Blank Aspects of Reliability Standards, October 24, 2006
- Comments received during the development of Version 0 reliability standards
- Consideration of comments of the Missing Compliance Elements drafting team.
- Consideration of comments of the Violation Risk Factors drafting team

- Consideration of comments in the Phase III-IV standards
- SAR on Planning Authority (The requester agreed to not proceed with this SAR.) SAR on Applicability

Note that no value judgments have been made about the technical merits of any of the items included in each list of "Issues to be Considered by Drafting Team." Each standard drafting team for the specific project is expected to further investigate and properly address each of the issues listed.

Project 2006-02 Assess Transmission and Future Needs

Standards Involved:
TPL-001-0 — System Performance under Normal Conditions
TPL-002-0 — System Performance Following Loss of a Single BES Element
TPL-003-0 — System Performance Following Loss of Two or More BES Elements
TPL-004-0 — System Performance Following Extreme BES Events
TPL-005-0 — Regional and Interregional Self-Assessment Reliability Reports
TPL-006-0 — Assessment Data from Regional Reliability Organizations

Research Needed:
None

Brief Description:
The proposed work effort will establish requirements where requirements do not exist, and verify and clarify the existing standards for assessing and reporting the performance of planned bulk electric systems and the requirements for documenting plans to remedy any inadequacies identified in the process of conducting such assessments.

Consideration will be given to the many proposed improvements identified in the 'Issues' list for each of the above standards.

The drafting team will also work to incorporate the interpretation on TPL-002 Requirement R1.3.12 and Requirement R1.32 and the interpretation on TPL-003 Requirement R1.3.12 and Requirement R1.32.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2006-02 Assess Transmission and Future Needs Web Page

Project Schedule:
Project 2006-02 Schedule

Standard Drafting Team Roster:

Chairman	John E. Odom, Jr.	Florida Reliability Coordinating Council
Vice Chairman	Douglas Hohlbaugh	FirstEnergy Corp.
	D. Darrin Church	Tennessee Valley Authority
	William Harm	PJM Interconnection, L.L.C.
	Julius Horvath	Lower Colorado River Authority
	Robert A. Jones	Southern Company Services, Inc.
	R. W. Mazur	Manitoba Hydro
	Thomas C. Mielnik	MidAmerican Energy Co.
	Bernie Pasternack, P.E.	American Electric Power
	Bob Pierce	Duke Energy
	Chifong L. Thomas	Pacific Gas and Electric Company
	James Useldinger	Kansas City Power & Light Co.
	Dana Walters	National Grid
NERC Staff	Edward J. Dobrowolski	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
TPL Family	
FERC Order 693	• 1692 — Consider integrating TPL-001 through TPL-004 into one standard. • 1694, 1704, & 1706 — Consider the full range of variables when determining critical system conditions but only those deemed to be significant need to be assessed and documentation provided that explain the rational for selection. • 1716 — System performance should be assessed based on contingencies that mimic what happens in real-time. • 1719 — Consider appropriate revisions to the reliability standards to deal with cyber security events.
	Submit an informational filing, in addition to regional criteria, all utility and RTO/ISO differences in transmission planning criteria that are more stringent than those specified by the TPL standards.
TPL-001-0 — System Performance Under Normal (No Contingency) Conditions (Category A)	
FERC Order 693	• 1694, 1704, & 1706 — Determine critical system conditions and study years by conducting sensitivity analysis with due consideration of the factors outlined by the Commission. • 1751 — Require a peer review of planning assessments with neighboring entities • 1759 — Modify requirement R1.3 to substitute the reference to regional reliability organization with regional entity. • 1797 — Address concerns with footnote (a) of Table 1 with regard to applicability of emergency ratings and consistency of normal ratings and voltages with values obtained from other reliability standards and concerns raised by International Transmission with regard to the footnotes in Table 1 • 1786 — Require assessments of outages of critical long lead time equipment, consistent with an entity's spare equipment strategy • 1719 — Consider appropriate revisions to the reliability standards to deal with cyber security events. • Entities that have planned and designed their systems on the basis of a different approach to single contingencies should work with NERC in developing plans to transition to this new approach. • 1716 — System performance should be assessed based on contingencies that mimic what happens in real-time. • 1694, 1704, & 1706 — Consider the full range of variables when determining critical system conditions but only those deemed to be significant need to be assessed and documentation provided that explain the rational for selection. • 1693 — Submit an informational filing, in addition to regional criteria, all utility and RTO/ISO differences in transmission planning criteria that are more stringent than those specified by the TPL standards. • Consider integrating TPL-001 through TPL-004 into one standard.
Fill in the Blank Team	No action needed

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Phase III/IV Team	• Add a requirement to identify where UVLS should be installed • Add a requirement to verify that there are sufficient reactive resources
Team Comments	• Provide clarity where the Planning Authority is mentioned
Version 0 Team	• Table 1 — C.5 goes beyond double circuit outage criteria • Table 1, items 6, 7, 8 & 9 need footnote stating that they do not apply to generator breaker failure • What is a major load center? • Need to include multiple time frames • Does planned facilities include just those under construction? • Having all projected firm transfers modeled may not be practical to achieve in a single shapshot of a powerflow model. The requirement should allow engineering judgment to determine the appropriate level of system utilization to assess reliability considering all projected firm uses. • Define critical system conditions • Need to address deliverability to load • Clarify use of applicable ratings in Table 1, note 'a' • Clarify timing for submittal of corrective plan • Several semantic issues • Table 1, note 'b' — clarify when to curtail firm deliveries
VRFs Team	R1 — time horizon should be long-term planning
TPL-002-0 — System Performance Following Loss of a Single Bulk Electric System Element (Category B)	
FERC Order 693	• 1694, 1704, & 1706 — Determine critical system conditions in the same manner as proposed in TPL-001. • 1787 — Requires all generators to ride through the same set of category B and C contingencies as required by wind generators in Order No. 661, or to simulate without this capability as tripping. • 1786 — Requires assessment of planned outages of long lead time critical equipment consistent with the entity's spare equipment strategy. • 1789 — Document the load models used in system studies and the rationale for their use. • 1773 — Clarify the phrase "permit operating steps necessary to maintain system control" in the footnote (a) and the use of emergency ratings. • 1773 — Clarifies footnote (b) in regard to load loss following a single contingency specifying the amount and duration of consequential load loss and system adjustments permitted after the first contingency to return the system to a normal operating state. NERC should consider this through its standard development process. • 1773 — Footnote (b) should not allow for firm load shedding or curtailment of firm transfers as part of the system adjustments. • 1788 — Consider NRC's comments regarding clarifying the N-1 state as being always

Source	Language
	applicable to the current conditions as part of the standards development process. • 1794 — Standard should be clarified to not allow an entity to plan for the loss of non-consequential load in the event of a single contingency.
Phase III/IV Team	• Add a requirement to verify that there are sufficient reactive resources • Add a requirement to identify where UVLS should be installed
Team Comments	• Provide clarity where the Planning Authority is mentioned
Version 0 Team	• Don't include planning outage • Don't include generation runback or redispatch • Address deliverability of generation to load • Clarify timing for corrective plan • Define critical system conditions • Single terminals are not included • Must study all contingencies and multiple demand levels & time frames • Clarify applicable ratings in Table 1, note 'a'
Other	Incorporate approved formal interpretation
VRFs Team	Time horizon should be long-term planning and R2.2 — redundant with R1.3.8
TPL-003-0 — System Performance Following loss of Two or More Bulk Electric System Elements (Category C)	
FERC Order 693	• 1769 — Address LPPA's concerns on changes to footnotes of Table 1 through the standard development process. • 1788 — Address NRC concerns as described in TPL-002 through the standards development process. • 1824 — Consider the comments on major load pockets as part of the standards development process. • 1821 — Tailor the purpose statement to reflect the specific goal of the standard. • 1820 — Applicable entities must define and document the proxies necessary to simulate cascading outages. • 1765 — Determine critical system conditions in the same manner as proposed in TPL-001. • 1806 — Clarify the term "controlled load interruption".
Fill in the Blank Team	No action required
Phase III/IV Team	• Add a requirement to identify where UVLS should be installed • Add a requirement to verify that there are sufficient reactive resources • Add a requirement to identify where UVLS should be installed
Team Comments	Provide clarity where the Planning Authority is mentioned
Version 0 Team	• Development of mitigation plans requires subsequent studies, and may actually be done by a different entity than the entity performing the assessment (the TO instead of the RTO who may have done the assessment) • Clearly identify outages

Source	Language
	• Use NERC Compliance Reporting Process • Don't base penalties on low probability, low consequence events • TO should provide plan of action • Same as TPL-001 & 002
VRFs Team	• R2.2 — lack of consistency with TPL-001 & TPL-007 • R2.1.3 — lack of consistency with TPL-001 & TPL-006 • R2.1.2 — lack of consistency with TPL-001 & TPL-005 • R2.1.1 — lack of consistency with TPL-001 & TPL-004 • R2.1 — lack of consistency with TPL-001 • R2 — lack of consistency with TPL-001 & TPL-002 • Time horizon should be long-term planning
TPL-004-0 — System Performance Following Extreme Events Resulting in the Loss of Two or More Bulk Electric System Elements (Category D)	
FERC Order 693	• 1835 — Tailor the purpose statement to reflect the specific goal of the standard. • 1765 — Determine critical system conditions in the same manner as proposed in TPL-001. • 1836 — Identify options for reducing the probability or impacts of extreme events that cause cascading. • 1836 — Expand the list of category D events to include recent actual events.
Fill in the Blank Team	No action required
Phase III/IV Team	• Add a requirement to identify where UVLS should be installed • Add a requirement to verify that there are sufficient reactive resources
Team Comments	Provide clarity where the Planning Authority is mentioned
Version 0 Team	• R1.3.9 — remove from extreme events • TO should determine which events to study • Perform analysis on credible contingency • Same as TPL-001
TPL-005-0 — Regional and Interregional Self-Assessment Reliability Reports	
FERC Order 693	1841 — Encourages NERC to utilize input from the Commission's technical conferences on regional planning as directed in Order No. 890 to improve this standard.
Fill in the Blank Team	New SAR needed
Version 0 Team	• An RRO can't make a mandatory request for another RRO to perform a study • Define fuel adequacy
TPL-006-0 — Assessment Data from Regional Reliability Organizations	
Fill in the Blank Team	No action required

Project 2006-04 Backup Facilities

Standards Involved:
EOP-008-0 — Plans for Loss of Control Center Functionality

Research Needed:
A study of backup capabilities needed to support reliable operations is required.

Brief Description:
The requirements in EOP-008 need additional specificity. The development revision to EOP-008 may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards. In addition, the efforts of the OC Backup Control Center Task Force will be used as one of the inputs to the revision of EOP-008. Also, there may be backup facility requirements in some other standards, and those requirements should be considered for movement into this standard.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2006-04 Backup Facilities Web page

Project Schedule:
Project 2006-04 Schedule

Standard Drafting Team Roster:

Chairman	Samuel Brattini	KEMA Consulting
Vice Chairman	Michael Schiavone	Niagara Mohawk Power Corp.
	Tom Bowe	PJM Interconnection, L.L.C.
	Blaine R. Dinwiddie	Omaha Public Power District
	Charles W. Jenkins	Oncor Electric Delivery
	Glenn Kaht	ReliabilityFirst Corporation
	Barry R. Lawson	National Rural Electric Cooperative Association
	Sara McCoy	SRP
	Melinda K. Montgomery	Entergy Services, Inc.
	Keith Porterfield	Georgia Systems Operations Corporation
	John Procyk	Hydro One, Inc.
	James Vermillion	Associated Electric Cooperative, Inc.
NERC Staff	Edward J. Dobrowolski	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
EOP-008-0 — Plans for Loss of Control Center Functionality	
FERC Order 693	• 672 — Provide for backup capabilities that, at a minimum, must include a requirement that all reliability coordinators have full backup control centers; • Include a requirement that provides for backup capabilities that, at a minimum, must: • 672 — Provide for backup capabilities that, at a minimum, must provide that the extent of the backup capability be consistent with the impact of the loss of the entity's primary control center on the reliability of the bulk power system. • 651 — Provide for backup capabilities that, at a minimum, must provide for a minimum functionality to replicate the critical reliability functions of the primary control center. • Provide for backup capabilities that, at a minimum, must be independent of the primary control center • 672 — Provide for backup capabilities that, at a minimum, must require transmission operators and balancing authorities that have operational control over significant portions of generation and load to have minimum backup capabilities discussed above but may do • 651 — Provide for backup capabilities that, at a minimum, must be capable of operating for a prolonged period of time, generally defined by the time it takes to restore the primary control center.
Fill in the Blank Team	No comments
NERC Audit Observation Team	Compliance levels don't align with the measures or requirements
Version 0 Team	• Max. time to restore capabilities • How is backup control achieved? • How does staff know control center is lost? (Note — A system health monitor concept or equivalent functionality is what is desired here.)
VRFs Team	• R1.1 — Not having a written plan is unlikely, under emergency, abnormal, or restoration conditions anticipated by the preparations, to lead to bulk electric system instability, separation, or cascading failures, nor to hinder restoration to a normal condition. • R1 — Not having a written plan does not directly cause or contribute to bulk electric system instability, separation, or a cascading sequence of failures, or could place the bulk electric system at an unacceptable risk of instability, separation, or cascading

Project 2006-06 Reliability Coordination

Standards Involved:
COM-001-1 — Telecommunications
COM-002-2 — Communications and Coordination
IRO-001-1 — Reliability Coordination — Responsibilities and Authorities
IRO-002-1 — Reliability Coordination — Facilities
IRO-005-2 — Reliability Coordination — Current-Day Operations
IRO-014-1 — Procedures to Support Coordination between Reliability Coordinators
IRO-015-1 — Notifications and Information Exchange Between Reliability Coordinators
IRO-016-1 — Coordination of Real-time Activities between Reliability Coordinators

Research Needed:
None

Brief Description
Most of the requirements in this set of standards were translated from Operating Policies as part of the Version 0 process. There have been suggestions for improving these requirements, and the drafting team will consider comments submitted by stakeholders, drafting teams and FERC in determining what changes should be proposed to stakeholders.

The drafting team will review all of the requirements in this set of standards and make a determination, with stakeholders, on whether to:

- Modify the requirement to improve its clarity and measureability while removing abiguity Move the requirement (into another SAR or Standard or to the certification process or standards)
- Eliminate the requirement (either because it is redundant or because it doesn't support bulk power system reliability).

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2006-06 Reliability Coordination Web page

Project Schedule:
Project 2006-06 Schedule

Standard Drafting Team Roster:

Chairman	Mike Hardy	Southern Company Services, Inc.
	Earl A. Barber	National Grid
	Timothy A. Beach	American Transmission Company, LLC
	Paul Bleuss	California/Mexico Reliability Coordinator (CMRC)
	James S. Case	Entergy Services, Inc.
	Albert DiCaprio	PJM Interconnection, L.L.C.
	Anthony Jankowski	We Energies
	Allan D. Miller	Independent Electricity System Operator
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Robert C. Rhodes, Jr.	Southwest Power Pool
NERC Staff	Stephen Crutchfield	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
COM-001-1 — Telecommunications	
FERC Order 693	"Include generator operators and distribution providers in the list of applicable entities and create appropriate requirements for them. Paragraph 487. The Commission reaffirms its position that generator operators and distribution providers should be included as applicable entities in COM-001-1 to ensure there is no reliability gap during normal and emergency operations. For example, during a blackstart when normal communications may be disrupted, it is essential that the transmission operator, balancing authority and reliability coordinator maintain communications with their distribution providers and generator operators. However, the current version of Reliability Standard COM-001-1 does not require this because it does not include generator operators and distribution providers as applicable entities. We clarify that the NOPR did not propose to require redundancy on generator operators' or distribution providers' telecommunication facilities or that generator operators or distribution providers be trained on anything not related to their functions during normal and emergency conditions. We expect the telecommunication requirements for all applicable entities will vary according to their roles and that these requirements will be developed under the Reliability Standards development process."
	"Specify requirements for using telecommunication facilities during normal and emergency conditions that reflect the roles of the applicable entities and their impact of reliable operation, and include adequate flexibility. Paragraph 490. In response to SDG&E, the Commission's intent is not to subject generator operators and distribution providers to the same requirements placed on transmission operators. As part of the modification of this Reliability Standard or development of a new Reliability Standard to include the appropriate telecommunications facility requirements for generator operators and distribution providers, the ERO should take into account what would be required of generator operators and distribution providers in terms of telecommunications for the Reliable Operation of the Bulk-Power System, instead of applying the same requirements as are placed on other reliability entities such as reliability coordinators, balancing authorities and transmission operators."
	Address TAPS, Entergy, Six Cities, and FirstEnergy concerns through the standard development process. TAPS Paragraph 483. TAPS states that Requirement R1.4 has an ambiguous requirement that, if applied to distribution providers and generator operators, would impose redundancy requirements well beyond what is reasonably necessary for Bulk-Power System reliability. Further it asserts that the NOPR provides no basis for expanding the Reliability Standard to small entities, such as a 2-MW distribution provider or generator, much less than one that has no connection to the bulk transmission system. Finally, TAPS contends that, in making this proposal, the Commission is "over-stepping its bounds" by not leaving it to the ERO's expert judgment whether COM-001-1 has sufficient coverage to protect Bulk-Power System reliability and states that, in any event, applicability should be limited through NERC's registry criteria and definition of bulk electric system.
	"Address TAPS, Entergy, Six Cities, and FirstEnergy concerns through the standard development process. Entergy Paragraph 499. Entergy states that it is unclear what cyber assets are covered by COM-001-0. Entergy believes that the Reliability Standard should focus on telecommunications that support the operation of critical assets. Entergy also believes that COM-001-0 should be expanded to include advances in communications technology. It states that NERC should consider addressing the following in a way that will

Source	Language
	facilitate an understanding of the Reliability Standards' requirements: (1) voice communications; (2) command and control data communications; (3) security coordination data communications; (4) digital messaging communications; (5) human linguistic convention and (6) other types of communications, including video conferencing and communications with remote security cameras. Entergy believes that this could be accomplished through an enhancement to the definition of communications in the NERC glossary and recasting COM-001-0 to improve the specificity of requirements for each form of communication. Finally, Entergy believes that Requirement R4 of COM-001-0, which requires reliability coordinators, transmission operators and balancing authorities to use English in all types of communications, should apply only to verbal and written communications."
	Address TAPS, Entergy, Six Cities, and FirstEnergy concerns through the standard development process. Six Cities Paragraph 501. Six Cities is concerned that the scope of improper conduct under the "NERCNet security policy" in Attachment 1 is virtually limitless. Six Cities recognizes that it would be difficult to provide a comprehensive and detailed list of all conduct that might be considered a misuse of NERCNet data, but that difficulty does not justify exposing NERCNet users to the risk of monetary penalties based on amorphous and unbounded descriptions of potentially violative conduct. Six Cities states that one solution would be to limit the imposition of monetary penalties for misuse of NERCNet data to instances where such misuse is intentional or grossly egligent. According to Six Cities, it would be appropriate to exact a monetary penalty where a NERCNet user deliberately uses NERCNet data for unauthorized or unreasonable purposes. Six Cities asks that it be modified to provide for a warning for the improper disclosure of NERCNet data where the disclosure was not intentional or grossly negligent.
	Address TAPS, Entergy, Six Cities, and FirstEnergy concerns through the standard development process. First Energy Paragraph 500. FirstEnergy asserts that the Requirement R2 is unclear because it does not specify whether the phrase "telecommunication facilities" covers both voice and data facilities in the context of alarms. It states that, although the word "telecommunications facilities" is generally understood to mean both voice and data facilities, the current practice is to display alarms only for data facilities. Requirement R2 could be misinterpreted to require alarms on voice facilities as well, which would be impractical.
NERC Standards DT Coordinators Meeting 20080520	COM-001-1 Telecommunications is being reviewed and revised under Project 2006-06 Reliability Coordination; however, it has been agreed that all requirements of COM-001-1 except R4 will be addressed by the SDT for Project 2006-06 and that requirement R4 will be addressed by the SDT for Project 2007-02 Operating Personnel Communications Protocols. If either part of this agreement is not maintained, COM-001-1 will need revisited.
Version 0 Team	• Apply R1 to all but smallest entities • Many players missing • Redundant with Policy 5A, R1
VRFs Team	R6 — administrative requirement
COM-002-2 — Communications and Coordination	
NERC Standards DT Coordinators Meeting 20080520	COM-002-2 Communication and Coordination is being reviewed and revised under both Project 2006-06 Reliability Coordination and Project 2007-02 Operating Personnel Communications Protocols; however, it has been agreed that: •Requirement R1will be addressed by the SDT for Project 2006-06 and •Requirement R2 will be addressed by the SDT for Project 2007-02 Operating Personnel Communications Protocols. If either part of this agreement is not maintained, COM-002-2 will need revisited.

Source	Language
IRO-001-1 — Reliability Coordination — Responsibilities and Authorities	
FERC Order 693	Consider commenter's' suggestions as part of the standards development process. 895. California Cogeneration comments that the Reliability Standard fails to address the operational limitations of QFs because they have contractual obligations to provide thermal energy to their industrial hosts. It contends that a QF can be directed to change operations only in the case of a system emergency, pursuant to 18 CFR § 292.307.
	Consider adding measures and levels of non-compliance. Paragraph 897. While APPA, FirstEnergy and California Cogeneration suggest possible changes to IRO-001-1, they do not suggest that the proposed Reliability Standard should not be approved. The ERO should consider the commenter's' suggestions when modifying the Reliability Standard pursuant to its Reliability Standards development process. Further, the Commission directs the ERO to consider adding Measures and Levels of Non-Compliance in the Reliability Standard as requested by APPA.
	Consider commenter's' suggestions as part of the standards development process. Paragraph 892. APPA supports the approval of the Reliability Standard but expresses concern that the Version 1 standard does not include Measures that correspond to Requirements R2 and R9. APPA emphasizes the need for Measures corresponding to Requirement R9, which requires the reliability coordinator to act in the interests of reliability for the overall reliability coordinator area and the Interconnection before the interests of any other entity. APPA supports Requirement R8 with the extended applicability, provided that applicability is determined by reference to the NERC compliance registry. APPA agrees that the regional reliability organization should be eliminated as an applicable entity and suggests it be replaced with Regional Entities.
	Eliminate the references to the regional reliability organization as an applicable entity. Paragraph 896. In the NOPR, the Commission proposed to approve the Reliability Standard as mandatory and enforceable. In addition, as a separate action under section 215(d)(5), the NOPR proposed to direct the ERO to develop modifications to Requirement R1291 to substitute "Regional Entity" for "regional reliability organization" and reflect NERC's Rules of Procedure for registering, certifying and verifying entities, including reliability coordinators. Commenter's do not raise any concerns regarding the proposed action. Accordingly, for the reasons stated in the NOPR, the Commission approves IRO-001-1 as mandatory and enforceable. In addition, for the reasons discussed in the NOPR, the Commission directs the ERO to develop modifications to the Reliability Standard through the Reliability Standards development process that reflect the process set forth in the NERC Rules of Procedures and eliminate the regional reliability organization as an applicable entity.
	Consider commenter's' suggestions as part of the standards development process. 893. FirstEnergy suggests that NERC clarify whether Requirement R8, which requires entities to comply with a reliability coordinator directive "unless such actions would violate safety, equipment or regulatory or statutory requirements," refers to personnel safety, equipment safety or both. In addition, it suggests the establishment of a chain of command so that, for example, if a generator receives conflicting instructions from a balancing authority and a transmission operator, it can determine which instruction governs.
	Consider commenter's' suggestions as part of the standards development process. 894. Requirement R3 provides that a reliability coordinator "shall have clear decision making authority to act and direct actions to be taken" by applicable entities to "preserve the integrity and reliability of the Bulk Electric System and these actions shall be taken without delay but no longer than 30 minutes." Santa Clara contends that some actions would require driving to a remote site and therefore, mandating completion of the required action within 30 minutes would be unreasonable. Thus, it recommends that NERC modify Requirement R3 to provide

Source	Language
	that “actions shall commence without delay, but in any event shall commence within 30 minutes.”
FERC’s December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC’s December 20, 2007 Order, the Commission reversed NERC’s Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a “reliability gap” if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC’s December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC’s March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC’s April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC’s July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Fill in the Blank Team	• Remove ", sub-region, or interregional coordinating group" from R1 • Consider removing "Standards of conduct are necessary to ensure the Reliability Coordinator does not act in a manner that favors one market participant over another." from the Purpose section of the standard.
NERC Audit Observation Team	All applicable registered functions shall comply with RC directives unless such actions would violate safety, equipment or regulatory or statutory requirements. Inform the RC immediately of the inability to perform such directives. For audit purposes, what is acceptable evidence?
Version 0 Team	• Inability to perform needs to be communicated • What is meant by ‘interest of other entity’? • What is meant by ‘interest of other entity’?
VRFs Team	• R6 - Since the RC must be NERC certified, it stands to reason that anyone performing RC tasks should be certified. However, since the RC still retains the accountability for actions, and requirement 4 handles the agreements, this requirement is a medium risk. • R6 - Since the RC must be NERC certified, it stands to reason that anyone performing RC tasks should be certified. However, since the RC still retains the accountability for actions, and requirement 4 handles the agreements, this requirement is a medium risk.
IRO-002-1 — Reliability Coordination — Facilities	
FERC Order 693	"Require a minimum set of tools that must be made available to the reliability coordinator. Paragraph 905. Further, consistent with the NOPR, the Commission directs the ERO to modify IRO-002-1 to require a minimum set of tools that must be made available to the reliability coordinator. We believe that this requirement will ensure that a reliability coordinator has the tools it needs to perform its functions. Further, as noted by Dominion, such a requirement promotes a more proactive approach to maintaining reliability."

Source	Language
Version 0 Team	• Words such as 'easily understood' and 'particular emphasis' need to be tightened • R7 — define 'adequate' tools and 'wide-area' • R5 — define synchronized information system
IRO-005-1 — Reliability Coordination — Current-Day Operations	
FERC Order 693	Include measures and levels of non-compliance.
	"Conduct a survey on IROL practices and actual operating experiences by requiring reliability coordinators to report any violations of IROLS, their causes, the date and time, the durations and magnitudes in which actual operations exceeds IROLs to NERC. Paragraph 951. Accordingly, the Commission approves Reliability Standard IRO-005-1 as mandatory and enforceable. Further, because IRO-005-1 has no Measures or Levels of Non-Compliance, pursuant to section 215(d)(5) of the FPA and § 39.5(f) of our regulations, the Commission directs the ERO to develop a modification to IRO-005-1 through the Reliability Standards development process that includes Measures and Levels of Non-Compliance. The Commission further directs that the Measures and Levels of Non-Compliance specific to IROL violations must be commensurate with the magnitude, duration, frequency and causes of the violations and whether these occur during normal or contingency conditions. Finally, the Commission directs the ERO to conduct a survey on IROL practices and actual operating experiences by requiring reliability coordinators to report any violations of IROL, their causes, the date and time, the durations and magnitudes in which actual operations exceeds IROLs to the ERO on a monthly basis for one year beginning two months after the effective date of the Final Rule. We may propose further modifications to IRO-005-1 based on the survey results."
	"Measures and levels of non-compliance specific to IROL violations must be commensurate with the magnitude, duration, frequency, and causes of the violations and whether these occur during normal or contingency conditions. Paragraph 951. Accordingly, the Commission approves Reliability Standard IRO-005-1 as mandatory and enforceable. Further, because IRO-005-1 has no Measures or Levels of Non-Compliance, pursuant to section 215(d)(5) of the FPA and § 39.5(f) of our regulations, the Commission directs the ERO to develop a modification to IRO-005-1 through the Reliability Standards development process that includes Measures and Levels of Non-Compliance. The Commission further directs that the Measures and Levels of Non-Compliance specific to IROL violations must be commensurate with the magnitude, duration, frequency and causes of the violations and whether these occur during normal or contingency conditions. Finally, the Commission directs the ERO to conduct a survey on IROL practices and actual operating experiences by requiring reliability coordinators to report any violations of IROL, their causes, the date and time, the durations and magnitudes in which actual operations exceeds IROLs to the ERO on a monthly basis for one year beginning two months after the effective date of the Final Rule. We may propose further modifications to IRO-005-1 based on the survey results."
	"Provide further clarification that reliability coordinators and transmission operators direct control actions, not LSEs as part of the standard development process. Paragraph 950. We do not share TAPS' concern regarding LSEs initiating load shedding as their own control action to respect IROLs or SOLs. The appropriate control actions to respect IROLs and SOLs are the responsibilities of a reliability coordinator and transmission operator. If load shedding is required, it is the responsibility of a reliability coordinator or a transmission operator to direct the appropriate entities including LSEs to carry it out. However, we urge the ERO to provide further clarification in this regard and include TAPS' concern in developing the modification of this Reliability Standard."
Fill in the Blank Team	R14 has regional reference

Source	Language
Version 0 Team	R10, 11 & 12 — RA not empowered to do this
IRO-016-1 — Coordination of Real-Time Activities Between Reliability Coordinators	
VRFs Team	R1.2.1 & R2 — ambiguous

Project 2006-08 Transmission Loading Relief

Standards Involved:
IRO-006-4 — Reliability Coordination — Transmission Loading Relief

Research Needed:
None

Brief Description:
This is a project that is carried over from 2006. This project involves a coordinated effort with NAESB to clarify and refine the requirements in the standard and identify which requirements are needed to support reliability and which requirements are needed to support a business practice. Related to this project, NERC's IDC Working Group (IDCWG) is in the process of identifying changes to the Interchange Distribution Calculator such that it will accept market data, thus eliminating the need for the existing regional differences and to make other necessary modifications as identified by stakeholders. NAESB and the IDCWG are working collaboratively with the NERC Reliability Coordinator Working Group in order to ensure both commercial needs and reliability needs are met.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual plan):
Annual Plan Item 1.b
Justification for NAESB consideration:
FERC Order 890

SRS Recommendation:
This project is already covered by current NAESB WEQ projects. NERC should take into consideration WEQ Annual Plan Item 1.b in the development of the NERC Standard. Coordination between NERC and NAESB is in progress.

Standard Development Status:
Project 2006-08 Transmission Loading Relief Web page

Project Schedule:
Project 2006-08 Schedule

Standard Drafting Team Roster:

Chairman	P.S. (Ben) Li	Ben Li Associates, Inc.
	Daryn Barker	E.ON-US Energy Services Inc.
	Bill Blevins	Electric Reliability Council of Texas, Inc.
Vice Chair	James Busbin	Southern Company Services, Inc.
	James Eckelkamp	Progress Energy
	Robert Paul Humberson	Western Area Power Administration - Rocky Mountain Region
	Frank J. Koza	PJM Interconnection, L.L.C.
	David F. Lemmons	Xcel Energy, Inc.
	Thomas J Mallinger, P.E.	Midwest ISO, Inc.
	Dave Marton	FirstEnergy Solutions
	Narinder K. Saini	Entergy Services, Inc.
	Don Shipley	Southwest Power Pool
NERC Staff	Andrew J. Rodriquez	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
NAESB Standards Review Subcommittee	NAESB Standards Review Subcommittee as input to the Reliability Standards Development Plan: 2010-2012: NAESB requests that NERC continue its coordination with NAESB on this project.
IRO-006-3 — Reliability Coordination — Transmission Loading Relief	
FERC Order 693	Regional Difference to IRO-006: PJM/MISO/SPP Enhanced Congestion Management: Allow the NERC Operating Committee to address the technical merits of netting flow impacts in the interchange distribution calculator.
	Regional Difference to IRO-006: PJM/MISO/SPP Enhanced Congestion Management: Instructs the RTOs to continue working with the non-market regions to develop revised seams agreements that allow for equitable and feasible treatment of market flows in the NERC TLR/redispatch process.
	Regional Difference to IRO-006: PJM/MISO/SPP Enhanced Congestion Management: Commission will allow the twelve-month PJM/MISO/SPP field test to conclude before taking further action on the variance.
	Include a clear warning that TLR procedures are not appropriate and not effective to mitigate an actual IROL violation.
	Modify the WECC and ERCOT load relief procedures to ensure consistency with the standard form of the reliability standard including requirements, measures, and levels of non-compliance.
	Identifies the available alternatives to mitigate an IROL violation other than the use of the TLR procedure. Consider the suggestions of MidAmerican and Xcel when developing the modification.
FERC Order 890	659 This is consistent with our determination that conditional firm service when it is conditional is curtailable only to maintain reliable operation of the transmission system.
	660 We are cognizant that daily and hourly operations to change the tags for conditional firm customers likely involve the need for control room coordination and development of an appropriate tracking process. As the Commission described in the NOPR, new tracking and tagging business practices for this service must be developed by each transmission provider. Thus, we are allowing a sufficient period for the development of these business practices, i.e., 180 days from the date of publication of this Final Rule in the Federal Register. As directed above, transmission providers must coordinate with other transmission providers in their regions to develop these tracking and tagging business practices.
	1074. We adopt a secondary network curtailment priority to apply for the hours or specific system conditions when conditional firm service is conditional. During non-conditional periods, conditional firm service is subject to pro rata curtailment consistent with curtailment of other long-term firm service. Thus, secondary network service and conditional firm service when it is conditional will share the same curtailment priority. Also, there is no conflict with reliability standards because conditional firm service will be subject to pro rata curtailment with all other firm uses of the system once conditional curtailment hours, if that is the option selected, are exhausted.
	1075. The secondary network curtailment priority is appropriate because the customer is

Source	Language
	paying the long-term firm point-to-point rate and thus should receive the highest non-firm curtailment priority during the conditional curtailment hours or during specified system conditions. Adoption of this curtailment priority overcomes what could otherwise be significant implementation hurdles. It allows for implementation of the service without changes to existing NERC TLR practices. NERC and members of the industry need not undertake the time-consuming and expensive process of establishing a new curtailment priority that is between firm and non-firm service as some commenter's requested. Use of this curtailment priority also avoids attendant decisions relating to the method of curtailment that should apply, i.e., pro rata or transactional curtailment, for a quasi-firm curtailment priority. It is also consistent with existing interruption provisions of the pro forma OATT which provide that secondary service cannot be interrupted for economic reasons.
	1076. We reject EEI's argument that the curtailment priority for conditional firm service is inconsistent with Commission precedent regarding priority non-firm service only for network customers. EEI's argument is inapposite. Long-term firm point-to-point customers taking fully firm service without the conditional firm option do not need access to priority non-firm service as EEI suggests. They have assurance that their service will not be interrupted for economic reasons and will only be curtailed on a comparable basis with network service. This would not be the case for conditional firm customers. We also find that EEI has failed to explain the connection between the conditional firm transmission service and the availability of reliability redispatch options ,i.e., generators on its system that can ramp up or down in response to a curtailment. We reject Powerex's request that transmission providers be required to show that existing long-term rights are protected. Each addition of a new long-term firm transaction impacts the rights of existing firm customers to some extent.
	1077. We disagree with commenter's' suggestion that the NERC IDC must be changed to accommodate conditional firm service. We reiterate that we are not creating a new curtailment priority in this Final Rule. We also disagree that new tags that combine a firm and non-firm priority must be developed in order to implement the conditional firm option. The curtailment priority in a tag can be changed ahead of the operating hour based on a near-term forecast of system conditions.660 We are cognizant that daily and hourly operations to change the tags for conditional firm customers likely involve the need for control room coordination and development of an appropriate tracking process. As the Commission described in the NOPR, new tracking and tagging business practices for this service must be developed by each transmission provider. Thus, we are allowing a sufficient period for the development of these business practices, i.e., 180 days from the date of publication of this Final Rule in the Federal Register. As directed above, transmission providers must coordinate with other transmission providers in their regions to develop these tracking and tagging business practices.
	1077. We disagree with commenter's' suggestion that the NERC IDC must be changed to accommodate conditional firm service. We reiterate that we are not creating a new curtailment priority in this Final Rule. We also disagree that new tags that combine a firm and non-firm priority must be developed in order to implement the conditional firm option. The curtailment priority in a tag can be changed ahead of the operating hour based on a near-term forecast of system conditions.
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT should review the definition of the following term and coordinate with NAESB so that the definition is consistent between NERC and NAESB: Reallocation
Version 0 Team	• Usage of TLR log questioned • Some inconsistencies with current usage

Source	Language
VRFs Team	• R2.1, .2 & .3 — not a requirement, just a suggested instruction • R6 — redundant
TLR Family	
Other	Gerry, Hey, I was looking something up in the standards and I couldn't find a definition for "TLR." I ended up downloading the whole set of standards and doing a search. I finally found it. Should TLR be included in the glossary? Kevin J. Conway NERC Reliability Readiness Evaluator North American Electric Reliability Corporation 116-390 Village Blvd. Princeton, NJ 08540-5721 Cellular Phone: 509-750-5441 kevin.conway@nerc.net

Project 2007-01 Underfrequency Load Shedding

Standards Involved:
PRC-006-0 — Development and Documentation of Regional ULS Program Requirements
PRC-007-0 — Assuring Consistency with Regional UFLS Programs
PRC-009-0 — UFLS Performance Following an Underfrequency Event

Research Needed:
None

Brief Description:
PRC-006 is one of the few reliability standards identified by the Regional Reliability Standards Working Group as a standard that has some requirements that need to be defined by each regional entity in a regional standard.

The standard drafting team (SDT) will work with stakeholders to review PRC-006 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the UFLS program documentation. The SDT shall determine which requirements should be continent-wide requirements and which requirements should be included in regional standards.

PRC-007 and PRC-009 have some 'fill-in-the-blank' characteristics, as identified in the Regional Reliability Standards Working Group work plan, which need to be removed. These standards shall be included with PRC-006 for consideration as one or more revised standards as necessary for consistency and clarity of overall program requirements and any other associated programs and/or requirements that affect or impact the UFLS program.

The standard drafting team may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standard Development Status:
Project 2007-01 Underfrequency Load Shedding Web page

Project Schedule:
Project 2007-01 Schedule

Standard Drafting Team Roster:

Chairman	Philip J. Tatro, P.E.	National Grid USA
	Paul Attaway	Georgia Transmission Corporation
	Brian D. Bartos	Bandera Electric Cooperative
	Scott Berry	Indiana Municipal Power Agency
	Brian Evans-Mongeon	Utility Services LLC
	Frank Gaffney	Florida Municipal Power Agency
	Jonathan Glidewell	Southern Company Transmission Company
	Gerald Keenan	Northwest Power Pool Corporation
	Robert W. Millard	ReliabilityFirst Corporation
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Mak Nagle	Southwest Power Pool
	Robert J. O'Keefe	American Electric Power
	Si Truc Phan	Hydro-Québec TransEnergie
	Tony Rodrigues, P.E.	PacifiCorp
NERC Staff	Robert W Cummings	North American Electric Reliability Corporation
NERC Staff	Stephanie Monzon	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
PRC-006-0 — Development and Documentation of Regional ULS Program Requirements	
FERC Order 693	Transfer responsibility from the regional reliability organization to the regional entity.
Fill in the Blank Team	• Modify R1 to require each Region to develop a regional standard, and • Development of regional standards needs to be coordinated with Regional entities. Regional entities should begin process for developing regional standards once the drafting team for the North American standard has determined what elements of UFLS should be included in the continent-wide standard and what elements should be included in the regional standards. • Determine what elements (if any) of UFLS should be included in the North American standard and what elements should be included in the regional standards. • Related PRC-007, PRC-008, and 009. • PRC-006 will be a continent-wide standard supported by Regional Reliability Standards.
Version 0 Team	• Not a standalone standard • Who do you submit compliance material to? • Need to define evidence
PRC-007-0 — Assuring Consistency with Regional UFLS Programs	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Fill in the Blank Team	• The regional procedures need to be converted to a standard to implement this. • Change "program" to "standard" in R1. • Coordinated with PRC-006.
Version 0 Team	• Need to refine levels of non-compliance • Need to include RA

PRC-009-0 — UFLS Performance Following an Underfrequency Event	
Fill in the Blank Team	• See notes for PRC-007. • Change "program" to "standard'.
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Version 0 Team	• Exemptions for those with shunt reactors who don't shed load • 90 days vs. 30 days • Define evidence

Project 2007-02 Operating Personnel Communications Protocols

Standards Involved:
COM-002-2 — Communications and Coordination

Research Needed:
None

Brief Description:
This is a new project that was identified in support of a blackout recommendation #26. This standard will require the use of specific communication protocols, especially for communications during alerts and emergencies. The standard will be applicable to transmission operators, balancing authorities, reliability coordinators, generator operators and distribution providers.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standard Development Status:
Project 2007-02 Operating Personnel Communications Protocols Web page

Project Schedule:
Project 2007-02 Schedule

Standard Drafting Team Roster:

Chairman	Lloyd S. Snyder	Georgia Systems Operations Corporation
	Alan N. Allgower	Electric Reliability Council of Texas, Inc.
	Harvie D. Beavers	Colmac Clarion/Piney Creek LP
	Mark L. Bradley	ITC Transmission
	Mike Brost	JEA
	William D Ellard	California ISO
	Ronald Goins	Midwest ISO, Inc.
	Leanne Harrison	PJM Interconnection, L.L.C.
	Tom Irvine	Hydro One Networks, Inc.
	James McGovern	ISO New England, Inc.
	Wayne Mitchell	Entergy Corporation
	John Stephens	City Utilities of Springfield
	Fred Waites	Southern Company
NERC Staff	Larry J. Kezele	North American Electric Reliability Corporation
NERC Staff	Harry Tom	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
COM-001-1 — Telecommunications	
NERC Standards DT Coordinators Meeting 20080520	COM-001-1 Telecommunications is being reviewed and revised under Project 2006-06 Reliability Coordination; however, it has been agreed that all requirements of COM-001-1 except R4 will be addressed by the SDT for Project 2006-06 and that requirement R4 will be addressed by the SDT for Project 2007-02 Operating Personnel Communications Protocols. If either part of this agreement is not maintained, COM-001-1 will need revisited.
COM-002-2 — Communications and Coordination	
FERC Order 693	• Address APPA's concern through the standard development process. • Address Santa Clara, FirstEnergy, and Six Cities concerns in the reliability standards development process. • Consider Xcel's suggestion that the entity taking operating actions should not be held responsible for the delays caused by the reliability coordinator's assessment and approval. • Establish tightened communication protocols, especially for communications during alerts and emergencies. Establish uniformity to the extent practical on a continent-wide basis. • Include a requirement for the reliability coordinator to assess and approve only those actions that have impacts beyond the area views of the transmission operators and balancing authorities. Include how to determine whether an action needs to be assessed by the reliability coordinator. • Include APPA's suggestions to complete the measures and levels of non-compliance. • Include distribution providers in the list of applicable entities.
NERC Standards DT Coordinators Meeting 20080520	• "COM-002-2 Communication and Coordination is being reviewed and revised under both Project 2006-06 Reliability Coordination and Project 2007-02 Operating Personnel Communications Protocols; however, it has been agreed that: •Requirement R1will be addressed by Project 2006-06" • Requirements R1, R3, R4, and R5 (for coordination in planning time frame) of PRC-001-1 System Protection Coordination are better addressed in COM-002 Communications and Coordination. (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.)
Version 0 Team	• R1 — include reliability authority • R2 — include sabotage and security • R4 — clarify repeat back requirement with regard to emergency • Voice with generators not required
Version 1 Team	• R1 — include reliability authority • R2 — include sabotage and security • R4 — clarify repeat back requirement with regard to emergency • Voice with generators not required

Project 2007-03 Real-time Operations

Standards Involved:
TOP-001-1 — Reliability Responsibilities and Authorities
TOP-002-2 — Normal Operations Planning
TOP-003-0 — Planned Outage Coordination
TOP-004-1 — Transmission Operations
TOP-005-1 — Operational Reliability Information
TOP-006-1 — Monitoring System Conditions
TOP-007-0 — Reporting SOL and IROL Violations
TOP-008-1 — Response to Transmission Limit Violations
PER-001-0 — Operating Personnel Responsibility and Authority

Research Needed:
Operating Committee study of situational awareness tools

Brief Description:
Most of the requirements in this set of standards were translated from Operating Policies as part of the Version 0 process. There have been suggestions for improving these requirements, and the drafting team will consider comments submitted by stakeholders, drafting teams and FERC in determining what changes should be proposed to stakeholders.

The drafting team will review all of the requirements in this set of standards and make a determination, with stakeholders, on whether to:

- Move the requirement (into another SAR or Standard or to the certification process or standards)
- Eliminate the requirement (either because it is redundant or because it does not support bulk power system reliability).
- Improve clarity of, improve measurability of, and remove ambiguity from the remaining requirements
- Bring the set of standards into conformance with the latest version of the Reliability Standards Development Procedure and the ERO Sanctions Guidelines.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standard Development Status:
Project 2007-03 Real-time Operations Web page

Project Schedule:
Project 2007-03 Schedule

Standard Drafting Team Roster:

Chairman	James S. Case	Entergy Services, Inc.
	Paul Bleuss	California/Mexico Reliability Coordinator
	Albert DiCaprio	PJM Interconnection, L.L.C.
	Ryan Johnson	NRG Energy Power Marketing, Inc.
	Phillip Lavallee	National Grid USA
	Jason L. Marshall, P.E.	Midwest ISO, Inc.
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Paul Olson	Sacramento Municipal Utility District
	Gregory Van Pelt	California ISO
	Jim Useldinger	KCP&L
NERC Staff	Edward J. Dobrowolski	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
PER-001-0 — Operating Personnel Responsibility and Authority	
Version 0 Team	Data retention should be 1 year
TOP-001-1 — Reliability Responsibilities and Authorities	
FERC Order 693	• Consider adding other measures and levels of non-compliance. • 1589 — Includes measures and levels of non-compliance for requirement R8 • 1588 — Consider Santa Clara's comments on requirements R7.2 and R7.3 on transmission operator notification requirements as part of the standards development process. • 1585 — Clarify the definition of "emergency" and define the criteria for entering into the various states. Also define the authority for declaring these states.
NERC Audit Observation Team	Does this imply that a GOP can call another GOP and request an output change without going through the RC, BA or TOP?
Version 0 Team	• Define emergency • Need to expand included entities • What is 'clear decision making authority'? • Need to define single, central communications point during emergencies • Some emergencies will require follow up notification as opposed to immediate
TOP-002-1 — Normal Operations Planning	
Fill in the Blank Team	Remove "in accordance with NERC, Regional Reliability Organization, sub regional, and local reliability requirements" from R6 and "in accordance with filed tariffs and/or regional Total Transfer Capability and Available Transfer Capability calculation processes" from R12 .
Version 0 Team	• Limit of 2 tests per year • Coordination of planning required • Define N-1 • Define 'without intentional delay' • Reliability should 'trump' confidentiality
VRFs Team	• R2 — administrative in nature, not a real requirement • R9 — related to INT-003 • R14 & 14.1 — ambiguous
TOP-002-2 — Normal Operations Planning	

Source	Language
FERC Order 693	• 1607 — Consider the comments of ISO-NE and the NRC with respect to requirement R12 and measure M7 as part of the standard development process. • 1608 — Requires simulation contingencies to match what will actually happen in the field. • 1608 — Requires next-day analysis of minimum voltages at nuclear power plants auxiliary power buses. • 1608 — Next-day analysis for all IROLs must identify and communicate control actions to system operators that can be implemented within 30 minutes following a contingency. • 1608 — Delete references to confidentiality in requirements R3 and R4. • 1608 — Address critical energy infrastructure confidentiality as part of the routine standard development process. • 1603 — Inform the nuclear plant operator in real-time if the auxiliary power bus voltages cannot be maintained.
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
NERC Standards DT Coordinators Meeting 20080520	Requirements R2, R5, and R6 (for coordination in real-time) of PRC-001-1 System Protection Coordination are better addressed in the TOP family of standards: Consider putting R5 of PRC-001-1 in: TOP-002 R1, R3, R4, or R5 or TOP-003 — R1, R3, R4 (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.)
TOP-003-0 — Planned Outage Coordination	

Source	Language
FERC Order 693	• 1622 — Consider TVA's suggestion for including breaker outages within the meaning of facilities that are subject to advance notice for planned outages. • 1624 — Require any facility, that in the opinion of the reliability coordinator, balancing authority, or transmission operator, will have a direct impact on the reliability of the bulk power system be subject to the requirement R1 for planned outage coordination • 1626 — Incorporate an appropriate lead time for planned outages using suggestions from the various commenter's. • 1626 — Communicate scheduled outages to all affected entities well in advance to ensure reliability and accuracy of ATC calculations.
Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan: 2010-2012	With respect to requirement R1.2, why is the TOP responsible for providing generator outage information? Isn't that the BA's or GOP's responsibility and isn't this redundant with IRO-010-1?
NERC Standards DT Coordinators Meeting 20080520	Requirements R2, R5, and R6 (for coordination in real-time) of PRC-001-1 System Protection Coordination are better addressed in the TOP family of standards: •Consider putting R5 of PRC-001-1 in: TOP-002 R1, R3, R4, or R5 or TOP-003 — R1, R3, R4 •Consider putting R6 of PRC-001-1 in: TOP-003 R5 or TOP-006 (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.)
Version 0 Team	• Submit outage data ASAP but no later than noon day ahead • RA can't request outage cancellation • Outage information needed sooner than 1 day prior
VRFs Team	R4 — poorly written
TOP-004-1 — Transmission Operations	
FERC Order 693	• 1630 - Modify requirement R4 to state that the system should be restored to respect proven limits as soon as possible taking no more than 30 minutes. • 1628 - NERC should report the results of the survey to the Commission within 18 months of the effective date of this rule. • 1641 - Reliability coordinators should report any IROL violations to NERC on a monthly basis for one year beginning August 2, 2007. • 1628 - Perform a survey of the prevailing operating practices and actual operating experiences surrounding IROL limits. • 1640 - Defines high risk conditions under which the system must be operated to respect multiple outages in requirement R3. • 1634 - Consider Santa Clara's comments regarding changes to requirement R2 in the standards development process.
Fill in the Blank Team	No action required
NERC Audit Observation Team	Transmission operator enters an unknown state. What does this mean?

Source	Language
Version 0 Team	• Define (or remove) practical • Define SOL & IROL • Specify disconnection as acceptable in R5 • Clarify roles • Vagueness in application of IROL limits • Operations should conform to planning standards
TOP-005-1 — Operational Reliability Information	
FERC Order 693	• 1644 & 1646 — Consider FirstEnergy's modifications to Attachment 1 and ISO-NE's recommended revision to requirement R4 in the standards development process. • 1649 — Delete references to confidentiality agreements but ensure critical energy infrastructure confidentiality is addressed in the standards development process. • 1651 — Include information about the operational status of special protection systems and power system stabilizers in Attachment 1.
NERC Standards DT Coordinators Meeting 20080520	Requirements R2, R5, and R6 (for coordination in real-time) of PRC-001-1 System Protection Coordination are better addressed in the TOP family of standards: •Consider putting R2 of PRC-001-1 in TOP-005 (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.)
Version 0 Team	• Generator data should include voltage control & stabilizers • Data update is too slow • Need to include GO & LSE • GO needs to supply data to BA & TO
TOP-006-1 — Monitoring System Conditions	
FERC Order 693	• 1653 — Add requirement related to the provision of minimum capabilities that are necessary to enable operators to deal with real-time situations and to ensure reliable operation of the bulk power system. • 1653 — Clarify the meaning of "appropriate technical information" concerning protective relays. • 1658 — Consider APPA's comments regarding missing measures in the standards development process.
Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan: 2010-2012	• With respect to requirements R1 and R1.2, why are BAs responsible for information regarding transmission resources available for use? Isn't that the role of the TOP? • With respect to requirement R2, why is the BA responsible for monitoring transmission line status, voltage, load tap changer settings, and reactive power in general? Monitoring and managing reactive resources, voltage and tap settings is clearly made the responsibility of the TOP in VAR-001-1a. • With respect to requirement R3 why does the BA need to understand protective relaying? Isn't that the role of the TOP and GOP?
NERC Standards DT Coordinators Meeting	Requirements R2, R5, and R6 (for coordination in real-time) of PRC-001-1 System Protection Coordination are better addressed in the TOP family of standards: •Consider

Source	Language
20080520	putting R6 of PRC-001-1 in: TOP-003 R5 or TOP-006 (Note: These requirements are being removed from PRC-001 under Project 2007-06 System Protection. If this recommendation is not implemented, PRC-001 will need revisited.)
Version 0 Team	• Monitor frequency at multiple points • GO needs to provide normal & emergency data • Load forecasting data required • Need to match roles with FM
VRFs Team	• R3 — define appropriate • R1, 1.1, 1.2 — 'available in emergency situation' may be needed • R4 — What information is required and what is a load pattern?
TOP-007-0 — Reporting System Operating Limit (SOL) and Interconnection Reliability Operating Limit (IROL) Violations	
FERC Order 693	• 1671 — Consider the NRC's comments on voltage requirements as part of the standards development process. • 1668 — Eliminate overlapping matters in TOP-007 and TOP-008.
Version 0 Team	• Not enforceable with current criteria • Need to tighten the non-compliance terms • Need to define evidence of evaluation • More of a compliance issue than an true standard • RA should be included
TOP-008-1 — Response to Transmission Limit Violations	
FERC Order 693	1678 — Consider APPA's comments regarding missing measures in the standards development process.

Project 2007-04 Certifying System Operators

Standards Involved:
PER-003-0 — Operating Personnel Credentials

Research Needed:
None

Brief Description:
This Version 0 Standard requires the Reliability Coordinator, Balancing Authority and Transmission Operator to staff its real-time operating positions with personnel that have a NERC certification credential.

The standard will be revised to address the directives from FERC Order 693 and industry comments from Version 0.

The standard will also be revised to conform to the latest version of the Reliability Standards Development Procedure and the ERO Sanctions Guidelines. The standard drafting team will apply the Reliability Standard Review Guidelines when modifying the standard.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2007-04 Certifying System Operators Web page

Project Schedule:
Project 2007-04 Schedule

Standard Drafting Team Roster:

Chairman	David J. Carlson	Commonwealth Edison Co.
	Brad E. Calhoun	CenterPoint Energy
	William D Ellard	California ISO
	David L. Folk	FirstEnergy Corp.
	Jeff Gooding	Florida Power & Light Co.
	Mike Gough	Western Area Power Administration
	Raymond C. Gross	PJM Interconnection, L.L.C.
	Mark A. Heimbach	Pennsylvania Power & Light Company
	Lauri Jones	Pacific Gas and Electric Company
	Rob MacDonald	Hydro One, Inc.
	Tom McKenrick	Midwest ISO, Inc.
	Patricia E. Metro	National Rural Electric Cooperative Association
	Ed Seddon	Orlando Utilities Commission
	Fred Waites	Southern Company
NERC Staff	Darrel Richardson	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
PER-003-0 — Operating Personnel Credentials	
FERC Order 693	• Consider grandfathering certification requirements for transmission operator personnel as part of the standards development process. • Identify the minimum competencies operating personnel must demonstrate to be certified. • Specify the minimum competencies that must be demonstrated to become and remain a certified operator.
NERC Audit Observation Team	Who needs to be certified?
Version 0 Team	• Problem with wording change from 'both' to 'either' • Need to define critical tasks • Staffing plan is out of scope • Non-compliance levels missing • Need to specify exact position titles and match to credentials • Need to define 'current'
PER-004-1 — Reliability Coordination — Staffing	
FERC Order 693	Include requirements pertaining to personnel credentials for reliability coordinators similar to PER-003.

Project 2007-05 Balancing Authority Controls

Standards Involved:
BAL-002-0 — Disturbance Control Performance
BAL-004-0 — Time Error Correction
BAL-005-0 — Automatic Generation Control
BAL-006-1 — Inadvertent Interchange

Research Needed:
None

Brief Description:
The standard drafting team will:

- Work collaboratively with NAESB to ensure that the elements of these standards that are need to support reliability are include in the revised standard
- Consider comments receive during the initial development of this set of standards and other comments received from ERO regulatory authorities and stakeholders
- Bring the standards into conformance with the latest version of the Reliability Standards Development Procedure and the ERO Rules of Procedures
- Incorporate language to eliminate two interpretations (BAL-005, Requirement 17)
- Incorporate language to make permanent the Urgent Action removal of some of the reliability coordinator's requirements in BAL-004
- Review all of the requirements in the standards listed above.

For each existing requirement, the standard drafting team will also work with NAESB and stakeholders to:

- Eliminate redundancy (or overlap) in the requirements and associated business practices
- Identify requirement that should be moved into other SARs, standards, or business practices
- Eliminate requirements that do not support bulk power reliability
- Improve clarity of, improve measurability of, and remove ambiguity from the remaining requirements

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual plan):
Annual Plan Item 1.d
Annual Plan Item 1.e
Justification for NAESB consideration:
FERC Order 693
Project Description

SRS Recommendation:
During initial discussions (REF: Rae McQuade's letter to Gerry Adamski dated February 11, 2008), there was no identified need for business practices related to this project. NERC should point out any areas where they see a need for a business practice. This is being coordinated with the WEQ on current project Annual Plan Items 1.d and 1.e, and there is ongoing coordination between the BAC Standards Drafting Team and the NAESB WEQ Time and Inadvertent Management Task Force.

Standards Development Status:

Project 2007-05 Balancing Authority Controls Web page

Project Schedule:

Project 2007-05 Schedule

Standard Drafting Team Roster:

Chairman	Larry Akens	Tennessee Valley Authority
	Thomas Artau	Progress Energy Florida
	Harvie D. Beavers	Colmac Clarion/Piney Creek LP
	Gerald D Beckerle	Ameren Corp.
	David L. Folk	FirstEnergy Corp.
	William Franklin	Xcel Energy, Inc.
	Steve Gillespie	California ISO
	Howard F. Illian	Energy Mark, Inc.
	Ken McIntyre	Electric Reliability Council of Texas, Inc.
	Sydney Niemeyer	NRG Texas LP
	Guy Quintin	Hydro-Québec TransEnergie
	Kris Ruud	Midwest ISO, Inc.
	Mark Thomas	Entergy Transmission
	Raymond L. Vice	Southern Company Services, Inc.
NERC Staff	Andrew J. Rodriquez	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
NAESB Standards Review Subcommittee	NAESB Standards Review Subcommittee as input to the Reliability Standards Development Plan: 2010-2012: NAESB requests that NERC continue its coordination with NAESB on this project as it relates to item 1.d and 1.e in the NAESB WEQ 2009 Annual Plan.
Other	Incorporate approved formal interpretation
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
BAL-002-0 — Disturbance Control Performance	
FERC Order 693	• Include a frequency response requirement. • Measures should be available in real-time to balancing authorities. • Substitute regional entity for regional reliability organization • Include a continent-wide contingency reserve policy, which should include uniform elements (definitions and requirements) • Modify to make requirements R4.2 and R6.2 refer to NERC rather than the NERC Operating Committee. • Define a significant (frequency) deviation and a reportable event, taking into account all events that have an impact on frequency, and how balancing authorities should respond. • Include a requirement that explicitly provides that DSM may be used as a resource for contingency reserves. • DSM should be treated on a comparable basis and must meet similar technical requirements as other resources providing this service • Policy can allow for regional differences, but should include procedures to determine the appropriate mix of operating reserves, spinning and non-spinning, as well as requirements pertaining to the specific amounts of operating reserves based on the load characteristics and magnitude, topology, and mix of resources in the region. • Address Commission concerns about having enough contingency reserves to respond to an event on the system in requirement 3.1 and how such reserves are measured. • Requires any single reportable disturbance that has a recovery time of 15 minutes or longer be reported as a violation.
Fill in the Blank Team	• Modify R2 to remove reference to "sub-Regional Reliability Organization or Reserve Sharing Group", and • Determine what elements of contingency reserve should be included in the North American standard and what elements should be included in the regional standard. • Development of regional standards needs to be coordinated with Regional entities. Regional entities should begin process for developing regional standards once the drafting team for the North American standard has determined what elements of contingency reserve should be included in the continent-wide standard and what elements should be included in the regional standards. • Regional reliability standards will be developed in support of North American standard BAL-002. • Each RRO will need to create a regional standard specifying its Contingency Reserve policy.
NERC Audit Observation Team	• Should the reserve sharing group be audited or the members? This should be tied to

Source	Language
	registration for consistency. • What is a sub-region
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Frequency Bias Setting Time Error Time Error Correction
Version 0 Team	• Need regional standards in support of N. American • Modify R2 • Determine N. America vs. regional elements
BAL-004-0 — Time Error Correction	
FERC Order 693	• Include levels of non-compliance and additional measures for requirement R3. • In the five-year review cycle of the standard, perform research that would provide a technical basis for the present or any alternative approach that is more effective and helps reduce inadvertent interchange.
NERC/NAESB Coordination	NERC/NAESB Coordination The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Frequency Bias Setting Time Error Time Error Correction
BAL-005-0 — Automatic Generation Control	
FERC Order 693	• Develop a process to calculate the minimum regulating reserve for a balancing authority, taking into account expected load and generation variation and transactions being ramped in and out. • Change title to be neutral as to the source of regulating reserves and allows the inclusion of technically qualified DSM. • Address comments of Xcel and FirstEnergy when the standard is revisited in the work plan. • If regulation is being provided over non-firm transmission service, the entity receiving the regulation must have a back-up plan to include the loss of the non-firm transmissions service as referenced in requirement R5. • Include a measure that provides for a verification process over the required automatic generation control, or regulating reserves a balancing authority maintains
Fill in the Blank Team	No comments
NERC Audit Observation Team	What the difference between this and BAL-005-1?
Version 0 Team	• Re-order & re-word requirements • Define data requirements • Non-compliance missing • Purpose statement
VRFs Team	• R14 — Check for redundancy of second statement. This seems to be a real-time requirement - not planning. Is this for archival data requirements? • R12.3 — redundant • R12 — sub-requirements should be separate requirements

Source	Language
BAL-005-0 — Automatic Generation Control	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Frequency Bias Setting Time Error Time Error Correction
BAL-006-1 — Inadvertent Interchange	
FERC Order 693	• Regional Differences to BAL-006-1: Inadvertent Interchange Accounting and Financial Inadvertent Settlement: Explore FirstEnergy's request to define the function of a waiver in the reliability standard development process. • Regional Differences to BAL-006-1: Inadvertent Interchange Accounting and Financial Inadvertent Settlement: Reference the current reliability standards and are in the standard form, which includes requirements, measures, and levels of non-compliance. • Add measures concerning the accumulation of large inadvertent interchange balances and levels of non-compliance. • Examine the WECC time error correction procedure as a possible guide.
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT should review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Frequency Bias Setting Time Error Time Error Correction
Version 0 Team	• Wording in R4 • Split requirements • Requirements mixed in Compliance • Non-compliance missing • Purpose/Requirement contradiction

Project 2007-06 System Protection Coordination

Standards Involved:
PRC-001-1 — System Protection Coordination

Research Needed:
Identification of criteria for determining where to install protection systems

Brief Description:
The existing PRC-001 Standard has been identified in the Reliability Standards Development Plan as requiring revision, within the FERC Order 693 as requiring revisions, and by a SPCTF report (attached) which identified a number of issues with the existing standard (the SPCTF report, which precedes FERC Order 693, also includes observations from the preceding FERC NOPR on RM-06-16-000). This revision of PRC-001 should address concerns from these sources and should include upgrades to bring the revised standard into conformance with the latest version of the ERO Rules of Procedure.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2007-06 System Protection Web page

Project Schedule:
Project 2007-06 Schedule

Standard Drafting Team Roster:

Chairman	Arthur J. Buanno	FirstEnergy Corp.
	David Cirka	National Grid
	Aaron Cooperberg	Hydro One Networks, Inc.
	Samuel Francis	Oncor Electric Delivery
	Jeffrey Iler	American Electric Power
	Bill Middaugh	Tri-State G & T Association Inc.
	Richard P. Quest	Xcel Energy, Inc.
	William Waudby	Consumers Energy
	Kevin Wempe	Kansas City Power & Light Co.
	Philip Winston	Georgia Power Company
NERC Staff	Al Calafiore	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
PRC-001-1 — System Protection Coordination	
FERC Order 693	• Upon detection of failures in relays or protection system elements on the bulk power system that threaten reliability, relevant transmission operators must be informed promptly, but within a specified period of time. -- (2) a requirement that transmission and generator operators be informed immediately upon the detection of failures in relays or protection system elements on the Bulk-Power System that would threaten reliable operation, so that these entities could carry out appropriate corrective control actions consistent with those used in mitigating IROL violations. • Once informed, transmission operators must carry out corrective control actions that return the system to a stable state that respects system requirements as soon as possible and no longer than 30 minutes. "[t]he transmission operator shall take corrective action as soon as possible" refers to transmission operators taking operator control actions. It does not refer to troubleshooting, repairing or replacing failed relays or equipment, etc., since these time-consuming corrective actions would prolong the risk of cascading failures to the Bulk-Power System. • Clarify the term "corrective action". 1440. We believe that "[t]he transmission operator shall take corrective action as soon as possible" refers to transmission operators taking operator control actions. It does not refer to troubleshooting, repairing or replacing failed relays or equipment, etc., since these time-consuming corrective actions would prolong the risk of cascading failures to the Bulk-Power System. 1441…. We direct the ERO to clarify the term "corrective action" consistent with this discussion when it modifies PRC-001-1 in the Reliability Standards development process. • Consider FirstEnergy's and the California PUC's comments about the maximum time for corrective actions in the standards development process. 1428. California PUC contends that imposing a time restriction for returning a system to a stable state may cause more harm than good since additional information and options may be available as time elapses. It repeats its suggestion from its earlier comments on the Staff Preliminary Assessment and proposes the following alternative language: "Transmission or generation operators shall carry out corrective control actions, i.e., returning the system to a stable state that respects system requirements as soon as possible, and no longer than 30 minutes, except where a longer response time is feasible, or where a longer response is demonstrated to produce a better ultimate solution without unacceptable interim risk." 1431. FirstEnergy contends that Requirement R2.1 essentially requires generator operators to report all protective relay or equipment failures, since generator operators may not be able to tell which failures will reduce system reliability. FirstEnergy suggests that R2.1 should be revised to require generator operators to report all equipment failures or outages. FirstEnergy further suggests that PRC-001-1 be revised to provide that if a company performs reasonable testing procedures, undiscoverable equipment failures will not be violations of R2.1. • Measures and levels of non-compliance incorrectly reference non-existent requirements.
Version 0 Team	• Consistent terminology as to neighbor vs. affected • Effects on reliability may not be known • Not all criteria moved over from policies

Project 2007-07 Vegetation Management

Standards Involved:
FAC-003-1 — Vegetation Management Program

Research Needed:
None

Brief Description:
This is a Version 1 standard that was approved in 2006. It has some 'fill-in-the-blank' components to eliminate. In addition, the following comments submitted by FERC and stakeholders need to be addressed in the refinement of the standard:

FERC Order 693 items
Address the issue regarding applicability:

- Work with the reliability entities and the ERO to collect and make available to the FERC, a list of critical lower voltage transmission lines. (Refer to Applicability 4.3 section of the standard.)
- Consider other criteria in determining applicability of the standard to sub 200kV lines.
- Address the issue of clearances for lines on both federal and non-federal lands:
- Review and analyze outage data (collected by the ERO) then consider defining clearances needed to avoid sustained vegetation-related outages that would apply to transmission lines crossing both federal and non-federal land.
- Consider revising the definition of right of way to encompass required clearance areas.
- Review the suitability of IEEE 516-2003 standard for minimum vegetation clearance.

Procedural items

- Re-format standard to bring it into conformance with the latest version of the Reliability Standard Development Procedure and the ERO Sanctions Guidelines.
- Remove references to RRO in the standard and substitute a responsible entity.
- Add newly developed compliance elements such as time horizons, violation risk factors, violation severity levels, etc.

Stakeholder items

- Prepare technical reference material such as a "white paper" to aid in understanding the technical basis for the standard.
- Review reporting criteria for Category 3 outages in the proposed technical reference material and may remove the reporting requirement of Category 3 outages in R.3 and R.4.
- Consider deleting requirement R.4.
- Review the reporting exemptions to include all category outages under major disasters in Requirement R3.2.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project 2007-07 Vegetation Management Web page

Project Schedule:

Project 2007-07 Schedule

Standard Drafting Team Roster:

Chairman	Richard E. Dearman	Tennessee Valley Authority
	Ron A. Adams	Duke Energy Carolina
	Tom Anderson	Lincoln Electric System
	Paul S. Beaulieu	Finley Engineering
	Stephen R. Cieslewicz	CN Utility Consulting LLC
	Randall F. Gann	Alabama Power Company
	Stephen Genua	Pepco Holdings, Inc.
	Jeff Hackman	Ameren Corp.
	Edward Mennella	Orange & Rockland Utilities
	Randall H. Miller	PacifiCorp
	David Morrell	New York State Department of Public Service
	John Pinney	Progress Energy
	John E. Schechter	American Electric Power
	John Tamsberg	Florida Power & Light Co.
	Stephen Tankersley	Pacific Gas and Electric Company
	Ron Turley	Western Area Power Administration
	Gary White	Oncor Electric Delivery
	Philip H. Whitmer	Georgia Power Company
	Ken Wright	Tucson Electric Power Co.
NERC Staff	Harry Tom	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
FAC-003-1 — Vegetation Management Program	
FERC Order 693	• …We recognize that many commenter's would like a more precise definition for the applicability of this Reliability Standard, and we direct the ERO to develop an acceptable definition that covers facilities that impact reliability but balances extending the applicability of this standard against unreasonably increasing the burden on transmission owners…
	• Evaluate suggestions by LPPC, APPA, and Avista in the standards development process.
	• Develop compliance audit procedures, using industry experts, which would identify appropriate inspection cycles based on local factors.
	• Define the minimum clearance needed to avoid sustained vegetation-related outages that apply to line crossing federal and non-federal lands.
	• Address issues that develop in the interim on a case-by-case basis
	• Incorporate suggestions to include facilities at lower voltages that are associated with IROLs.
	• We will not direct NERC to submit a modification to the general limitation on applicability as proposed in the NOPR. However, we will require the ERO to address the proposed modification through its Reliability Standards development process. As explained in the NOPR, the Commission is concerned that the bright-line applicability threshold of 200 kV will exclude a significant number of transmission lines that could impact Bulk-Power System reliability. Although the regional reliability organizations are given discretion to designate lower voltage lines under the proposed Reliability Standard, none have designated any operationally significant lines even though there are lower voltage lines involving IROL as suggested by Progress and SERC. We continue to be concerned that this approach will not prospectively result in the inclusion of all transmission lines that could impact Bulk-Power System reliability. In proposing to require the ERO to modify the Reliability Standard to apply to Bulk-Power System transmission lines that have an impact on reliability as determined by the ERO, we did not intend to make this Reliability Standard applicable to fewer facilities than it currently is with the 200 kV bright line applicability, but to extend the applicability to lower-voltage facilities that have an impact on reliability. We support the suggestions by Progress Energy, SERC and MISO to limit applicability to lower voltage lines associated with IROL and these suggestions should be part of the input to the Reliability Standards development process. Similarly, the ERO should evaluate the suggestions proposed by LPPC, APPA and Avista…..
	• Consider a phase-in timeframe if lower voltage facilities are included as applicable to this standard.
	• …. FirstEnergy and Xcel suggest that if the applicability of this Reliability Standard is expanded, the Commission should allow flexibility in complying with this Reliability Standard for lower-voltage facilities, or allow lower-voltage facilities one year before the Reliability Standard is implemented. The ERO should consider these comments when determining when it would request that the modification of this Reliability Standard to go into effect…..
	• Accordingly, the Commission directs the ERO to develop compliance audit procedures, using relevant industry experts, which would identify appropriate inspection cycles based on local

Source	Language
	factors. These inspection cycles are to be used in compliance auditing of FAC-003-1 by the ERO or Regional Entity to ensure such inspection cycles and vegetation management requirements are properly met by the responsible entities.
	• Accordingly, the Commission directs the ERO to develop a Reliability Standard that defines the minimum clearance needed to avoid sustained vegetation-related outages that would apply to transmission lines crossing both federal land and non-federal land. While this consensus is developed, the Commission directs the ERO to address any potential issues regarding mitigation measures needed to assure these minimum clearances on Forest Service lands are appropriate on a case-by-case basis. The Commission also directs the ERO to collect outage data for transmission outages of lines that cross both federal and non-federal lands, analyze it, and use the results of this analysis and information to develop a Reliability Standard that would apply to transmission lines crossing both federal and non-federal land.
	• FirstEnergy suggests that rights-of-way be defined to encompass the required clearance areas instead of the corresponding legal rights, and that the standards should not require clearing the entire right-of-way when the required clearance for an existing line does not take up the entire right-of-way. The Commission believes this suggestion is reasonable and should be addressed by the ERO. Accordingly, the Commission directs the ERO to address this suggestion in the Reliability Standards development process.
	• Address FirstEnergy's suggestion to clarify the definition of "rights-of-way" as part of the standards development process.
	• Collect outage data for transmission outages of lines that cross both federal and non-federal lands, analyze it, and use the results to develop a standard that would apply to both federal and non-federal lands.
	• Ensure inspection cycles and vegetation management requirements are properly met by the responsible entities.
	• Address the issue of "bright-line" applicability of 200 kV and above through the standards development process.
NERC Audit Observation Team	• It was pointed out that an entity did not need to be registered as a TO for FAC-003-1 to apply to them, only that they have transmission lines operated at 200 kV and above. This could include radial lines as well as generation leads at the 200kV and above level. This could mean functions other than TO would require FAC-003-1 to be in the audit scope. How are you looking at the applicability of FAC-003-1 as it applies to DPs, LSEs, and GOs etc. This could be applicable to many entities registered in multiple regions • TO's shall demonstrate compliance through self certification. Compliance monitoring shall conduct an on-site audit every five years or more frequently as deemed appropriate. Does this over-ride the six year audit cycle for TO's? • With regards to the vegetation management standard, what type of event would trigger a compliance investigation?
Version 0 Team	• RA vs. RRO • Too weak on compliance • Format inconsistencies

Project 2007-09 Generator Verification

Standards Involved:

PRC-019-1 — Coordination of Generator Voltage Regulator Controls with Unit Capabilities and Protection

PRC-024-1 — Generator Performance During Frequency and Voltage Excursions

MOD-024-1 — Verification of Generator Gross and Net Real Power Capability

MOD-025-1 — Verification of Generator Gross and Net Reactive Power Capability

MOD-026-1 —Verification of Models and Data for Generator Excitation System Functions

MOD-027-1 — Verification of Generator Unit Frequency Response

Research Needed:

None

Brief Description:

The scope of this project includes:

- Modifying the six standards associated with this project so they conform to the latest version of NERC's Reliability Standards Development Procedure and the ERO Rules of Procedure,
- Replacing the "fill-in-the-blank" requirements assigned to the Regional Reliability Organization with requirements that can be applied on a continent-wide basis and are assigned to users, owners or operators of the bulk power system,
- Considering and addressing issues identified in FERC orders, including the modifications to MOD-024-1 and MOD-025-1 as proposed in FERC Order 693, and
- Considering and addressing issues identified during Phase III & IV field testing.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project 2007-09 Generator Verification Web page

Project Schedule:

Project 2007-09 Schedule

Standard Drafting Team Roster:

Chairman	Robert W. Millard	ReliabilityFirst Corporation
Vice Chairman	Lee Y. Taylor	Southern Company Services, Inc.
	Baj Agrawal	Arizona Public Service Co.
	Thomas J. Bradish	RRI Energy
	Donald G. Davies	Western Electricity Coordinating Council
	Les Hajagos	Kestrel Power Engineering Ltd
	John Hanson	CenterPoint Energy
	Gary Humphries	Duke Energy Carolina
	Venkat S. Kolluri	Entergy Corporation
	Dmitry Kosterev	Bonneville Power Administration
	David Kral	Xcel Energy, Inc.
	Gary Kruempel	MidAmerican Energy Co.
	Daniel J Leonard	GE Energy
	Craig Quist	PacifiCorp
	Balbir S. Sandhu	Manitoba Hydro
	William D Shultz	Southern Company Generation
	Vladimir Stanisic	Ontario Power Generation Inc.
	Ken Stenroos	Florida Power & Light Co.
	Rick Terrill	Luminant Energy
	Chifong L. Thomas	Pacific Gas and Electric Company
	Edward J. Wingard	American Electric Power
NERC Staff	Harry Tom	North American Electric Reliability Corporation
NERC Staff	Thomas Vandervort	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
PRC-019 — Coordination of Generator Voltage Regulator Controls with Unit Capabilities and Protection	
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
PRC-024 — Generator Performance During Frequency and Voltage Excursions	
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
MOD-024-1 — Verification of Generator Gross and Net Real Power Capability	
FERC Order 693	• Require users, owners, and operators of the system to provide this information. • Provide a work plan and compliance filing regarding the collection of information specified for standards that are deferred. • Clarify requirement R2 that specifies that the regional reliability organization shall provide generator gross and net real power capability verification within 30 calendar days of approval. The confusion centers on "approval" and when the 30-day period starts. • Document test conditions and the relationships between test conditions and generator output so that the amount of power that can be expected to be delivered from a generator at different conditions can be determined.
Fill in the Blank Team	• Review MOD-024 and MOD-025 concurrently to transition to uniform North American standards. • Remove the fill-in-the-blank aspects (correct reference to "…Regional Reliability Organization's procedures…"). • Goal is uniform North American standards for real and reactive power verification. Look at regional requirements and identify the best practice, commonalities and differences, and whether differences are needed for reliability.
Phase III/IV Team	• No requirement for the RRO to demonstrate that its procedures result in accurate information of gross and net real power capability of generators for steady state models • It is not clear in R3 to whom the Generator Owner will report the information. • Non compliance levels are too strict. A small utility with 15-20 units will be L4 non-compliant if they miss one unit
Team Comments	Provide clarity where the Planning Authority is mentioned
MOD-025-1 — Verification of Generator Gross and Net Reactive Power Capability	

Source	Language
FERC Order 693	• Provide a work plan and compliance filing regarding the collection of information specified for standards that are deferred. • Require verification of reactive power capability at multiple points over a unit's operating range. • Clarify requirement R2 that specifies that the regional reliability organization shall provide generator gross and net reactive power capability verification within 30 calendar days of approval. The confusion centers on "approval" and when the 30-day period starts.
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
Fill in the Blank Team	• Remove the fill-in-the-blank aspects (correct reference to "… Regional Reliability Organization's procedures…"). • Refer to MOD-024. • Review MOD-024 and MOD-025 concurrently to transition to uniform North American standards.
Phase III/IV Team	• These standards do not provide for uniform testing of generator capability. The determination of which units are tested, how frequently they are tested, and the criteria used for determining capability are left to individual regions. • R1.5.1: The benefit of verifying maximum capability of generators to absorb VArs at seasonal real power generation capability is unclear, particularly if this standard applies to virtually all generators. For the vast majority of units, the need to absorb VArs occurs during low-load conditions, when unit real power production is below maximum capability and the unit's ability to absorb VArs is greater. Therefore, the single datum for unit VAr absorption capability determined pursuant to this standard seems to be of little practical use, except for relatively few generators in a limited set of circumstances. • It is not clear in R3 to whom the Generator Owner will report the information. • Non compliance levels are too strict. A small utility with 15-20 units will be L4 non-compliant if they miss one unit. • Severity of non-compliance should be based on the percentage of the generator owner's total generation capability comprised of units required to be verified, rather than on the percentage (number) of generating units. Exempt units should be excluded from the total generation capability for determining level of non-compliance. • There is no clear reason for regional variations in capability testing. A generator in Georgia does not have more or less capability than an identical unit applied across the Florida line, despite the fact that one is in SERC and the other in FRCC. • Fundamental guidelines outlining some basic requirements (e.g., all units over 20 MW shall be tested annually under conditions that permit full net output of the unit for normal operation) are lacking.
Team Comments	Provide clarity where the Planning Authority is mentioned
MOD-026 Verification of Models and Data for Generator Excitation System Functions	
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
MOD-027 Verification of Generator Unit Frequency Response	

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Project 2007-11 Disturbance Monitoring

Standards Involved:
PRC-002-1 — Define and Document Disturbance Monitoring Equipment Requirements
PRC-018-1 — Disturbance Monitoring Equipment Installation and Data Reporting

Research Needed:
The standard drafting team identified a need to conduct a regional data analysis in order to establish technical requirements for DME locations and thresholds.

Brief Description:
PRC-002 and PRC-018 were approved in 2006.

PRC-002 is one of four reliability standards identified by the Regional Reliability Standards Working Group as a standard that has some requirements that need to be defined by each regional entity in a regional standard. The standard drafting team (SDT) will review PRC-002 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to or contained with the disturbance monitoring program documentation. The SDT shall determine which requirements should be continent-wide requirements and which requirements should be included in regional standards.

When revising PRC-002 and PRC-018 the SDT shall address issues already identified by FERC, other drafting teams and stakeholders. Note: Phasor measurement networks are to be addressed by Project 2008-06.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2007-11 Disturbance Monitoring Web page

Project Schedule:
Project 2007-11 Schedule

Standard Drafting Team Roster:

Chairman	Navin B. Bhatt, PhD., PE	American Electric Power
	Felix Amarh, PhD	Georgia Transmission Corporation
	Alan D. Baker	Florida Power & Light Co.
	James R. Detweiler	FirstEnergy Corp.
	Richard Ferner	Western Area Power Administration
	Barry G. Goodpaster	Exelon Business Services Company
	Willy Haffecke	City Utilities of Springfield
	Daniel J. Hansen	RRI Energy
	Charles J. Jensen	JEA
	Tracy M. Lynd	Consumers Energy
	Susan L. McGill	PJM Interconnection, L.L.C.
	Robert W. Millard	ReliabilityFirst Corporation
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Jeffrey M. Pond	National Grid
	Larry E. Smith	Alabama Power Company
	Jack Soehren	ITC Holdings
NERC Staff	Stephanie Monzon	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
PRC-002-1 — Define Regional Disturbance Monitoring and Reporting Requirements	
FERC Order 693	Consider if greater consistency can be achieved in the standard as suggested by Otter Tail, APPA, and Alcoa.
Phase III/IV Team	There is no criteria that the RROs must use in specifying the process for identifying locations where DMEs are required
Version 0 Team	• Digital inputs and load need to be added • IDWG identified deficiencies • More specificity in equipment requirements needed
VRFs Team	R1 — This standard and all related sub requirements are after the fact data analysis
PRC-018-1 — Disturbance Monitoring Equipment Installation and Data Reporting	
Fill in the Blank Team	• PRC-002 will be a continent-wide standard supported by Regional Reliability Standards. • Need regions to develop and submit regional standards. NERC standard requires region to have this done in 9 months from board adoption (from August 9). Regions need to do this as a regional standard, not a procedure or some other document. • Development of regional standards needs to be coordinated with Regional entities. Regional entities should begin process for developing regional standards once the drafting team for the North American standard has determined what elements of disturbance monitoring should be included in the continent-wide standard and what elements should be included in the regional standards. • Determine what elements (if any) of disturbance monitoring should be included in the North American standard and what elements should be included in the regional standards. • PRC-002 is directly related to PRC-018. PRC-018 requires the functional entities to comply with the requirements developed by each RRO.
VRFs Team	R3.4, 3.5, 3.6, 3.7 — Ambiguous

Project 2007-12 Frequency Response

Standards Involved:
BAL-003-0 — Frequency Response and Bias

Research Needed:
None

Brief Description:
This project involves developing a new standard for the collection of data needed to accurately model existing Frequency Response within each interconnection.

The project will support the following directive in FERC Order 693:

- Define the necessary amount of Frequency Response needed for Reliable Operation for each balancing authority with methods of obtaining and measuring that the frequency response is achieved.

Standards Development Status:
Project 2007-12 Frequency Response Web page

Project Schedule:
Project 2007-12 Schedule

Standard Drafting Team Roster

Chairman	William Herbsleb	PJM Interconnection, L.L.C.
	Don E Badley	Northwest Power Pool Corporation
	Terry Bilke	Midwest ISO, Inc.
	Les Hajagos	Kestrel Power Engineering Ltd
	Harvey Heinz Happ	New York State Department of Public Service
	Howard F. Illian	Energy Mark, Inc.
	David F. Lemmons	Xcel Energy, Inc.
	Clyde Loutan	California ISO
	Carlos Martinez	Electric Power Group
	James Murphy	Bonneville Power Administration
	Sydney Niemeyer	NRG Texas LP
	Michael Potishnak	ISO New England, Inc.
	Raymond L. Vice	Southern Company Services, Inc.
NERC Staff	Darrel Richardson	North American Electric Reliability Corporation
NERC Staff	Thomas Vandervort	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
BAL-003-0 — Frequency Response and Bias	
FERC Order 693	• Define the necessary amount of frequency response needed for reliable operation for each balancing authority with methods of obtaining and measuring that the frequency response is achieved. • Determine the appropriate periodicity of frequency response surveys necessary to ensure requirement R2 and other requirements are being met; also modify measure M1 based on this determination.

Project 2007-17 Protection System Maintenance & Testing

Standards Involved:
PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing
PRC-008-0 — Underfrequency Load Shedding Equipment Maintenance Programs
PRC-011-0 — UVLS System Maintenance and Testing
PRC-017-0 — Special Protection System Maintenance and Testing

Research Needed:
None

Brief Description:
Revise PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing, to consolidate PRC-005-1, PRC-008-0 — Underfrequency Load Shedding Equipment Maintenance Programs; PRC-011-0 — UVLS System Maintenance and Testing; and PRC-017-0 — Special Protection System Maintenance and Testing into a single maintenance and testing standard. Standards PRC-008-0, PRC-011-0, and PRC-017-0 would then be withdrawn.

The revised PRC-005 standard should address the issues raised in the FERC Order 693 and the issues addressed in the SPCTF report "Assessment of PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing; with implications for PRC-008-0, PRC-011-0, and PRC-017-0". The revised standard should also address the comments submitted by stakeholders during the development of Version 0, and Phase III & IV and should reflect improvements identified in the Reliability Standards Review Guidelines.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2007-17 Protection System Maintenance & Testing

Project Schedule:
Project 2007-17 Schedule

Standard Drafting Team Roster:

Chairman	Charles W. Rogers	Consumers Energy
	John Anderson	Xcel Energy, Inc.
	Merle Ashton	Tri-State G & T Association Inc.
	Bob Bentert	Florida Power & Light Co.
	John L. Ciufo	Hydro One, Inc.
	Richard Ferner	Western Area Power Administration
	Carol Gerou	Midwest Reliability Organization
	Roger D. Green	Southern Company Generation
	Russell Hardison, P.E.	Tennessee Valley Authority
	Dave Harper	NRG Texas Maintenance Services
	John Kruse	Commonwealth Edison Co.
	Mark Peterson	Great River Energy
	William D Shultz	Southern Company Generation
	Leonard Swanson, Jr.	National Grid USA
	Eric Udren	Quanta Technology
	Philip Winston	Georgia Power Company
	John Zipp	ITC Holdings
NERC Staff	Al Calafiore	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing	
FERC Order 693	• Consider FirstEnergy's and ISO-NE's suggestions to combine PRC-005, PRC-008, PRC-011, and PRC-017 into a single standard. • Maintenance and testing of a protection system must be carried out within a maximum allowable time interval that is appropriate for the type of protection system and its impact on the reliability of the bulk power system. 1475. In addition, for the reasons discussed in the NOPR, the Commission directs the ERO to develop a modification to PRC-005-1 through the Reliability Standards development process that includes a requirement that maintenance and testing of a protection system must be carried out within a maximum allowable interval that is appropriate to the type of the protection system and its impact on the reliability of the Bulk-Power System.
NERC Audit Observation Team	• As applicable, each TO, DP and GOP shall have a protection system maintenance and testing program for protection systems that affect the reliability of the BES. Does this include major equipment like circuit breakers and transformers? • Determine what on schedule means. Is an entity who maintained/tested 95% of their relays at the same level of non-compliance as an entity who maintained/tested 10% of their relays? • How do you verify compliance for cts/pts? How do you audit these within a scheduled maintenance program? As part of the procedure, most have accepted visual inspection. Some entities state that testing of the relays verify functionality of the ct/pts • How do you verify DC control power? All regions require functional testing of the breaker. This should include functional relay & station battery checks, including breaker tripping, not just a visual inspection.
Phase III/IV Team	• All generation protection systems whose misoperations impact the bulk electric system • All protection systems on the bulk electric system. • Modify applicability to clarify that the requirements are applicable to the following: • Need to add language to ensure the Regional Requirements focus on the most impactive scenarios • PRC 003 to 005 only address generator (and transmission) protective systems, without defining this term. • There is no performance requirement or measure of effectiveness of a maintenance program required by the standard
Version 0 Team	• Define evidence • Include breakers/switches in list • Not a standalone standard
PRC-008-0 — Underfrequency Load Shedding Equipment Maintenance Programs	
FERC Order 693	Maintenance and testing of a protection system must be carried out within a maximum allowable time interval that is appropriate for the type of protection system and its impact on the reliability of the bulk power system.

Source	Language
Fill in the Blank Team	Okay if PRC-006 is fixed
Version 0 Team	• Consistent wording from standard to standard required • Definition of evidence required
PRC-011-0 — UVLS System Maintenance and Testing	
FERC Order 693	Maintenance and testing of a protection system must be carried out within a maximum allowable time interval that is appropriate for the type of protection system and its impact on the reliability of the bulk power system.
Version 0 Team	• Define evidence • Exemptions for those with shunt reactors
PRC-017-0 — Special Protection System Maintenance and Testing	
FERC Order 693	• Includes a requirement that documentation identified in Requirement R2 shall be routinely provided to the ERO or Regional Entity. 1546….and (2) a requirement that documentation identified in Requirement R2 shall be routinely provided to the ERO or Regional Entity • Maintenance and testing of a protection system must be carried out within a maximum allowable time interval that is appropriate for the type of protection system and its impact on the reliability of the bulk power system. • Require that documentation identified in requirement R2 be routinely provided to NERC or the regional entity. that includes: (1) …… and (2) a requirement that documentation identified in Requirement R2 shall be routinely provided to the ERO or Regional Entity
Version 0 Team	• Define evidence • Need to retain two dates

Project 2007-18 Reliability-based Control

Standards Involved:
BAL-001-0 — Real Power Balancing Control Performance
BAL-003-0 — Frequency Response and Bias
EOP-002-2 — Capacity and Energy Emergencies
IRO-005-2 — Reliability Coordination — Current Day Operations

Research Needed:
None

Brief Description:
This project includes expanding on the work already done in developing the draft BAL-007 through BAL-011 by adding requirements to address the following concerns:

- To support elimination of SOL/IROL violations caused by excessive (as determined by this standard) Area Control Error
- To prevent Interconnection frequency excursions of short duration attributed to the ramping of on and off-peak Interchange Transactions
- To support timely transmission congestion relief by requiring corrective load/generation management within a defined timeframe when ACE is impacted by the curtailment of
- Interchange Transactions under Transmission Loading Relief procedures
- To address the directives of FERC Order 693.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual plan): Annual Plan Item 3.a.viii — Justification for NAESB consideration: WEQ SRS analysis

SRS Recommendation: The NERC/NAESB JESS has reviewed EOP-002-2 and identified that there is potential coordination opportunities..

Standards Development Status:
Project 2007-18 Reliability-based Control Web page

Project Schedule:
Project 2007-18 Schedule

Standard Drafting Team Roster:

Chairman	Douglas E. Hils	Duke Energy
	Larry Akens	Tennessee Valley Authority
	William Herbsleb	PJM Interconnection, L.L.C.
	Howard F. Illian	Energy Mark, Inc.
	Clyde Loutan	California ISO
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Sydney Niemeyer	NRG Texas LP
	LeRoy Patterson	Patterson Consulting
	Michael Potishnak	ISO New England, Inc.
	Mark Prosperi-Porta	British Columbia Transmission Corporation
	Thomas W. Siegrist	EnerVision, Inc.
	Glenn Stephens	Santee Cooper
	Stephen Swan	Midwest ISO, Inc.
	Raymond L. Vice	Southern Company Services, Inc.
NERC Staff	Stephen Crutchfield	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
BAL-001-0 — Real Power Balancing Control Performance	
FERC Order 693	Regional Differences to BAL-001-0: ERCOT Control Performance Standard 2: Include requirements concerning frequency response contained in Section 5 of the ERCOT protocols. Paragraph 313. The Commission approves the ERCOT regional difference as mandatory and enforceable. Order No. 672 explains that "uniformity of Reliability Standards should be the goal and the practice, the rule rather than the exception." However, the Commission has stated that, as a general matter, regional differences are permissible if they are either more stringent than the continent-wide Reliability Standard, or if they are necessitated by a physical difference in the Bulk-Power System. Regional differences must still be just, reasonable, not unduly discriminatory or preferential and in the public interest. 314. The Commission finds that ERCOT's approach under section 5 of the ERCOT protocols appears to be a more stringent practice than Requirement R2 in BAL-001-0 and therefore approves the regional difference. 315. As proposed in the NOPR, the Commission directs the ERO to file a modification of the ERCOT regional difference to include the requirements concerning frequency response contained in section 5 of the ERCOT protocols. As with other new regional differences, the Commission expects that the ERCOT regional difference will include Requirements, Measures and Levels of Non-Compliance sections.
BAL-003-0 — Frequency Response and Bias	
NERC Audit Observation Team	Both requirements need to be met?
EOP-002-2 — Capacity and Energy Emergencies	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Source	Language
IRO-005-2 — Reliability Coordination — Current Day Operations	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Project 2008-01 Voltage and Reactive Control

Standards Involved:
VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules

Research Needed:
In August 2008, the Transmission Issues Subcommittee (TIS) formed the Reactive Support/Control Sub team to develop a report to address the fundamental issues associated with voltage and reactive control. The results of the report are being used to support improvements to the existing VAR standards and may result in development of an additional VAR standard. The Reactive Support and Control White Paper was produced by the TIS and identifies technical requirements needed to determine the reactive resources required under different system states. The white paper identifies the need for requirements that address:

- criteria and associated rationale needed to determine the split of dynamic reactive supply (such as reactive power provided by the generators and other dynamic devices) and static reactive power supply (such as static capacitors and other static devices)
- criteria for distribution of the interconnection's reactive resource needs among transmission, distribution, and generation facilities

The drafting team will incorporate the white paper into the standards as well as address other issues identified in the tables below.

Brief Description:
This is a new project and supports a blackout recommendation. Industry debate is needed on whether there should be a North American standard that requires a specific amount of reserves, or whether requirements for specific reserves should continue to be addressed at the regional level. The requirements in the existing standards need to be upgraded to be more specific in defining voltage and reactive power schedules. Consideration should be given to adding a requirement for the Reliability Coordinator to monitor and take action if reactive power falls outside identified limits.

The project will incorporate the interpretation of VAR-002 Requirement 1 and Requirement 2.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual plan):
Annual Plan Item 1

Justification for NAESB consideration:
Industry recommendations

SRS Recommendation:
This project may need NAESB attention in the future. The WEQ SRS will place this on its watch list.

Standards Development Status:

Project 2008-01 Voltage and Reactive project Web page

Project Schedule:

Project 2008-01 Project Schedule

Standard Drafting Team Roster:

TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
VAR-001-1 — Voltage and Reactive Control	
FERC Order 693	"Address reactive power requirements for LSEs on a comparable basis with purchasing-selling entities. Paragraph 1856. The Commission agrees with SoCal Edison that not all LSEs are purchasing selling entities, because not all LSEs purchase or sell power from outside of their balancing authority area. This understanding is consistent with the NERC functional model and NERC glossary. Both LSEs and purchasing-selling entities should have some requirements to provide reactive power to appropriately compensate for the demand they are meeting for their customers. Neither a purchasing-selling entity nor a LSE should depend on the transmission operator to supply reactive power for their loads during normal or emergency conditions."
	"Expand the applicability to include LSEs and reliability coordinators and define the reliability coordinators monitoring responsibilities. Paragraph 1854. In a complex power grid such as the one that exists in North America, reliable operations can only be ensured by coordinated efforts from all operating entities in long-term planning, operational planning and real-time operations. To that end, the Staff Preliminary Assessment recommended and the NOPR proposed that the applicability of VAR-001-1 extend to reliability coordinators and LSEs. 1855. Since a reliability coordinator is the highest level of authority overseeing the reliability of the Bulk-Power System, the Commission believes that it is important to include the reliability coordinator as an applicable entity to assure that adequate voltage and reactive resources are being maintained. As MISO points out, other Reliability Standards address responsibilities of reliability coordinators, but we agree with EEI that it is important to include reliability coordinators in VAR-001-1 as well. Reliability coordinators have responsibilities in the IRO and TOP Reliability Standards, but not the specific responsibilities for voltage levels and reactive resources addressed by VAR-001-1, which have a great impact on system reliability. For example, voltage levels and reactive resources are important factors to ensure that IROLs are valid and operating voltages are within limits, and that reliability coordinators should have responsibilities in VAR-001-1 to monitor that sufficient reactive resources are available for reliable system operations. Accordingly, the ERO should modify VAR-001-1 to include reliability coordinators as applicable entities and include a new requirement(s) that identifies the reliability coordinator's monitoring responsibilities."
	"Include APPA's comments regarding varying power factor requirements due to system conditions and equipment in the standards development process. Paragraph 1860. APPA contends that it may be difficult to reach an agreement on acceptable ranges of net power factors at the interfaces where LSEs receive service from the Bulk-Power System because the acceptable range of power factors at any particular point on the electrical system varies based on many location-specific factors. APPA further states that system power factors will be affected by the transmission infrastructure used to supply the load. As an example, APPA states that an overhead circuit may operate at a higher power factor than an underground cable due to a substantial amount of reactive line charging, and that a transmission circuit carrying low levels of real power will tend to provide more reactive power, which will affect the need to switch off capacitor banks at the delivery point to manage delivery power factors."
	"Includes detailed and definitive requirements on "established limits" and "sufficient reactive resources", and identifies acceptable margins above the voltage instability points. Paragraph 1868. In the NOPR, the Commission expressed concern that the technical requirements containing terms such as "established limits" or "sufficient reactive resources" are not definitive enough to address voltage instability and ensure reliable operations.475 To address this concern, the NOPR proposed directing the ERO to modify VAR-001-1 to include more detailed

Source	Language
	and definitive requirements on “established limits” and “sufficient reactive resources” and identify acceptable margins (i.e. voltage and/or reactive power margins) above voltage instability points to prevent voltage instability and to ensure reliable operations. We will keep this direction, and direct the ERO to include this modification in this Reliability Standard. 1869. We recognize that our proposed modification does not identify what definitive requirements the Reliability Standard should use for “established limits” and “sufficient reactive resources.” Rather, the ERO should develop appropriate requirements that address the Commission’s concerns through the ERO Reliability Standards development process. The Commission believes that the concerns of Dynegy, EEI and MISO are best addressed by the ERO in the Reliability Standards development process. 1870. In response to EEI’s concerns about a prescriptive analytical methodology, we clarify that the Commission is not asking that the Reliability Standard dictate what methodology must be used to determine reactive power needs. Rather, the Commission believes that the Reliability Standard would benefit from having more defined requirements that clearly define what voltage limits are used and how much reactive resources are needed to ensure voltage instability will not occur under normal and emergency conditions. For example, in the NOPR, the Commission suggested that NERC consider WECC’s Reliability Criteria, which contain specific and definitive technical requirements on voltage and margin application. While we are not directing that the WECC reliability criteria be adopted, we believe they represent a good example of clearly-defined requirements for voltage and reactive margins. 1871. In sum, the Commission believes that minimum requirements for voltage levels and reactive resources should be clearly defined by placing more detailed requirements on the terms “established limits” and “sufficient reactive resources” in the Reliability Standard as discussed in the NOPR and the Staff Preliminary Assessment. As mentioned above, EEI’s concerns should be considered in the ERO’s Reliability Standards development process."
	Address the concerns of Dynegy, EEI, and MISO through the standards development process. Paragraph 1864. Dynegy supports the Commission’s proposal to include more definitive requirements on “established limits” and “sufficient reactive resources.” It recommends that VAR-001-1 be further modified to require the transmission operator to have more detailed and definitive requirements when setting the voltage schedule and associated tolerance band that is to be maintained by the generator operator. Dynegy states that the transmission operator should not be allowed to arbitrarily set these values, but rather should be required to have a technical basis for setting the required voltage schedule and tolerance band that takes into account system needs and any limitations of the specific generator. Dynegy believes that such a requirement would eliminate the potential for undue discrimination, as well as the possibility of imposing overly conservative and burdensome voltage schedules and tolerance bands on generator operators that could be detrimental to grid reliability, or conversely, the imposition of too low a voltage schedule and too wide a tolerance band that could also be detrimental to grid reliability. 1865. While MISO supports the concept of including more detailed requirements, it believes that there needs to be a definitive reason for establishing voltage schedules and tolerances, and that any situations monitored in this Reliability Standard need to be limited to core reliability requirements. 1866. EEI seeks clarification about whether the Commission is suggesting that reactive requirements should aim for significantly greater precision, especially in terms of planning for various emergency conditions. If so, EEI cautions the Commission against “‘putting too many eggs’ in the reactive power ‘basket.’”474 To the extent compliance takes place pursuant to all other modeling and planning assessments under the other Reliability Standards, EEI strongly believes that the Commission should have some high level of confidence that the system’s reactive power needs can be met satisfactorily across a broad range of contingencies that planners might reasonably anticipate. Moreover, EEI believes that requirements to successfully predict reactive power requirements in conditions of near-system collapse would require significantly more creative guesswork than solid analysis and contingency planning. For example, EEI notes that the combinations and permutations of how a voltage collapse could occur on a system as large as the eastern Interconnection are numerous. 1867. EEI suggests that, alternatively, the Commission should consider that reactive power evaluations

Source	Language
	should be conducted within a process that is documented in detail and includes a range of contingencies that might be reasonably anticipated, because this would avoid the 'one size fits all' problem, where a prescriptive analytical methodology does not fit with a particular system configuration. EEI believes that this flexible approach would provide a more effective planning tool for the industry, while satisfying the Commission's concerns over potentially inadequate reactive reserves. MRO notes that the need for, and method of providing for, reactive resources varies greatly, and if this Reliability Standard is expanded it must be done carefully. MRO believes that all entities should not be required to follow the same methodology to accomplish the goal of a reliable system.
	Address the power factor range at the interface between LSEs and the transmission grid. Paragraph 1861. In the NOPR, the Commission asked for comments on acceptable ranges of net power factor at the interface at which the LSEs receive service from the Bulk-Power System during normal and extreme load conditions. The Commission asked for these comments in response to concerns that during high loads, if the power factor at the interface between many LSEs and the Bulk-Power System is so low as to result in low voltages at key busses on the Bulk-Power System, then there is risk for voltage collapse. The Commission believes that Reliability Standard VAR-001-1 is an appropriate place for the ERO to take steps to address these concerns by setting out requirements for transmission owners and LSEs to maintain an appropriate power factor range at their interface. We direct the ERO to develop appropriate modifications to this Reliability Standard to address the power factor range at the interface between LSEs and the Bulk-Power System. 1862. We direct the ERO to include APPA's concern in the Reliability Standards development process. We note that transmission operators currently have access to data through their energy management systems to determine a range of power factors at which load operates during various conditions, and we suggest that the ERO use this type of data as a starting point for developing this modification. 1863. The Commission expects that the appropriate power factor range developed for the interface between the bulk electric system and the LSE from VAR-001-1 would be used as an input to the transmission and operations planning Reliability Standards. The range of power factors developed in this Reliability Standard provides the input to the range of power factors identified in the modifications to the TPL Reliability Standards. In the NOPR, the Commission suggested that sensitivity studies for the TPL Reliability Standards should consider the range of load power factors.
	Include controllable load among the reactive resources to satisfy reactive requirements, considering the comments of Southern California Edison and SMA in the development of the standard. Paragraph 1879. The Commission noted in the NOPR that in many cases, load response and demand-side investment can reduce the need for reactive power capability in the system.476 Based on this assertion, the Commission proposed to direct the ERO to include controllable load among the reactive resources to satisfy reactive requirements for incorporation into Reliability Standard VAR-001-1. While we affirm this requirement, we expect the ERO to consider the comments of SoCal Edison with regard to reliability and SMA in its process for developing the technical capability requirements for using controllable load as a reactive resource in the applicable Reliability Standards. 1877. SMA supports adoption of the proposal to include controllable load as a reactive resource. SMA notes that its members' facilities often include significant capacitor banks, and further, reducing load can reduce local reactive requirements. 1878. SoCal Edison suggests caution regarding the Commission's proposal to include controllable load as a reactive resource. It agrees that, when load is reduced, voltage will increase and for that reason controllable load can lessen the need for reactive power. However, SoCal Edison believes that controllable load is typically an energy product and there are other impacts not considered by the Commission's proposal to include controllable load as a reactive resource. For example, activating controllable load for system voltage control lessens system demand, requiring generation to be backed down. It is not clear to SoCal Edison whether any consideration has been given to the potential reliability or commercial impacts of the

Source	Language
	Commission's proposal.
	Perform voltage analysis periodically, using on-line techniques where commercially available and off-line techniques where not available on-line, to assist real-time operations, for areas susceptible to voltage instability. Paragraph 1875. In response to the concerns of APPA, SDG&E and EEI on the availability of tools, the Commission recognizes that transient voltage stability analysis is often conducted as an offline study, and that steady-state voltage stability analysis can be done online. The Commission clarifies that it does not wish to require anyone to use tools that are not validated for real-time operations. Taking these comments into consideration, the Commission clarifies its proposed modification from the NOPR. For the Final Rule, we direct the ERO, through its Reliability Standards development process, to modify Reliability Standard VAR-001-1 to include Requirements to perform voltage stability analysis periodically, using online techniques where commercially-available, and offline simulation tools where online tools are not available, to assist real-time operations. The ERO should consider the available technologies and software as it develops this modification to VAR-001-1 and identify a process to assure that the Reliability Standard is not limiting the application of validated software or other tools.
Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan: 2010-2012	Requirement R2 requires the TOP to acquire sufficient reactive resources. The statement probably ought to clearly delineate that this requirement is applicable to the operating horizon only and that the TP is responsible for adequate reactive resources in the planning horizon.
NERC Audit Observation Team	If the TOP does not supply the GOP with a voltage or reactive power schedule is that a noncompliance for the TOP?
Phase III/IV Team	Consolidate R8 and R9
	No criteria for what is an acceptable reactive margin.
	No requirement for verifying that the reactive resources are truly available.
	R10 remove "first" so as not to limit this requirement to first contingency conditions. As written with or without removing "first", R10 provides no additional information not already required in R3.
	R10.1 does 'disperse and locate' mean the same as 'dispatch'? If so, changing the wording to 'dispatch' would make the meaning clearer.
	R11 — Redundant with TOP-007
	R3 covers normal and contingency conditions, while R10 mentions only first contingency conditions. Is there a reason for this difference?
	R3 Suggest changing the phrase…"to protect the voltage"…. To "maintain the voltage"
	R3, R6, R10 go beyond the control of the responsible entity noted.
	R3, the Transmission Operator only has the reactive resources that exist in the area — how does the TO "acquire sufficient reactive resources" if existing resources are not adequate?
	R5 This requirement is an Open Access Transmission Tariff requirement and does not belong in a reliability standard.

Source	Language
	R6 and R10.1 presume that sufficient reactive resources are available.
	R7 and R8 — consider adding more specificity to distinguish the TOP's authority to direct others to operate (Each Transmission Operator shall operate owned devices or direct the operation of, within their normal operating parameters and capabilities, capacitive and inductive reactive resources within its area-including reactive generation scheduling; transmission line and reactive resource switching; and, if necessary, load shedding- to maintain system and Interconnection voltages within established limits.)
	R7 obligates Transmission Operators to know the status of all reactive power sources including AVRs and PSSs. Clarify that this means the generator is available and if dispatched will operate in voltage control mode and with the PSS active.
	R9.1 This requirement is not feasible. Cannot dictate where generation resources are to be disbursed or located.
	Should R3 be assigned to the TP?
	Should the word "acquire" in R3 be replaced with the word "operate"?
	The language in the measures and compliance sections such as "2.1.2 One incident of failing to maintain a voltage or reactive power schedule" is too vague and does not specify any duration that is acceptable or unacceptable to be off schedule.
	VAR-001 requirements (R1, R2, R7, R8, R9, R10, and R12) are redundant to the TOP standards
	What does the second sentence in R3 mean by the phrase 'transmission operator's share of the reactive requirements of interconnecting transmission circuits'? What would be the reactive requirements of transmission circuits?
	Will R6 also apply to wind generation absorbing reactive power at the point of interconnection?
Version 0 Team	• Add BA (R1 & 3)and RA (R5, 7, 8, 10 & 11) • Add GO as entity • Clarify if this includes distribution • Clarify responsibility for voltage support • Define high probability • Define voltage levels • Delete SOL violations • Expand to include relays • Mention power factor requirements for distribution • Move R9 to 5.2 • Not a standard but a business practice
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules	
FERC Order 693	Consider Dynegy's suggestion to improve the standard. Paragraph 1883. Dynegy believes that VAR-002-1 should be modified to require more detailed and definitive requirements when defining the time frame associated with an "incident" of non compliance (i.e., each 4-second scan, 10-minute integrated value, hourly integrated value). Dynegy states that, as written, this Reliability Standard does not define the time frame associated with an "incident" of non-compliance, but apparently leaves this decision to the transmission operator. Dynegy believes that either more detail should be added to the Reliability Standard to cure this omission, or the

Source	Language
	Reliability Standard should require the transmission operator to have a technical basis for setting the time frame that takes into account system needs and any limitations of the generator. Dynegy believes that this approach will eliminate the potential for undue discrimination and the imposition of overly conservative or excessively wide time frame requirements, both of which could be detrimental to grid reliability.
NERC Audit Observation Team	If a generator does not have an automatic voltage regulator do they need to install one?
Phase III/IV Team	R5 of VAR-002: Recognizing that such action would require the generator to change its loading level or cycle, the transmission operator should not rely on tap position changes on a step-up transformer with a no-load tap changer (NLTC) for periodic or seasonal system control, unless there is an explicit voluntary arrangement with the Generator Operator. For each instance of an urgent directive for such action, the transmission operator must justify its action to affected parties

Project 2008-02 Undervoltage Load Shedding

Standards Involved:
PRC-010-0 — Assessment of the Design and Effectiveness of UVLS Program
PRC-022-1 — Under-Voltage Load Shedding Program Performance

Research Needed:
Criteria for installing UVLS need to be identified. The "Technical Reference Paper Fault-Induced Delayed Voltage Recovery" was accepted by the NERC Planning Committee in June of 2009. This reference paper identifies a Fault Induced Delayed Voltage Recovery (FIDVR) as the phenomenon whereby system voltage remains at significantly reduced levels for several seconds after a transmission, sub transmission, or distribution fault has been cleared. Significant load loss due to motor protective device action can result, as can significant loss of generation, with a potential secondary effect of high system voltage due to load loss. A severe event can result in fast voltage collapse. This phenomenon should be addressed in the development of UVLS criteria.

Brief Description:
These standards should be consolidated. Missing are any criteria for identifying where UVLS should be installed.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster:
TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
PRC-010-0 — Technical Assessment of the Design and Effectiveness of Undervoltage Load Shedding Program	
FERC Order 693	Require that an integrated and coordinated approach be included in all protection systems on the bulk power system, including generators and transmission lines, generators' low-voltage ride-through capabilities, and UFLS and UVLS systems. Paragraph 1509. We appreciate MEAG's feedback to our response in the NOPR. For the reasons discussed in the NOPR, as well as our explanation above, the Commission approves Reliability Standard PRC-010-0 as mandatory and enforceable. In addition, the Commission directs the ERO to develop a modification to PRC-010-0 through the Reliability Standards development process that requires that an integrated and coordinated approach be included in all protection systems on the Bulk-Power System, including generators and transmission lines, generators' low voltage ride-through capabilities, and UFLS and UVLS programs.
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Fill in the Blank Team	Placeholder

Source	Language
Phase III/IV Team	• PRC-010 is a very weak standard — it only requires documentation and, in very broad terms, 'coordination' — it doesn't specify any level of desired performance or any specific scope for coordination. There should be some details to identify what the coordination must achieve — such as verification that the UVLS will trip when voltage drops to a specified voltage and verification that only a specified amount of load will be tripped and that other special protection systems will not be activated by the UVLS program. • There is no requirement that identifies the desired performance of a UVLS program (what voltage set points and timing are acceptable?). • What is the reliability-related need for the RRO to collect data on misoperations and operations of UVLS programs? Is this information used for anything?
Team Comments	Provide clarity where the Planning Authority is mentioned
Version 0 Team	• Define evidence • Exemptions for some who use shunt reactors • Level 4 vs. level 1 changes
PRC-022-1 — Under-Voltage Load Shedding Program Performance	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
FERC Order 693	Consider FirstEnergy's suggestions to revise requirement R1.3 as part of the standards development process. Paragraph 1564. FirstEnergy comments that Requirement R1.3 requires "a simulation of the event, if deemed appropriate by the RRO" and believes that the applicable entities such as transmission operators may not be able to simulate large system events. FirstEnergy suggests that Requirement R1.3 be revised to state that "a simulation of the event, if deemed appropriate, and assisted by the [regional reliability organization]."

Source	Language
Phase III/IV Team	• Consider incorporating into this family of standards a requirement that each TO should study, and implement if found effective, a UVLS program to mitigate the risk of voltage collapse or voltage instability in the BES. • The reliability-related need for the RRO to collect data on operations and misoperations isn't clear — should this be revised and made available instead to the Compliance Monitor or to the Planning Authority? • The TO should also be required to demonstrate that its UVLS program is coordinated with adjacent TOs.

Project 2008-06 Cyber Security — Order 706

Standards Involved:
CIP-002-1 — Critical Cyber Asset Identification
CIP-003-1 — Security Management Controls
CIP-004-1 — Personnel & Training
CIP-005-1 — Electronic Security Perimeter(s)
CIP-006-1 — Physical Security of Critical Cyber Assets
CIP-007-1 — Systems Security Management
CIP-008-1 — Incident Reporting and Response Planning
CIP-009-1 — Recovery Plans for Critical Cyber Assets

Research Needed:
None

Brief Description:
Implement changes to the Cyber Security Standards (above) as indicated in FERC Order 706.

This set of revisions in this project includes:

- Modifying the standards so they conform to the latest approved versions of the ERO Rules of Procedure as outlined in the Standard Review Guidelines identified in Attachment 1.
- Addressing the directives issued by FERC, in Order 706 relative to the approved Cyber Security Standards CIP-002-1 through CIP-009-1. Refer to http://www.ferc.gov/whats-new/comm-meet/2008/011708/E-2.pdf for the complete text of the final order. Specific requirements from the Order are identified in Attachment 2.
    - Emphasis on Order 706 directive for NERC to address revisions to the CIP standards considering applicable feature of the NIST Security Risk Management Framework among other resources.
- Incorporating clarifications from the Interpretation of CIP-006-1 Requirement 1.1.

Additional issues identified by stakeholders during the posting of this SAR are listed in Attachment 3.

Revisions should consider other Cyber-related standards, guidelines and activities:

- Consider adopting the NIST Security Risk Management Framework (includes GAO, OMB and FIPS)
- Consider other cyber security related documents such as NIST, ISO 27000 Family, CIPC WG Risk Assessment Guideline, MITRE corporation technical report, DHS, National Laboratories papers, DOE 417, IEC, ISA, etc.
- Stay apprised of coordination work between FERC, NEI and NRC in regard to the nuclear facility exemption issue with respect to regulatory gaps. As necessary modify the standards to reflect current determinations.

Standards Development Status:
Project 2008-06 Cyber Security Web page

Project Schedule:
TBD

Standard Drafting Team Roster:

Chairman	Jeri Domingo Brewer	U.S. Bureau of Reclamation
Vice Chairman	Kevin B. Perry	Southwest Power Pool Regional Entity
	Robert Antonishen	Ontario Power Generation Inc.
	Jim Brenton	Electric Reliability Council of Texas, Inc.
	Jackie Collett	Manitoba Hydro
	Jay S. Cribb	Southern Company Services, Inc.
	Joe Doetzl	Kansas City Power & Light Co.
	Sharon Edwards	Duke Energy
	Scott W. Fixmer	Exelon Corporation
	Gerald S. Freese	American Electric Power
	Philip Huff	Arkansas Electric Cooperative Corporation
	Frank Kim	Hydro One Networks, Inc.
	Richard Kinas	Orlando Utilities Commission
	John Lim, CISSP	Consolidated Edison Co. of New York
	David L. Norton	Entergy Corporation
	Christopher Peters	ICF International
	David S Revill	Georgia Transmission Corporation
	Scott Rosenberger	Luminant Energy
	Kevin Sherlin	Sacramento Municipal Utility District
	Jon Stanford	Bonneville Power Administration
	Keith Stouffer	National Institute of Standards & Technology
	John D. Varnell	Tenaska Power Services Co.
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Consultant to NERC	Joseph Bucciero	Bucciero Consulting, LLC
Consultant to NERC	Robert M. Jones	Florida State University
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NERC Staff	Roger Lampila	North American Electric Reliability Corporation
NERC Staff	Scott Mix	North American Electric Reliability Corporation
NERC Staff	David Taylor	North American Electric Reliability Corporation
NERC Staff	Todd Thompson	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure
CIP-001-1 — Sabotage Reporting	
FERC Order 693	Consider the need for wider application of the standard. Consider whether separate, less burdensome requirements for smaller entities may be appropriate. Paragraph 458. The Commission acknowledges the concerns of the commenter's about the applicability of CIP-001-1 to small entities and has addressed the concerns of small entities generally earlier in this Final Rule. Our approval of the ERO Compliance Registry criteria to determine which users, owners and operators are responsible for compliance addresses the concerns of APPA and others. 459. However, the Commission believes that there are specific reasons for applying this Reliability Standard to such entities, as discussed in the NOPR. APPA indicates that some small LSEs do not own or operate "hard assets" that are normally thought of as "at risk" to sabotage. The Commission is concerned that, an adversary might determine that a small LSE is the appropriate target when the adversary aims at a particular population or facility. Or an adversary may target a small user, owner or operator because it may have similar equipment or protections as a larger facility, that is, the adversary may use an attack against a smaller facility as a training "exercise." The knowledge of sabotage events that occur at any facility (including small facilities) may be helpful to those facilities that are traditionally considered to be the primary targets of adversaries as well as to all members of the electric sector, the law enforcement community and other critical infrastructures. 460. For these reasons, the Commission remains concerned that a wider application of CIP-001-1 may be appropriate for Bulk-Power System reliability. Balancing these concerns with our earlier discussion of the applicability of Reliability Standards to smaller entities, we will not direct the ERO to make any specific modification to CIP-001-1 to address applicability. However, we direct the ERO, as part of its Work Plan, to consider in the Reliability Standards development process, possible revisions to CIP-001-1 that address our concerns regarding the need for wider application of the Reliability Standard. Further, when addressing such applicability issues, the ERO should consider whether separate, less burdensome requirements for smaller entities may be appropriate to address these concerns.
	"Define "sabotage" and provide guidance on triggering events that would cause an entity to report an event. Paragraph 461. Several commenter's agree with the Commission's concern that the term "sabotage" should be defined. For the reasons stated in the NOPR, we direct that the ERO further define the term and provide guidance on triggering events that would cause an entity to report an event. However, we disagree with those commenter's that suggest the term "sabotage" is so vague as to justify a delay in approval or the application of monetary penalties. As explained in the NOPR, we believe that the term sabotage is commonly understood and that common understanding should suffice in most instances. Further, in the interim while the matter is being addressed by the Reliability Standards development process, we direct the ERO to provide advice to entities that have concerns about the reporting of particular circumstances as they arise. 462. Further, in defining sabotage, the ERO should consider FirstEnergy's suggestions to differentiate between cyber and physical sabotage and develop a threshold of materiality. However, regarding the latter suggestion, the Commission directs that guidance for a threshold of materiality must be designed carefully to mitigate the risk that an unsuccessful sabotage event is not correctly reported because it did not cause sufficient harm. 463. Requirement R1 of CIP-001-1 provides that an applicable entity must have procedures "for the recognition of and for making their operational personnel aware of sabotage events on its facilities and multi-site sabotage affecting larger portions of the Interconnection." The NOPR expressed concern that the provision does not establish baseline requirements regarding what

Source	Language
	issues should be addressed by the developed procedures. APPA goes even further and, characterizing it as an entity specific fill-in the-blank standard, contends that it lacks sufficient detail upon which the ERO can base compliance and enforcement efforts. 464. While the Commission believes that this Reliability Standard can and should be enhanced by specifying baseline requirements regarding what issues should be addressed in the procedures for recognizing sabotage events and making personnel aware of such events, it disagrees with APPA that Requirement R1 lacks sufficient detail on which to base ERO compliance and enforcement efforts. As indicated in Measure M1, an applicable entity must have and maintain the procedure as defined by Requirement R1. Thus, if an applicable entity cannot provide the required procedure to the ERO or a Regional Entity auditor upon request, it would likely be subject to an enforcement action. While we expect that an applicable entity that has made a good faith effort to develop a meaningful procedure to comply with Requirement R1 (and Measure M1) would not be subject to an enforcement action, an ERO or Regional Entity audit team may provide steps to improve the individual entity's procedure, which would serve as a baseline for that entity for any subsequent audit. Such an approach would be acceptable and allow for meaningful compliance in the interim until CIP-001-1 is modified pursuant to our directive."
	In the interim, provide advice to entities about the reporting of particular circumstances as they arise. Paragraph 461. Several commenter's agree with the Commission's concern that the term "sabotage" should be defined. For the reasons stated in the NOPR, we direct that the ERO further define the term and provide guidance on triggering events that would cause an entity to report an event.209 However, we disagree with those commenter's that suggest the term "sabotage" is so vague as to justify a delay in approval or the application of monetary penalties. As explained in the NOPR, we believe that the term sabotage is commonly understood and that common understanding should suffice in most instances.210 Further, in the interim while the matter is being addressed by the Reliability Standards development process, we direct the ERO to provide advice to entities that have concerns about the reporting of particular circumstances as they arise.
	Consider FirstEnergy's suggestions to differentiate between cyber and physical security sabotage and develop a threshold of materiality. Paragraph 451. A number of commenter's agree with the Commission's concern that the term "sabotage" needs to be better defined and guidance provided on the triggering events that would cause an entity to report an event. FirstEnergy states that this definition should differentiate between cyber and physical sabotage and should exclude unintentional operator error. It advocates a threshold of materiality to exclude acts that do not threaten to reduce the ability to provide service or compromise safety and security. SoCal Edison states that clarification regarding the meaning of sabotage and the triggering event for reporting would be helpful and prevent over-reporting.
	Incorporate a periodic review or updating of the sabotage reporting procedures and for their periodic testing. Consider a staggered schedule of annual testing and formal review every two to three years. Paragraph 466. The Commission affirms the NOPR directive and directs the ERO to incorporate a periodic review or updating of the sabotage reporting procedures and for the periodic testing of the sabotage reporting procedures. At this time, the Commission does not specify a review period as suggested by FirstEnergy and MRO and, rather, believes that the appropriate period should be determined through the ERO's Reliability Standards development process. However, the Commission directs that the ERO begin this process by considering a staggered schedule of annual testing of the procedures with modifications made when warranted formal review of the procedures every two or three years.
	"Include a requirement to report a sabotage event to the proper government authorities. Develop the language to specifically implement this directive. Paragraph 467. CIP-001-1, Requirement R4, requires that each applicable entity establish communications contacts, as applicable, with

Source	Language
	the local FBI or Royal Canadian Mounted Police officials and develop reporting procedures as appropriate to its circumstances. The Commission in the NOPR expressed concern that the Reliability Standard does not require an applicable entity to actually contact the appropriate governmental or regulatory body in the event of sabotage. Therefore, the Commission proposed that NERC modify the Reliability Standard to require an applicable entity to "contact appropriate federal authorities, such as the Department of Homeland Security, in the event of sabotage within a specified period of time."212 468. As mentioned above, NERC and others object to the wording of the proposed directive as overly prescriptive and note that the reference to "appropriate federal authorities" fails to recognize the international application of the Reliability Standard. The example of the Department of Homeland Security as an "appropriate federal authority" was not intended to be an exclusive designation. Nonetheless, the Commission agrees that a reference to "federal authorities" could create confusion. Accordingly, we modify the direction in the NOPR and now direct the ERO to address our underlying concern regarding mandatory reporting of a sabotage event. The ERO's Reliability Standards development process should develop the language to implement this directive."
	Explore ways to reduce redundant reporting, including central coordination of sabotage reports and a uniform reporting format. Paragraph 469. As noted above, FirstEnergy, EEI and others express concern regarding the potential for redundant reporting under CIP-001-1 and other government reporting standards, and the need for greater coordination. The Commission understands the concern about multiple reporting channels that may arise and the burden that this may present to applicable entities. We direct the ERO to explore ways to address these concerns — including central coordination of sabotage reports and a uniform reporting format — in developing modifications to the Reliability Standard with the appropriate governmental agencies that have levied the reporting requirements.
NERC Audit Observation Team	• Registered Entities have sabotage reporting processes and procedures in place but not all personnel has been trained. • "What is meant by: "establish contact with the FBI"? Is a phone number adequate? Many entities which call the FBI are referred back to the local authority. The AOT noted that on the FBI website it states to contact the local authorities. Is this a question for Homeland Security to deal with for us?" • Establish communications contacts, as applicable with local FBI and RAMP officials. Some entities are very remote and the sheriff is the only local authority does the FBI still need to be contacted? • Question: How do you "and make the operator aware" • How does this standard pertain to Load Serving Entities, LSE's?
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-

Source	Language
	040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Version 0 Team	• Object to multi-site requirement • Definition of sabotage required
VRFs Team	Adequate procedures will insure it is unlikely to lead to bulk electric system instability, separation, or cascading failures.
CIP-002-1 — Critical Cyber Asset Identification	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
CIP-003-1 — Cyber Security — Security Management Controls	
NERC Audit Observation Team	Security Management Controls specifies the minimum Critical Cyber Asset information to be protected in requirement R4.1. Among the information asset types identified by R4.1. are network topology diagrams. The context of this requirement is clear and applies to computer network topology diagrams relating to Critical Cyber Asset information only.
VRFs Team	R4.2 — only an administrative requirement
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf)

Source	Language
	• NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
CIP-004-1 — Cyber Security — Personnel & Training	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
VRFs Team	R3 - This needs to be looked at for 30 days - should be done prior to access being granted.
CIP-005-1 — Cyber Security — Electronic Security Perimeter(s)	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Source	Language
VRFs Team	• R1.3 — administrative definition • R1.5 — standard to comply with a standard = double jeopardy
CIP-006-1 — Cyber Security — Physical Security of Critical Cyber Assets	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
VRFs Team	• R1.5 & .9 — Should be consistent with CIP-005 • R1.8 - A requirement to meet other standard requirements - double jeopardy • R2.1, .2, .3 & .4 - These are 4 things from which to choose one or more, so no one of them is required. Should be a bulleted list, not subrequirements. • R3.1 — May statement
CIP-007-1 — Cyber Security — Systems Security Management	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Source	Language
VRFs Team	• R2 & 2.3 — An open port can lead to loss of system integrity. • R3 — An improper patch can lead to loss of system integrity.
CIP-008-1 — Incident Reporting and Response Planning	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
CIP-009-1 — Recovery Plans for Critical Cyber Assets	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Project 2008-12 Coordinate Interchange Standards

Standards Involved:

INT-001-3 — Interchange Transaction Tagging
INT-003-2 — Interchange Transaction Implementation
INT-004-1 — Interchange Transaction Modifications
INT-005-2 — Interchange Authority Distributes Arranged Interchange
INT-006-2 — Response to Interchange Authority
INT-007-1 — Interchange Confirmation
INT-008-2 — Interchange Authority Distributes Status
INT-009-1 — Implementation of Interchange
INT-010-1 — Interchange Coordination Exemptions

Research Needed:

None

Brief Description:

The modifications in the set of Coordinate Interchange Standards should address the following:

- Determine if the activities in the Coordinate Interchange standards correctly identify the responsible entity.
- Consider requiring the Sink Balancing Authority responsibility for Interchange Authority functions, using an interchange transaction tool process as defined in the latest approved version of the e-Tag Specifications.
- The existing requirements are tool-neutral — consider adding specific references to the e-Tagging process in the requirements
- Consider adding a requirement to have backup capability for use when the interchange transaction tool fails.
- Consider combining requirements into a fewer number of standards so that the resultant set of requirements follows a chronological sequence that is easier to follow.
- Address the directives issued by FERC in Order 693, and the stakeholder comments from the V0 drafting team and the Violation Risk Factor drafting team. (See Attachment 1)
- Determine if there is industry-wide support for the Interchange Subcommittee's Principles and definition supporting dynamic transfers and pseudo-ties and if there is support, modify the requirements and add definitions accordingly. Make other changes to the standards to bring them into conformance with the latest version of the Reliability Standards Development Procedure, Sanctions Guidelines and Uniform Compliance Monitoring and Enforcement Program.
- The work in this project should be done in two phases, with the first phase focused solely on clarifying the applicability of each requirement in the existing set of standards. All other revisions should take place in a second phase.

Coordination with NAESB:

The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual plan):

Annual Plan Item 3.a.viii

Justification for NAESB consideration:

Industry recommendations

SRS Recommendation:

The NERC/NAESB JESS was assigned to review and correct WEQ-004 Coordinate Interchange Business Practice Standard as needed based on activities in NERC Project 2008-12, Coordinate Interchange Standards Revisions and supporting EOP-002-2 R4 and R6.

Standards Development Status:

Project 2008-12 Coordinate Interchange Standards Web page

Project Schedule:

Project 2008-12 Project Schedule

Standard Drafting Team Roster:

Chairman	Joseph Gardner	Midwest ISO, Inc.
	Clint Aymond	Entergy Services, Inc.
	Kelly W Bertholet	Manitoba Hydro
	Eric Grau	Tennessee Valley Authority
	James Michael Hansen	Seattle City Light
	Peter Harris	ISO New England, Inc.
	Robert H. Harshbarger	Puget Sound Energy, Inc.
	Donald P. Lacen	Public Service Company of New Mexico
	Marcus V Lotto	Southern California Edison Co.
	Gregory D Maxfield	PacifiCorp
	David McRee	Duke Energy Carolina
	Joel L Mickey	Electric Reliability Council of Texas, Inc.
	Brian Neal	Bonneville Power Administration
	Michael Oatts	Southern Company Services, Inc.
	Christopher Pacella	PJM Interconnection, L.L.C.
NERC Staff	Andrew J. Rodriquez	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
NAESB Standards Review Subcommittee	NAESB Standards Review Subcommittee as input to the Reliability Standards Development Plan: 2010-2012: NAESB requests that NERC engage in coordination with them as needed on this project as it relates to item 3.a.viii in the NAESB WEQ 2009 Annual Plan.
INT-001-2 — Interchange Information	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
FERC Order 693	• Include a requirement that interchange information must be submitted for all point-to-point transfers entirely within a balancing authority area, including all grandfathered and "non-Order No. 888" transfers. • Consider Santa Clara's comments about the applicability of the LSE in the standard as part of the standards development process.
Regional Difference to INT-001/4: WECC Tagging Dynamic Schedules and Inadvertent Payback	Submit a filing within 90 days of the Order that provides the needed information or withdraws the regional variance.
VRF comments	• R1, 1.1, 2, 2.1, 2.2 – commercial and administrative
V0 Industry Comments	• R1 - Too stringent • R1 – Who tags dynamic schedules? • Load PSE responsibility is new restriction • Clarify tagging of reserves • R2.2 – 60 minute time frame questioned • Question on generation scheduling

Source	Language
	• Onerous to BA's • More commercial problem than reliability • Lack of compliance
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-003-2 — Interchange Transaction Implementation	
VRF Comments	R1, 1.1, 1.1.2, 1.2 – commercial and administrative
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-004-1 — Dynamic Interchange Transaction Modifications	
FERC Order 693	Consider adding levels of non-compliance to the standard.
Regional Difference to INT-001/4:	WECC Tagging Dynamic Schedules and Inadvertent Payback: Submit a filing within 90 days of the Order that provides the needed information or withdraws the regional variance.
V0 Industry Comments	• Replace TSP with TOP • Need to address tag curtailment • Suggested non-compliance levels • Non-compliance based on % • Use WECC criteria
VRF comments	R2, 2.2, 2.3 – commercial and administrative
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-005-2 — Interchange Authority Distributes Arranged Interchange	
FERC Order 693	Consider adding levels of non-compliance to the standard.
VRF comment	R5 – administrative
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-006-2 — Response to Interchange Authority	
FERC Order 693	• Include reliability coordinators and transmission operators as applicable entities. • Require reliability coordinators and transmission operators to review energy interchange transactions from the wide-area and local area reliability viewpoints respectively and, where their review indicates a potential detrimental reliability impact, communicate to the sink balancing authorities' necessary transaction modifications before implementation. • Consider the suggestions made by EEI and TVA and address questions raised by

Source	Language
	Entergy and Northern Indiana as part of the standard development process.
NERC Audit and Observation Team	Does confirmed action mean direct action needs to be taken or, does confirmed action mean that a process has been put in place that will take action and, the entity agrees with such since they have employed the program.
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-007-1 — Interchange Confirmation	
VRF comment	R1, 1.1, 1.3, 1.3.1, 1.3.2, 1.3.3, 1.3.4, 1.4 – administrative
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-008-2 — Interchange Authority Distributes Status	
FERC Order 693	Consider APPA's suggestion to clarify what reliability entity the standard applies as part of the standard development process.
VRF comments	R1.1.1 & 1.1.2 – commercial and administrative
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-009-1 — Implementation of Interchange	
FERC Order 693	Consider APPA's suggestion to clarify what reliability entity the standard applies as part of the standard development process.
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA
INT-010-1 — Interchange Coordination Exemptions	
FERC Order 693	Consider Northern Indiana's and ISO-NE's suggestions in the standards development process.
VRF comments	R1 & 3 – administrative
NERC/NAESB Coordination	NERC/NAESB Coordination • The SDT review the definitions of the following terms and coordinate with NAESB so that the definition of each term is consistent between NERC and NAESB: Interchange Schedule Interchange Transaction Interchange Transaction Tag (Tag) Request for Interchange Source BA Sink BA

Project 2009-01 Disturbance and Sabotage Reporting

Standards Involved:
CIP-001-0 — Sabotage Reporting
EOP-004-1 — Disturbance Reporting

Research Needed:
None

Brief Description:
The existing requirements need to be revised to be more specific — and there needs to be more clarity in what sabotage looks like.

CIP-001 may be merged with EOP-004 to eliminate redundancies. Acts of sabotage have to be reported to the DOE as part of EOP-004. Specific references to the DOE form need to be eliminated.

EOP-004 has some 'fill-in-the-blank' components to eliminate.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2009-01 Disturbance and Sabotage Reporting Web page

Project Schedule:
Project 2009-01 Project Schedule

Standard Drafting Team Roster:

Chairman	Ed Seddon	Orlando Utilities Commission
Vice Chairman	Judith A. James	Texas Regional Entity
SAR Requester	Patrick Brown	PJM Interconnection, L.L.C.
	Joseph G. DePoorter	Madison Gas and Electric Co.
	Brandy A Dunn	Western Area Power Administration
	Brian Evans-Mongeon	Utility Services LLC
	Brian M Harrell	SERC Reliability Corporation
	James E. Hartmann, Jr.	Electric Reliability Council of Texas, Inc.
	Tom Jones	Midwest ISO, Inc.
	David McRee	Duke Energy Carolina
	Mark Mullen	Xcel Energy, Inc.
	Drew Phillips	Independent Electricity System Operator
	Lewe Sessions	NextEra Energy Resources, LLC
	Raymond Tran	Ascendant Energy Services, LLC
NERC Staff	Stephen Crutchfield	North American Electric Reliability Corporation
NERC Staff	Scott Mix	North American Electric Reliability Corporation

Issues to be Considered by the Standard Drafting Team:

Source	Language
EOP-004-1 — Disturbance Reporting	
Events Analysis Team	Reliability Issue: Coordination and follow up on lessons learned from event analyses Consider adding to EOP-004 – Disturbance Reporting Proposed requirement: Regional Entities (REs) shall work together with Reliability Coordinators, Transmission Owners, and Generation Owners to develop an Event Analysis Process to prevent similar events from happening and follow up with the recommendations. This process shall be defined within the appropriate NERC Standard
FERC Order 693	Ensure NERC's Rules of Procedure are revised to assure the Commission receives these reports in the same frame as the DOE. Paragraph 618: Requirement R3 addresses the reporting of disturbances to the regional reliability organizations and NERC. The Commission directs the ERO to change its Rules of Procedure to assure that the Commission also receives these reports within the same time frames as DOE.
	Consider all comments offered in a future modification of the reliability standard. Comments begin at paragraph 606 of the order. 606. EEI and FirstEnergy support the Commission's proposed modifications to the Reliability Standard. EEI states that data reporting requirements and other process requirements should be contained in enforceable Reliability Standards. FirstEnergy states that the proposed modification corresponds to good utility practice and that explicitly stating the requirement to provide data to NERC brings clarity to the expectations of NERC and the Commission. 607. APPA is concerned about the scope of Requirement R2 because, in its opinion, Requirement R2 appears to impose an open-ended obligation on entities such as generation operators and LSEs that may have neither the data nor the tools to promptly analyze disturbances that could have originated elsewhere. APPA proposes that Requirement R2 be modified to require affected entities to promptly begin analyses to ensure timely reporting to NERC and DOE. 608. Xcel expresses concern regarding what constitutes a reportable event for each applicable entity and recommends that the Reliability Standard be revised to define what a reportable event is for each entity that has reporting obligations. Further, Xcel states that the requirement in Requirement R3.4 for a final report within 60 days may not be feasible given the current WECC process, which among other things, requires the creation of a group to prepare the report and a 30-day posting of a draft report before it becomes final. Xcel also states that if the ultimate purpose of the report is to provide information to avoid a recurrence of a system disturbance, then the Reliability Standard should be revised to require the distribution of the report to similarly situated entities. 609. FirstEnergy states that, since nuclear units have their own NRC reporting procedures covering the Requirements under EOP-004-1, the Reliability Standard should specify that compliance with such operating procedures is sufficient to satisfy the requirements of EOP-004-1. FirstEnergy also states that the title of this Reliability Standard should be changed to "Disturbance Event Reporting" to indicate that the events covered under this Reliability Standard include a broad range of events that go beyond the events for which reports may be required under Reliability Standard BAL-002-0. 610. APPA states that NERC's November 15, 2006 revision partially fulfills the proposed modification to include Measures and Levels of Non-Compliance. APPA notes that EOP-004-1 did not provide Measures for R2, R3.2, R3.4, R4 and R5.
	Consider APPA's concern about generator operators and LSEs analyzing performance of their equipment and provide data and information on the equipment to assist others with analysis. Paragraph 607. APPA is concerned about the scope of Requirement R2 because, in its opinion, Requirement R2 appears to impose an open-ended obligation on entities such as generation operators and LSEs that may have neither the data nor the tools to promptly analyze disturbances that could have originated elsewhere. APPA proposes that Requirement R2 be modified to require affected entities to promptly begin analyses to ensure timely

Source	Language
	reporting to NERC and DOE.
	Include any requirements for users, owners, and operators of the bulk power system to provide data that will assist NERC in the investigation of a blackout or disturbance. Paragraph 617. While the Commission has identified concerns with regard to EOP-004-1, we believe that the proposal serves an important purpose in establishing requirements for reporting and analysis of system disturbances. Accordingly, the Commission approves Reliability Standard EOP-004-1 as mandatory and enforceable. In addition, pursuant to section 215(d) (5) of the FPA and § 39.5(f) of our regulations, the Commission directs the ERO to develop a modification to EOP-004-1 through the Reliability Standards development process that includes any Requirements necessary for users, owners and operators of the Bulk-Power System to provide data that will assist NERC in the investigation of a blackout or disturbance.
Fill in the Blank Team	• Consider changes to R1 and R3.4 to standardize the disturbance reporting requirements (requirements for disturbance reporting need to be added to this standard) • Regions currently have procedures, but not in the form of a standard. The drafting team will need to review regional requirements to determine reporting requirements for the North American standard.
NERC Audit Observation Team	Can there be a violation without an event?
Version 0 Team	• How does this apply to generator operator? • R3 – too many reports, narrow requirement to RC
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Project 2009-02 Real-time Tools

Standards Involved:
New

Research Needed:
No additional research needed. The NERC Real-Time Tools Best Practices Task Force (RTBPTF) performed an extensive, three-year process of fact finding and analysis supported by the results of their Real-Time Tools Survey, the most comprehensive survey ever conducted of current electric industry practices.

The RTBPTF summarized their findings in a report titled *Real-Time Tools Survey Analysis and Recommendations* dated March 13, 2008. The report includes the RTBPTF's recommendations for minimum acceptable capabilities and best practices for real-time tools necessary to ensure reliable electric system operation and reliability coordination.

Brief Description:
The scope of the SAR is to establish requirements for the functionality, performance, and management of tools used in support of Real-time System Operations. The intent is to describe 'what' needs to be done but not 'how' to do it.

This project will be responsive to the U.S.-Canada Power System Outage Task Force blackout recommendation 10: Establish Guidelines for Real-Time Operating Tools.

Standards Development Status:
Project 2009-02 Real-time Tools Web page

Project Schedule:
TBD

SAR Drafting Team Roster:

Chairman	Sam Brattini	KEMA
Vice Chairman	Chuck Abell	Ameren
SAR Requester	Jack Kerr	Dominion
	Greg Campbell	WECC
	Jay Dondetti	MISO
	Vinit Gupta	Entergy
	Mike Richardson	AEP
	Bob Savage	APS
	Bob Staton	Xcel
	Scott Vidler	Hydro One
	Jerry Whooley	PJM
NERC Staff	Edd Dobrowolski	North American Electric Reliability Corporation

Project 2009-03 Emergency Operations

Standards Involved:
EOP-001-0 — Emergency Operations Planning
EOP-002-2 — Capacity and Energy Emergencies
EOP-003-1 — Load Shedding Plans
IRO-001-1 — Reliability Coordination — Responsibilities and Authorities

Research Needed:
None

Brief Description:
The first three standards in the list above may be merged into a single standard. There are some requirements in IRO-001 that may be improved and merged into the new EOP standard

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual plan):
Annual Plan Item 3.a.viii

Justification for NAESB consideration:
WEQ SRS analysis
Industry recommendations

SRS recommendation:
Refer to Project 2007-18 Reliability Based Control

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster:
TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
EOP-001-0 — Emergency Operations Planning	
Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan: 2010-2012	• The NERC Glossary of terms defines a BA as: "The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time." In other words, responsible for supply and demand balance in the operating horizon. With this definition in mind, why is the BA responsible for EOP-001-1 R2.2 "Develop, maintain, and implement a set of plans to mitigate operating emergencies on the transmission system"? • The NERC Glossary of terms defines a TOP as: "(t)he entity responsible for the reliability of its 'local' transmission system, and that operates or directs the operations of the transmission facilities." With this definition in mind, why is the TOP made responsible for EOP-001-1 R2.1: "(d)evelop, maintain, and implement a set of plans to mitigate operating emergencies for insufficient generating capacity"? • Requirement R4 (and by reference Attachment 1-EOP-001-0) is applicable to both the Transmission Operator and Balancing Authority but includes items that are not applicable to the TOP and are only applicable to the BA, e.g., why is a TOP responsible for fuel supply? Why is a TOP responsible for R6.2 concerning emergency energy? Why is a TOP responsible for fuel supply in R6.4, and why is the TOP responsible for arranging energy delivery?
Real-time Best Practices Standards Study Group	Establish document plans and procedures for conservative operations
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
EOP-002-2 — Capacity and Energy Emergencies	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Other	Modify standard to conform to the latest version of NERC's Reliability Standards

Source	Language
	Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
EOP-003-1 — Load Shedding Plans	
Frank Gaffney (Florida Municipal Power Agency) as input to the Reliability Standards Development Plan: 2010-2012	• With regard to requirement R2, why is the BA responsible for Under Frequency Load Shedding (UFLS) when PRC-006-0 and PRC-007-0 make it the responsibility of the Regional Entities, the TOPs, the Distribution Providers and the LSEs? Why is the BA responsible for Under Voltage Load Shedding (UVLS) when the responsibility should probably be just the TOP's? Isn't this requirement redundant with PRC-006-0 and PRC-007-0? • Requirement R2 of EOP-003-1 states: "Each Transmission Operator and Balancing Authority shall establish plans for automatic load shedding for underfrequency or undervoltage conditions." The standards drafting team for Project 2007-01 Underfequency Load Shedding should consider modifying this requirement as part of their project.
Real-time Best Practices Standards Study Group	Provide the location, Real-time status, and MWs of Load available to be shed.
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
INT-001-1 — Interchange Information	
FERC Order 693	Regional Difference to INT-001/4: WECC Tagging Dynamic Schedules and Inadvertent Payback: Submit a filing within 90 days of the Order that provides the needed information or withdraws the regional variance.
Version 0 Team	Lack of compliance
	More commercial problem than reliability
	Onerous to BA's
	Question on generation scheduling
	R2.2 – 60 minute time frame questioned
	Clarify tagging of reserves
	Load PSE responsibility is new restriction
	R1 – Who tags dynamic schedules?
	R1 - Too stringent
VRFs Team	R1, 1.1, 2, 2.1, 2.2 – commercial and administrative
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
INT-001-2 — Interchange Information	
FERC's December 20, 2007 Order in Docket Nos.	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC)

Source	Language
RC07-004-000, RC07-6-000, and RC07-7-000	footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
FERC Order 693	Consider Santa Clara's comments about the applicability of the LSE in the standard as part of the standards development process.
	Include a requirement that interchange information must be submitted for all point-to-point transfers entirely within a balancing authority area, including all grandfathered and "non-Order No. 888" transfers.
INT-003-1 — Interchange Transaction Implementation	
VRFs Team	R1, 1.1, 1.1.2, 1.2 – commercial and administrative
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
INT-004-1 — Dynamic Interchange Transaction Modifications	
FERC Order 693	Consider adding levels of non-compliance to the standard.
Version 0 Team	Suggested non-compliance levels
	Non-compliance based on %
	Need to address tag curtailment
	Replace TSP with TOP
	Use WECC criteria
VRFs Team	R2, 2.2, 2.3 – commercial and administrative
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Source	Language
INT-005-2 — Interchange Authority Distributes Arranged Interchange	
FERC Order 693	Consider adding levels of non-compliance to the standard.
VRFs Team	R5 – administrative
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
INT-006-1 — Response to Interchange Authority	
FERC Order 693	Consider the suggestions made by EEI and TVA and address questions raised by Entergy and Northern Indiana as part of the standard development process.
	Include reliability coordinators and transmission operators as applicable entities.
	Require reliability coordinators and transmission operators to review energy interchange transactions from the wide-area and local area reliability viewpoints respectively and, where their review indicates a potential detrimental reliability impact, communicate to the sink balancing authorities necessary transaction modifications before implementation.
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
INT-006-2 — Response to Interchange Authority	
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
NERC Audit Observation Team	Does confirmed action mean direct action needs to be taken or, does confirmed action mean that a process has been put in place that will take action and, the entity agrees with such since they have employed the program.
INT-007-1 — Interchange Confirmation	
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
VRFs Team	R1, 1.1, 1.3, 1.3.1, 1.3.2, 1.3.3, 1.3.4, 1.4 – administrative
INT-008-2 — Interchange Authority Distributes Status	
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
FERC Order 693	Consider APPA's suggestion to clarify what reliability entity the standard applies as part of the standard development process.
VRFs Team	R1.1.1 & 1.1.2 – commercial and administrative
INT-009-1 — Implementation of Interchange	

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
FERC Order 693	Consider APPA's suggestion to clarify what reliability entity the standard applies as part of the standard development process.
INT-010-1 — Interchange Coordination Exemptions	
FERC Order 693	Consider Northern Indiana's and ISO-NE's suggestions in the standards development process.
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
VRFs Team	R1 & 3 – administrative

Project 2009-04 Phasor Measurement Units

Standards Involved:
New

Research Needed:
Analysis of existing research needs to be conducted.

Brief Description:
This is a new project that was identified in 2006 in support of a blackout recommendation. Several industry studies were recently issued and these studies need to be analyzed to determine appropriate requirements for a NERC standard.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster:
TBD

Project 2009-05 Resource Adequacy Assessments

Standards Involved:
New

Research Needed:
None

Brief Description:
This is a continuation of a project from 2006 that was delayed for higher priority projects. The purpose of this standard is to implement some of the recommendations from the Resource and Transmission Adequacy Task Force Report and the Gas/Electricity Interdependency Task Force Report approved by the NERC BOT in 2004 related to resource adequacy.

As envisioned, the standard will require entities to create metrics to assess resource adequacy that takes into account various factors such as fuel deliverability, performing resource adequacy assessments, sharing the results of those assessments. The standard would also require that resource adequacy assessments be conducted according to those metrics.

NERC Staff is developing a paper discussing the options regarding resource adequacy issues. This issue may be better served through the NERC Rules of Procedure rather than a specific Reliability Standard. Two Regional Entities have developed draft standards relating to resource adequacy and these are being included in the consideration of options.

Standard Development Steps Completed:
The SAR has been posted for two comment periods but has not been finalized due to other conflicting higher priority projects. The SAR will be finalized and then work will be delayed on drafting the standard until 2008.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project 2009-05 Resource Adequacy Assessments

Project Schedule:
Project 2009-05 Project Schedule

Standard Drafting Team Roster:

Chairman	Mary H. Johannis	Bonneville Power Administration
Vice Chairman	Phil Fedora	Northeast Power Coordinating Council, Inc.
	Yong Cai	Sacramento Municipal Utility District
	Curt J. Dahl, P.E.	KeySpan Corp.
	Gregory S. Drake	New York Independent System Operator
	Andrew Fusco	North Carolina Eastern Municipal Power Agency
	William J. Head	Midwest Reliability Organization
	Daniel Huffman	FirstEnergy Corp.
	Tom Kaslow	Calpine Corporation
	Richard Kosch	Lincoln Electric System
	Garey C. Rozier	Southern Company Services, Inc.
	Donald M. Schlegel	American Electric Power
	Steve Scroggs	Florida Power & Light Co.
	Sam Waters	Progress Energy
NERC Staff	Stephen Crutchfield	North American Electric Reliability Corporation

Project 2009-06 Facility Ratings

Standards Involved:
FAC-008-1 — Facility Ratings
FAC-009-1 — Establish and Communicate Facility Ratings

Research Needed:
None

Brief Description:
The revisions to these two standards will result in a single standard that is responsive to the recommended changes identified in the Standard Review Guidelines attached to this SAR and also to two of the three applicable FERC directives in Order 693.

The proposed changes to FAC-008 and FAC-009 have already been through stakeholder review and reached consensus in 2008 on all requirements except the requirement (R7) developed to meet the FERC directive in Order 693 that required identification of the most limiting component of a facility and the theoretical increase in rating if the limitation were removed. Stakeholders indicated that this requirement (R7) did not have a reliability-related benefit, and voted against the inclusion of a requirement to meet this directive. Thus, this SAR proposes the same standard that was developed and balloted in late 2008, but without the requirement (R7).

Standards Development Status:
Project 2009-06 Facility Ratings Web page

Project Schedule:
TBD

Standard Drafting Team Roster:

Chairman	Paul B. Johnson, P.E.	American Electric Power
	Robert A. Birch	Florida Power & Light Co.
	Terry L. Crawley	Southern Company Services, Inc.
	Robert Kluge	American Transmission Company, LLC
	Robert W. Millard	ReliabilityFirst Corporation
	H. Steven Myers	Electric Reliability Council of Texas, Inc.
	Philip Riley	Public Service Commission of South Carolina
	Tapani Seppa	The Valley Group, Inc.
	Vladimir Stanisic	Ontario Power Generation Inc.
	Ronald F. Szymczak	Exelon Corporation
	Chifong L. Thomas	Pacific Gas and Electric Company
NERC Staff	Stephen Crutchfield	North American Electric Reliability Corporation

Project 2009-07 Reliability of Protection Systems

Standards Involved:
New

Research Needed:
None

Brief Description:
The proposed standard requires facility owners to have protection system equipment installed such that, if there were a failure to a specified component of that protection system, the failure would not prevent meeting the BES performance identified in the TPL standards.

Standards Development Status:
Project 2009-07 Reliability of Protection Systems Web page

Project Schedule:
TBD

Standard Drafting Team Roster:

Chairman	Ed Taylor	Pacific Gas and Electric Co.
	Robert Johnson	Allegheny Power
	Clarence Bradley	Georgia Transmission Co.
	Jonathon Glidewell	Southern Company Transmission Co.
	James Hubertus	Public Service Electric and Gas Co.
	Steve Leistner	PacifiCorp
	Stanley J. Lewis	Consolidated Edison Co. of New York
	Susan L. McGill	PJM
	John Mulhausen	Florida Power & Light Co.
	Jill Muller	American Transmission Co., L.L.C.
	Bill Newell	Progress Energy
	Don Oatman, Jr.	Electric Reliability Council of Texas, Inc.
	Richard P. Quest	Xcel Energy
	Dean Sorensen	National Grid
	Xiaodong Sun	Ontario Power Generation, Inc.
	Roger Whitaker	Bonneville Power Administration
NERC Staff	Darrel Richardson	North American Electric Reliability Corporation

Project 2009-18 Withdraw Three Midwest ISO Waivers

Standards Involved:
BAL-006-2 — Inadvertent Interchange
INT-003-3 — Interchange Transaction Implementation

Research Needed:
None

Brief Description:
During their April 15-16, 2009 meeting the Standards Committee approved a SAR for removing waivers in the current NERC Standards associated with accommodating the operation of the Midwest ISO market in a multi-Balancing Authority environment. These waivers are no longer needed by the Midwest ISO now that the Midwest ISO is a Balancing authority:

- References to the Midwest ISO should be removed from the "Scheduling Agent Waiver" associated with INT-003-2 — Interchange Transaction Implementation.
- The "Enhanced Scheduling Agent Waiver" associated with INT-003-2 should be retired.
- References to the Midwest ISO should be removed from the "RTO Inadvertent Interchange Accounting Waiver" associated with BAL-006-1 — Inadvertent Interchange.

The purpose/industry need is to provide clarity in the applicability of the standard.

Standards Development Status:
Project 2009-18 Withdraw Three Midwest ISO Waivers Web page

Project Schedule:
TBD

Standard Drafting Team Roster:

Terry Bilke	Midwest ISO
Stephen Crutchfield	NERC Staff Coordinator

Project 2010-01 Support Personnel Training

Standards Involved:
New

Research Needed:
None

Brief Description:
This is a new project that was identified in support of a blackout recommendation. Stakeholders indicated a preference for completing work on a standard for real-time system operators before beginning work on this standard, due to resource limitations. The standard will require the use of a systematic approach to determining training needs of generator operators and operations planning and support staff with a direct impact on the reliable operations of the bulk power system.

The standard will require that entities have evidence that this systematic approach is used and require that each responsible entity have evidence that each of applicable personnel is competent to perform each assigned task that is on its company-specific list of reliability-related tasks.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster:
TBD

Project 2010-02 Connecting New Facilities to the Grid

Standards Involved:
FAC-001-0 — Facility Connection Requirements
FAC-002-0 — Coordination of Plans for New Facilities

Research Needed:
None

Brief Description:
A broad review needs to take place to ensure that all of the elements that should be addressed when a new facility is connected to the grid are included in the revised standard. New requirements are needed to require that the facility connection requirements are followed.

FAC-001 and FAC-002 have some 'fill-in-the-blank' components to eliminate.
The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual plan):
Annual Plan Item 1

Justification for NAESB consideration:
Industry recommendations

SRS Recommendation:
The WEQ SRS will add this project to its watch list.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster:
TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Phillip R. Kleckley (SERC EC Planning Standards Subcommittee (PSS)) as input to the Reliability Standards Development Plan:2010-2012	Consider adding a definition of "end user" to the NERC Glossary. (Note: This recommendation was received as part of the comments on Question 3 of the comments form for the "Draft Revision 6 of the SERC Facility Connection Requirements (FCR) Guideline".)
FAC-002-0 — Coordination of Plans for New Facilities	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Project 2010-03 Modeling Data

Standards Involved:

MOD-010-0 — Steady-State Data for Transmission System Modeling and Simulation
MOD-011-0 — Regional Steady-State Data Requirements and Reporting Procedures
MOD-012-0 — Dynamics Data for Transmission System Modeling and Simulation
MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures
MOD-014-0 — Development of Interconnection-Specific Steady State System Models
MOD-015-0 — Development of Interconnection-Specific Dynamics System Models
PRC-013-0 — Special Protection System Database
PRC-015-0 — Special Protection System Data and Documentation
PRC-020-1 — Under-Voltage Load Shedding Program Database
PRC-021-1 — Under-Voltage Load Shedding Program Data

Research Needed:

18 months study for dynamics modeling of load in simulations and analyses

Brief Description:

This is one of two projects aimed at identifying all the 'data provision' requirements and consolidating the requirements into fewer standards. Research is needed to clearly identify what data is needed to accurately model load in simulations and analyses. The requirements need to be more specific to clearly identify the format, etc., for providing data.

As envisioned, this project will result in the elimination of most if not all region-specific requirements and the revised requirements would include much more specificity. MOD-010 through MOD-015 has some 'fill-in-the-blank' components to eliminate.

Many of the requirements need to be realigned so that the data that is needed is provided to the entity that needs the data. In several of the existing standards, the data is provided to the RRO who then provides the data to the Planning Authority or other entities.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:

Project has not started.

Project Schedule:

TBD

Standard Drafting Team Roster:

TBD

Issues to be Considered by the Standard Drafting Team:

MOD-010-0 — Steady-State Data for Modeling and Simulation of the Interconnected Transmission System	
ATFNSDT	The ATFNSDT identified several issues with regard to modeling data during their deliberations on revising the TPL standards. At one time, they talked about incorporating the gaps they found in TPL but after some deliberation and multiple comments, it was decided to pass them over to the eventual MOD SDT for inclusion in their SAR and the ultimate revisions to MOD-010. These items need to be entered in the issues database so that they are accurately passed on to that SDT: Each Distribution Provider shall provide its respective Planning Coordinator with modeling information for real and reactive Load forecast data for each year of the Transmission planning horizon at Transmission nodes based on expected or historical System performance including the expected mix of industrial, commercial, and residential Loads, within ninety days of a request for such information. Each Transmission Planner shall provide its respective Planning Coordinator with modeling information for Firm Transmission Service data, Interchange Schedules, and resources required to supply Load for each of its Balancing Authorities for each year of the Transmission planning horizon, within ninety days of a request for such information. Each Transmission Owner shall provide its respective Planning Coordinator with modeling information for known planned outages and long-term outages for Transmission equipment for each year of the Transmission planning horizon with consideration given to spare equipment strategy, within ninety days of a request for such information. Each Generator Owner shall provide its respective Planning Coordinator with modeling information for known planned outages and long-term outages for generation equipment for each year of the Transmission planning horizon, within ninety days of a request for such information. Each Resource Planner shall provide its respective Planning Coordinator with the modeling information for new planned Facilities for each year of the Transmission planning horizon including but not limited to generators, Reactive Power devices, and new technologies, within ninety days of a request for such information. Each Transmission Planner shall provide its respective Planning Coordinator with modeling information for new planned Facilities for each year of the Transmission planning horizon including but not limited to Transmission Lines, circuit breakers, Reactive Power devices, Protection System equipment and control devices, and new technologies, within ninety days of a request for such information. These items are seen as gaps in the supply of modeling data that need to be filled. The revised TPL standards will require that a TP/PC use this data and place the onus on acquiring it on the TP/PC. FERC staff is concerned that this approach is lacking in that it doesn't have a corresponding requirement for the applicable entities to supply said data and want to make certain that this 'gap' is eventually closed in MOD.
MOD-011-0 — Maintenance and Distribution of Steady-State Data Requirements and Reporting Procedures	
FERC Order 693	• Expand the applicability to include the planning authority. • Develop a work plan and submit a compliance filing that will facilitate the ongoing collection of the steady-state modeling and simulation data specified in this standard.

Fill in the Blank Team	• Revise NERC MOD-011 to clarify that the data reporting requirements must be uniform across each interconnection. • This should be a North American Standard containing requirements which are interconnection-wide. • MOD-010 and 011 are related. This is the MMWG work for the eastern interconnection. • Review MOD-010, MOD-011, MOD-012, and MOD-013 concurrently for modeling requirements and reporting. • Coordinate the revision of this standard with the revision to MOD-010. MOD-011 needs to be written as a North American standard with requirements for each interconnection.
Other	• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Version 0 Team	• Consistency across standards for non-compliance • Confidentiality of data • Add equipment types and variables • Not a standalone standard • Time element not cited in non-compliance • Several semantics issues • Locations of substations should be deleted
MOD-012-0 — Dynamics Data for Modeling and Simulation of the Interconnected Transmission System	
FERC Order 693	• Provide a list of faults and disturbances used in performing dynamics system studies for operation and planning. • Address critical energy infrastructure confidentiality issues as part of the standard development process. • Expand the applicability to include transmission operators, planning authorities, and transmission planners. • Require users, owners, and operators to submit data to the regional entities as needed for modeling studies and assessments.
Fill in the Blank Team	• This standard is directly related to MOD-013. • Coordinate the revision of this standard with the revision to MOD-013. MOD-013 needs to be written as a North American standard with requirements for each interconnection. Once MOD-013 is modified, the only changes needed to MOD-012 are the references to the appropriate requirements in MOD-013. • Review MOD-010, MOD-011, MOD-012, and MOD-013 concurrently for modeling requirements and reporting.
Other	• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Version 0 Team	• Not a standalone standard • Time element missing in non-compliance • Consistency of non-compliance • Confidentiality of data

MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures	
ATFNSDT	MOD-013 needs to ask for voltage ride through data from generators as per 693.
FERC Order 693	• Permit entities to estimate dynamics stat if they are unable to obtain unit specific information. • Require verification of the dynamic models with actual disturbance data. • Expand the applicability to include transmission operators, planning authorities, and transmission planners. • Develop a work plan and submit a compliance filing that will facilitate the ongoing collection of the dynamics modeling and simulation data specified in this standard.
Fill in the Blank Team	• Review MOD-010, MOD-011, MOD-012 and MOD-013 concurrently for modeling requirements and reporting. • This should be a North American Standard containing requirements which are interconnection-wide. • Revise MOD-013 to clarify that the data reporting requirements must be uniform across each interconnection. • MOD-012 and MOD-013 are related. This is the MMWG work for the Eastern Interconnection.
Other	• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Version 0 Team	• Several semantics issues • Consistency in non-compliance • Confidentiality of data • Timing element not mentioned in non-compliance • Not a standalone standard • 5 business days not sufficient
MOD-014-0 — Development of Steady-State System Models	
FERC Order 693	• If model output is not within the accuracy required, the model shall be modified to achieve the necessary accuracy. • Require models to be validated against actual system response. • Require users, owners, and operators to provide the validated models to regional reliability organizations. • Develop a work plan that will facilitate ongoing validation of steady-state models and submit a compliance filing to the Commission.
Fill in the Blank Team	No action
Other	• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.

Version 0 Team	• Define near-term vs. long-term • Timing element missing in non-compliance • Solved cases should not have violations • Consistency of non-compliance
MOD-015-0 — Development of Dynamics System Models	
FERC Order 693	• Require actual system events be simulated and dynamics system model output be validated against actual system response. • Require users, owners, and operators to provide the validated models to regional entity. • Develop a work plan that will facilitate ongoing validation of dynamics models and submit a compliance filing to the Commission.
Fill in the Blank Team	No action
Other	• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Version 0 Team	• Consistency of non-compliance • Timing element of non-compliance • Confidentiality of data
PRC-013-0 — Special Protection System Database	
FERC Order 693	Consider APPA's suggestions for interconnection-wide consistency in the standards development process.
Other	• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Fill in the Blank Team	• Related to PRC-015. • Review PRC-013 and PRC-015 together to properly reference regional standards (see notes of PRC-015 for options).
Version 0 Team	• Define evidence • Not a standalone standard
PRC-015-0 — Special Protection System Data and Documentation	
Fill in the Blank Team	• Consider impact of removing R1.2 from PRC-012-0 and revision of PRC-013-0, R1.1, 1.2, & 1.3 to include a specific list of items to be included in the RRO SPS database. The same list could be added to PRC-015, R1.1. However, it may be cleaner to move PRC-015-0, R1.1 and the data portion of R1.3 to PRC-013. (Note: revisions to PRC-012 are identified for a separate drafting team and are expected to take place after revisions to PRC-013 and PRC-015 are completed.) • Tied to PRC-013. • Review PRC-013 and PRC-015 together to properly reference regional standards (see notes of PRC-015 for options).
Other	• Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO

	Rules of Procedure.
Version 0 Team	• Define evidence • Already covered elsewhere
PRC-020-1 — Under-Voltage Load Shedding Program Database	
Fill in the Blank Team	No action required
Phase III/IV Team	The reliability-related need for the RRO to have the data isn't clear
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Team Comments	Provide clarity where the Planning Authority is mentioned
PRC-021-1 — Under-Voltage Load Shedding Program Data	
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
Fill in the Blank Team	No action required

Project 2010-04 Demand Data

Standards Involved:
MOD-016-1 — Actual and Forecast Demands, Net Energy for Load, Controllable DSM
MOD-017-0 — Aggregated Actual and Forecast Demands and Net Energy for Load
MOD-018-0 — Reports of Actual and Forecast Demand Data
MOD-019-0 — Forecasts of Interruptible Demands and DCLM Data
MOD-020-0 — Providing Interruptible Demands and DCLM Data
MOD-021-0 — Accounting Methodology for Effects of Controllable DSM in Forecasts

Research Needed:
None

Brief Description:
This is one of two projects aimed at identifying all the 'data provision' requirements and consolidating the requirements into fewer standards. As envisioned, this project will result in two standards — with MOD-016 through MOD-020 in a single standard, and MOD-021 in a separate standard. The requirements need to be more specific to clearly identify the format, etc., for providing data.

MOD-016, MOD-017, and MOD-019 have some 'fill-in-the-blank' components to eliminate. The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Coordination with NAESB:
The NAESB Wholesale Electric Quadrant (WEQ) Standards Review Subcommittee (SRS) conducted an analysis of the NERC Reliability Standards Development Plan in order to identify those projects contained in the plan that may be appropriate for the industry, through NAESB, to develop parallel and complementary business practices. Below are NAESB's observations for this project.

Related NAESB WEQ Projects (See NAESB WEQ 2009 Annual plan):
Annual Plan Item 4.b

Justification for NAESB consideration:
Industry recommendations

SRS Recommendation:
The WEQ SRS will add this project to its watch list.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster:
TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
MOD-017-0 — Aggregated Actual and Forecast Demands and Net Energy for Load	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
MOD-018-0 — Reports of Actual and Forecast Demand Data	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
MOD-019-0 — Forecasts of Interruptible Demands and DCLM Data	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000,	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and

RC07-6-000, and RC07-7-000	associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
MOD-020-0 — Providing Interruptible Demands and DCLM Data	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.
MOD-021-0 — Accounting Methodology for Effects of Controllable DSM in Forecasts	
FERC's December 20, 2007 Order in Docket Nos. RC07-004-000, RC07-6-000, and RC07-7-000	In FERC's December 20, 2007 Order, the Commission reversed NERC's Compliance Registry decisions with respect to three load serving entities in the ReliabilityFirst (RFC) footprint. The distinguishing feature of these three LSEs is that none own physical assets. Both NERC and RFC assert that there will be a "reliability gap" if retail marketers are not registered as LSEs. To avoid a possible gap, a consistent, uniform approach to ensure that appropriate Reliability Standards and associated requirements are applied to retail marketers must be followed. Each drafting team responsible for reliability standards that are applicable to LSEs is to review and change as necessary, requirements in the reliability standards to address the issues surrounding accountability for loads served by retail marketers/suppliers. For additional information see: • FERC's December 20, 2007 Order (http://www.nerc.com/files/LSE_decision_order.pdf) • NERC's March 4, 2008 (http://www.nerc.com/files/FinalFiledLSE3408.pdf), • FERC's April 4, 2008 Order (http://www.nerc.com/files/AcceptLSECompFiling-040408.pdf), and • NERC's July 31, 2008 (http://www.nerc.com/files/FinalFiled-CompFiling-LSE-07312008.pdf) compliance filings to FERC on this subject.

Project 2010-05 Protection Systems

Standards Involved:
PRC-003-1 — Regional Requirements for Transmission and Generation Protection System Misoperations
PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations
PRC-012-0 — Special Protection System Review Procedure
PRC-014-0 — Special Protection System Assessment
PRC-016-0 — Special Protection System Misoperations

Research Needed:
None

Brief Description:
Consideration should be given to merging some of the standards to eliminate the need for cross-referencing.

PRC-003, PRC-004, PRC-014, and PRC-016 have some 'fill-in-the-blank' components to eliminate.

PRC-012 is one of the few 'fill-in-the-blank' standards that was identified by the Regional Reliability Standards Working Group as a standard that has some requirements that need to remain in regional standards.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Standards Development Status:
Project has not started.

Project Schedule:
TBD

Standard Drafting Team Roster
TBD

Issues to be Considered by the Standard Drafting Team:

Source	Language
Other	Modify standard to conform to the latest version of NERC's Reliability Standards Development Procedure, the NERC Standard Drafting Team Guidelines, and the ERO Rules of Procedure.
PRC-003-1 — Regional Requirements for Transmission and Generation Protection System Misoperations	
FERC Order 693	Consider if greater consistency can be achieved in the standard as suggested by APPA.
Fill in the Blank Team	• Modify PRC-003 to include specific requirements for each functional entity. Each of the regional plans needs to be reviewed to determine what should be included in the North American standard. The current PRC-003 defines requirements for RROs. The drafting team should revise PRC-004 to include proper references to the new PRC-003. • This is a North American Standard as written which places requirements on the regions to develop a procedure. However, PRC-004 requires functional entities to comply with the procedures the RROs develop. Craft a new PRC-003 as a North American standard containing the specific requirements for each functional entity. • Review PRC-003 and PRC-004 together to identify the specific requirements of the functional entities (include specific requirements for each functional entity).
Phase III/IV Team	• All transmission circuits 200 kV and above • Enhance the applicability section to clarify that the systems addressed by the requirements are limited to: • All transmission circuits 100 kV to 200 kV operationally significant circuits, as defined by the RROs • In R1.2 change format to content • The RRO should be required to demonstrate that the requirements developed in accordance with R1 produce the desired result. • Generator protection systems, whose misoperations impact the bulk electric system
Version 0 Team	• Change wording to reporting instead of monitoring • Need to define evidence
PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations	
FERC Order 693	• Consider ISO-NE's suggestion that LSEs and transmission operators should be listed as applicable entities. • The regional entity should develop procedures for corrective action plans.
Fill in the Blank Team	• Coordinate the revision of this standard with the revision to standard PRC-003. PRC-003 needs to be written as a North American standard with requirements for each functional entity as appropriate. Once PRC-003 is modified, the only changes needed to PRC-004 are the references to the appropriate requirements in PRC-003. • See notes for PRC-003-1. • Review PRC-003 and PRC-004 together to identify the specific requirements of the functional entities.
NERC Audit Observation Team	• "Document the process" • The Generator Owner shall analyze its generator protection system misoperations and

Source	Language
	implement corrective action plans to avoid future misoperations.
Phase III/IV Team	This standard should apply to all protection systems on the Bulk Electric System (BES) not just those that 'impact' the BES
Version 0 Team	Levels of non-compliance need to be redefined

Project 2010-06 Results-based Reliability Standards

Standards Involved:
Entire set of NERC Reliability Standards

Research Needed:
In 2008 the NERC Standards Committee Process Subcommittee conducted a review of the then existing NERC reliability standards and identified those that contained requirements that are administrative in nature or are simply explanatory text and which do not appear to contribute directly to meeting reliability objectives. The review results were presented to the Standards Committee at their April 16-17, 2009 meeting, and were adopted as the starting point for prioritizing standard changes and a basis for removing the administrative type of requirements. Detailed review results were included as Attachments 7di, 7dii and 7diii of the April 15-16, 2009 Standards Committee meeting agenda package.

In addition, as documented in Attachment 2 of the ERO Three-Year Assessment dated July 20, 2009 stakeholders recommend that the industry should "focus existing reliability standards and reliability standards development on areas that will lead to the greatest improvement in bulk power system reliability." Suggestions include: "(1) focus the development of new reliability standards on those that will lead to the greatest improvement in reliability; i.e., address the greatest risks of wide-area cascading outages; (2) reduce the number of existing reliability standards to just those that have a critical impact on reliability of the bulk power system and convert the remaining reliability standards to guidelines; and (3) develop a more systematic process for prioritizing new reliability standards development projects based on risks to the bulk power system."

In August 2009 an ad-hoc group was organized made up of representatives from the Standards Committee, Regional Entity staff, and NERC standards staff for developing a plan for transitioning the exiting set of NERC reliability standards into a set of revised reliability standards. The goal of the plan is to define a more focused set of reliability requirements that are predominantly performance-based, with a direct relation to bulk power system reliability. The plan is anticipated to be presented to the NERC Board of Trustees (BOT) at their November 4, 2009 meeting for consideration and approval.

Project Description:
Implement the plan approved by the NERC Board of Trustees (BOT) for improving the set of NERC reliability standards to be more focused on reliability performance. The plan is anticipated to be presented to the BOT during their November 4, 2009 meeting for consideration and approval.

Project 2010-07 Transmission Requirements at the Generator Interface

Standards Involved:

New

Research Needed:

None.

Project Description:

This project was proposed Mr. Gerry Adamski during the 2009 revision of the Reliability Standards Development Plan.

The Ad Hoc Group for Transmission Requirements at the Generator Interface plans to issue a final report document in October, 2009. This report contains a SAR and redline standards for a number of recommended changes to existing reliability standards requirements and the addition of several new requirements. These additions and modifications will add greater specificity and clarity to the expectations of those responsible for owning and operating the interconnection facilities that connect generators to the transmission grid. The changes address a significant concern for generator owners and generator operators regarding the believed improper assignment of transmission owner and operator requirements by virtue of their interconnection facilities.

If further information or discussion is required, please contact:

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Project 2012-01 Equipment Monitoring and Diagnostic Devices

Standards Involved:
New

Research Needed:
None

Brief Description:
This project was proposed Mr. R. W. Kenyon, J.D., P.E. during the 2008 revision of the Reliability Standards Development Plan.

The drafting team will propose Reliability Standard(s) covering the application of major equipment monitoring and diagnostic devices and procedures. As proposed by Mr. Kenyon, the Reliability Standard(s) will address dissolved gas and moisture sampling processes and the application on on-line monitoring devices to detect incipient faults within BES major components, such as EHV transformers. These processes and devices enable the equipment owner to detect evolving internal faults, allowing corrective action under controlled conditions. In some instances, early warning of evolving faults can permit field repair of the unit, avoiding a system fault and destruction of a major piece of equipment. In other circumstances, the warning obtained permits the equipment owner to monitor the situation and to schedule unit replacement in a deliberate, controlled manner. Again, occurrence of a major system fault and unscheduled loss of a major unit can be avoided. Obviously, such measures can contribute significantly to reliability of the Bulk Electric System.

Ideally, the proposed Reliability Standard(s) would make the application of this technology mandatory for classes of critical equipment, with EHV transformers and shunt reactors an obvious example. Similar diagnostic approaches could be taken on critical EHV and/or major generator Gas Insulated Switchgear. The general approach could follow PRC-005, where the owner must have a system, but particulars are left to the equipment owner. The proposed Reliability Standard(s) could extend to other equipment condition monitoring such as Doble testing.

In many instances, equipment owners already recognize the value of major equipment monitoring and have equipment and/or procedures in place addressing this technology. However, there is far less assurance that monitoring equipment is properly maintained, that scheduled routine sampling is being fully performed, and that full use is being made of data obtained. Again, as with the Protective Relay Standard PRC-005, the proposed Reliability Standard(s) would contribute to insuring that equipment owners have a program addressing this technology and are indeed following their program. In other instances, equipment owners without such equipment might be obligated to establish a monitoring program.

Project 2012-02 Physical Protection

Standards Involved:
New

Research Needed:
None

Project Description:
This project was proposed Mr. Wayne E. Guthrie during the 2009 revision of the Reliability Standards Development Plan.

The development of reliability standards for the physical protection of essential equipment, buildings and people located in power generation, transmission, or distribution system locations should be considered in on order to mitigate the associated reliability risks to the bulk power system. The ANSI NFPA 850 standard "Recommended Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations" provides a potential starting reference for such standards.

If further information or discussion is required, please contact:

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Attachment 1

Standard Authorization Request Form

Title of Proposed Standard	Protection Misoperations Revisions to PRC-003, PRC-004, PRC-012, and PRC-016
Request Date	June 10, 2009

SAR Requester Information		**SAR Type** (*Check a box for each one that applies.*)	
Name	System Protection and Control Subcommittee	☐	New Standard
Primary Contact	John Ciufo, Chairman	X	Revision to existing Standard
Telephone Fax	(416) 345-5258 (416) 345-5406	X	Withdrawal of existing Standard (PRC-016)
E-mail	john.ciufo@HydroOne.com	☐	Urgent Action

Purpose (Describe what the standard action will achieve in support of bulk power system reliability.)

A key element of bulk power system reliability is the performance of the Protection Systems. To properly gage Protection System performance, is necessary to have a consistent set of metrics on Protection System Misoperations. Current PRC standards and definitions related to Protection System Misoperations are confusing and do not support a good metric for measurement of Protection System performance.

Industry Need (Provide a justification for the development or revision of the standard, including an assessment of the reliability and market interface impacts of implementing or not implementing the standard action.)

Current PRC standards and definitions related to Protection System Misoperations are confusing and do not support a good metric for measurement of Protection System performance.

Brief Description (Provide a paragraph that describes the scope of this standard action.)

SPCS recommends creation of a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016.

Detailed Description (Provide a description of the proposed project with sufficient details for

the standard drafting team to execute the SAR.)

Standard PRC-003 is intended to ensure that all System Protection Misoperations are analyzed and mitigated according to guidelines established by the regions. The FERC, in Order 693, dated March 16, 2007, declared this standard as a "fill in the blank" type of standard that does not merit approval unless it is modified to make it more specific and consistent for all Regions. The SPCS concurs with the FERC order and provides recommendations on how the standard can be rewritten.

Because the procedures for analyzing and mitigating Misoperations were to be established by the regions, there is significant dissimilarity between the Misoperation data reported by each region, resulting in a virtually unusable misoperation metric for North America. SPCS recommends a change to the definition of Misoperation (Reportable Protection Misoperation) to provide uniformity to the misoperation data reported to the regions and NERC.

Protection System elements used for Special Protection Systems (SPS) or Remedial Action Schemes (RAS) are no different from those used for non Special Protection Systems. The revision to Standard PRC-003 should therefore apply to all Protection Systems, including SPS and RAS.

The SPCS also recommends that Standard PRC-016-0 – Special Protection System Misoperations, be requirements, merging its SPS/RAS Misoperation reporting, Corrective Action Plans, and tracking requirements into PRC-004 – Analysis and Mitigation of Transmission and Generation Protection System Misoperations.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and is coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should be modified to refer to that review process.

SPCS recommends creation of a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016.

See attached Technical Review document for additional details.

Reliability Functions

The Standard will Apply to the Following Functions *(Check box for each one that applies.)*		
☐	Reliability Coordinator	Responsible for the real-time operating reliability of its Reliability Coordinator Area in coordination with its neighboring Reliability Coordinator's wide area view.
☐	Balancing Authority	Integrates resource plans ahead of time, and maintains load-interchange-resource balance within a Balancing Authority Area and supports Interconnection frequency in real time.
☐	Interchange Authority	Ensures communication of interchange transactions for reliability evaluation purposes and coordinates implementation of valid and balanced interchange schedules between Balancing Authority Areas.
☐	Planning Coordinator	Assesses the longer-term reliability of its Planning Coordinator Area.
☐	Resource Planner	Develops a >one year plan for the resource adequacy of its specific loads within a Planning Coordinator area.
☐	Transmission Planner	Develops a >one year plan for the reliability of the interconnected Bulk Electric System within its portion of the Planning Coordinator area.
☐	Transmission Service Provider	Administers the transmission tariff and provides transmission services under applicable transmission service agreements (e.g., the pro forma tariff).
X	Transmission Owner	Owns and maintains transmission facilities.
☐	Transmission Operator	Ensures the real-time operating reliability of the transmission assets within a Transmission Operator Area.
X	Distribution Provider	Delivers electrical energy to the End-use customer.
X	Generator Owner	Owns and maintains generation facilities.
☐	Generator Operator	Operates generation unit(s) to provide real and reactive power.
☐	Purchasing-Selling Entity	Purchases or sells energy, capacity, and necessary reliability-related services as required.
☐	Market Operator	Interface point for reliability functions with commercial functions.
☐	Load-Serving Entity	Secures energy and transmission service (and reliability-related services) to serve the End-use Customer.

Reliability and Market Interface Principles

Applicable Reliability Principles *(Check box for all that apply.)*	
X	1. Interconnected bulk power systems shall be planned and operated in a coordinated manner to perform reliably under normal and abnormal conditions as defined in the NERC Standards.
☐	2. The frequency and voltage of interconnected bulk power systems shall be controlled within defined limits through the balancing of real and reactive power supply and demand.
☐	3. Information necessary for the planning and operation of interconnected bulk power systems shall be made available to those entities responsible for planning and operating the systems reliably.
☐	4. Plans for emergency operation and system restoration of interconnected bulk power systems shall be developed, coordinated, maintained and implemented.
☐	5. Facilities for communication, monitoring and control shall be provided, used and maintained for the reliability of interconnected bulk power systems.
☐	6. Personnel responsible for planning and operating interconnected bulk power systems shall be trained, qualified, and have the responsibility and authority to implement actions.
X	7. The security of the interconnected bulk power systems shall be assessed, monitored and maintained on a wide area basis.
☐	8. Bulk power systems shall be protected from malicious physical or cyber attacks.
Does the proposed Standard comply with all of the following Market Interface Principles? *(Select 'yes' or 'no' from the drop-down box.)*	
1. A reliability standard shall not give any market participant an unfair competitive advantage. Yes	
2. A reliability standard shall neither mandate nor prohibit any specific market structure. Yes	
3. A reliability standard shall not preclude market solutions to achieving compliance with that standard. Yes	
4. A reliability standard shall not require the public disclosure of commercially sensitive information. All market participants shall have equal opportunity to access commercially non-sensitive information that is required for compliance with reliability standards. Yes	

Related Standards

Standard No.	**Explanation**
PRC-003	Revise
PRC-004	Revise
PRC-012	Revise

PRC-016	Retire

Related SARs

SAR ID	Explanation

Regional Variances

Region	Explanation
ERCOT	
FRCC	
MRO	
NPCC	
SERC	
RFC	
SPP	
WECC	

NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

NERC SPCS Assessment of Standards:

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations
- PRC-016-1 — Special Protection System Misoperations

A Technical Review of Standards Prepared by the System Protection and Controls Subcommittee of the NERC Planning Committee

May 2009

to ensure the reliability of the bulk power system

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This report was approved by the Planning Committee on June 10, 2009, for forwarding to the Standards Committee.

Introduction

When the original scope for the System Protection and Control Task Force (SPCTF, now the System Protection and Control Subcommittee – SPCS) was developed, one of the assigned items was to review all of the existing PRC-series of Reliability Standards, to advise the Planning Committee, and to develop Standards Authorization Requests, as appropriate, to address any perceived deficiencies.

This report presents the SPCS' assessment of three of the PRC standards pertaining to relay misoperations:

- PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems
- PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations
- PRC-016-1 — Special Protection System Misoperations

This report serves as a precursor for a Standards Authorization Request (SAR) for modifications to PRC-003 that will be submitted by the SPCS.

Executive Summary

Standard PRC-003 is intended to ensure that all System Protection Misoperations are analyzed and mitigated according to guidelines established by the regions. The FERC, in Order 693, dated March 16, 2007, declared this standard as a "fill in the blank" type of standard that does not merit approval unless it is modified to make it more specific and consistent for all Regions. The SPCS concurs with the FERC order and provides recommendations on how the standard can be rewritten.

Because the procedures for analyzing and mitigating Misoperations were to be established by the regions, there is significant dissimilarity between the Misoperation data reported by each region, resulting in a virtually unusable misoperation metric for North America. SPCS recommends a change to the definition of Misoperation (Reportable Protection Misoperation) to provide uniformity to the misoperation data reported to the regions and NERC.

Protection System elements used for Special Protection Systems (SPS) or Remedial Action Schemes (RAS) are no different from those used for non Special Protection Systems. The revision to Standard PRC-003 should therefore apply to all Protection Systems, including SPS and RAS.

The SPCS also recommends that Standard PRC-016-0 — Special Protection System Misoperations, be requirements, merging its SPS/RAS Misoperation reporting, Corrective Action Plans, and tracking requirements into PRC-004 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and is coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should be modified to refer to that review process.

A Standards Authorization Request (SAR) will be submitted by the SPCS calling for a standards project to:

- Revise the definition of Misoperation (Reportable Protection Misoperation)
- Modify PRC-003, PRC-004, and PRC-012
- Retire PRC-016.

Assessment of PRC-003-1

PRC-003-1 — Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems requires the regions to establish procedures for analysis of Misoperations. This has resulted in significant and substantive differences in regional procedures and this was noted in FERC's recommendation for "greater uniformity."

SPCS proposes updating the PRC-003-1 standard to be applicable to all regions based on following tenets:

1. **Applicability** — The existing standard says that the Protection Systems shall be reviewed but does not specify which systems apply to this standard.

   It is necessary for the new standard to define the protections systems to which the standard applies:

   - Transmission Protection Systems which trip:
     a. Transmission system elements 200-kV and above
     b. Operationally significant system elements 100-kV to 200-kV
     c. Transformers with 100-kV or higher on the low side
     d. GSU transformers with high side voltages of 100-kV or higher
   - Generation Protection Systems which trip:
     a. Transmission system elements 200-kV and above
     b. Operationally significant system elements 100-kV to 200-kV
     c. Transformers with 100-kV or higher on the low side
     d. GSU transformers with high side voltages of 100-kV or higher
     e. Generators connected through GSU transformers with high side voltages of 100-kV or higher
   - Protection Systems that trip aggregate generation of 75 MW or more (such as wind farms, geothermal, or solar) connected to the transmission system at 100-kV or higher.

2. **Definitions** — The NERC Glossary of Terms currently defines Misoperation as:

   Misoperation (current definition)

   - Any failure of a Protection System element to operate within the specified time when a fault or abnormal condition occurs within a zone of protection.
   - Any operation for a fault not within a zone of protection (other than operation as backup protection for a fault in an adjacent zone that is not cleared within a specified time for the protection for that zone).
   - Any unintentional Protection System operation when no fault or other abnormal condition has occurred unrelated to on-site maintenance and testing activity

   The existing definition does not address what are reportable and non-reportable misoperations. Reportable misoperations should be redefined in terms of both

dependability and security, as a function of the impact of the Protection Systems on the electric system performance. SPCS recommends the following definition:

Reportable Protection Misoperation (proposed definition)

Dependability (failure to operate):

- Failure of the composite Protection System to initiate the isolation of a faulted power system Element as designed or within its designed operating time.
- Failure of the composite Protection System to operate as intended for a non-fault condition, such as out-of-step, overload, etc., within its designed operating time.
- Failure of an SPS/RAS, UVLS system, or UFLS system to operate for an intended condition or within its designed operating time.

Security (false or undesirable operations):

- Improper operation of a Protection System in absence of a fault on the power system Element it is designed to protect.
- Improper operation of a Protection System during a fault on any other power system Element it is not designed to protect.
- Improper operation of an SPS/RAS, UVLS system, or UFLS system in absence of its designed trigger conditions.
- Over-response of an SPS/RAS, UVLS system, or UFLS system

Notes to the proposed definition:

A. The composite Protection System in the context of this standard is the total complement of protection for a system Element (line, bus, transformer, generator, etc). Primary and secondary protection of a given Element is considered as the composite Protection System, not two separate Protection Systems.

B. Delayed clearing, where a high-speed system is employed and is essential for transmission system performance, is considered a reportable misoperation of the high-speed system.

C. Lack of targeting of the high-speed system, such as when it is beat out by a high-speed zone, is not considered a reportable misoperation.

D. Multiple misoperations of a Protection System before it can be reasonably investigated and remedied should be considered as a single misoperation.

E. Failure to automatically reclose after a fault is not a reportable misoperation.

F. Human errors made in protection settings either as calculated or as installed, or wiring errors, which result in a misoperation are reportable.

G. Protection System operations related to on-site maintenance, testing, construction and or commissioning activities for that Protection System, when no fault or other abnormal condition has occurred, are not considered reportable Protection System misoperations.

H. Operations which are initiated by control systems (not by the Protection Systems), such as those associated with generator controls or turbine/boiler controls, SVCs,

FACTS, HVDC, circuit breaker mechanism, or insulation media, or other facility control systems, are not reportable Protection System misoperations.

I. *Protection System operations which occur with the protected element already out of service, that do not trip any in-service elements, are not reportable Protection System misoperations.*

3. **Reporting of Misoperations** — Because the current PRC-003 calls for regional procedures and reporting requirements, there is a wide variation in those requirements from region to region, making comparison of misoperations metrics at the NERC level virtually impossible. Since any assessment of the success or failure of the NERC protection-related standards to maintain or improve reliability depends on those metrics, it is important to provide for uniformity. The variations in definitions can be corrected by the adoption of the Reportable Protection Misoperation definition above. Uniform reporting can be addressed by following proposed reporting requirements:

   - Transmission Owner or Generation Owners that own Protection Systems shall submit a quarterly report of the total number of events , the number of Protection System misoperations, and the number of events still under analysis, in a prescribed format (to be part of the revised PRC-003 standard) no later than two calendar months after each quarter.
   - The regions shall, in turn, submit a quarterly report to NERC – consolidated data for the Region in a prescribed format (also part of the revised PRC-003 standard).
   - The regions shall provide any additional information on misoperations to NERC as requested.

4. **Peer Review of Misoperations —** Peer review of misoperations and tracking of mitigation plans is an important part of improving Protection System performance. Logically, that function should be done by the Regional Entities. However, since standards requirements cannot be placed on the Regional Entities, the following suggestions are made but the mechanics are left open.

   - The regions, through their appropriate committees or subcommittee, shall review the misoperation reports. This review should determine whether further analysis, data, or other documentation is required, and it will confirm that appropriate mitigation is defined and scheduled.
   - The regions should maintain records of the quarterly reports and confirm the implementation of any proposed mitigation plan.
   - The regions should track the mitigation of reported misoperations to avoid further occurrences.

Assessment of PRC-004 and PRC-016-0

NERC standards PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection Misoperations, and PRC-016 – Special Protection System Misoperations both require that Protection System misoperations are analyzed and reported, and that corrective actions are taken where necessary. However, PRC-016 exclusively applies to special protection systems (SPS) also know as remedial action schemes (RAS). Since analysis and reporting of protection system misoperations is the same regardless of whether or not a SPS/RAS is involved; there is no need for a separate standard. Standard PRC-004-1 should be revised to include SPS/RAS, and PRC-016 should be retired.

SPS Corrective Action Plan Review

PRC-012-0 — Special Protection System Review Procedure is intended to provide a review procedure to ensure that all SPS/RAS are properly designed, meet performance requirements, and are coordinated with other Protection Systems.

Whenever an SPS/RAS misoperates and requires a Corrective Action Plan, that plan should become subject to review under PRC-012 to ensure that the changes proposed to the SPS are still properly designed, meet performance requirements, and are coordinated with other Protection Systems. Therefore, PRC-012 should be revised to require that review and PRC-004 should refer to that review process.

Proposed PRC-004-1 Revisions

SPCS recommends the following revisions to PRC-004-1 requirements to encompass those of PRC-016:

R1. The Transmission Owner and any Distribution Provider that owns a transmission Protection System or SPS shall each analyze its transmission Protection System or SPS Misoperations and shall develop and implement a Corrective Action Plan to avoid future Misoperations of a similar nature in accordance with Standard PRC-003 (revised).

R2. The Generator Owner shall analyze its generator Protection System or SPS Misoperations, and shall develop and implement a Corrective Action Plan to avoid future Misoperations of a similar nature in accordance with Standard PRC-003 (revised).

R3. The Transmission Owner, Generator Owner, and Distribution Provider that owns a transmission Protection System or an SPS shall provide documentation of the misoperation analyses and the Corrective Action Plans to its Regional Reliability Organization and NERC upon request (within 90 calendar days).

R4. All Corrective Action Plans for SPS shall be subject to SPS Review Procedures in accordance with Standard PRC-012.

Appendix A — System Protection and Control Subcommittee

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NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Reliability Standards Development Plan: 2010–2012

Volume III — Regional Reliability Standards Projects

to ensure the reliability of the bulk power system

October 7, 2009

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Introduction

NERC's Rules of Procedure Section 300 allows for a regional entity to develop regional reliability standards. A regional entity developing regional reliability standards must adhere to a NERC-approved regional reliability standards development procedure when developing its regional reliability standards. Each regional entity's regional standards development procedure is in Exhibit C of its regional delegation agreement with NERC.

NERC shall rebuttably presume that a regional reliability standard developed by a regional entity organized on an interconnection-wide basis in accordance with a regional reliability standards development process approved by NERC is just, reasonable, and not unduly discriminatory or preferential, and in the public interest, and consistent with such other applicable standards of governmental authorities. Regional reliability standards that are not proposed to be applied on an interconnection-wide basis are not presumed to be valid but may be demonstrated by the proponent to be valid. NERC's process for reviewing and approving proposed regional standards is delineated in its rules of procedure.

No regional reliability standard shall be effective within a region unless approved and filed by NERC with the Commission and the applicable authorities in Canada and Mexico and approved by such regulatory authorities. Regional reliability standards, when approved by FERC and the applicable authorities in Canada and Mexico, shall be made part of the body of NERC reliability standards and shall be enforced upon all applicable bulk-power system owners, operators, and users within the applicable regional entity's region, regardless of membership in the region.

Regional reliability standards shall provide for as much uniformity as possible with reliability standards across the interconnected bulk power system of the North American continent. A regional reliability standard shall be:

- more stringent than a continent-wide reliability standard, including regional standards that address matters that continent-wide reliability standards do not; or
- necessitated by a physical difference in the bulk power system.

This Volume III of NERC's Reliability Standards Development Plan identifies the standards anticipated to be developed by the individual regions over the next three years. With the exception of regional standards developed in support of continent-wide standards, the regional entities may independently initiate regional standards development and forward such standards to NERC for review and approval. NERC has identified 10 regional standards that are currently under development as listed in the index that follows this discussion. Additionally, four continent-wide standards projects identified in Volume II may require each of the eight regional entities to develop a companion regional standard, a total of 32 regional entity standards. Of this number, 13 projects have already been initiated by the Regional Entities. The NERC continent-wide projects that may require each regional entity to develop companion regional standards are:

- Project 2007-01 — Underfrequency Load Shedding
- Project 2007-05 — Balancing Authority Controls
- Project 2007-11 — Disturbance Monitoring
- Project 2008-04 — Protection Systems

In total, NERC has identified 42 proposed regional entity standards it expects to be developed over the course of the timeframe contemplated by this work plan.

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Regional Projects Possibly Requiring Coordination with NERC Continent-wide Projects

In this section, four regional reliability standards development projects are described. These four regional projects are:

Project 2007-01-RE — Underfrequency Load Shedding
Project 2007-05-RE — Balancing Authority Controls
Project 2007-11-RE — Disturbance Monitoring
Project 2008-04-RE — Protection Systems

These projects are being coordinated with NERC's continent-wide standards projects as described in Volume II of this three-year development plan. In general, the standard drafting team of the NERC continent-wide project working with industry stakeholders shall propose which requirements should be continent-wide and which should be included in regional standards. Further, the timing of these regional projects is driven to large degree by the timeline of the corresponding continent-wide project.

Additional information is found in the individual projects that follow.

2007-01-RE — Underfrequency Load Shedding — Regional Standards Development

Standards Involved:
Eight regional reliability standards (one for each of the eight regions) identifying regional requirements in support of the following continent-wide standards:

- PRC-006 — Development and Documentation of Regional Reliability Organizations' Underfrequency Load Shedding Programs
- PRC-007 — Assuring Consistency with Regional UFLS Programs
- PRC-009 — UFLS Performance Following an Underfrequency Event

Research Needed:
None

Brief Description:
This is a continuation of the corresponding project in Volume II of this work plan. Depending on the findings and determinations of the NERC standard draft team for Project 2007-01 Underfrequency Load Shedding (NERC UFLS SDT), it is anticipated that each region may be required to develop a regional standard that supports the continent-wide standard(s) developed for underfrequency load shedding.

PRC-006 is one of the few reliability standards identified by the Regional Reliability Standards Working Group as a standard that has some requirements that may need to be defined by each regional entity in a regional standard.

The NERC UFLS SDT will work with stakeholders to review PRC-006 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the UFLS program documentation. The NERC UFLS SDT working with industry stakeholders shall propose which requirements should be continent-wide requirements and which requirements should be included in regional standards.

PRC-007 and PRC-009 have some 'fill-in-the-blank' characteristics, as identified in the Regional Reliability Standards Working Group work plan, which need to be removed. These standards shall be included with PRC-006 for consideration as one or more revised standards as necessary for consistency and clarity of overall program requirements and any other associated programs and/or requirements that affect or impact the UFLS program.

Standard Development Status:
See NERC Project 2007-01 UFLS

Milestone Timeline:
See NERC UFLS SDT schedule

Related Links:

NERC Regional Reliability Standards Under Development
Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool, Inc. (SPP)
Texas Regional Entity (Texas RE)
Western Electricity Coordinating Council (WECC)

2007-05-RE — Balancing Authority Controls — Regional Standards Development

Standards Involved:
Eight regional reliability standards (one for each of the eight regions) identifying regional requirements in support of the following continent-wide standard:

- BAL-002 — Disturbance Control Performance

Research Needed:
None

Brief Description:
This is a continuation of the corresponding project in Volume II of this work plan. Depending on the findings and determinations of the NERC standard draft team for Project 2007-05 Balancing Authority Controls (NERC BAC SDT), it is anticipated that each region may be required to develop a regional standard that supports the continent-wide standard(s) developed for disturbance control performance.

BAL-002 is one of the few reliability standards identified by the Regional Reliability Standards Working Group (RRSWG) as a standard that has some requirements that may need to be defined by each regional entity in a regional standard. In particular, its October 2006 report, the RRSWG suggested the following related to BAL-002:

- In the long-term, regional reliability standards should be developed in support of North American standard BAL-002.
- Each regional entity should create a regional standard specifying its Contingency Reserve policy.
- The continent-wide BAL-002 should be modified to:
  - address FERC's May 11 comments and
  - revise R2 to remove reference to "sub-Regional Reliability Organization or Reserve Sharing Group".

The NERC BAC SDT will work with stakeholders to review BAL-002 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the BAC program documentation. The NERC BAC SDT shall determine which requirements should be continent-wide requirements and which requirements should be included in regional standards.

Standards Development Status:
See NERC Project 2007-05 Balancing Authority Controls

Milestone Timeline:
See NERC BAC SDT schedule

Related Links:

NERC Regional Reliability Standards Under Development
Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool, Inc. (SPP)
Texas Regional Entity (Texas RE)
Western Electricity Coordinating Council (WECC)

2007-11-RE — Disturbance Monitoring — Regional Standards Development

Standards Involved:
Eight regional reliability standards (one for each of the eight regions) identifying regional requirements in support of the following continent-wide standard:

- PRC-002 — Define and Document Disturbance Monitoring Equipment Requirements

Research Needed:
None

Brief Description:
This is a continuation of the corresponding project in Volume II of this work plan. Depending on the findings and determinations of the NERC standard draft team for Project 2007-11 Disturbance Monitoring (NERC DM SDT), it is anticipated that each region may be required to develop a regional standard that supports the continent-wide standard(s) developed for disturbance monitoring.

PRC-002 is one of the few reliability standards identified by the Regional Reliability Standards Working Group (RRSWG) as a standard that has some requirements that may need to be defined by each regional entity in a regional standard. In particular, in its October 2006 report the RRSWG suggested the following related to PRC-002:

- In the long-term, this should be a Regional Reliability Standard.
- As written, it is a requirement for each RRO to develop a comprehensive set of requirements for DME and can be enforced that way.
- PRC-002 is directly related to PRC-018. PRC-018 requires the functional entities to comply with the requirements developed by each RRO. Any references to each other embedded in the requirements of the two standards need verified.
- Need regions to develop and submit regional standards.

The NERC DM SDT will work with stakeholders to review PRC-002 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the DM program documentation. The NERC DM SDT working with industry stakeholders shall propose which requirements should be continent-wide requirements and which requirements should be included in regional standards.

Standards Development Status:
See NERC Project 2007-11 Disturbance Monitoring.

Milestone Timeline:
See NERC DM SDT schedule.

Related Links:
NERC Regional Reliability Standards Under Development

Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool, Inc. (SPP)
Texas Regional Entity (Texas RE)
Western Electricity Coordinating Council (WECC)

2008-04-RE — Protection Systems — Regional Standards Development

Standards Involved:
Eight regional reliability standards (one for each of the eight regions) identifying regional requirements in support of the following continent-wide standard:

- PRC-012 — Special Protection System Review Procedure

Research Needed:
None

Brief Description:
This is a continuation of the corresponding project in Volume II of this work plan. Depending on the findings and determinations of the NERC standard draft team for Project 2008-04 Protection Systems (NERC PS SDT), it is anticipated that each region may be required to develop a regional standard that supports the continent-wide standard(s) developed for special protection systems/schemes.

PRC-012 is one of the few reliability standards identified by the Regional Reliability Standards Working Group (RRSWG) as a standard that has some requirements that may need to be defined by each regional entity in a regional standard.

The NERC PS SDT will work with stakeholders to review PRC-012 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to and contained with the special protection system program documentation. The NERC PS SDT working with industry stakeholders shall propose which requirements should be continent-wide requirements and which requirements should be included in regional standards.

Standards Development Status:
This project has not yet started.

Milestone Timeline:
The timeline for this project has not yet been established.

Related Links:
NERC Regional Reliability Standards Under Development
Florida Reliability Coordinating Council (FRCC)
Midwest Reliability Organization (MRO)
Northeast Power Coordinating Council (NPCC)
ReliabilityFirst Corporation (RFC)
SERC Reliability Corporation (SERC)
Southwest Power Pool, Inc. (SPP)
Texas Regional Entity (Texas RE)
Western Electricity Coordinating Council (WECC)

Florida Reliability Coordinating Council (FRCC)
Regional Reliability Standards Development Projects

PRC-002-FRCC-01 — Definition of FRCC Regional Disturbance Monitoring and Reporting Requirements — FRCC

Standards Involved:
PRC-002-FRCC-01 — Definition of FRCC Regional Disturbance Monitoring and Reporting Requirements — FRCC

Research Needed:
None

Brief Description:
FRCC plans to convert the existing handbook document, "FRCC Requirements for Disturbance Monitoring Equipment", revision dated June, 2006 into a new regional reliability standard, that complies with the requirements of NERC Reliability Standard, PRC-002-1 — "Define Regional Disturbance Monitoring and Reporting Requirements".

Standards Development Status:
See FRCC Definition of FRCC Regional Disturbance Monitoring and Reporting Requirements

Related Links:
See Florida Reliability Coordinating Council (FRCC) Standards Under Development page.

PRC-003-FRCC-01 — Misoperation of Protection Systems — FRCC

Standards Involved:
PRC-003 — FRCC-01 — Analysis of Misoperations of Transmission and Generation Protection Systems — FRCC

Research Needed:
None

Brief Description:
FRCC plans to convert the existing handbook document, "FRCC Requirements for Analysis of Protection Mis-operations & Corrective Actions Reporting", revision dated October 2003 into a new regional reliability standard, that complies with the requirements of NERC Reliability Standard, PRC-003-1 — "Regional Procedure for Analysis of Mis-operations of Transmission and Generation Protection Systems".

Standards Development Status:
See FRCC Regional Procedure for Analysis of Mis-operations of Transmission and Generation Protection Systems.

Related Links:
See Florida Reliability Coordinating Council (FRCC) Standards Under Development page.

PRC-006-FRCC-01 — FRCC Automatic Underfrequency Load Shedding Program

Standards Involved:
PRC-006-FRCC-01 — FRCC Automatic Underfrequency Load Shedding Program

Research Needed:
None

Brief Description:
FRCC plans to develop a regional standard to provide last resort system preservation measures by implementing an Underfrequency Load Shedding (UFLS) program.

In accordance with NERC Reliability Standard, PRC-006-0, "Development and Documentation of Regional Reliability Organizations' Underfrequency Load Shedding Programs", the FRCC plans to develop, coordinate, and document an UFLS program. These procedures are to be provided to the Load Serving Entities within the Region that are affected by the procedures.

Standards Development Status:
See FRCC Automatic Underfrequency Load Shedding Program

Related Links:
See Florida Reliability Coordinating Council (FRCC) Standards Under Development page.

PRC-024-FRCC-01 — Generator Performance During Frequency and Voltage Excursions — FRCC

Standards Involved:
PRC-024 — FRCC-01 — Generator Performance during Frequency and Voltage Excursions — FRCC

Research Needed:
None

Brief Description:
FRCC is developing a standard to establish “ride through” requirements for generators in the FRCC Region with respect to temporary grid voltage or frequency deviations from their normal range.

Standards Development Status:
See FRCC Regional Generator Performance During Frequency and Voltage Excursions.

Related Links:
See Florida Reliability Coordinating Council (FRCC) Standards Under Development page.

Midwest Reliability Organization (MRO) Regional Reliability Standards Development Projects

TPL-503-MRO-01 — System Performance Requirement — MRO

Standards Involved:
TPL-503-MRO-01 — System Performance Requirement — MRO

Research Needed:
None

Brief Description:
The MRO is developing a regional standard to ensure adequate interconnected transmission system performance in the MRO.

Standards Development Status:
See MRO System Performance Requirement.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

TPL-504-MRO-01 — Sub synchronous Resonance Requirement — MRO

Standards Involved:
TPL-504-MRO-01 — Subsynchronous Resonance Requirement — MRO

Research Needed:
None

Brief Description:
The MRO is developing a regional standard to ensure subsynchronous resonance with series compensated lines, torsional interaction with power system controls and generator shaft damage or excessive torsional fatigue due to network switching does not occur in the Midwest Reliability Organization ("MRO").

Standards Development Status:
See MRO Subsynchronous Resonance Requirement.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

PRC-502-MRO-01 — Power System Stabilizer Requirement — MRO

Standards Involved:
PRC-502-MRO-01 — Power System Stabilizer Requirement — MRO

Research Needed:
None

Brief Description:
The MRO is developing a regional standard to ensure that power system stabilizers are designed, installed and tuned as required to dampen power system oscillations in the Midwest Reliability Organization ("MRO"). To ensure small signal stability assessments are performed. To ensure testing programs are developed and poorly damped oscillations are analyzed and corrected.

Standards Development Status:
See MRO Power System Stabilizer Requirement.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

RES-501-MRO-01 — Generation Planning Reserve Requirements — MRO

Standards Involved:
RES-501-MRO-01 — Generation Planning Reserve Requirements — MRO

Research Needed:
None

Brief Description:
The MRO is developing a regional standard to establish common criteria by which to assess Resource Adequacy in the MRO for the short term and long term planning horizon.

Standards Development Status:
See MRO Generation Planning Reserve Requirements.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

PRC-006-MRO-01 — Development and Documentation of Regional UFLS Programs — MRO

Standards Involved:
PRC-006-MRO-01 — Development and Documentation of Regional UFLS Programs — MRO

Research Needed:
None

Brief Description:
The MRO will develop a regional reliability standard (Standard) with requirements for automatic Underfrequency Load Shedding (UFLS) programs. The regional Standards will require that UFLS programs arrest declining frequency and assist recovery of frequency following a frequency excursion. This standard will address the UFLS Regional Reliability Standard Characteristics developed by the NERC UFLS standard draft team.

Standards Development Status:
See MRO Development and Documentation of Regional UFLS Programs.

Related Links:
See Midwest Reliability Organization (MRO) Standards Under Development page.

Northeast Power Coordinating Council (NPCC) Regional Reliability Standards Development Projects

At this time, NPCC will be developing at least four regional standards projects as required to support reliability objectives and as may be required to support their associated continent-wide NERC reliability standards identified in the first part of this volume. NPCC will develop the initial four regional standards in conjunction with, and as set forth by the schedules associated with the continent-wide standards, or schedules set forth by FERC, or our members.

In conjunction with this effort, a project is underway to translate the NPCC Criteria into "Directories" to demonstrate consistency with the NERC Reliability Standards. These Directories will utilize the applicable NERC Functional Model language, contain reference to related NERC standards, clearly identify applicability and utilize NERC glossary terms and when no term is available, use NPCC defined terms. These Directories are updated and submitted to NERC periodically to satisfy the NERC requirement as outlined in the Rules of Procedure to maintain a catalog of regional criteria. The Directories may be viewed on the "Regional Documents" section of the NPCC website or accessed through a link on the NERC website.

PRC-006-NPCC-01 — Underfrequency Load Shedding Program — NPCC

Standards Involved:
PRC-006-NPCC-01 — Underfrequency Load Shedding Program — NPCC

Research Needed:
None

Brief Description:
This Standard will provide the detailed requirements and measures to automatically provide system preservation by implementing an automatic underfrequency load shedding program to respond to system underfrequency events. The Standard will also emphasize the need for coordination amongst the NPCC region's members, and those areas outside the NPCC footprint, and provide direction for refinements of underfrequency systems already in place. The standard will address issues that smaller entities may have due to reduced amounts of distribution feeders.

The Standard will ensure that all requirements will be identified to ensure compliance with relevant NERC standards.

The NPCC regional UFLS standard shall apply to Balancing Authority Areas "BA Areas" that are both synchronous and asynchronous to the eastern interconnection. BA Areas that are asynchronous (e.g. Quebec) will develop UFLS parameters with a different technical basis and requirements.

Standards Development Status:
The NPCC Regional Standards Committee has approved the Regional Standards Authorization Request, RSAR, drafting has begun and an open process posting for comments has been completed and in accordance with NPCC's, FERC filed and approved Regional Standards Development Procedure. NPCC is targeting member approvals by December 2009 with submission to NERC and FERC targeted for 2010.

Related Links:
See Northeast Power Coordinating Council's NPCC "Standards Under Development" page.

PRC-012-NPCC-01 — Special Protection Systems — NPCC

Standards Involved:
PRC-012-NPCC-01 — Special Protection Systems — NPCC

Research Needed:
None

Brief Description:
The proposed Standard will describe the requirements for the design of Special Protection Systems, and the technical criteria required to support its implementation. The Standard will also identify the need for close coordination among various parties to ensure that the Special Protection Systems are implemented correctly, and triggers and resulting actions are made known and communicated in an on-line database.

Standards Development Status:
The NPCC Regional Standards Committee has approved the Regional Standards Authorization Request, RSAR, drafting will begin shortly in accordance with NPCC's, FERC filed and approved Regional Standards Development Procedure. NPCC is targeting member approval the standard by December 2010 and submission to NERC and FERC is targeted for 2011.

Related Links:
See Northeast Power Coordinating Council's NPCC "Standards Under Development" page.

PRC-002-NPCC-01 — Disturbance Monitoring — NPCC

Standards Involved:
PRC-002-NPCC-01 — Disturbance Monitoring— NPCC

Research Needed:
None

Brief Description:
The Standard will establish the technical requirements for disturbance monitoring equipment, including:

- system operating parameters that are to be measured and recorded,
- how to determine/select a preferred location of this equipment,
- installation and equipment minimum technical requirements,
- data communication requirements,
- analysis tools.

Criteria for facility owner requirements for reporting disturbance data will also be defined.

Standards Development Status:
The NPCC Regional Standards Committee has approved the Regional Standards Authorization Request, RSAR, drafting has begun and an open process posting for comment has been completed in accordance with NPCC's, FERC filed and approved Regional Standards Development Procedure. NPCC is targeting member approval for this standard by December 2009 with submission to NERC and FERC targeted for 2010.

Related Links:
See Northeast Power Coordinating Council's NPCC "Standards Under Development" page.

ReliabilityFirst Corporation (RFC) Regional Reliability Standards Development Projects

MOD-024-RFC-01 — Generator Real (MW) Power Capability — RFC

Standards Involved:
MOD-024-RFC-01 — Verification of Generator Real (MW) Power Capability — RFC

Research Needed:
None

Brief Description:
RFC plans to develop a regional standard to ensure accurate information on generator gross and net Real (MWs) Power capability is available for steady-state models used to assess Bulk Electric System reliability.

Standards Development Status:
See RFC Verification and Data Reporting of Generator Gross and Net Real Power Capability project.

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page.

MOD-025-RFC-01 — Generator Reactive (MVAR) Power Capability — RFC

Standards Involved:
MOD-025-RFC-01 — Verification of Generator Reactive (MVAr) Power Capability — RFC

Research Needed:
None

Brief Description:
RFC plans to develop a regional standard to ensure accurate information on generator gross and net Reactive (MVAR) Power capability is available for steady-state models used to assess Bulk Electric System reliability.

Standards Development Status:
See RFC Verification and Data Reporting of Generator Gross and Net Reactive Power Capability project

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page.

BAL-502-RFC-02 — Resource Planning Reserve Requirement Standard — RFC

Standards Involved:
BAL-502-RFC-02 — Resource Planning Reserve Requirement Standard — RFC

Research Needed:
None

Brief Description:
RFC is developing a regional standard to establish requirements for a minimum level of resource adequacy to reliably serve all load in the ReliabilityFirst (RFC) corporate region.

Standards Development Status:
See RFC Planning Resource Adequacy Analysis, Assessment and Documentation.

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page.

PRC-006-RFC-01 — Automatic Underfrequency Load Shedding Requirements — RFC

Standards Involved:
PRC-006-RFC-01 — Automatic Underfrequency Load Shedding Requirements — RFC

Research Needed:
None

Brief Description:
RFC is developing a regional standard to establish requirements for automatic underfrequency load shedding (UFLS) to support NERC Reliability Standard PRC-006.

Standards Development Status:
See RFC Automatic Underfrequency Load Shedding Requirements.

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page

PRC-002-RFC-01 — Disturbance Monitoring and Reporting Requirements — RFC

Standards Involved:
PRC-002-RFC-01 — Disturbance Monitoring and Reporting Requirements — RFC

Research Needed:
None

Brief Description:
RFC is developing a regional standard to establish requirements establish requirements for Disturbance monitoring and reporting to support NERC Reliability Standard PRC-002.

Standards Development Status:
See RFC Disturbance Monitoring and Reporting Requirements

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page

PRC-012-RFC-01 — Special Protection System Requirements — RFC

Standards Involved:
PRC-012-RFC-01 — Special Protection System Requirements — RFC

Research Needed:
None

Brief Description:
RFC is developing a regional standard to establish requirements for the review, development and application of Special Protection Systems (SPS) in one RFC standard allowing the retirement of the associated legacy documents. The standard will ultimately be mandated by NERC in support of NERC PRC-012-1 as related to a review process as well as a unique RFC application criterion.

Standards Development Status:
See RFC Special Protection System Requirements Standard.

Related Links:
See ReliabilityFirst Corporation (RFC) Standards Under Development page

SERC Reliability Corporation (SERC) Regional Reliability Standards Development Projects

SERC has no additional regional standards planned at this time beyond the four regional standards projects required to support their associated continent-wide NERC reliability standards identified in first part of this volume. SERC will develop these four regional standards in conjunction with, and as set forth by the schedules associated with, the continent-wide standards.

PRC-006-SERC-01 — Underfrequency Load Shedding Program — SERC

Standards Involved:
PRC-006-SERC-01 — Underfrequency Load Shedding Program — SERC

Research Needed:
None

Brief Description:
This standard will provide the measures to automatically provide system preservation by implementing an automatic underfrequency load shedding (UFLS) program to respond to system underfrequency events. The standard will also emphasize the need for coordination amongst the entities within the SERC footprint, and with those areas outside the SERC footprint. The standard requirements will ensure compliance with the NERC PRC-006-1 continent-wide standard, and other relevant NERC standards.

Standards Development Status:
The SERC Standards Committee accepted the SAR to develop a SERC UFLS Regional Reliability Standard on February 27, 2008 and assigned to the SERC Engineering Committee (EC). It was approved by the EC Executive Committee on April 25, 2008 and a standard draft team (or Responsible SERC Subgroup—RSS) was appointed on June 19, 2008. The first draft of the standard was posted for comments on September 19, 2008; second draft posted for comments on November 21, 2008; and the third draft was posted for information on February 9, 2009. Currently in Step 6 (*Drafting of a SERC Regional Reliability Standard*) of the 13 steps SERC Regional Standards Development Procedure. Plans are to update the third draft to make it consistent with the NERC continent-wide standard, post it for one more comment period, and take the final draft to ballot in the fourth quarter of 2009.

Related Links:
See the SERC Reliability Corporation Standards page

Southwest Power Pool, Inc. (SPP) Regional Reliability Standards Development Projects

PRC-006-SPP-01 — Automatic Underfrequency Load Shedding Program — SPP

Standards Involved:
PRC-006-SPP-01 — Automatic Underfrequency Load Shedding Program — SPP

Research Needed:
None

Brief Description:
The SPP Standard Drafting Team is in a process developing first draft of SPP regional standard for Underfrequency Load Shedding Program. The regional Standards will require that UFLS programs arrest declining frequency and assist recovery of frequency following a frequency excursion. This standard will consider the UFLS Regional Reliability Standard Characteristics developed by the NERC UFLS standard draft team.

Standards Development Status:
See SPP Standard Development Page

Related Links:
See Southwest Power Pool's (SPP) Standards Under Development page

Texas Regional Entity (Texas RE) Regional Reliability Standards Development Projects

BAL-001-TRE-01 — Regional Variance for CPS2 — Texas RE

Standards Involved:
BAL-001-TRE-01 Regional Variance for CPS2 — Texas RE

Research Needed:
None

Brief Description:
A Texas RE standard drafting team is drafting a regional variance to R2 of BAL-001-0 that still meets the purpose of the standard: Maintain Interconnection steady-state frequency within defined limits by balancing real power demand and supply in real-time. ERCOT currently has a NERC waiver for the CPS2 method (11/21/02) described in R2. This regional variance will provide what ERCOT employs instead of CPS2 to achieve the overall purpose of the BAL standard.

This variance will be the modification that was ordered by FERC in Order 693: As with other new regional differences, the commission expects that the ERCOT regional difference will include Requirements, Measures, and Levels of Non-Compliance sections. This regional variance will incorporate Section 5.9 of the ERCOT Protocols (and the applicable Nodal Protocol) to accomplish this objective. This variance as currently drafted will apply to the Balancing Authority that is ERCOT , GOs and GOPs.

Standards Development Status:
See Texas Regional Entity (Texas RE) Reliability Standards Tracking Status

Related Links:
SAR-003 Standard Drafting Team: Modification to ERCOT Waiver to R2 of BAL-001-0 CPS2

PRC-006-TRE-01 — Development and Documentation of Regional UFLS Program — Texas RE

Standards Involved:
PRC-006-TRE-01 — Development and Documentation of Regional UFLS Program — Texas RE

Research Needed:
None

Brief Description:
A Texas RE standard drafting team is currently following, reviewing, and commenting upon the characteristics of the NERC UFLS continent-wide standard that is under development (Project 2007-01). Depending on the specific characteristics and requirements of the continent-wide standard, and if necessary, the team will develop a regional reliability standard with requirements for automatic UFLS programs that will require that UFLS programs arrest declining frequency and assist recovery of frequency following a frequency excursion.

Standards Development Status:
See Texas Regional Entity (Texas RE) Reliability Standards Tracking Status

Related Links:
SAR-002 Standard Drafting Team: Development and Documentation of Regional UFLS Programs

Western Electricity Coordinating Council (WECC) Regional Reliability Standards Development Projects

VAR-001-WECC-1 — Voltage and Reactive Control — WECC

Standards Involved:
VAR-001-WECC-1 — Voltage and Reactive Control — WECC

Research Needed:
None

Brief Description:
The purpose of this standard is to ensure that voltage levels, reactive flows, and reactive resources are monitored, controlled, and maintained within limits in real time to protect equipment and the reliable operation of the Interconnection.

In the Western Interconnection, System Operating Limits for transmission paths in the Bulk Electric System assume that Automatic Voltage Regulators are in service to control voltage to support the transfer capability.

During the VAR-002-WECC-1 standard development process it was identified that not all WECC Transmission Operators provided voltage schedules to their Generation Operators. They are allowed to do this because Transmission Operators the NERC VAR-001-1a requirement R4 allows the option of providing reactive power schedules rather than voltage schedules. The practice of providing reactive power or power factor schedules forces Generation Operators to manually adjust their automatic voltage regulator (AVR) voltage setting by trial and error to find a voltage setting that will provide the exact amount of reactive power directed by the Transmission Operator. Since the voltage on the transmission grid varies throughout the day, the Generation Operator is forced to continuously reset the voltage on the AVR. This is an unnecessary and distracting manual control burden on the Generation Operator.

NERC VAR-002 requires the Generation Operator to comply exactly with the voltage schedule or reactive power schedule directed by the Transmission Operator. If the Transmission Operator provides a voltage schedule, the AVR can automatically maintain compliance with the NERC requirement. If the Transmission Operator refuses to provide a voltage schedule, and instead insists on providing a reactive power schedule, compliance can no longer depend on the automatic operation of the AVR. The VAR-002-WECC-1 standard prohibits the AVR from being switched to a constant reactive power mode of operation. Instead compliance becomes totally dependent on constant attention and readjustment by the Generation Operator. This significantly increases the risk of non-compliance for the Generator Operator.

Even more disturbing is the fact that this situation (the Transmission Operator specifying a constant reactive power output rather than a constant voltage level) defeats the intended purpose of the WECC VAR-002-WECC-1 standard, to prevent a voltage collapse. If the voltage does begin to collapse, the generator AVR, operating in constant voltage mode, will increase the reactive power output from the unit. That increase in reactive output means that the generator will no longer be producing the amount of reactive power specified by the Transmission Operator's reactive power schedule. Once this occurs, the Generation Operator must immediately reduce the reactive power provided by the generator or risk noncompliance with

NERC standard VAR-002, R2. That will result in the generator doing the exact opposite of what is needed to prevent a voltage collapse and exposes the Interconnection to a risk of blackout.

Therefore, the VAR-001-WECC-1 standard drafting team was form to develop a standard to require Transmission Operators to issue voltage schedules. The drafting team surveyed Transmission Operators and Generator Operators to identify scheduling practices that are causing confusion between Transmission Operators and Generator Operators. The first draft of a proposed VAR-001-WECC-1 Standard is expected to be posted for an initial 45 day comment period during the fourth quarter of 2009. The drafting team anticipates balloting and requesting WECC Board of Director approval during the second have of 2010.

WECC Standard VAR-001-WECC-1 is more stringent than a continent wide standard.

Standards Development Status:

See WECC Standards Development page at:
http://www.wecc.biz/Standards/Development/Pages/default.aspx

Related Links:

See http://www.wecc.biz/Standards/Development/WECC0046/default.aspx