**UNITED STATES OF AMERICA**
**BEFORE THE**
**FEDERAL ENERGY REGULATORY COMMISSION**

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| **North American Electric Reliability Corporation** | **)** **)** | **Docket No. _____** |

# PETITION OF THE NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION FOR APPROVAL OF PROPOSED RELIABILITY STANDARD NUC-001-3


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September 15, 2014

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# PETITION OF THE NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION FOR APPROVAL OF PROPOSED RELIABILITY STANDARD NUC-001-3

Pursuant to Section 215(d)(1) of the Federal Power Act ("FPA")[1] and Section 39.5[2] of the Federal Energy Regulatory Commission's ("FERC" or "Commission") regulations, the North American Electric Reliability Corporation ("NERC")[3] hereby submits for Commission approval proposed Reliability Standard NUC-001-3 (Nuclear Plant Interface Coordination) (**Exhibit A**). NERC requests that the Commission approve the proposed Reliability Standard and find it is just, reasonable, not unduly discriminatory or preferential, and in the public interest.[4] NERC also requests approval of: (i) the Implementation Plan for the proposed Reliability Standard (**Exhibit B**); (ii) the associated Violation Risk Factors ("VRFs") and Violation Severity Levels ("VSLs") (**Exhibits A and F**); and (iii) the retirement of the currently-effective Reliability Standard NUC-001-2.1 as listed in the Implementation Plan.

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1 16 U.S.C. § 824o (2012).

2 18 C.F.R. § 39.5 (2014).

3 The Commission certified NERC as the electric reliability organization ("ERO") in accordance with Section 215 of the FPA on July 20, 2006. *N. Am. Elec. Reliability Corp.*, 116 FERC ¶ 61,062 (2006).

4 Unless otherwise designated, capitalized terms shall have the meaning set forth in the *Glossary of Terms Used in NERC Reliability Standards* ("NERC Glossary of Terms"), *available at* http://www.nerc.com/files/Glossary_of_Terms.pdf.

As required by Section 39.5(a)[5] of the Commission's regulations, this petition presents the technical basis and purpose of proposed Reliability Standard NUC-001-3, a summary of the development history for the proposed Reliability Standard (**Exhibit G**), and a demonstration that the proposed Reliability Standard meets the criteria identified by the Commission in Order No. 672[6] (**Exhibit C**). The NERC Board of Trustees adopted proposed Reliability Standard NUC-001-3 on August 14, 2014.

## I. EXECUTIVE SUMMARY

Proposed Reliability Standard NUC-001-3 requires coordination between Nuclear Plant Generator Operators and Transmission Entities for the purpose of ensuring safe operation and shutdown of nuclear power plants.

The Standard Processes Manual[7] obligates NERC to conduct periodic reviews of all Reliability Standards. A Five Year Review Team, appointed by the NERC Standards Committee, reviewed currently-effective Reliability Standard NUC-001-2.1 to identify opportunities for consolidation and improvement. Proposed Reliability Standard NUC-001-3 represents the implementation of recommendations made by the Five Year Review Team to revise the currently effective Reliability Standard NUC-001-2.1.

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5 18 C.F.R. § 39.5(a) (2014).

6 The Commission specified in Order No. 672 certain general factors it would consider when assessing whether a particular Reliability Standard is just and reasonable. *See Rules Concerning Certification of the Electric Reliability Organization; and Procedures for the Establishment, Approval, and Enforcement of Electric Reliability Standards*, Order No. 672, FERC Stats. & Regs. ¶ 31,204, at P 262, 321-37, *order on reh'g*, Order No. 672-A, FERC Stats. & Regs. ¶ 31,212 (2006).

7 NERC Standards Processes Manual, *available at:* http://www.nerc.com/comm/SC/Documents/Appendix_3A_StandardsProcessesManual.pdf

For the reasons discussed in this Petition, NERC respectfully requests that the Commission approve the proposed Reliability Standard as just, reasonable, not unduly discriminatory or preferential, and in the public interest.

## II. NOTICES AND COMMUNICATIONS

Notices and communications with respect to this filing may be addressed to the following:[8]


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## III. BACKGROUND

### A. Regulatory Framework

By enacting the Energy Policy Act of 2005,[9] Congress entrusted the Commission with the duties of approving and enforcing rules to ensure the reliability of the Nation's Bulk-Power

[8] Persons to be included on the Commission's service list are identified by an asterisk. NERC respectfully requests a waiver of Rule 203 of the Commission's regulations, 18 C.F.R. § 385.203 (2014), to allow the inclusion of more than two persons on the service list in this proceeding.

[9] 16 U.S.C. § 824o (2012).

System, and with the duties of certifying an ERO that would be charged with developing and enforcing mandatory Reliability Standards, subject to Commission approval. Section 215(b)(1)[10] of the FPA states that all users, owners, and operators of the Bulk-Power System in the United States will be subject to Commission-approved Reliability Standards. Section 215(d)(5)[11] of the FPA authorizes the Commission to order the ERO to submit a new or modified Reliability Standard. Section 39.5(a)[12] of the Commission's regulations requires the ERO to file with the Commission for its approval each Reliability Standard that the ERO proposes should become mandatory and enforceable in the United States, and each modification to a Reliability Standard that the ERO proposes should be made effective.

The Commission has the regulatory responsibility to approve Reliability Standards that protect the reliability of the Bulk-Power System and to ensure that such Reliability Standards are just, reasonable, not unduly discriminatory or preferential, and in the public interest. Pursuant to Section 215(d)(2) of the FPA[13] and Section 39.5(c)[14] of the Commission's regulations, the Commission will give due weight to the technical expertise of the ERO with respect to the content of a Reliability Standard.

### B. NERC Reliability Standards Development Procedure

The proposed Reliability Standard was developed in an open and fair manner and in accordance with the Commission-approved Reliability Standard development process.[15] NERC

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10 *Id.* § 824(b)(1).
11 *Id.* § 824o(d)(5).
12 18 C.F.R. § 39.5(a).
13 16 U.S.C. § 824o(d)(2).
14 18 C.F.R. § 39.5(c)(1).
15 *Rules Concerning Certification of the Electric Reliability Organization; and Procedures for the Establishment, Approval, and Enforcement of Electric Reliability Standards*, Order No. 672 at P 334, FERC Stats. & Regs. ¶ 31,204, *order on reh'g*, Order No. 672-A, FERC Stats. & Regs. ¶ 31,212 (2006) ("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

develops Reliability Standards in accordance with Section 300 (Reliability Standards Development) of its Rules of Procedure and the NERC Standard Processes Manual.[16] In its order certifying NERC as the Commission's Electric Reliability Organization, 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[17] and thus satisfies certain of the criteria for approving Reliability Standards.[18] 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 and the NERC Board of Trustees is required to approve a Reliability Standard before the Reliability Standard is submitted to the Commission for approval.

## IV. Reliability Standard Background

### A. Procedural History

The Standard Processes Manual obligates NERC to conduct periodic reviews of all Reliability Standards. When this project was initiated, periodic reviews were required every five years. The Standards Processes Manual has since been revised to require reviews every ten years.

The Executive Committee of the Standards Committee appointed the Five Year Review Team ("FYRT") for Reliability Standard NUC-001-2.1 on April 22, 2013. The FYRT reviewed Reliability Standard NUC-001-2.1 to identify opportunities for consolidation and

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 FERC.").

[16] The NERC *Rules of Procedure* are available at http://www.nerc.com/AboutNERC/Pages/Rules-of-Procedure.aspx. The NERC *Standard Processes Manual* is available at http://www.nerc.com/comm/SC/Documents/Appendix_3A_StandardsProcessesManual.pdf.

[17] 116 FERC ¶ 61,062 at P 250.

[18] Order No. 672 at PP 268, 270.

improvement. The FYRT posted its recommendation to revise Reliability Standard NUC-001-2.1 for industry comment on July 27, 2013. The FYRT considered stakeholder comments and submitted its final recommendation to revise Reliability Standard NUC-001-2.1 to the Standards Committee on October 7, 2013.

The Standards Committee accepted the work of the FYRT, accepted the proposed Standard Authorization Request for standard development, authorized posting for informal comment, and appointed the existing FYRT members as the standard drafting team to implement the recommended revisions to Reliability Standard NUC-001-2.1 through a formal standard development project.

## V. JUSTIFICATION FOR APPROVAL

### A. Proposed Reliability Standard NUC-001-3

#### 1. Purpose of Proposed Reliability Standard

Proposed Reliability Standard NUC-001-3 requires coordination between Nuclear Plant Generator Operators and Transmission Entities[19] for the purpose of ensuring safe operation and shutdown of nuclear power plants. The proposed Reliability Standard represents the implementation of recommendations made by the FYRT to revise the currently effective Reliability Standard NUC-001-2.1.

#### 2. Requirements, Technical Basis, and Defined Terms

The phrase "undervoltage load shedding programs" has been replaced throughout the proposed Reliability Standard with the phrase "any programs that reduce or shed load based on

[19] The Applicability section of proposed Reliability Standard NUC-001-3 indicates that "Transmission Entities" shall mean all entities that are responsible for providing services related to NPIRs. Such entities may include one or more of the following: Transmission Operators, Transmission Owners, Transmission Planners, Transmission Service Providers, Balancing Authorities, Reliability Coordinators, Planning Coordinators, Distribution Providers, Load-Serving Entities, Generator Owners, and Generator Operators.

underfrequency or undervoltage." This revision was determined necessary by the standard drafting team in order to avoid any potential conflict with the Project 2008-02 standard drafting team's work to develop a definition for the phrase "undervoltage load shedding programs" to create a new NERC defined term.[20]

In Requirement R9, sub-part 9.3.7, the phrase "Special Protection Systems" was replaced with "Remedial Action Schemes" in order to align with Project 2007-06: Special Protection Coordination which is seeking to replace "Special Protection Systems" with "Remedial Action Schemes" throughout the NERC Reliability Standards. In the current NERC Glossary of Terms, the terms "Special Protection System and "Remedial Action Scheme" cross-reference each other and share a definition.

Requirement 1 requires Nuclear Plant Generator Operators to provide Nuclear Plant Interface Requirements ("NPIR") to their respective Transmission Entities in writing and verify that the Transmission Entities have received the NPIRs.

Requirement R2 requires that Transmission Entities and Nuclear Plant Generator Operators have agreements in place that include the mutually agreed to NPIRs and that describe how those NPIRs are addressed and implemented.

Requirement R3 requires Transmission Entities to incorporate the NPIRs into their planning analysis and communicate the results of that analysis to the Nuclear Plant Generator Operators.

Requirement R4 requires the Transmission Entities to incorporate the NPIRs into their operational analysis, operate the electric system to meet the NPIRs, and inform the Nuclear Plant Generator Operator when it loses the ability to meet an NPIR.

[20] More information on Project 2008-02 is available at: http://www.nerc.com/pa/Stand/Pages/Project-2008-02-Undervoltage-Load-Shedding.aspx.

Requirement R5 requires the Nuclear Plant Generator Operator to operate its plant to meet NPIRs.

Requirement R6 requires Nuclear Plant Generator Operators and Transmission Entities to coordinate any outages or maintenance activities that could affect the NPIRs.

Requirement R7 requires the Nuclear Plant Generator Operators to inform its respective Transmission Entity of actual or proposed changes to plant design or capabilities that could impact the ability of the electric system to meet the NPIRs.

Requirement R8 requires the Transmission Entity to inform its Nuclear Plant Generator Operators of any actual or proposed changes to its design or capabilities that could impact the ability of the electric system to meet the NPIRs.

Requirement R9 requires that Nuclear Plant Generator Operators and Transmission Entities must address all of the elements listed in the sub-parts of Requirement R9 within the aggregate of their agreements. Requirement R9 also lists the essential elements that must be contained in the agreements.

3. Improvements Reflected in Proposed NUC-001-3

Proposed Reliability Standard NUC-001-3 contains several improvements, many of which are intended to provide clarity by improving the structure and language over the currently-effective version of the Reliability Standard.

Measure M2 was revised so that it better aligns with Requirement R2. In addition, the Requirement R5 was revised both to ensure consistency with Requirement R4, and to clarify that nuclear plants must be operated to meet the NPIRs.

In Requirements R7 and R8, the standard drafting team deleted the words “Protection Systems” as it is a subset of the elements of "nuclear plant design", in Requirement R7, and "electric system design", in Requirement R8.

The most substantial revisions pertain to Requirement R9 and are intended to clarify that *all* agreements are not required to address each of the elements in Requirement R9, but that the agreements taken as a whole must address the *all* elements. In addition, the standard drafting team, in Requirement R9, sub-part 9.4.1, inserted "affecting the NPIRs" following "Provisions for communications" and "applicable unique" following "definitions of" as recommended for clarity by the Five Year Review Team.

Requirement R9, sub-part 9.1 was retired under Paragraph 81 criteria as it was determined to be solely administrative. However, the standard drafting team recognized any renumbering of the Requirements or sub-parts within proposed Reliability Standard NUC-001-3 would force many Nuclear Plant Generator Operators and Transmission Entities to revise their agreements for the sole purpose of realigning the Agreement with the revised numbering. As a result, the standard drafting team inserted the word “Retired” in Requirement R9.1 in place of the now-retired section to avoid renumbering the sub-parts.

The VRF for Requirement R1 was revised from low to medium because the standard drafting team determined that this Requirement is foundational in nature for the proposed Reliability Standard and that in the event a Nuclear Plant Generator Operator did not provide NPIRs to the Transmission Entities a reliability impact could result. The VSLs were modified such that the proposed Reliability Standard will not unfairly punish Nuclear Plant Generator Operators who have agreements with a large number of Transmission Entities.

The VSLs for the sub-parts of Requirement R4 were eliminated because they were duplicative of the VSLs for Requirement R4. The low VSL for Requirement R6 was eliminated because it pertained only to administrative elements.

The medium VSL for Requirement R7 was revised to high and the high VSL for Requirement R7 was revised to severe. The currently-effective version of the Reliability Standard does not contain a severe VSL. Such incidents represent significant violations of the proposed Reliability Standard and thus the standard drafting team felt this revision was necessary. For the same reasons, the standard drafting team made the same revisions to the VSLs for Requirement 8.

Because of the retirement of Requirement R9.1, the VSLs in Requirement R9 were revised and are now staggered based on the percentage of missing components of the elements from the sub-parts of Requirement R9.

Finally, the proposed Reliability Standard was converted to reflect NERC's template for results-based Reliability Standards. In addition, Time Horizons were added to all of the Requirements as none had been assigned in the previous or currently-effective versions of the Reliability Standard.

### B. Enforceability of Proposed Reliability Standards

The proposed Reliability Standard includes Measures that support each Requirement to help ensure that the Requirements will be enforced in a clear, consistent, non-preferential manner, and without prejudice to any party. The proposed Reliability Standard also includes VRFs and VSLs for each Requirement. The VRFs and VSLs for the proposed Reliability Standard comport with NERC and Commission guidelines related to their assignment. A

detailed analysis of the assignment of the VRFs and VSLs for proposed Reliability Standard NUC-001-3 is attached as **Exhibit F**.

## VI. CONCLUSION

For the reasons set forth above, NERC respectfully requests that the Commission:

- approve the proposed Reliability Standard and other associated elements included in **Exhibit A**;
- approve the VRFs and VSLs (**Exhibits A and F**);
- approve the Implementation Plan (**Exhibit B**); and
- approve the retirement of the currently effective Reliability Standard NUC-001-2.1, as proposed in the Implementation Plan.

Respectfully submitted,

*/s/ Brady A. Walker*

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Date: September 15, 2014

**Exhibit A**

**Proposed Reliability Standard NUC-001-3**

## A. Introduction

1. **Title:** **Nuclear Plant Interface Coordination**

2. **Number:** **NUC-001-3**

3. **Purpose:** This standard requires coordination between Nuclear Plant Generator Operators and Transmission Entities for the purpose of ensuring nuclear plant safe operation and shutdown.

4. **Applicability:**

   **4.1. Functional Entities:**

   **4.1.1** Nuclear Plant Generator Operators.

   **4.2.** Transmission Entities shall mean all entities that are responsible for providing services related to Nuclear Plant Interface Requirements (NPIRs). Such entities may include one or more of the following:

   **4.2.1** Transmission Operators.

   **4.2.2** Transmission Owners.

   **4.2.3** Transmission Planners.

   **4.2.4** Transmission Service Providers.

   **4.2.5** Balancing Authorities.

   **4.2.6** Reliability Coordinators.

   **4.2.7** Planning Coordinators.

   **4.2.8** Distribution Providers.

   **4.2.9** Load-Serving Entities.

   **4.2.10** Generator Owners.

   **4.2.11** Generator Operators.

5. **Background:** Project 2012-13 Nuclear Power Interface Coordination seeks to implement the changes that were proposed by the NUC FYRT. The NUC FYRT was appointed by the Standards Committee Executive Committee on April 22, 2013. The NUC FYRT reviewed the NUC-001-2.1 standard to identify opportunities for consolidation and additional improvements. The NUC FYRT posted its recommendation to revise NUC-001-2.1 for industry comment on July 27, 2013. The NUC FYRT considered comments and submitted its final recommendation to revise NUC-001-2.1, along with a Standards Authorization Request (SAR) to the Standards Committee on October 17, 2013. The Standards Committee accepted the

recommendation of the FYRT and appointed the team as the Standard Drafting Team (SDT) to implement the recommendation.

6. **Effective Dates:** First day of the first calendar quarter that is twelve months beyond the date that this standard is approved by applicable regulatory authorities, or as otherwise provided for in a jurisdiction where approval by an applicable governmental authority is required for a standard to go into effect. Where approval by an applicable governmental authority is not required, the standard shall become effective on the first day of the first calendar quarter that is twelve months after the date this standard is adopted by the NERC Board of Trustees or as otherwise provided for in that jurisdiction.

## B. Requirements and Measures

**R1.** The Nuclear Plant Generator Operator shall provide the proposed NPIRs in writing to the applicable Transmission Entities and shall verify receipt. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning ]*

**M1.** The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, provide a copy of the transmittal and receipt of transmittal of the proposed NPIRs to the responsible Transmission Entities.

**R2.** The Nuclear Plant Generator Operator and the applicable Transmission Entities shall have in effect one or more Agreements[1] that include mutually agreed to NPIRs and document how the Nuclear Plant Generator Operator and the applicable Transmission Entities shall address and implement these NPIRs. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning ]*

**M2.** The Nuclear Plant Generator Operator and each Transmission Entity shall each have a copy of the currently effective Agreement(s) which document how the Nuclear Plant Generator Operator and the applicable Transmission Entities address and implement the NPIRs available for inspection upon request of the Compliance Enforcement Authority.

**R3.** Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall incorporate the NPIRs into their planning analyses of the electric system and shall communicate the results of these analyses to the Nuclear Plant Generator Operator.: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning ]*

**M3.** Each Transmission Entity responsible for planning analyses in accordance with the Agreement shall, upon request of the Compliance Enforcement Authority, provide a copy of the planning analyses results transmitted to the Nuclear Plant Generator Operator, showing incorporation of the NPIRs. The Compliance Enforcement

[1] Agreements may include mutually agreed upon procedures or protocols in effect between entities or between departments of a vertically integrated system.

Authority shall refer to the Agreements developed in accordance with this standard for specific requirements.

**R4.** Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall *[Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]*

**4.1.** Incorporate the NPIRs into their operating analyses of the electric system.
**4.2.** Operate the electric system to meet the NPIRs.

**4.3.** Inform the Nuclear Plant Generator Operator when the ability to assess the operation of the electric system affecting NPIRs is lost.

**M4.** Each Transmission Entity responsible for operating the electric system in accordance with the Agreement shall demonstrate or provide evidence of the following, upon request of the Compliance Enforcement Authority:

- The NPIRs have been incorporated into the current operating analysis of the electric system. (Requirement 4.1)
- The electric system was operated to meet the NPIRs. (Requirement 4.2)
- The Transmission Entity informed the Nuclear Plant Generator Operator when it became aware it lost the capability to assess the operation of the electric system affecting the NPIRs

**R5.** Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall operate the nuclear plant to meet the NPIRs. *[Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations ]*

**M5.** The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, demonstrate or provide evidence that the nuclear power plant is being operated consistent with the NPIRs.

**R6.** Per the Agreements developed in accordance with this standard, the applicable Transmission Entities and the Nuclear Plant Generator Operator shall coordinate outages and maintenance activities which affect the NPIRs. *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*

**M6.** The Transmission Entities and Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, provide evidence of the coordination between the Transmission Entities and the Nuclear Plant Generator Operator regarding outages and maintenance activities which affect the NPIRs.

**R7.** Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall inform the applicable Transmission Entities of actual or proposed changes to nuclear plant design (e.g., protective relay setpoints),

configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

**M7.** The Nuclear Plant Generator Operator shall provide evidence that it informed the applicable Transmission Entities of changes to nuclear plant design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the Transmission Entities to meet the NPIRs.

**R8.** Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall inform the Nuclear Plant Generator Operator of actual or proposed changes to electric system design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

**M8.** The Transmission Entities shall each provide evidence that the entities informed the Nuclear Plant Generator Operator of changes to electric system design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the Nuclear Plant Generator Operator to meet the NPIRs.

**R9.** The Nuclear Plant Generator Operator and the applicable Transmission Entities shall include the following elements in aggregate within the Agreement(s) identified in R2.

- Where multiple Agreements with a single Transmission Entity are put into effect, the R9 elements must be addressed in aggregate within the Agreements; however, each Agreement does not have to contain each element. The Nuclear Plant Generator Operator and the Transmission Entity are responsible for ensuring all the R9 elements are addressed in aggregate within the Agreements.
- Where Agreements with multiple Transmission Entities are required, the Nuclear Plant Generator Operator is responsible for ensuring all the R9 elements are addressed in aggregate within the Agreements with the Transmission Entities. The Agreements with each Transmission Entity do not have to contain each element; however, the Agreements with the multiple Transmission Entities, in the aggregate, must address all R9 elements. For each Agreement(s), the Nuclear Plant Generator Operator and the Transmission Entity are responsible to ensure the Agreement(s) contain(s) the elements of R9 applicable to that Transmission Entity. : *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

**9.1.** Retired. *[Note: Part 9.1 was retired under the Paragraph 81 project. The NUC SDT proposes to leave this Part blank to avoid renumbering Requirement parts that would impact existing agreements throughout the industry.]*

**9.2.** Technical requirements and analysis:

**9.2.1.** Identification of parameters, limits, configurations, and operating scenarios included in the NPIRs and, as applicable, procedures for providing any specific data not provided within the Agreement.

**9.2.2.** Identification of facilities, components, and configuration restrictions that are essential for meeting the NPIRs.

**9.2.3.** Types of planning and operational analyses performed specifically to support the NPIRs, including the frequency of studies and types of Contingencies and scenarios required.

**9.3.** Operations and maintenance coordination

**9.3.1.** Designation of ownership of electrical facilities at the interface between the electric system and the nuclear plant and responsibilities for operational control coordination and maintenance of these facilities.

**9.3.2.** Identification of any maintenance requirements for equipment not owned or controlled by the Nuclear Plant Generator Operator that are necessary to meet the NPIRs.

**9.3.3.** Coordination of testing, calibration and maintenance of on-site and off-site power supply systems and related components.

**9.3.4.** Provisions to address mitigating actions needed to avoid violating NPIRs and to address periods when responsible Transmission Entity loses the ability to assess the capability of the electric system to meet the NPIRs. These provisions shall include responsibility to notify the Nuclear Plant Generator Operator within a specified time frame.

**9.3.5.** Provision for considering, within the restoration process, the requirements and urgency of a nuclear plant that has lost all off-site and on-site AC power.

**9.3.6.** Coordination of physical and cyber security protection at the nuclear plant interface to ensure each asset is covered under at least one entity's plan.

**9.3.7.** Coordination of the NPIRs with transmission system Remedial Action Schemes and any programs that reduce or shed load based on underfrequency or undervoltage.

**9.4.** Communications and training Administrative elements:

**9.4.1.** Provisions for communications affecting the NPIRs between the Nuclear Plant Generator Operator and Transmission Entities, including communications protocols, notification time requirements, and definitions of applicable unique terms.

**9.4.2.** Provisions for coordination during an off-normal or emergency event affecting the NPIRs, including the need to provide timely information explaining the event, an estimate of when the system will be returned to a normal state, and the actual time the system is returned to normal.

**9.4.3.** Provisions for coordinating investigations of causes of unplanned events affecting the NPIRs and developing solutions to minimize future risk of such events.

**9.4.4.** Provisions for supplying information necessary to report to government agencies, as related to NPIRs.

**9.4.5.** Provisions for personnel training, as related to NPIRs.

**M9.** The Nuclear Plant Generator Operator shall have a copy of the Agreement(s) addressing the elements in Requirement 9 available for inspection upon request of the Compliance Enforcement Authority. Each Transmission Entity shall have a copy of the Agreement(s) addressing the elements in Requirement 9 for which it is responsible available for inspection upon request of the Compliance Enforcement Authority.

## C. Compliance

### 1. Compliance Monitoring Process

#### 1.1. Compliance Enforcement Authority

Regional Entity

#### 1.2. Compliance Monitoring and Assessment Processes:

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints Text

#### 1.3. Data Retention

The Responsible Entity shall keep data or evidence to show compliance as identified below unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation:

- For Measure 1, the Nuclear Plant Generator Operator shall keep its latest transmittals and receipts.
- For Measure 2, the Nuclear Plant Generator Operator and each Transmission Entity shall have its current, in-force Agreement.
- For Measure 3, the Transmission Entity shall have the latest planning analysis results.

- For Measures 4, 6 and 8, the Transmission Entity shall keep evidence for two years plus current.
- For Measures 5, 6 and 7, the Nuclear Plant Generator Operator shall keep evidence for two years plus current.

If a Responsible Entity is found non-compliant it shall keep information related to the noncompliance until found compliant.

The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.

### 1.4. Additional Compliance Information

None

## Table of Compliance Elements

| R # | Time Horizon | VRF | Violation Severity Levels | | | |
|---|---|---|---|---|---|---|
| | | | Lower VSL | Moderate VSL | High VSL | Severe VSL |
| **R1** | | **Medium** | The Nuclear Plant Generator Operator provided the NPIRs to the applicable entities but did not verify receipt. | The Nuclear Plant Generator Operator did not provide the proposed NPIR to one of the applicable entities unless there was only one entity. | The Nuclear Plant Generator Operator did not provide the proposed NPIRs to two of the applicable entities unless there were only two entities. | The Nuclear Plant Generator Operator did not provide the proposed NPIRs to more than two of applicable entities.<br>OR<br>For a particular nuclear power plant, if the number of possible applicable transmission entities is equal to the number of applicable transmission entities not provided NPIRs |
| **R2** | | **Medium** | N/A | N/A | N/A | The Nuclear Plant Generator Operator or the applicable Transmission Entity does not have in effect one or more agreements that include mutually agreed to NPIRs and document the implementation of the NPIRs. |
| **R3** | | **Medium** | N/A | The responsible entity incorporated the NPIRs into its planning analyses but did not communicate | N/A | The responsible entity did not incorporate the NPIRs into its planning analyses of the electric system. |

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| | | | | the results to the Nuclear Plant Generator Operator. | | |
| **R4** | | **High** | N/A | The responsible entity did not comply with Requirement R4, Part 4.3. | The responsible entity did not comply with Requirement R4, Part R4.1. | The responsible entity did not comply with Requirement R4, Part R4.2. |
| **R5** | | **High** | N/A | N/A | N/A | The Nuclear Plant Generator Operator failed to operate per the NPIRs developed in accordance with this standard. |
| **R6** | | **Medium** | N/A | The Nuclear Plant Generator Operator or Transmission Entity failed to provide outage or maintenance schedules to the appropriate parties as described in the agreement or on a time period consistent with the agreements. | The Nuclear Plant Generator Operator or Transmission Entity failed to coordinate one or more outages or maintenance activities in accordance the requirements of the agreements. | N/A |
| **R7** | | **High** | The Nuclear Plant Generator Operator did not inform the applicable Transmission Entities of proposed changes to nuclear plant design (e.g. protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. | N/A | The Nuclear Plant Generator Operator did not inform the applicable Transmission Entities of actual changes to nuclear plant design (e.g. protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. | The Nuclear Plant Generator Operator did not inform the applicable Transmission Entities of actual changes to nuclear plant design (e.g., protective relay setpoints), configuration, operations, limits or capabilities that directly impact the ability of the electric system to meet the NPIRs. |
| **R8** | | **High** | The applicable Transmission Entities did not inform the Nuclear | N/A | The applicable Transmission Entities did not inform the Nuclear | The applicable Transmission Entities did not inform the Nuclear |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | Plant Generator Operator of proposed changes to transmission system design, configuration (e.g. protective relay setpoints), operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. | | Plant Generator Operator of actual changes to transmission system design (e.g. protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. | Plant Generator Operator of actual changes to transmission system design (e.g. protective relay setpoints), configuration, operations, limits, or capabilities that directly impacts the ability of the electric system to meet the NPIRs. |
| **R9** | | **Medium** | | The Agreement(s) identified in R2. between the Nuclear Plant Generator Operator and the applicable Transmission Entity failed to include up to 20% of the combined sub-components in Requirement R9 Parts 9.2, 9.3 and 9.4 applicable to that entity. | The Agreement(s) identified in R2. between the Nuclear Plant Generator Operator and the applicable Transmission Entity failed to include greater than 20%, but less than 40% of the combined sub-components in Requirement R9 Parts 9.2, 9.3 and 9.4 applicable to the entity. | The Agreement(s) identified in R2. between the Nuclear Plant Generator Operator and the applicable Transmission Entity failed to include 40% or more of the combined sub-components in Requirement R9 Parts 9.2, 9.3 and 9.4 applicable to the entity. |

## D. Regional Variances

The design basis for Canadian (CANDU) nuclear power plants (NPPs) does not result in the same licensing requirements as U.S. NPPs. Nuclear Regulatory Commission (NRC) design criteria specifies that in addition to emergency on-site electrical power, electrical power from the electric network also be provided to permit safe shutdown. There are no equivalent Canadian Regulatory requirements for electrical power from the electric network to be provided to permit safe shutdown. Therefore the definition of Nuclear Plant Licensing Requirements (NPLR) for Canadian CANDU NPPs will be as follows:

Canadian Nuclear Plant Licensing Requirements (CNPLR) are requirements included in the design basis of the nuclear plant and are statutorily mandated for the operation of the plant; when used in this standard, NPLR shall mean nuclear power plant licensing requirements for avoiding preventable challenges to nuclear safety as a result of an electric system disturbance, transient, or condition.

## E. Interpretations

None.

## F. Associated Documents

None

## Version History

| Version | Date | Action | Change Tracking |
|---|---|---|---|
| 1 | May 2, 2007 | Approved by Board of Trustees | New |
| 2 | August 5, 2009 | Adopted by Board of Trustees | Revised. Modifications for Order 716 to Requirement R9.3.5 and footnote 1; modifications to bring compliance elements into conformance with the latest version of the ERO Rules of Procedure. |
| 2 | January 22, 2010 | Approved by FERC on January 21, 2010. Added Effective Date | Update |
| 2 | February 7, 2013 | R9.1, R9.1.1, R9.1.2, R9.1.3, and R9.1.4 and associated elements approved by NERC Board of Trustees for retirement as part of the Paragraph 81 project (Project 2013-02) pending applicable regulatory approval. | |

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| 2 | November 21, 2013 | R9.1, R9.1.1, R9.1.2, R9.1.3, and R9.1.4 and associated elements approved by FERC for retirement as part of the Paragraph 81 project (Project 2013-02) | |
| 2.1 | April 11, 2012 | Errata approved by the Standards Committee; (Capitalized “Protection System” in accordance with Implementation Plan for Project 2007-17 approval of revised definition of “Protection System”) | Errata associated with Project 2007-17 |
| 2.1 | September 9, 2013 | Informational filing submitted to reflect the revised definition of Protection System in accordance with the Implementation Plan for the revised term. | |
| 3 | March 2014 | Modifications to implement the recommendations of the five-year review of NUC-001, which was accepted by the Standards Committee on October 17, 2013. | Revision |
| 3 | August 14, 2014 | Adopted by the NERC Board of Trustees | |

## Rationale

During development of this standard, text boxes were embedded within the standard to explain the rationale for various parts of the standard. Upon BOT approval, the text from the rationale text boxes was moved to this section.

### Rationale for R5:

The NUC FYRT recommended R5 be revised for consistency with R4 and to clarify that nuclear plants must be operated to meet the Nuclear Plant Interface Requirements.

### Rationale for R7 and R8:

The NUC FYRT recommended deleting “Protection Systems” in Requirements R7 and R8 since it is a subset of the "nuclear plant design" and "electric system design" elements currently contained in R7 and R8 respectively; and adding a parenthetical clause (e.g. protective setpoints) to R7 following "nuclear plant design" and parenthetical clause (e.g. relay setpoints) to R8 following "electric system design."

### Rationale for R9:

The NUC FYRT recommended that R9 be revised to clarify that all agreements do not have to discuss each of the elements in R9, but that the sum total of the agreements need to address the elements. In addition, for clarity in Part 9.4.1, the NUC FYRT recommended that "affecting the

NPIRs" be inserted following "Provisions for communications" and "applicable unique" be inserted following ""definitions of."

**Rationale for R9.3.7:**

The term “Special Protection Systems” (SPS) was replaced with “Remedial Action Schemes” (RAS) in order to align with other current NERC standards development work in Project 2010-05.2: Special Protection Systems. Project 2010-05.2 has proposed to replace SPS with RAS throughout all of the NERC Standards in order to move to the use of a single term. RAS and SPS have the same definition in the NERC Glossary of Terms.

**Exhibit B**

**Implementation Plan**

# Implementation Plan

## Project 2012-13 Nuclear Plant Interface Coordination

### Requested Approvals

- NUC-001-3 – Nuclear Plant Interface Coordination

### Requested Retirements

- NUC-001-2.1 – Nuclear Plant Interface Coordination

### Prerequisite Approvals

None

### Revisions to Defined Terms in the NERC Glossary

None

### Background

The Project 2012-13 Nuclear Power Interface Coordination Standards Drafting Team (NPIC SDT) seeks to implement the changes that were proposed by the NUC-001-2.1 Five Year Review Team (FYTR). The NUC FYRT was appointed by the Standards Committee Executive Committee on April 22, 2013. The NUC FYRT reviewed the NUC-001-2.1 standard to identify opportunities for consolidation and additional improvements. The NUC FYRT posted for industry comment its recommendation to revise NUC-001-2.1 on July 27, 2013. The NUC FYRT considered comments and submitted to the Standards Committee its final recommendation to revise NUC-001-2.1, along with a Standards Authorization Request (SAR) on October 17, 2013. The Standards Committee accepted the recommendation of the FYRT and appointed the team as the NPIC SDT to implement the recommendation.

## Applicable Entities

- Nuclear Plant Generator Operators.
- Transmission Entities shall mean all entities that are responsible for providing services related to Nuclear Plant Interface Requirements (NPIRs). Such entities may include one or more of the following:
- Transmission Operators.
- Transmission Owners.
- Transmission Planners.
- Transmission Service Providers.
- Balancing Authorities.
- Reliability Coordinators.
- Planning Coordinators.
- Distribution Providers.
- Load-serving Entities.
- Generator Owners.
- Generator Operators.

## Effective Date

First day of the first calendar quarter that is twelve months beyond the date that this standard is approved by applicable regulatory authorities or as otherwise provided for in a jurisdiction where approval by an applicable governmental authority is required for a standard to go into effect. Where approval by an applicable governmental authority is not required, the standard shall become effective on the first day of the first calendar quarter that is twelve s months after the date this standard is adopted by the NERC Board of Trustees or as otherwise provided for in that jurisdiction.

## Standards for Retirement

Midnight of the day immediately prior to the Effective Date of NUC-001-3 in the particular jurisdiction in which the new standard is becoming effective.

### Revisions or Retirements to Already Approved Standards

The following tables identify the sections of the approved standard that shall be retired or revised when this standard is implemented. If the drafting team is recommending the retirement or revision of a requirement, that text is blue.

| Already Approved Standard | Proposed Replacement Requirement(s) |
|---|---|
| NUC-001-2.1<br><br>**R5.** The Nuclear Plant Generator Operator shall operate per the Agreements developed in accordance with this standard. *[Violation Risk Factor: High] [Time Horizon: None]*<br><br>**R7.** Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall inform the applicable Transmission Entities of actual or proposed changes to nuclear plant design, configuration, operations, limits, Protection Systems, or capabilities that may impact the ability of the electric system to meet the NPIRs. [Violation Risk Factor: High] [Time Horizon: None]<br><br>**R8.** Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall inform the Nuclear Plant Generator Operator of actual or proposed changes to electric system design, configuration, operations, limits, Protection Systems, or capabilities that may impact the ability of the electric system to meet the NPIRs. [Violation Risk Factor: High] [Time Horizon: ] | NUC-001-3<br><br>R5. Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall operate the nuclear plant to meet the NPIRs. *[Violation Risk Factor: High] [Time Horizon: Operations Planning ]*<br><br>R7. Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall inform the applicable Transmission Entities of actual or proposed changes to nuclear plant design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*<br><br>R8. Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall inform the Nuclear Plant Generator Operator of actual or proposed changes to electric system design (e.g., protective relay setpoints), configuration, operations, limits, , or capabilities that may impact the ability of the electric system to meet the NPIRs. [Violation Risk Factor: High] [Time Horizon: Long-term Planning] |
| **Notes:** | |

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|---|---|
| R9. The Nuclear Plant Generator Operator and the applicable Transmission Entities shall include, as a minimum, the following elements within the agreement(s) identified in R2: [Violation Risk Factor: Medium] [Time Horizon: ]<br>9.1. Administrative elements:<br>9.1.1. Definitions of key terms used in the agreement.<br>9.1.2. Names of the responsible entities, organizational relationships, and responsibilities related to the NPIRs.<br>9.1.3. A requirement to review the agreement(s) at least every three years. A dispute resolution mechanism.<br>9.2. Technical requirements and analysis:<br>9.2.1. Identification of parameters, limits, configurations, and operating scenarios included in the NPIRs and, as applicable, procedures for providing any specific data not provided within the Agreement.<br>9.2.2. Identification of facilities, components, and configuration restrictions that are essential for meeting the NPIRs.<br>9.2.3. Types of planning and operational analyses performed specifically to support the NPIRs, including the frequency of studies and types of Contingencies and scenarios required.<br>9.3. Operations and maintenance coordination<br>9.3.1. Designation of ownership of electrical facilities at the interface between the electric system and the nuclear plant and responsibilities for operational control coordination and maintenance of these facilities.<br>9.3.2. Identification of any maintenance requirements for equipment not owned or controlled by the Nuclear Plant Generator Operator that are necessary to meet the NPIRs.<br>9.3.3. Coordination of testing, calibration and maintenance of on-site and off-site power supply systems and related components.<br>9.3.4. Provisions to address mitigating actions needed to avoid violating NPIRs and to address periods when responsible | R9. The Nuclear Plant Generator Operator and the applicable Transmission Entities shall include the following elements in aggregate within the Agreement(s) identified in R2.<br>• Where multiple Agreements with a single Transmission Entity are put into effect, the R9 elements must be addressed in aggregate within the Agreements; however, each Agreement does not have to contain each element. The Nuclear Plant Generator Operator and the Transmission Entity are responsible for ensuring all the R9 elements are addressed in aggregate within the Agreements.<br>• Where Agreements with multiple Transmission Entities are required, the Nuclear Plant Generator Operator is responsible for ensuring all the R9 elements are addressed in aggregate within the Agreements with the Transmission Entities. The Agreements with each Transmission Entity do not have to contain each element; however, the Agreements with the multiple Transmission Entities, in the aggregate, must address all R9 elements. For each Agreement(s), the Nuclear Plant Generator Operator and the Transmission Entity are responsible to ensure the Agreement(s) contain(s) the elements of R9 applicable to that Transmission Entity. : [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]<br>9.1. Not used.<br>9.2. Technical requirements and analysis:<br>9.2.1. Identification of parameters, limits, configurations, and operating scenarios included in the NPIRs and, as applicable, procedures for providing any specific data not provided within the Agreement.<br>9.2.2. Identification of facilities, components, and configuration restrictions that are essential for meeting the NPIRs.<br>9.2.3. Types of planning and operational analyses performed specifically to support the NPIRs, including the frequency of studies and types of Contingencies and scenarios required. |

| | |
|---|---|
| Transmission Entity loses the ability to assess the capability of the electric system to meet the NPIRs. These provisions shall include responsibility to notify the Nuclear Plant Generator Operator within a specified time frame.<br>9.3.5. Provision for considering, within the restoration process, the requirements and urgency of a nuclear plant that has lost all off-site and on-site AC power.<br>9.3.6. Coordination of physical and cyber security protection of the Bulk Electric System at the nuclear plant interface to ensure each asset is covered under at least one entity's plan.<br>9.3.7. Coordination of the NPIRs with transmission system Special Protection Systems and underfrequency and undervoltage load shedding programs.<br><br>9.4. Communications and training Administrative elements:<br>9.4.1. Provisions for communications between the Nuclear Plant Generator Operator and Transmission Entities, including communications protocols, notification time requirements, and definitions of terms.<br>9.4.2. Provisions for coordination during an off-normal or emergency event affecting the NPIRs, including the need to provide timely information explaining the event, an estimate of when the system will be returned to a normal state, and the actual time the system is returned to normal.<br>9.4.3. Provisions for coordinating investigations of causes of unplanned events affecting the NPIRs and developing solutions to minimize future risk of such events.<br>9.4.4. Provisions for supplying information necessary to report to government agencies, as related to NPIRs.<br>9.4.5. Provisions for personnel training, as related to NPIRs. | 9.3. Operations and maintenance coordination<br>9.3.1. Designation of ownership of electrical facilities at the interface between the electric system and the nuclear plant and responsibilities for operational control coordination and maintenance of these facilities.<br>9.3.2. Identification of any maintenance requirements for equipment not owned or controlled by the Nuclear Plant Generator Operator that are necessary to meet the NPIRs.<br>9.3.3. Coordination of testing, calibration and maintenance of on-site and off-site power supply systems and related components.<br>9.3.4. Provisions to address mitigating actions needed to avoid violating NPIRs and to address periods when responsible Transmission Entity loses the ability to assess the capability of the electric system to meet the NPIRs. These provisions shall include responsibility to notify the Nuclear Plant Generator Operator within a specified time frame.<br>9.3.5. Provision for considering, within the restoration process, the requirements and urgency of a nuclear plant that has lost all off-site and on-site AC power.<br>9.3.6. Coordination of physical and cyber security protection at the nuclear plant interface to ensure each asset is covered under at least one entity's plan.<br>9.3.7. Coordination of the NPIRs with transmission system Special Protection Systems and any programs that reduce or shed load based on underfrequency or undervoltage.<br><br>9.4. Communications and training Administrative elements:<br>9.4.1. Provisions for communications affecting the NPIRs between the Nuclear Plant Generator Operator and Transmission Entities, including communications protocols, notification time requirements, and definitions of applicable unique terms. |

| Already Approved Standard | Proposed Replacement Requirement(s) |
|---|---|
| | 9.4.2. Provisions for coordination during an off-normal or emergency event affecting the NPIRs, including the need to provide timely information explaining the event, an estimate of when the system will be returned to a normal state, and the actual time the system is returned to normal.<br>9.4.3. Provisions for coordinating investigations of causes of unplanned events affecting the NPIRs and developing solutions to minimize future risk of such events.<br>9.4.4. Provisions for supplying information necessary to report to government agencies, as related to NPIRs.<br>9.4.5. Provisions for personnel training, as related to NPIRs. |
| **Notes:** Requirement R9.1 retired under Paragraph 81 criteria. Retirement approved by FERC January 2014. | |

**Exhibit C**

**Order No. 672 Criteria**

## Order No. 672 Criteria

In Order No. 672,[1] the Commission identified a number of criteria it will use to analyze Reliability Standards proposed for approval to ensure they are just, reasonable, not unduly discriminatory or preferential, and in the public interest. The discussion below identifies these factors and explains how the proposed Reliability Standard has met or exceeded the criteria:

**1. Proposed Reliability Standards must be designed to achieve a specified reliability goal and must contain a technically sound means to achieve that goal.[2]**

The proposed standard achieves the specific reliability goal of ensuring safe operating and shutdown of nuclear plants. This is accomplished by requiring coordination between Nuclear Plant Generator Operators and Transmission Entities.

**2. Proposed Reliability Standards must be applicable only to users, owners and operators of the bulk power system, and must be clear and unambiguous as to what is required and who is required to comply.[3]**

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[1] *Rules Concerning Certification of the Electric Reliability Organization; and Procedures for the Establishment, Approval, and Enforcement of Electric Reliability Standards*, Order No. 672, FERC Stats. & Regs. ¶ 31,204, *order on reh'g*, Order No. 672-A, FERC Stats. & Regs. ¶ 31,212 (2006).

[2] Order No. 672 at P 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 Cybersecurity protection.

Order No. 672 at P 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] Order No. 672 at P 322. The proposed Reliability Standard may impose a requirement on any user, owner, or operator of such facilities, but not on others.

Order No. 672 at P 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.

The proposed Reliability Standard is clear and unambiguous as to what is required and who is required to comply, in accordance with Order No. 672. The proposed Reliability Standard applies to Transmission Entities, which include Transmission Operators, Transmission Owners, Transmission Planners, Transmission Service Providers, Balancing Authorities, Reliability Coordinators, Planning Coordinators, Distribution Providers, Load-Serving Entities, Generator Owners, and Generator Operators, and clearly articulates the actions that such entities must take to comply with the proposed Reliability Standard.

**3. A proposed Reliability Standard must include clear and understandable consequences and a range of penalties (monetary and/or non-monetary) for a violation.[4]**

The VRFs and VSLs for the proposed Reliability Standard comport with NERC and Commission guidelines related to their assignment. The assignment of the severity level for each VSL is consistent with the corresponding requirement and the VSLs should ensure uniformity and consistency in the determination of penalties. The VSLs do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations. For these reasons, the proposed Reliability Standard includes clear and understandable consequences in accordance with Order No. 672.

**4. A proposed Reliability Standard must identify clear and objective criterion or measure for compliance, so that it can be enforced in a consistent and non**

[4] Order No. 672 at P 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.

**preferential manner.**[5]

The proposed Reliability Standard contains Measures that support each Requirement by clearly identifying what is required and how the Requirement will be enforced. The Measures are as follows:

M1. The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, provide a copy of the transmittal and receipt of transmittal of the proposed NPIRs to the responsible Transmission Entities.

M2. The Nuclear Plant Generator Operator and each Transmission Entity shall each have a copy of the currently effective Agreement(s) which document how the Nuclear Plant Generator Operator and the applicable Transmission Entities address and implement the NPIRs available for inspection upon request of the Compliance Enforcement Authority.

M3. Each Transmission Entity responsible for planning analyses in accordance with the Agreement shall, upon request of the Compliance Enforcement Authority, provide a copy of the planning analyses results transmitted to the Nuclear Plant Generator Operator, showing incorporation of the NPIRs. The Compliance Enforcement Authority shall refer to the Agreements developed in accordance with this standard for specific requirements.

M4. Each Transmission Entity responsible for operating the electric system in accordance with the Agreement shall demonstrate or provide evidence of the following, upon request of the Compliance Enforcement Authority:

- The NPIRs have been incorporated into the current operating analysis of the electric system. (Requirement 4.1)
- The electric system was operated to meet the NPIRs. (Requirement 4.2)
- The Transmission Entity informed the Nuclear Plant Generator Operator when it became aware it lost the capability to assess the operation of the electric system affecting the NPIRs

M5. The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, demonstrate or provide evidence that the nuclear power plant is being operated consistent with the NPIRs.

M6. The Transmission Entities and Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, provide evidence of the coordination between the Transmission Entities and the Nuclear Plant Generator Operator regarding outages and maintenance activities which affect the NPIRs.

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[5] Order No. 672 at P 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.

M7. The Nuclear Plant Generator Operator shall provide evidence that it informed the applicable Transmission Entities of changes to nuclear plant design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the Transmission Entities to meet the NPIRs.

M8. The Transmission Entities shall each provide evidence that the entities informed the Nuclear Plant Generator Operator of changes to electric system design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the Nuclear Plant Generator Operator to meet the NPIRs.

M9. The Nuclear Plant Generator Operator shall have a copy of the Agreement(s) addressing the elements in Requirement 9 available for inspection upon request of the Compliance Enforcement Authority. Each Transmission Entity shall have a copy of the Agreement(s) addressing the elements in Requirement 9 for which it is responsible available for inspection upon request of the Compliance Enforcement Authority.

These measures help provide clarity regarding how the Requirements will be enforced, and help ensure that the Requirements will be enforced in a clear, consistent, and non-preferential manner and without prejudice to any party.

**5. Proposed Reliability Standards should achieve a reliability goal effectively and efficiently — but do not necessarily have to reflect "best practices" without regard to implementation cost or historical regional infrastructure design.[6]**

The proposed Reliability Standard achieves its reliability goals effectively and efficiently in accordance with Order No. 672. Proposed Reliability Standard NUC-001-3 reflects significant structural revisions designed to provide increased clarity. The important reliability goal of ensuring safe operation and shut down of nuclear power plants is more effectively supported by these revisions.

**6. Proposed Reliability Standards cannot be "lowest common denominator," i.e., cannot reflect a compromise that does not adequately protect Bulk-Power System reliability. Proposed Reliability Standards can consider costs to implement for smaller entities, but not at consequences of less than excellence in operating system reliability.[7]**

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[6] Order No. 672 at P 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.

[7] Order No. 672 at P 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

The proposed Reliability Standard does not reflect a "lowest common denominator" approach. To the contrary, the proposed standard represents an improvement over the previous version as described herein. The changes reflected in proposed Reliability Standard NUC-001-3 are based on the recommendations of the Five Year Review Team tasked to perform a review of the currently-effective Reliability Standard. The proposed Reliability Standard also reflects the input of the standard drafting team charged with implementing the recommendations in the review.

**7. Proposed Reliability Standards must be designed to apply throughout North America to the maximum extent achievable with a single Reliability Standard while not favoring one geographic area or regional model. It should take into account regional variations in the organization 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.[8]**

The proposed Reliability Standard applies throughout North America and does not favor one geographic area or regional model. While the proposed Reliability Standard does not propose any new or additional variances, a variance for Canadian nuclear power plants included

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"lowest common denominator" — if such practice does not adequately protect Bulk-Power System reliability. Although FERC 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.

Order No. 672 at P 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.

[8] Order No. 672 at P 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.

in the currently-effective version of the Reliability Standard is carried forward in the proposed version of the Reliability Standard. The variance accounts for differences in Canadian Regulatory requirements regarding safe shutdown of nuclear plants and is as follows:

> The design basis for Canadian (CANDU) nuclear power plants (NPPs) does not result in the same licensing requirements as U.S. NPPs. Nuclear Regulatory Commission (NRC) design criteria specifies that in addition to emergency on-site electrical power, electrical power from the electric network also be provided to permit safe shutdown. There are no equivalent Canadian Regulatory requirements for electrical power from the electric network to be provided to permit safe shutdown.
>
> Therefore the definition of Nuclear Plant Licensing Requirements (NPLR) for Canadian CANDU NPPs will be as follows: Canadian Nuclear Plant Licensing Requirements (CNPLR) are requirements included in the design basis of the nuclear plant and are statutorily mandated for the operation of the plant; when used in this standard, NPLR shall mean nuclear power plant licensing requirements for avoiding preventable challenges to nuclear safety as a result of an electric system disturbance, transient, or condition.

**8. Proposed Reliability Standards should cause no undue negative effect on competition or restriction of the grid beyond any restriction necessary for reliability.[9]**

The proposed Reliability Standard does not restrict the available transmission capability or limit use of the Bulk-Power System in a preferential manner.

**9. The implementation time for the proposed Reliability Standard is reasonable.[10]**

The proposed effective dates for the standard are just and reasonable and appropriately

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[9] Order No. 672 at P 332. As directed by section 215 of the FPA, FERC 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.

[10] Order No. 672 at P 333. In considering whether a proposed Reliability Standard is just and reasonable, FERC 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.

balance the urgency in the need to implement the standards against the reasonableness of the time allowed for those who must comply to develop necessary procedures, software, facilities, staffing or other relevant capability. This will allow applicable entities adequate time to ensure compliance with the Requirements. The proposed effective dates are explained in the proposed Implementation Plan, attached as **Exhibit B**.

**10. The Reliability Standard was developed in an open and fair manner and in accordance with the Commission-approved Reliability Standard development process.[11]**

The proposed Reliability Standard was developed in accordance with NERC's Commission-approved, ANSI- accredited processes for developing and approving Reliability Standards. **Exhibit G** includes a summary of the Reliability Standard development proceedings, and details the processes followed to develop the Reliability Standard.

These processes included, among other things, the opportunity for multiple comment periods, pre-ballot review periods, and balloting periods. Additionally, all meetings of the standard drafting team were properly noticed and open to the public. The initial and final ballots both achieved a quorum and exceeded the required ballot pool approval levels.

**11. NERC must explain any balancing of vital public interests in the development of proposed Reliability Standards.[12]**

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[11] Order No. 672 at P 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 FERC.

[12] Order No. 672 at P 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.

NERC has identified no competing public interests regarding the request for approval of this proposed Reliability Standard. No comments were received that indicated the proposed standard conflicts with other vital public interests.

**12. Proposed Reliability Standards must consider any other appropriate factors.[13]**

No other negative factors relevant to whether the proposed Reliability Standard is just and reasonable were identified.

[13] Order No. 672 at P 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.

**Exhibit D**

**Mapping Document**

# Project 2012-13 Nuclear Plant Interface Coordination

Mapping Document

## NUC-001-2.1 to NUC-001-3

| Standard: NUC-001-3 | | |
|---|---|---|
| **Requirement in Approved Standard** | **Translation to New Standard or Other Action** | **Comments** |
| R5. The Nuclear Plant Generator Operator shall operate per the Agreements developed in accordance with this standard. | Replaced with NUC-001-3 R5. Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall operate the nuclear plant to meet the Nuclear Plant Interface | The FYRT recommended R5 be revised for consistency with R4 and to clarify that nuclear plants must be operated to meet the NPIRs. |

| Standard: NUC-001-3 | | |
|---|---|---|
| **Requirement in Approved Standard** | **Translation to New Standard or Other Action** | **Comments** |
| | Requirements (NPIRs). | |
| R7. Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall inform the applicable Transmission Entities of actual or proposed changes to nuclear plant design, configuration, operations, limits, Protection Systems, or capabilities that may impact the ability of the electric system to meet the NPIRs. | Inserted (e.g., protective relay setpoints) after the words “nuclear power plant design” | The FYRT recommended deleting “Protection Systems” in Requirements R7 and R8 since it is a subset of the "nuclear plant design" and "electric system design" elements currently contained in R7 and R8 respectively; and adding a parenthetical clause (e.g. protective setpoints) to R7 following "nuclear plant design" and parenthetical clause (e.g. relay setpoints) to R8 following "electric system design." |
| R8. Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall inform the Nuclear Plant Generator Operator of actual or proposed changes to electric system design, configuration, operations, limits, Protection Systems, or capabilities that may impact the ability of the electric system to meet the NPIRs. | Inserted (e.g., protective relay setpoints) after the words “electric system design.” Deleted the words “Protection Systems” | Same comment as above. |
| R9. The Nuclear Plant Generator Operator and the applicable Transmission Entities shall include, as a | Inserted the following text after | The FYRT recommended that R9 be revised to clarify that all Agreements do not have to discuss each of the |

| Standard: NUC-001-3 | | |
|---|---|---|
| **Requirement in Approved Standard** | **Translation to New Standard or Other Action** | **Comments** |
| minimum, the following elements within the agreement(s) identified in R2: [Violation Risk Factor: Medium] [Time Horizon: ]<br>9.1. Administrative elements:<br>9.1.1. Definitions of key terms used in the agreement.<br>9.1.2. Names of the responsible entities, organizational relationships, and responsibilities related to the NPIRs.<br>9.1.3. A requirement to review the agreement(s) at least every three years. A dispute resolution mechanism.<br>9.2. Technical requirements and analysis:<br>9.2.1. Identification of parameters, limits, configurations, and operating scenarios included in the NPIRs and, as applicable, procedures for providing any specific data not provided within the Agreement.<br>9.2.2. Identification of facilities, components, and configuration restrictions that are essential for meeting the NPIRs.<br>9.2.3. Types of planning and operational analyses performed specifically to support the NPIRs, including the frequency of studies and types of Contingencies and scenarios required. | R2: Where multiple Agreements with a single Transmission Entity are put into effect, the R9 elements must be addressed in aggregate within the Agreements; however, each Agreement does not have to contain each element. Where Agreements with multiple Transmission Entities are required, the Nuclear Plant Generator Operator has the responsibility for | elements in R9, but that the sum total of the agreements need to address the elements. In addition, for clarity in Part 9.4.1, the FYRT recommended that "affecting the NPIRs" be inserted following "Provisions for communications" and "applicable unique" be inserted following ""definitions of." The phrase “load shedding programs” in Requirement subpart 9.3.7 was deleted and replaced with the phrase “any programs that reduce or shed load based on underfrequency or undervoltage.” This was done to avoid potential conflicts with the Project 2008-02 Team which is attempting to make undervoltage loadshedding programs a NERC defined term. |

| Standard: NUC-001-3 | | |
|---|---|---|
| **Requirement in Approved Standard** | **Translation to New Standard or Other Action** | **Comments** |
| 9.3. Operations and maintenance coordination<br>9.3.1. Designation of ownership of electrical facilities at the interface between the electric system and the nuclear plant and responsibilities for operational control coordination and maintenance of these facilities.<br>9.3.2. Identification of any maintenance requirements for equipment not owned or controlled by the Nuclear Plant Generator Operator that are necessary to meet the NPIRs.<br>9.3.3. Coordination of testing, calibration and maintenance of on-site and off-site power supply systems and related components.<br>9.3.4. Provisions to address mitigating actions needed to avoid violating NPIRs and to address periods when responsible Transmission Entity loses the ability to assess the capability of the electric system to meet the NPIRs. These provisions shall include responsibility to notify the Nuclear Plant Generator Operator within a specified time frame. | ensuring all the R9 elements are addressed in aggregate within the Agreements with the Transmission Entities. The Agreements with each Transmission Entity do not have to contain each element; however, the Agreements with the multiple Transmission Entities, in the aggregate, must address all R9 elements. The Nuclear Plant Generator | |

| Standard: NUC-001-3 | | |
|---|---|---|
| **Requirement in Approved Standard** | **Translation to New Standard or Other Action** | **Comments** |
| 9.3.5. Provision for considering, within the restoration process, the requirements and urgency of a nuclear plant that has lost all off-site and on-site AC power.<br>9.3.6. Coordination of physical and cyber security protection of the Bulk Electric System at the nuclear plant interface to ensure each asset is covered under at least one entity's plan.<br>9.3.7. Coordination of the NPIRs with transmission system Special Protection Systems and underfrequency and undervoltage load shedding programs.<br><br>9.4. Communications and training Administrative elements:<br>9.4.1. Provisions for communications between the Nuclear Plant Generator Operator and Transmission Entities, including communications protocols, notification time requirements, and definitions of terms.<br>9.4.2. Provisions for coordination during an off-normal or emergency event affecting the NPIRs, including the need to provide timely information explaining the event, an estimate of when the system will be returned | Operator and the Transmission Entity have the responsibility to ensure the Agreement(s) with that Transmission Entity contains the elements of R9 applicable to that Transmission Entity."<br><br>Requirement R9.1 approved for retirement by FERC January 2014. | |

| Standard: NUC-001-3 | | |
|---|---|---|
| **Requirement in Approved Standard** | **Translation to New Standard or Other Action** | **Comments** |
| to a normal state, and the actual time the system is returned to normal.<br>9.4.3. Provisions for coordinating investigations of causes of unplanned events affecting the NPIRs and developing solutions to minimize future risk of such events.<br>9.4.4. Provisions for supplying information necessary to report to government agencies, as related to NPIRs.<br>9.4.5. Provisions for personnel training, as related to NPIRs. | Inserted the words "affecting the NPIRs" between the words "communications" and "between" in R 9.4<br><br>Inserted the words "applicable unique" between the words "of" and "terms" | |

**Exhibit E**

**Five Year Review Team Recommended Revisions**

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

# Five-Year Review Recommendation to Revise NUC-001-2

July 23, 2013

## Introduction

The North American Electric Reliability Corporation (NERC) has an obligation to conduct a five-year review of each Reliability Standard developed through NERC's American National Standards Institute-accredited Reliability Standards development process.[1] Project 2012-13 – Nuclear Plant Interface Coordination was created to review NUC-001-2 as part of the current cycle of five-year reviews of standards due for review.

The NERC Standards Committee appointed seven nuclear industry subject matter experts to serve on the NUC-001-2 five-year review team (FYRT) on April 22, 2013.[2] The FYRT used background information on the standard and the questions set forth in the Five-Year Review Template developed by NERC and approved by the NERC Standards Committee, along with associated worksheets and reference documents, to determine whether NUC-001-2 should be: (1) affirmed as is (i.e., no changes needed); (2) revised (which may include revising or retiring one or more requirements); or (3) withdrawn.

As a result of this examination, The FYRT hereby recommends to **REVISE** NUC-001-2, and will therefore also develop and submit a draft Standard Authorization Request (SAR) outlining the proposed scope and technical justification for the revision once the current 45-day industry comment period concludes.

**Applicable Reliability Standard: NUC-001-2**

**Note:** NUC-001-2 is the mandatory and enforceable version of NUC-001 and has been enforceable since April 1, 2010. On April 11, 2012, the NERC Standards Committee approved capitalizing "Protection System" in accordance with the Implementation Plan for Project 2007-17. That recommendation has not yet been implemented. Additionally, the NERC Board of Trustees approved retiring R9.1 and its sub

[1] The currently effective Standard Processes Manual (SPM), which became effective on June 27, 2013, obligates NERC to conduct periodic reviews of all Reliability Standards at least once every ten years, and periodic reviews of those standards that are American National Standards (approved by the American National Standards Institute) at least once every five years. The NUC standard is not an American National Standard, and thus the NUC standard would only require a periodic review at least once every ten years under the current SPM. However, the former SPM, which became effective on January 31, 2012, required all standards to undergo a five-year review, and this five-year review process was launched under that SPM. The periodic review process is addressed on page 45 of the current SPM: http://www.nerc.com/pa/Stand/Resources/Documents/Appendix_3A_StandardsProcessesManual.pdf.

[2] The Standards Committee added the seventh FYRT member on May 21, 2013.

| |
|---|
| requirements on February 7, 2013 as part of the Paragraph 81 project (Project 2013-02) pending applicable regulatory approval. FERC issued a Notice of Proposed Rulemaking on April 18, 2013, proposing to, among other things, approve retiring R9.1 and its sub requirements. |
| **FYRT Members (name and organization):**<br><br>1. John Gyrath (Chair), Exelon Generation LLC (Nuclear)<br>2. George Attarian (Vice Chair), Duke Energy<br>3. Mukund "Mookie" Chander, Entergy Services Inc.<br>4. Kevin Donnelly, Consolidated Edison of NY<br>5. Pete Jenkins, Luminant Generation Company LLC<br>6. Jerry Whooley, PJM Interconnection<br>7. Les Carter, Ontario Power Generation |
| **Date Review Completed: July 23, 2013** |

**Background Information** *(initially completed by NERC staff)*

1. Are there any outstanding Federal Energy Regulatory Commission directives associated with the Reliability Standard? (If so, NERC staff will attach a list of the directives with citations to associated FERC orders for inclusion in a SAR.)

   ☐ Yes

   ☒ No

   Note that several responses to FERC Order 693 directives require retaining specific NUC-001-2 language (relevant language noted in *italics*):

   - (S- Ref 10370 - Para 1608): Next-day analysis required of minimum voltages at nuclear power plant auxiliary buses. Next day analysis is required in proposed TOP-002-3, R1. A specified minimum voltage limit is by definition an SOL which must be studied in proposed TOP-002-3, Requirement R1. Additionally, *approved NUC-001-2, Requirements R3 & R4.1 require the transmission entity to incorporate NPIRs in their planning and operating analyses.* Approved FAC-011-2 and approved FAC-014-2, Requirement R2 require the Transmission Operator to incorporate SOLs into their analyses. All data required for Operational Planning Analyses is stipulated in proposed TOP-003-2. *Approved NUC-001-2, Requirements R3 & R8 covers the information flowing back to the nuclear plant operator*.
   - (S- Ref 10374): Directive applicable to TOP-002 is covered in NUC-001-1, which requires one to "[i]nform the nuclear plant operator in real-time if the auxiliary power bus voltages cannot be maintained."
   - (S- Ref 10391 - Para 1671): NRC has raised some significant issues regarding the consideration of nuclear power plants voltage requirements. Consider the NRCs comments on voltage requirements as part of the standards development process. Next day analysis is required in proposed TOP-002-3, R1. A specified minimum voltage limit is by definition an SOL which must be studied in proposed TOP-002-3, Requirement R1. Additionally, *approved NUC-001-2, Requirements R3 & R4.1 require the transmission entity to incorporate NPIRs in their planning and operating analyses*. Approved FAC-011-2 and approved FAC-014-2, Requirement R2 require the Transmission Operator to incorporate SOLs into their analyses. All data required for Operational Planning Analyses is stipulated in proposed TOP-003-2. *Approved NUC-001-2, Requirements R3 & R8 covers the information flowing back to the nuclear plant operator*.

2. Have stakeholders requested clarity on the Reliability Standard in the form of an Interpretation (outstanding, in progress, or approved), Compliance Application Notice (CAN) (outstanding, in progress, or approved), or an outstanding submission to NERC's Issues Database? (If there are,

NERC staff will include a list of the Interpretation(s), CAN(s), or stakeholder-identified issue(s) contained in the NERC Issues Database that apply to the Reliability Standard.)

☐ Yes

☒ No

3. Is the Reliability Standard one of the most violated Reliability Standards? If so, does the root cause of the frequent violation appear to be a lack of clarity in the language?

☐ Yes

☒ No

Please explain: Based on NERC staff's review of violations and possible violations over the past three years, the NUC Reliability Standard is one of the least-violated Reliability Standards.

4. Does the Reliability Standard need to be converted to the results-based standard (RBS) format as outlined in *Attachment 1: Results-Based Standards*? (Note that the intent of this question is to ensure that, as Reliability Standards are reviewed, the formatting is changed to be consistent with the current format of a Reliability Standard. If the answer is yes, the formatting should be updated when the Reliability Standard is revised.)

☒ Yes

☐ No

Note: The FYRT reviewed NUC-001-2 and determined that each requirement indentifies a clear and measurable expected outcome, such as: (1) a stated level of reliability performance; (2) a reduction in a specified reliability risk; or (3) a necessary competency. Therefore, no requirements require conversion to the RBS format.

### Additional Questions Considered by the FYRT

If NERC staff answered "Yes" to any of the questions above, the Reliability Standard probably requires revision. The questions below are intended to further guide your review. Some of the questions reference documents provided by NERC staff as indicated in the Background questions above.

1. **Paragraph 81**: Does one or more of the requirements in the Reliability Standard meet criteria for retirement or modification based on Paragraph 81 concepts? Use *Attachment 2: Paragraph 81 Criteria* to make this determination.

   ☐ Yes

   ☒ No

   **Please summarize your application of Paragraph 81 Criteria, if any**: R9.1 has been retired under Paragraph 81 principles, pending applicable regulatory approval. The review team applied the criteria specified in *Attachment 2: Paragraph 81 Criteria* in reviewing the remainder of the NUC standard and determined that no additional requirements should be retired under Paragraph 81 principles.

2. **Clarity:** If the Reliability Standard has an Interpretation, CAN, or issue associated with it, or is frequently violated because of ambiguity, it probably needs to be revised for clarity. Beyond these indicators, is there any reason to believe that the Reliability Standard should be modified to address a lack of clarity? Consider:

   a. Is this a Version 0 Reliability Standard?
   b. Does the Reliability Standard have obviously ambiguous language or language that requires performance that is not measurable?
   c. Are the requirements consistent with the purpose of the Reliability Standard?

   ☒ Yes

   ☐ No

   **Please summarize your assessment**: The FYRT recommends the following sections of NUC-001-2 be revised to improve the clarity of the standard:

   1) Applicability Section 4.1: Add plural to "Nuclear Plant Generator Operator"
   2) Requirement R5: Revise for consistency with R4 and to clarify that nuclear plants must be operated to meet the Nuclear Plant Interface Requirements.

3) Requirement R7 and R8: Delete “Protection Systems” in requirements R7 and R8 since it is a subset of the "nuclear plant design" and "electric system design" elements currently contained in R7 and R8 respectively. Add parenthetical clause (e.g. protective setpoints) to R7 following "nuclear plant design" and parenthetical clause (e.g. relay setpoints) to R8 following "electric system design".
4) Requirement R9: Revise to clarify that all agreements do not have to discuss each of the elements in R9, but that the sum total of the agreements need to address the elements.
5) Requirement R9.4.1: Insert "affecting the NPIRs" following "Provisions for communications" and insert "applicable unique" following ""definitions of".
6) Regional Differences: Revise to remove reference to specific Nuclear Regulatory Commission regulations and to clarify that there are no Canadian Regulatory requirements for electrical power from the electric network to permit safe shutdown.

Reference the draft Standard Authorization Request (SAR) developed by the FYRT for additional information regarding the above recommended revisions.

3. **Definitions**: Do any of the defined terms used within the Reliability Standard need to be refined?

☐ Yes
☒ No

**Please explain**: The FYRT recommends that the defined term "Protection Systems" not be used in Requirements R7 and R8 since the definition is overly broad in application here, and has other NERC compliance implications. The original SDT use of "protection systems" was focused on the attributes that could impact the NPIRs such as frequency or voltage set points (i.e. relay settings) and not the expanded five elements of "Protection Systems" as defined in the NERC Glossary of Terms. The FYRT concurs with the original application of the term "protection systems" and therefore recommends deletion of the defined term "Protection Systems". Please see the attached Five-Year Review Position Paper on NUC-001-2 R7 and R8 for further details.

4. **Compliance Elements:** Are the compliance elements associated with the requirements (Measures, Data Retention, VRFs, and VSLs) consistent with the direction of the Reliability Assurance Initiative and FERC and NERC guidelines? If you answered “No,” please identify which elements require revision, and why:

☐ Yes
☒ No

M4-M8 do not give examples of what constitutes "evidence." R7/R8 "may," M7/M8 "would." M7 and M8 do not contain "actual or proposed" language as used in R7 and R8 respectively.

5. **Consistency with Other Reliability Standards:** Does the Reliability Standard need to be revised for formatting and language consistency among requirements within the Reliability Standard or consistency with other Reliability Standards? If you answered "Yes," please describe the changes needed to achieve formatting and language consistency:

   ☐ Yes
   ☒ No

6. **Changes in Technology, System Conditions, or other Factors:** Does the Reliability Standard need to be revised to account for changes in technology, system conditions, or other factors? If you answered "Yes," please describe the changes and specifically what the potential impact is to reliability if the Reliability Standard is not revised:

   ☐ Yes
   ☒ No

7. **Consideration of Generator Interconnection Facilities:** Is responsibility for generator interconnection Facilities appropriately accounted for in the Reliability Standard?

   ☒ Yes
   ☐ No

   *Guiding Questions:*

   If the Reliability Standard is applicable to GOs/GOPs, is there any ambiguity about the inclusion of generator interconnection Facilities? (If generation interconnection Facilities could be perceived to be excluded, specific language referencing the Facilities should be introduced in the Reliability Standard.)

   The FYRT did not identify any ambiguity.

   If the Reliability Standard is not applicable to GOs/GOPs, is there a reliability-related need for treating generator interconnection Facilities as transmission lines for the purposes of this Reliability Standard? (If so, GOs and GOPs that own or operate relevant generator interconnection Facilities should be explicit in the applicability section of the Reliability Standard.)

This standard is applicable to GOs/GOPs; therefore, this guiding question was not considered.

**Recommendation**

The answers to the questions above, along with a preliminary recommendation of the SMEs conducting the review of the Reliability Standard, will be posted for a 45-day informal comment period, and the comments publicly posted. The SMEs will review the comments to evaluate whether to modify their initial recommendation, and will document the final recommendation which will be presented to the Standards Committee.

**Preliminary Recommendation (to be completed by the SME team after its review and prior to posting the results of the review for industry comment):**

- ☐ AFFIRM
- ☒ REVISE
- ☐ RETIRE

Technical Justification: See attached draft SAR.

**Preliminary Recommendation posted for industry comment (date):** July 23, 2013

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**Final Recommendation (to be completed by the SME team after it has reviewed industry comments on the preliminary recommendation):**

- ☐ AFFIRM *(This should only be checked if there are no outstanding directives, interpretations or issues identified by stakeholders.)*
- ☐ REVISE
- ☐ RETIRE

Technical Justification: TBD

**Date submitted to NERC Staff:** TBD

# Attachment 1: Results-Based Standards

The fourth question for NERC staff asks if the Reliability Standard needs to be converted to the results-based standards (RBS) format. The information below will be used by NERC staff in making this determination, and is included here as a reference for the SME team and other stakeholders.

RBS standards employ a defense-in-depth strategy for Reliability Standards development where each requirement has a role in preventing system failures and the roles are complementary and reinforcing. Reliability Standards should be viewed as a portfolio of requirements designed to achieve an overall defense-in-depth strategy and comply with the quality objectives identified in the resource document titled, "Acceptance Criteria of a Reliability Standard."

A Reliability Standard that adheres to the RBS format should strive to achieve a portfolio of performance-, risk-, and competency-based mandatory reliability requirements that support an effective defense-in-depth strategy. Each requirement should identify a clear and measurable expected outcome, such as: a) a stated level of reliability performance, b) a reduction in a specified reliability risk, or c) a necessary competency.

a. **Performance-Based**—defines a particular reliability objective or outcome to be achieved. In its simplest form, a results-based requirement has four components: who, under what conditions (if any), shall perform what action, to achieve what particular result or outcome?

b. **Risk-Based**—preventive requirements to reduce the risks of failure to acceptable tolerance levels. A risk-based reliability requirement should be framed as: who, under what conditions (if any), shall perform what action, to achieve what particular result or outcome that reduces a stated risk to the reliability of the bulk power system?

c. **Competency-Based**—defines a minimum set of capabilities an entity needs to have to demonstrate it is able to perform its designated reliability functions. A competency-based reliability requirement should be framed as: who, under what conditions (if any), shall have what capability, to achieve what particular result or outcome to perform an action to achieve a result or outcome or to reduce a risk to the reliability of the bulk power system?

Additionally, each RBS-adherent Reliability Standard should enable or support one or more of the eight reliability principles listed below. Each Reliability Standard should also be consistent with all of the reliability principles.

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.

7. The reliability 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.

If the Reliability Standard does not provide for a portfolio of performance-, risk-, and competency-based requirements or consistency with NERC's reliability principles, NERC staff should recommend that the Reliability Standard be reformatted in accordance with RBS format.

# Attachment 2: Paragraph 81 Criteria

The first question for the SME Review Team asks if one or more of the requirements in the Reliability Standard meet(s) criteria for retirement or modification based on Paragraph 81 concepts.[3] Use the Paragraph 81 criteria explained below to make this determination. Document the justification for the decisions throughout and provide them in the final assessment in the Five-Year Review worksheet.

For a Reliability Standard requirement to be proposed for retirement or modification based on Paragraph 81 concepts, it must satisfy **both**: (i) Criterion A (the overarching criterion) and (ii) at least one of the Criteria B listed below (identifying criteria). In addition, for each Reliability Standard requirement proposed for retirement or modification, the data and reference points set forth below in Criteria C should be considered for making a more informed decision.

### *Criterion A (Overarching Criterion)*

The Reliability Standard requirement requires responsible entities ("entities") to conduct an activity or task that does little, if anything, to benefit or protect the reliable operation of the BES.

Section 215(a) (4) of the United States Federal Power Act defines "reliable operation" as: "… operating the elements of the bulk-power system within equipment and electric 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, including a cybersecurity incident, or unanticipated failure of system elements."

### *Criteria B (Identifying Criteria)*

**B1. Administrative**

The Reliability Standard requirement requires responsible entities to perform a function that is administrative in nature, does not support reliability and is needlessly burdensome.

This criterion is designed to identify requirements that can be retired or modified with little effect on reliability and whose retirement or modification will result in an increase in the efficiency of the ERO compliance program. Administrative functions may include a task that is related to developing procedures or plans, such as establishing communication contacts. Thus, for certain requirements, Criterion B1 is closely related to Criteria B2, B3 and B4. Strictly administrative functions do not inherently negatively impact reliability directly and, where possible, should be eliminated or modified for purposes of efficiency and to allow the ERO and entities to appropriately allocate resources.

[3] In most cases, satisfaction of the Paragraph 81 criteria will result in the retirement of a requirement. In some cases, however, there may be a way to modify a requirement so that it no longer satisfies Paragraph 81 criteria. Recognizing that, this document refers to both options.

**B2. Data Collection/Data Retention**
These are requirements that obligate responsible entities to produce and retain data which document prior events or activities, and should be collected via some other method under NERC's rules and processes.

This criterion is designed to identify requirements that can be retired or modified with little effect on reliability. The collection and/or retention of data do not necessarily have a reliability benefit and yet are often required to demonstrate compliance. Where data collection and/or data retention is unnecessary for reliability purposes, such requirements should be retired or modified in order to increase the efficiency of the ERO compliance program.

**B3. Documentation**
The Reliability Standard requirement requires responsible entities to develop a document (*e.g.,* plan, policy or procedure) which is not necessary to protect BES reliability.

This criterion is designed to identify requirements that require the development of a document that is unrelated to reliability or has no performance or results-based function. In other words, the document is required, but no execution of a reliability activity or task is associated with or required by the document.

**B4. Reporting**
The Reliability Standard requirement obligates responsible entities to report to a Regional Entity, NERC or another party or entity. These are requirements that obligate responsible entities to report to a Regional Entity on activities which have no discernible impact on promoting the reliable operation of the BES and if the entity failed to meet this requirement there would be little reliability impact.

**B5. Periodic Updates**
The Reliability Standard requirement requires responsible entities to periodically update (*e.g.,* annually) documentation, such as a plan, procedure or policy without an operational benefit to reliability.

This criterion is designed to identify requirements that impose an updating requirement that is out of sync with the actual operations of the BES, unnecessary, or duplicative.

**B6. Commercial or Business Practice**
The Reliability Standard requirement is a commercial or business practice, or implicates commercial rather than reliability issues.

This criterion is designed to identify those requirements that require: (i) implementing a best or outdated business practice or (ii) implicating the exchange of or debate on commercially sensitive information while doing little, if anything, to promote the reliable operation of the BES.

**B7. Redundant**
The Reliability Standard requirement is redundant with: (i) another FERC-approved Reliability Standard requirement(s); (ii) the ERO compliance and monitoring program; or (iii) a governmental regulation (*e.g.,* Open Access Transmission Tariff, North American Energy Standards Board ("NAESB"), etc.).

This criterion is designed to identify requirements that are redundant with other requirements and are, therefore, unnecessary. Unlike the other criteria listed in Criterion B, in the case of redundancy, the task or activity itself may contribute to a reliable BES, but it is not necessary to have two duplicative requirements on the same or similar task or activity. Such requirements can be retired or modified with little or no effect on reliability and removal will result in an increase in efficiency of the ERO compliance program.

### *Criteria C (Additional data and reference points)*
Use the following data and reference points to assist in the determination of (and justification for) whether to proceed with retirement or modification of a Reliability Standard requirement that satisfies both Criteria A and B:

**C1. Was the Reliability Standard requirement part of a FFT filing?**
The application of this criterion involves determining whether the requirement was included in a FFT filing.

**C2. Is the Reliability Standard requirement being reviewed in an ongoing Standards Development Project?**
The application of this criterion involves determining whether the requirement proposed for retirement or modification is part of an active Standards Development Project, with consideration for the status of the project. If the requirement has been approved by Registered Ballot Body and is scheduled to be presented to the NERC Board of Trustees, in most cases it will not need to be addressed in the five-year review. The exception would be a requirement, such as the Critical Information Protection ("CIP") requirements for Version 3 and 4, that is not due to be retired for an extended period of time. Also, for informational purposes, whether the requirement is included in a future or pending Standards Development Project should be identified and discussed.

**C3. What is the VRF of the Reliability Standard requirement?**
The application of this criterion involves identifying the VRF of the requirement proposed for retirement or modification, with particular consideration of any requirement that has been assigned as having a Medium or High VRF. Also, the fact that a requirement has a Lower VRF is not dispositive that

it qualifies for retirement or modification. In this regard, Criterion C3 is considered in light of Criterion C5 (Reliability Principles) and C6 (Defense in Depth) to ensure that no reliability gap would be created by the retirement or modification of the Lower VRF requirement. For example, no requirement, including a Lower VRF requirement, should be retired or modified if doing so would harm the effectiveness of a larger scheme of requirements that are purposely designed to protect the reliable operation of the BES.

**C4. In which tier of the most recent Actively Monitored List (AML) does the Reliability Standard requirement fall?**

The application of this criterion involves identifying whether the requirement proposed for retirement or modification is on the most recent AML, with particular consideration for any requirement in the first tier of the AML.

**C5. Is there a possible negative impact on NERC's published and posted reliability principles?**

The application of this criterion involves consideration of the eight following reliability principles published on the NERC webpage.

> **Reliability Principles**
>
> NERC Reliability Standards are based on certain reliability principles that define the foundation of reliability for North American bulk power systems. Each reliability standard shall enable or support one or more of the reliability principles, thereby ensuring that each standard serves a purpose in support of reliability of the North American bulk power systems. Each reliability standard shall also be consistent with all of the reliability principles, thereby ensuring that no standard undermines reliability through an unintended consequence.
>
> > Principle 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.
> >
> > Principle 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.
> >
> > Principle 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.
> >
> > Principle 4. Plans for emergency operation and system restoration of interconnected bulk power systems shall be developed, coordinated, maintained, and implemented.

Principle 5. Facilities for communication, monitoring, and control shall be provided, used, and maintained for the reliability of interconnected bulk power systems.

Principle 6. Personnel responsible for planning and operating interconnected bulk power systems shall be trained, qualified, and have the responsibility and authority to implement actions.

Principle 7. The reliability of the interconnected bulk power systems shall be assessed, monitored, and maintained on a wide-area basis.

Principle 8. Bulk power systems shall be protected from malicious physical or cyber attacks. (footnote omitted).

**C6. Is there any negative impact on the defense in depth protection of the BES?**
The application of this criterion considers whether the requirement proposed for retirement or modification is part of a defense in depth protection strategy. In order words, the assessment is to verify whether other requirements rely on the requirement proposed for retirement or modification to protect the BES.

**C7. Does the retirement or modification promote results or performance based Reliability Standards?**
The application of this criterion considers whether the requirement, if retired or modified, will promote the initiative to implement results- and/or performance-based Reliability Standards.

**Exhibit F**

**Analysis of Violation Risk Factors and Violation Severity Levels**

# Project 2012-13- Nuclear Plant Interface Coordination

VRF and VSL Justifications

Note: Justifications for the requirements in which VRFs and VSLs that were changed are provided in the document below. The VRFs and VSLs for Requirements R2, R3, R4, and R5 were not substantively changed from the currently effective NUC-001-2.1 and as a result no additional justification has been provided.

| VRF and VSL Justifications – NUC-001-3, R1. | |
|---|---|
| **Proposed VRF** | |
| NERC VRF Discussion | R1 is a planning requirement that mandates Nuclear Power Plant Generator Operators provide their respective transmission entities with a copy of their NPIRs and verify receipt. Interface between Nuclear Power Plant Generator Operators and transmission entities is important to ensure the safe and reliable operation as well as the startup and shutdown of nuclear power plants. If this requirement was violated, it could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. The VRF for this requirement is "Medium," which is consistent with NERC guidelines. |
| FERC VRF G1 Discussion | **Guideline 1- Consistency w/ Blackout Report R1**<br>Requirement R1 establishes communications protocols and data exchange. |
| FERC VRF G2 Discussion | **Guideline 2- Consistency within a Reliability Standard**<br>Only one VRF is assigned for this requirement. |
| FERC VRF G3 Discussion | **Guideline 3- Consistency among Reliability Standards**<br>There are no other standards which address Nuclear Plant Interface Coordination. |
| FERC VRF G4 Discussion | **Guideline 4- Consistency with NERC Definitions of VRFs**<br>This is a planning requirement that requirement if violated, could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. |

| VRF and VSL Justifications – NUC-001-3, R1. | | | |
|---|---|---|---|
| FERC VRF G5 Discussion | **Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation**<br>Requirement R1 contains only one objective which is to require that Nuclear Plant Generator Operator's provide their proposed NPIRs to their respective Transmission Entities. | | |
| **Proposed VSL** | | | |
| **Lower** | **Moderate** | **High** | **Severe** |
| The Nuclear Plant Generator Operator provided the NPIR's to the applicable entities but did not verify receipt. | The Nuclear Plant Generator Operator did not provide the proposed NPIR to one of the applicable entities unless there was only one entity. | The Nuclear Plant Generator Operator did not provide the proposed NPIR's to two of the applicable entities unless there was only two entities. | The Nuclear Plant Generator Operator did not provide the proposed NPIR's to more than two of applicable entities.<br>OR<br>For a particular Nuclear Power Plant, if the number of possible applicable transmission entities is equal to the number of applicable transmission entities not provided NPIRs. |

| VRF and VSL Justifications – NUC-001-3, R1. | |
|---|---|
| | |
| **FERC VSL G1**<br>Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance | Based on the VSL Guidance, the SDT developed four VSLs based on to what degree, if any a Nuclear Plant Generator Operator provided its NPIRs to its respective transmission entities. The VSL is varied based on the number of transmission entities the NPIRs were or were not provided. If a Nuclear Plant Generator Operator failed to provide any NPIRs to its transmission entities it is a Severe Violation. |
| **FERC VSL G2**<br>Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties<br>Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent<br>Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language | Guideline 2a:<br>The VSL assignment for R1 is not binary.<br><br>Guideline 2b:<br>The proposed VSL does not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations. |

| VRF and VSL Justifications – NUC-001-3, R1. | |
|---|---|
| **FERC VSL G3**<br>Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement | The proposed VSL uses the same terminology as used in the associated requirement, and is, therefore, consistent with the requirement. In addition, the VSLs are consistent with Requirement R1. |
| **FERC VSL G4**<br>Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations | The VSL is based on a single violation and not cumulative violations |
| **FERC VSL G5**<br>Requirements where a single lapse in protection can compromise computer network security, i.e., the 'weakest link' characteristic, should apply binary VSLs | The requirement does not address cyber security protection. |

| VRF and VSL Justifications – NUC-001-3, R1. | |
|---|---|
| **FERC VSL G6**<br>VSLs for cyber security requirements containing interdependent tasks of documentation and implementation should account for their interdependence | The requirement does not address cyber security protection. |

| VRF and VSL Justifications – NUC-001-3, R6. | |
|---|---|
| **Proposed VRF** | |
| NERC VRF Discussion | Requirement R6 is an Operational Planning requirement that mandates that Nuclear Plant Generator Operators and their respective Transmission Entities coordinate outages and maintenance activities which affect NIPRs. If violated this requirement could 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 failures. Therefore, the VRF is High. |
| FERC VRF G1 Discussion | **Guideline 1- Consistency w/ Blackout Report**<br>Requirement R6 is consistent with the Blackout Report because it mandates data exchange. |
| FERC VRF G2 Discussion | **Guideline 2- Consistency within a Reliability Standard**<br>Only one VRF is assigned for this requirement. |

| VRF and VSL Justifications – NUC-001-3, R6. | | | |
|---|---|---|---|
| | | | |
| FERC VRF G3 Discussion | **Guideline 3- Consistency among Reliability Standards.**<br>There are no other standards which address Nuclear Plant Interface Coordination | | |
| FERC VRF G4 Discussion | **Guideline 4- Consistency with NERC Definitions of VRFs**<br>Requirement R6 is an Operational Planning requirement that mandates that Nuclear Plant Generator Operators and their respective Transmission Entities coordinate outages and maintenance activities which affect NIPRs. If violated this requirement could 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 failures. Therefore, the VRF is High. | | |
| FERC VRF G5 Discussion | **Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation**<br>This requirement is based on one obligation which is for Transmission Entities and Nuclear Plant Generator Operators to coordinate outages and maintenance activities. | | |
| **Proposed VSL** | | | |
| **Lower** | **Moderate** | **High** | **Severe** |
| N/A | The Nuclear Plant Generator Operator or Transmission Entity failed to provide outage or maintenance schedules to the appropriate parties as described in the agreement or on a time period consistent with the agreements. | The Nuclear Plant Generator Operator or Transmission Entity failed to coordinate one or more outages or maintenance activities in accordance the requirements of the agreements. | N/A |

| VRF and VSL Justifications – NUC-001-3, R6. | |
|---|---|
| | |
| **FERC VSL G1**<br>Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance | Based on the VSL Guidance, the SDT developed two VSLs based on if a Nuclear Plant Generator Operator or a Transmission Entity failed to provide a maintenance or outage schedule (Moderate Violation) or if a Nuclear Plant Generator Operator or Transmission Entity failed to coordinate one or more outages or maintenance activities in accordance the requirements of the agreements. |
| **FERC VSL G2**<br>Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties<br>Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent<br>Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language | Guideline 2a:<br>The VSL assignment for R6 is not binary.<br><br>Guideline 2b:<br>The proposed VSL does not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations. |

| VRF and VSL Justifications – NUC-001-3, R6. | |
|---|---|
| **FERC VSL G3**<br>Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement | The proposed VSL uses the same terminology as used in the associated requirement, and is, therefore, consistent with the requirement. In addition, the VSLs are consistent with Requirement R6. |
| **FERC VSL G4**<br>Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations | The VSL is based on a single violation and not cumulative violations |
| **FERC VSL G5**<br>Requirements where a single lapse in protection can compromise computer network security, i.e., the 'weakest link' characteristic, should apply binary VSLs | The requirement does not address cyber security protection. |

| VRF and VSL Justifications – NUC-001-3, R6. | |
|---|---|
| **FERC VSL G6**<br>VSLs for cyber security requirements containing interdependent tasks of documentation and implementation should account for their interdependence | The requirement does not address cyber security protection. |

| VRF and VSL Justifications – NUC-001-3, R7. | |
|---|---|
| **Proposed VRF** | |
| NERC VRF Discussion | Requirement R7 is a requirement which mandates that Nuclear Power Generator Operators inform their applicable Transmission Entities of actual or proposed changes to Nuclear Plant design, configuration, operations, limits or capabilities that may affect the NPIRs. If this requirement was violated it could 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 failures |
| FERC VRF G1 Discussion | **Guideline 1- Consistency w/ Blackout Report**<br>Requirement R7 is consistent with the Blackout Report because it mandates data exchange. |
| FERC VRF G2 Discussion | **Guideline 2- Consistency within a Reliability Standard**<br>Only one VRF is assigned for this requirement. |
| FERC VRF G3 Discussion | **Guideline 3- Consistency among Reliability Standards.**<br>There are no other standards which address Nuclear Plant Interface Coordination |

| VRF and VSL Justifications – NUC-001-3, R7. | | | |
|---|---|---|---|
| FERC VRF G4 Discussion | **Guideline 4- Consistency with NERC Definitions of VRFs**<br>Requirement R7 is a requirement which mandates that Nuclear Power Generator Operators inform their applicable Transmission Entities of actual or proposed changes to Nuclear Plant design, configuration, operations, limits or capabilities that may affect the NPIRs. If this requirement was violated it could 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 failures. | | |
| FERC VRF G5 Discussion | **Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation**<br>The only obligation within this requirement is that Nuclear Power Generator Operators inform their applicable Transmission Entities of actual or proposed changes to Nuclear Plant design, configuration, operations, limits or capabilities that may affect the NPIRs. | | |
| **Proposed VSL** | | | |
| **Lower** | **Moderate** | **High** | **Severe** |
| The Nuclear Plant Generator Operator did not inform the applicable Transmission Entities of proposed changes to nuclear plant design (e.g. protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. | N/A | The Nuclear Plant Generator Operator did not inform the applicable Transmission Entities of actual changes to nuclear plant design (e.g. protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. | The Nuclear Plant Generator Operator did not inform the applicable Transmission Entities of actual changes to nuclear plant design (e.g., protective relay setpoints), configuration, operations, limits or capabilities that directly impact the ability of the electric system to meet the NPIRs. |

| VRF and VSL Justifications – NUC-001-3, R7. | |
|---|---|
| | |
| **FERC VSL G1**<br>Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance | Based on the VSL Guidance, the SDT developed three VSLs based on if a Nuclear Power Plant Generator Operator failed to inform a Transmission Entity of changes to its design, configuration, operations, limits or capabilities and whether or not these were proposed or actual changes and whether or not those changes directly impact the ability of the electric system to meet the NPIRs. |
| **FERC VSL G2**<br>Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties<br>Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent<br>Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language | Guideline 2a:<br>The VSL assignment for R7 is not binary.<br><br>Guideline 2b:<br>The proposed VSL does not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations. |

| VRF and VSL Justifications – NUC-001-3, R7. | |
|---|---|
| **FERC VSL G3**<br>Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement | The proposed VSL uses the same terminology as used in the associated requirement, and is, therefore, consistent with the requirement. In addition, the VSLs are consistent with Requirement R7. |
| **FERC VSL G4**<br>Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations | The VSL is based on a single violation and not cumulative violations |
| **FERC VSL G5**<br>Requirements where a single lapse in protection can compromise computer network security, i.e., the 'weakest link' characteristic, should apply binary VSLs | The requirement does not address cyber security protection. |

| VRF and VSL Justifications – NUC-001-3, R7. | |
|---|---|
| **FERC VSL G6**<br>VSLs for cyber security requirements containing interdependent tasks of documentation and implementation should account for their interdependence | The requirement does not address cyber security protection. |

| VRF and VSL Justifications – NUC-001-3, R8. | |
|---|---|
| **Proposed VRF** | |
| NERC VRF Discussion | Requirement R8 is a requirement which mandates Transmission Entities shall inform the Nuclear Plant Generator Operator of actual or proposed changes to electric system design (e.g., protective relay setpoints), configuration, operations, limits, , or capabilities that may impact the ability of the electric system to meet the NPIRs. . If this requirement was violated it could 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 failures. |
| FERC VRF G1 Discussion | **Guideline 1- Consistency w/ Blackout Report**<br>Requirement R8 is consistent with the Blackout Report because it mandates data exchange. |
| FERC VRF G2 Discussion | **Guideline 2- Consistency within a Reliability Standard**<br>Only one VRF is assigned for this requirement. |
| FERC VRF G3 Discussion | **Guideline 3- Consistency among Reliability Standards.**<br>There are no other standards which address Nuclear Plant Interface Coordination |
| FERC VRF G4 Discussion | **Guideline 4- Consistency with NERC Definitions of VRFs** |

| VRF and VSL Justifications – NUC-001-3, R8. | | | |
|---|---|---|---|
| | Requirement R8 is a requirement which mandates Transmission Entities shall inform the Nuclear Plant Generator Operator of actual or proposed changes to electric system design (e.g., protective relay setpoints), configuration, operations, limits, , or capabilities that may impact the ability of the electric system to meet the NPIRs. ~~.~~ If this requirement was violated it could 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 failures. | | |
| FERC VRF G5 Discussion | **Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation**<br>The only obligation within this requirement is that Transmission Entities inform their applicable Nuclear Power Generator Operators of actual or proposed changes to Nuclear Plant design, configuration, operations, limits or capabilities that may affect the NPIRs. | | |
| **Proposed VSL** | | | |
| **Lower** | **Moderate** | **High** | **Severe** |
| The applicable Transmission Entities did not inform the Nuclear Plant Generator Operator of proposed changes to transmission system design, configuration (e.g. protective relay setpoints), operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. | N/A | The applicable Transmission Entities did not inform the Nuclear Plant Generator Operator of actual changes to transmission system design (e.g. protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. | The applicable Transmission Entities did not inform the Nuclear Plant Generator Operator of actual changes to transmission system design (e.g. protective relay setpoints), configuration, operations, limits, or capabilities that directly impacts the ability of the electric system to meet the NPIRs. |

| VRF and VSL Justifications – NUC-001-3, R8. | |
|---|---|
| | |
| **FERC VSL G1**<br>Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance | Based on the VSL Guidance, the SDT developed three VSLs based on if a Transmission Entity failed to inform a Nuclear Power Plant Generator Operator of changes to its design, configuration, operations, limits or capabilities and whether or not these were proposed or actual changes and whether or not those changes directly impact the ability of the electric system to meet the NPIRs. |
| **FERC VSL G2**<br>Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties<br>Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent<br>Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language | Guideline 2a:<br>The VSL assignment for R8 is not binary.<br><br>Guideline 2b:<br>The proposed VSL does not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations. |

| VRF and VSL Justifications – NUC-001-3, R8. | |
|---|---|
| **FERC VSL G3**<br>Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement | The proposed VSL uses the same terminology as used in the associated requirement, and is, therefore, consistent with the requirement. In addition, the VSLs are consistent with Requirement R8. |
| **FERC VSL G4**<br>Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations | The VSL is based on a single violation and not cumulative violations |
| **FERC VSL G5**<br>Requirements where a single lapse in protection can compromise computer network security, i.e., the 'weakest link' characteristic, should apply binary VSLs | The requirement does not address cyber security protection. |

| VRF and VSL Justifications – NUC-001-3, R8. | |
|---|---|
| **FERC VSL G6**<br>VSLs for cyber security requirements containing interdependent tasks of documentation and implementation should account for their interdependence | The requirement does not address cyber security protection. |

| VRF and VSL Justifications – NUC-001-3, R9. | |
|---|---|
| **Proposed VRF** | |
| NERC VRF Discussion | Requirement R9 is a requirement which mandates Nuclear Plant Generator Operator and the applicable Transmission Entities include a specific set of elements within their Agreements. If violated, this requirement could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. Therefore this requirement has a medium VRF. |
| FERC VRF G1 Discussion | **Guideline 1- Consistency w/ Blackout Report**<br>Requirement R9 is consistent with the Blackout Report because it mandates data exchange. |
| FERC VRF G2 Discussion | **Guideline 2- Consistency within a Reliability Standard**<br>Only one VRF is assigned for this requirement. |
| FERC VRF G3 Discussion | **Guideline 3- Consistency among Reliability Standards.**<br>There are no other standards which address Nuclear Plant Interface Coordination |
| FERC VRF G4 Discussion | **Guideline 4- Consistency with NERC Definitions of VRFs** |

| VRF and VSL Justifications – NUC-001-3, R9. | | | |
|---|---|---|---|
| | Requirement R9 is a requirement which mandates Nuclear Plant Generator Operator and the applicable Transmission Entities include a specific set of elements within their Agreements. If violated, this requirement could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. Therefore this requirement has a medium VRF. | | |
| FERC VRF G5 Discussion | **Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation**<br>This requirement only has one obligation which is for Nuclear Power Plant Generator Operators and Transmission Entities to include all of the mandated elements within R9 in their Agreements in aggregate. | | |
| **Proposed VSL** | | | |
| **Lower** | **Moderate** | **High** | **Severe** |
| N/A | The Agreement(s) identified in R2. between the Nuclear Plant Generator Operator and the applicable Transmission Entities failed to include up to 20% of the combined sub-components in Parts 9.2, 9.3 and 9.4 applicable to that entity. | The Agreement(s) identified in R2. between the Nuclear Plant Generator Operator and the applicable Transmission Entities failed to include greater than 20%, but less than 40% of the combined sub-components in Parts 9.2, 9.3 and 9.4 applicable to the entity. | The Agreement(s) identified in R2. between the Nuclear Plant Generator Operator and the applicable Transmission Entities failed to include 40% or more of the combined sub-components in Parts 9.2, 9.3 and 9.4 applicable to the entity. |

| VRF and VSL Justifications – NUC-001-3, R9. | |
|---|---|
| | |
| **FERC VSL G1**<br>Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance | Based on the VSL Guidance, the SDT developed four VSLs based on to what degree, if any Nuclear Power Plant Generator Operators and Transmission entities failed to include the elements listed within R9. The VSL is varied based on the percentage of sub-components that were not included. |
| **FERC VSL G2**<br>Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties<br>Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent<br>Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language | Guideline 2a:<br>The VSL assignment for R9 is not binary.<br><br>Guideline 2b:<br>The proposed VSL does not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations. |

| VRF and VSL Justifications – NUC-001-3, R9. | |
|---|---|
| **FERC VSL G3**<br>Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement | The proposed VSL uses the same terminology as used in the associated requirement, and is, therefore, consistent with the requirement. In addition, the VSLs are consistent with Requirement R9. |
| **FERC VSL G4**<br>Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations | The VSL is based on a single violation and not cumulative violations |
| **FERC VSL G5**<br>Requirements where a single lapse in protection can compromise computer network security, i.e., the 'weakest link' characteristic, should apply binary VSLs | The requirement does not address cyber security protection. |

| VRF and VSL Justifications – NUC-001-3, R9. | |
|---|---|
| **FERC VSL G6**<br>VSLs for cyber security requirements containing interdependent tasks of documentation and implementation should account for their interdependence | The requirement does not address cyber security protection. |

**Exhibit G**

**Summary of Development History and Complete Record of Development**

**Exhibit G**—Summary of the Reliability Standard Development Proceeding and Complete Record of Development of Proposed Reliability Standard NUC-001-3

The development record for proposed Reliability Standard NUC-001-3 is summarized below.

## I. Overview of the Standard Drafting Team

When evaluating a proposed Reliability Standard, the Commission is expected to give "due weight" to the technical expertise of the ERO.[1] The technical expertise of the ERO is derived from the standard drafting team. For this project, the standard drafting team consisted of industry experts, all with a diverse set of experiences. A roster of the team members is included in **Exhibit H**.

## II. Standard Development History

### A. Standard Authorization Request Development

A Standard Authorization Request ("SAR") was submitted on October 7, 2013 and approved by the Standards Committee ("SC") on October 17, 2013.

### B. First Posting

Proposed Reliability Standard NUC-001-3 was posted for a public comment period from April 8, 2014 through May 22, 2014. There were 29 sets of responses, including comments from approximately 103 individuals from approximately 57 companies representing all 10 industry segments. Proposed Reliability Standard NUC-001-3 received a quorum of 80.6% and an approval 97.36%.

### C. Final Ballot

[1] Section 215(d)(2) of the Federal Power Act; 16 U.S.C. §824(d)(2) (2006).

Proposed Reliability Standard NUC-001-3 was posted for a 10-day final ballot period on June 24, 2014 through July 3, 2014. The proposed Reliability Standard received a quorum of 88.63% and an approval rating of 97.23%.

### D. Board of Trustees Approval

Proposed Reliability Standard NUC-001-3 was approved by the NERC Board of Trustees on August 14, 2014.

# Project 2012-13 NUC - Nuclear Plant Interface Coordination

Related Files | NUC Five-Year Review Team

**Status:**
Adopted by the NERC Board of Trustees on August 14, 2014 and pending regulatory approval.

| Draft | Actions | Dates | Results | Consideration of Comments |
|---|---|---|---|---|
| NUC-001-3<br><br>Clean **(22)**\| Redline to Last Approved **(23)** | Final Ballot<br><br>Info>> **(24)**<br><br>Vote>> | 06/24/14 – 07/03/14 | Summary>> **(25)**<br><br>Ballot Results>> **(26)** | |
| NUC-001-3<br>Clean **(6)**\| Redline to Last Approved **(7)**<br><br>Implementation Plan **(8)**<br><br>**Supporting Documents:**<br><br>Unofficial Comment Form (Word) **(9)**<br><br>Standard Authorization Request **(10)**<br><br>Mapping Document **(11)**<br><br>VRF/VSL Justification **(12)**<br><br>Draft RSAW **(13)** | Initial Ballot and Non-Binding Poll<br><br>Updated Info>> **(14)**<br><br>Info>> **(15)**<br><br>Vote>> | 05/13/14 - 05/22/14 | Summary>> **(17)**<br><br>Ballot Results>> **(18)**<br><br>Non-Binding Poll Results>> **(19)** | Consideration of Comments>> **(21)** |
| | Comment Period<br><br>Info>> **(16)**<br><br>Submit Comments>> | 04/08/14 – 05/22/14 | Comments Received>> **(20)** | |
| | Join Ballot Pool>> | 04/08/14 - 05/07/14 | | |
| Standard Authorization Request **(1)** | Comment Period<br><br>Info>> **(4)** | 02/12/14 - 03/13/14 | Comments Received>> **(5)** | |

| | | | | |
|---|---|---|---|---|
| **Supporting Documents:**<br>Unofficial Comment Form (Word) **(2)**<br>NUC Five Year Review Team Recommendation to Revise **(3)** | Submit Comments>> | | | |

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# Standards Authorization Request Form

NERC welcomes suggestions to improve the reliability of the bulk power system through improved reliability standards. Please use this form to submit your request to propose a new or revised NERC Reliability Standard.

| Request to propose a new or a revised Reliability Standard | | | |
|---|---|---|---|
| Title of Proposed Standard: | Nuclear Plant Interface Coordination – NUC-001-2.1 (Project 2012-13) | | |
| Date Submitted: | October 1, 2013 | | |
| SAR Requester Information | | | |
| Name: | John Gyrath | | |
| Organization: | Exelon Generation LLC (Nuclear) | | |
| Telephone: | 610.765.5692 | E-mail: | john.gyrath@exeloncorp.com |
| SAR Type (Check as many as applicable) | | | |
| ☐ New Standard | | ☐ Withdrawal of existing Standard | |
| ☒ Revision to existing Standard | | ☐ Urgent Action | |

| SAR Information |
|---|
| Industry Need (What is the industry problem this request is trying to solve?): |
| The Standards Committee assigned seven subject matter experts to review the NUC standard as part of NERC's obligation to conduct periodic reviews of its standards. The Five-Year Review Team concluded that NUC-001-2.1 remains necessary for reliability by requiring coordination between Nuclear Plant Generator Operators and Transmission Entities to ensure nuclear plant safe operation and shutdown. The standard, however, requires revision to provide greater clarity and to sharpen industry focus on tasks that have a more direct impact on reliability. |
| Purpose or Goal (How does this request propose to address the problem described above?): |
| This SAR proposes revising NUC-001-2.1 in line with the recommendations of the NUC Five-Year Review Team as described in the *Five-Year Review Recommendation to Revise NUC-001-2.1*, (Attachment 1). |

| SAR Information |
| --- |
| The proposed changes to the standard add clarity, remove redundancy, and bring compliance elements in accordance with NERC guidelines. The NUC Five-Year Review Team recommends revising R5 to make it consistent with R4, and to state that the Nuclear Plant Generator Operator shall operate the nuclear plant to meet the NPIRs. The team also recommends removing the reference in R7 and R8 to "Protection Systems" as defined in the NERC Glossary of Terms to focus the standard on attributes that could impact the NPIRs, such as frequency or voltage setpoints, and not the expanded five elements of the defined term. Protection systems are a subset of the nuclear plant design and electric system design attributes referenced in R7 and R8 respectively, and reference to setpoints will be made with these attributes. The team recommends revising the Effective Date section to account for jurisdictional differences in the Canadian provinces. The team recommends revising R9 to clarify that that all agreements do not have to discuss each of the elements in R9, but that the sum total of the agreements need to address the elements. The team also recommends revising the Regional Differences section to remove reference to specific Nuclear Regulatory Commission regulations and to clarify that there are no Canadian Regulatory requirements for electrical power from the electric network to permit safe shutdown, and to revise the definition of "NPLR" to remove the potential conflict with a NERC Glossary of Terms definition. Finally, the team also recommends several errata type changes throughout the standard, as identified in the *Five-Year Review Recommendation to Revise NUC-001-2.1*. |
| Identify the Objectives of the proposed standard's requirements (What specific reliability deliverables are required to achieve the goal?): |
| The objective of NUC-001-2 is to require coordination between Nuclear Plant Generator Operators and Transmission Entities to ensure nuclear plant safe operation and shutdown. This objective supports reliability principles 1, 2, 3, 4, and 8 by requiring: (1) the planning and operation of the Bulk Electric System (BES) to consider the unique requirements of nuclear plants; (2) consideration of the nuclear plant requirements in the defined frequency and voltage limits established for BES operation; (3) the nuclear plant unique information necessary for the planning and operation of interconnected bulk power systems 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 system elements be coordinated with the requirements of nuclear plants; and (8) coordination of physical and cyber security protection of the BES at the nuclear plant interface. |
| Brief Description (Provide a paragraph that describes the scope of this standard action.) |
| The scope of this standard action is to revise NUC-001-2.1 in accordance with the recommendations made by the Five-Year Review Team in the *Five-Year Review Recommendation to Revise NUC-001-2.1*, |

| SAR Information |
| --- |
| (Attachment 1), and consistent with industry consensus to make additional standard revisions to the extent such consensus develops. |
| Detailed Description (Provide a description of the proposed project with sufficient details for the standard drafting team to execute the SAR. Also 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.) |
| The Five-Year Review Team identified several ambiguous, deficient, or duplicative elements during its review. The revisions proposed in the *Five-Year Review Recommendation to Revise NUC-001-2.1* would enhance clarity in several requirements critical to reliability, and improve compliance efficiency by removing elements not necessary for reliability. Specifically, the Five-Year Review Team has identified the following sections and requirements for revision:<br>• The standard applies to all Nuclear Plant Generator Operators. Therefore, the term "Nuclear Plant Generator Operator" should be pluralized in section A.4. Applicability.<br>• R5 should be revised for consistency with R4 and to clarify that nuclear plants must be operated to meet the Nuclear Plant Interface Requirements.<br>• As explained in the attached *Position Paper on NUC-001-2 R7 and R8*, the term "Protection Systems" should be omitted from requirements R7 and R8, and language should be added to clarify requirement applicability.<br>• R9 and R9.4.1 should be revised to clarify requirement applicability.<br>• Section E. Regional Differences should be revised to remove reference to specific Nuclear Regulatory Commission regulations and to clarify that there are no Canadian Regulatory requirements for electrical power from the electric network to permit safe shutdown. The term Canadian Nuclear Power Plant Licensing Requirements (CNPLR) is defined in the proposed revision to the standard as a means to differentiate the unique licensing requirements of the Canadian Nuclear Power Plants from those of the U.S. NPPs.<br>• Modify the Violation Severity Level and Violation Risk Factor matrices to conform to NERC guidelines.<br>• Revise measures to ensure appropriate clarity and applicability to each corresponding requirement.<br>• Add Time Horizons to each requirement. |

| Reliability Functions | | |
|---|---|---|
| The Standard will Apply to the Following Functions (Check 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). |
| ☒ | Transmission Owner | Owns and maintains transmission facilities. |
| ☒ | Transmission Operator | Ensures the real-time operating reliability of the transmission assets within a Transmission Operator Area. |
| ☒ | Distribution Provider | Delivers electrical energy to the End-use customer. |
| ☒ | 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. |

| Reliability 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 all that apply). | |
| ☒ | 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. |
| ☐ | 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? | Enter (yes/no) |
| 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 |
| | |
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| Related SARs – N/A | |
|---|---|
| SAR ID | Explanation |
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| Regional Variances – N/A | |
|---|---|
| Region | Explanation |
| ERCOT | |
| FRCC | |
| MRO | |
| NPCC | |
| RFC | |

| Regional Variances – N/A | |
|---|---|
| SERC | |
| SPP | |
| WECC | |
| | The FYRT proposed a definition change in section E. Regional Differences to eliminate a potential unintended conflict with a NERC Glossary term. |

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# Unofficial Comment Form

## Project 2012-13 Nuclear Plant Interface Coordination Standard Authorization Request

Please **DO NOT** use this form for submitting comments. Please use the electronic form to submit comments on the Standard Authorization Request (SAR). The electronic comment form must be completed by **8 p.m. Eastern on Thursday, March 13, 2014**.

All documents and information about this project are available on the project page. If you have questions please contact Stephen Eldridge or by telephone at 404-446-9686.

### Background Information

The Standards Committee assigned seven subject matter experts to review the standard NUC-001-2.1 as part of NERC's obligation to conduct periodic reviews of its standards. The Five-Year Review Team concluded that NUC-001-2.1 remains necessary for reliability by requiring coordination between Nuclear Plant Generator Operators and Transmission Entities to ensure nuclear plant safe operation and shutdown. The standard, however, requires revision to provide greater clarity and to sharpen industry focus on tasks that have a more direct impact on reliability.

The NUC FYRT's draft recommendation was posted for a 45-day comment period from July 26, 2013 through September 9, 2013. The NUC FYRT's recommendations as well as the associated documents are available on the NUC FYRT Project Page.

Stakeholders provided feedback on the draft recommendation and associated documents, including a proposed redlined standard and a draft SAR. Comments were generally supportive of the NUC FYRT's recommendation and proposed implementation. However, the NUC FYRT carefully reviewed each comment, and after further discussion with NUC FYRT members and industry observers the final recommendation to revise the standard and the accompanying documents were updated to adopt many of the commenters' suggestions.

On October 17th, 2013 the NERC Standards Committee took the following actions in regard to the FYRT's recommendations:

1. Accepted the work of the NUC FYRT.
2. Accepted the proposed Standard Authorization Request for standard development and authorized posting for informal comment; and
3. Appointed the existing NUC FYRT members as the standard drafting team to implement the recommendation in a formal standard development project.

You do not have to answer all questions. Enter comments in simple text format. Bullets, numbers, and special formatting will not be retained.

## Questions

1. Do you agree with the scope and objectives of this SAR? If not, please explain why you do not agree, and, if possible, provide specific language revisions that would make it acceptable to you.

   Yes:

   No:

   Comments:

2. Are you aware of any Canadian provincial or other regulatory requirements that may need to be considered during this project in order to develop a continent-wide approach to the standards? If yes, please identify the jurisdiction and specific regulatory requirements.

   Yes:

   No:

   Comments:

3. Are there any other concerns with this SAR that haven't been covered in previous questions?

   Yes:

   No:

   Comments:

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# Five-Year Review Recommendation to Revise NUC-001-2

July 23, 2013

## Introduction

The North American Electric Reliability Corporation (NERC) has an obligation to conduct a five-year review of each Reliability Standard developed through NERC's American National Standards Institute-accredited Reliability Standards development process.[1] Project 2012-13 – Nuclear Plant Interface Coordination was created to review NUC-001-2 as part of the current cycle of five-year reviews of standards due for review.

The NERC Standards Committee appointed seven nuclear industry subject matter experts to serve on the NUC-001-2 five-year review team (FYRT) on April 22, 2013.[2] The FYRT used background information on the standard and the questions set forth in the Five-Year Review Template developed by NERC and approved by the NERC Standards Committee, along with associated worksheets and reference documents, to determine whether NUC-001-2 should be: (1) affirmed as is (i.e., no changes needed); (2) revised (which may include revising or retiring one or more requirements); or (3) withdrawn.

As a result of this examination, The FYRT hereby recommends to **REVISE** NUC-001-2, and will therefore also develop and submit a draft Standard Authorization Request (SAR) outlining the proposed scope and technical justification for the revision once the current 45-day industry comment period concludes.

**Applicable Reliability Standard: NUC-001-2**

**Note:** NUC-001-2 is the mandatory and enforceable version of NUC-001 and has been enforceable since April 1, 2010. On April 11, 2012, the NERC Standards Committee approved capitalizing "Protection System" in accordance with the Implementation Plan for Project 2007-17. That recommendation has not yet been implemented. Additionally, the NERC Board of Trustees approved retiring R9.1 and its sub

[1] The currently effective Standard Processes Manual (SPM), which became effective on June 27, 2013, obligates NERC to conduct periodic reviews of all Reliability Standards at least once every ten years, and periodic reviews of those standards that are American National Standards (approved by the American National Standards Institute) at least once every five years. The NUC standard is not an American National Standard, and thus the NUC standard would only require a periodic review at least once every ten years under the current SPM. However, the former SPM, which became effective on January 31, 2012, required all standards to undergo a five-year review, and this five-year review process was launched under that SPM. The periodic review process is addressed on page 45 of the current SPM: http://www.nerc.com/pa/Stand/Resources/Documents/Appendix_3A_StandardsProcessesManual.pdf.

[2] The Standards Committee added the seventh FYRT member on May 21, 2013.

| |
|---|
| requirements on February 7, 2013 as part of the Paragraph 81 project (Project 2013-02) pending applicable regulatory approval. FERC issued a Notice of Proposed Rulemaking on April 18, 2013, proposing to, among other things, approve retiring R9.1 and its sub requirements. |
| **FYRT Members (name and organization):**<br><br>1. John Gyrath (Chair), Exelon Generation LLC (Nuclear)<br>2. George Attarian (Vice Chair), Duke Energy<br>3. Mukund "Mookie" Chander, Entergy Services Inc.<br>4. Kevin Donnelly, Consolidated Edison of NY<br>5. Pete Jenkins, Luminant Generation Company LLC<br>6. Jerry Whooley, PJM Interconnection<br>7. Les Carter, Ontario Power Generation |
| **Date Review Completed: July 23, 2013** |

**Background Information** *(initially completed by NERC staff)*

1. Are there any outstanding Federal Energy Regulatory Commission directives associated with the Reliability Standard? (If so, NERC staff will attach a list of the directives with citations to associated FERC orders for inclusion in a SAR.)

   ☐ Yes

   ☒ No

   Note that several responses to FERC Order 693 directives require retaining specific NUC-001-2 language (relevant language noted in *italics*):

   - (S- Ref 10370 - Para 1608): Next-day analysis required of minimum voltages at nuclear power plant auxiliary buses. Next day analysis is required in proposed TOP-002-3, R1. A specified minimum voltage limit is by definition an SOL which must be studied in proposed TOP-002-3, Requirement R1. Additionally, *approved NUC-001-2, Requirements R3 & R4.1 require the transmission entity to incorporate NPIRs in their planning and operating analyses.* Approved FAC-011-2 and approved FAC-014-2, Requirement R2 require the Transmission Operator to incorporate SOLs into their analyses. All data required for Operational Planning Analyses is stipulated in proposed TOP-003-2. *Approved NUC-001-2, Requirements R3 & R8 covers the information flowing back to the nuclear plant operator*.
   - (S- Ref 10374): Directive applicable to TOP-002 is covered in NUC-001-1, which requires one to "[i]nform the nuclear plant operator in real-time if the auxiliary power bus voltages cannot be maintained."
   - (S- Ref 10391 - Para 1671): NRC has raised some significant issues regarding the consideration of nuclear power plants voltage requirements. Consider the NRCs comments on voltage requirements as part of the standards development process. Next day analysis is required in proposed TOP-002-3, R1. A specified minimum voltage limit is by definition an SOL which must be studied in proposed TOP-002-3, Requirement R1. Additionally, *approved NUC-001-2, Requirements R3 & R4.1 require the transmission entity to incorporate NPIRs in their planning and operating analyses*. Approved FAC-011-2 and approved FAC-014-2, Requirement R2 require the Transmission Operator to incorporate SOLs into their analyses. All data required for Operational Planning Analyses is stipulated in proposed TOP-003-2. *Approved NUC-001-2, Requirements R3 & R8 covers the information flowing back to the nuclear plant operator*.

2. Have stakeholders requested clarity on the Reliability Standard in the form of an Interpretation (outstanding, in progress, or approved), Compliance Application Notice (CAN) (outstanding, in progress, or approved), or an outstanding submission to NERC's Issues Database? (If there are,

NERC staff will include a list of the Interpretation(s), CAN(s), or stakeholder-identified issue(s) contained in the NERC Issues Database that apply to the Reliability Standard.)

☐ Yes

☒ No

3. Is the Reliability Standard one of the most violated Reliability Standards? If so, does the root cause of the frequent violation appear to be a lack of clarity in the language?

☐ Yes

☒ No

Please explain: Based on NERC staff's review of violations and possible violations over the past three years, the NUC Reliability Standard is one of the least-violated Reliability Standards.

4. Does the Reliability Standard need to be converted to the results-based standard (RBS) format as outlined in *Attachment 1: Results-Based Standards*? (Note that the intent of this question is to ensure that, as Reliability Standards are reviewed, the formatting is changed to be consistent with the current format of a Reliability Standard. If the answer is yes, the formatting should be updated when the Reliability Standard is revised.)

☒ Yes

☐ No

Note: The FYRT reviewed NUC-001-2 and determined that each requirement indentifies a clear and measurable expected outcome, such as: (1) a stated level of reliability performance; (2) a reduction in a specified reliability risk; or (3) a necessary competency. Therefore, no requirements require conversion to the RBS format.

### Additional Questions Considered by the FYRT

If NERC staff answered "Yes" to any of the questions above, the Reliability Standard probably requires revision. The questions below are intended to further guide your review. Some of the questions reference documents provided by NERC staff as indicated in the Background questions above.

1. **Paragraph 81**: Does one or more of the requirements in the Reliability Standard meet criteria for retirement or modification based on Paragraph 81 concepts? Use *Attachment 2: Paragraph 81 Criteria* to make this determination.

   ☐ Yes

   ☒ No

   **Please summarize your application of Paragraph 81 Criteria, if any**: R9.1 has been retired under Paragraph 81 principles, pending applicable regulatory approval. The review team applied the criteria specified in *Attachment 2: Paragraph 81 Criteria* in reviewing the remainder of the NUC standard and determined that no additional requirements should be retired under Paragraph 81 principles.

2. **Clarity:** If the Reliability Standard has an Interpretation, CAN, or issue associated with it, or is frequently violated because of ambiguity, it probably needs to be revised for clarity. Beyond these indicators, is there any reason to believe that the Reliability Standard should be modified to address a lack of clarity? Consider:

   a. Is this a Version 0 Reliability Standard?
   b. Does the Reliability Standard have obviously ambiguous language or language that requires performance that is not measurable?
   c. Are the requirements consistent with the purpose of the Reliability Standard?

   ☒ Yes

   ☐ No

   **Please summarize your assessment**: The FYRT recommends the following sections of NUC-001-2 be revised to improve the clarity of the standard:

   1) Applicability Section 4.1: Add plural to "Nuclear Plant Generator Operator"
   2) Requirement R5: Revise for consistency with R4 and to clarify that nuclear plants must be operated to meet the Nuclear Plant Interface Requirements.

3) Requirement R7 and R8: Delete “Protection Systems” in requirements R7 and R8 since it is a subset of the "nuclear plant design" and "electric system design" elements currently contained in R7 and R8 respectively. Add parenthetical clause (e.g. protective setpoints) to R7 following "nuclear plant design" and parenthetical clause (e.g. relay setpoints) to R8 following "electric system design".
4) Requirement R9: Revise to clarify that all agreements do not have to discuss each of the elements in R9, but that the sum total of the agreements need to address the elements.
5) Requirement R9.4.1: Insert "affecting the NPIRs" following "Provisions for communications" and insert "applicable unique" following ""definitions of".
6) Regional Differences: Revise to remove reference to specific Nuclear Regulatory Commission regulations and to clarify that there are no Canadian Regulatory requirements for electrical power from the electric network to permit safe shutdown.

Reference the draft Standard Authorization Request (SAR) developed by the FYRT for additional information regarding the above recommended revisions.

3. **Definitions**: Do any of the defined terms used within the Reliability Standard need to be refined?

☐ Yes
☒ No

**Please explain**: The FYRT recommends that the defined term "Protection Systems" not be used in Requirements R7 and R8 since the definition is overly broad in application here, and has other NERC compliance implications. The original SDT use of "protection systems" was focused on the attributes that could impact the NPIRs such as frequency or voltage set points (i.e. relay settings) and not the expanded five elements of "Protection Systems" as defined in the NERC Glossary of Terms. The FYRT concurs with the original application of the term "protection systems" and therefore recommends deletion of the defined term "Protection Systems". Please see the attached Five-Year Review Position Paper on NUC-001-2 R7 and R8 for further details.

4. **Compliance Elements:** Are the compliance elements associated with the requirements (Measures, Data Retention, VRFs, and VSLs) consistent with the direction of the Reliability Assurance Initiative and FERC and NERC guidelines? If you answered “No,” please identify which elements require revision, and why:

☐ Yes
☒ No

M4-M8 do not give examples of what constitutes "evidence." R7/R8 "may," M7/M8 "would." M7 and M8 do not contain "actual or proposed" language as used in R7 and R8 respectively.

5. **Consistency with Other Reliability Standards:** Does the Reliability Standard need to be revised for formatting and language consistency among requirements within the Reliability Standard or consistency with other Reliability Standards? If you answered "Yes," please describe the changes needed to achieve formatting and language consistency:

   ☐ Yes
   ☒ No

6. **Changes in Technology, System Conditions, or other Factors:** Does the Reliability Standard need to be revised to account for changes in technology, system conditions, or other factors? If you answered "Yes," please describe the changes and specifically what the potential impact is to reliability if the Reliability Standard is not revised:

   ☐ Yes
   ☒ No

7. **Consideration of Generator Interconnection Facilities:** Is responsibility for generator interconnection Facilities appropriately accounted for in the Reliability Standard?

   ☒ Yes
   ☐ No

   *Guiding Questions:*

   If the Reliability Standard is applicable to GOs/GOPs, is there any ambiguity about the inclusion of generator interconnection Facilities? (If generation interconnection Facilities could be perceived to be excluded, specific language referencing the Facilities should be introduced in the Reliability Standard.)

   The FYRT did not identify any ambiguity.

   If the Reliability Standard is not applicable to GOs/GOPs, is there a reliability-related need for treating generator interconnection Facilities as transmission lines for the purposes of this Reliability Standard? (If so, GOs and GOPs that own or operate relevant generator interconnection Facilities should be explicit in the applicability section of the Reliability Standard.)

This standard is applicable to GOs/GOPs; therefore, this guiding question was not considered.

**Recommendation**

The answers to the questions above, along with a preliminary recommendation of the SMEs conducting the review of the Reliability Standard, will be posted for a 45-day informal comment period, and the comments publicly posted. The SMEs will review the comments to evaluate whether to modify their initial recommendation, and will document the final recommendation which will be presented to the Standards Committee.

**Preliminary Recommendation (to be completed by the SME team after its review and prior to posting the results of the review for industry comment):**

- ☐ AFFIRM
- ☒ REVISE
- ☐ RETIRE

Technical Justification: See attached draft SAR.

**Preliminary Recommendation posted for industry comment (date):** July 23, 2013

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**Final Recommendation (to be completed by the SME team after it has reviewed industry comments on the preliminary recommendation):**

- ☐ AFFIRM *(This should only be checked if there are no outstanding directives, interpretations or issues identified by stakeholders.)*
- ☐ REVISE
- ☐ RETIRE

Technical Justification: TBD

**Date submitted to NERC Staff:** TBD

# Attachment 1: Results-Based Standards

The fourth question for NERC staff asks if the Reliability Standard needs to be converted to the results-based standards (RBS) format. The information below will be used by NERC staff in making this determination, and is included here as a reference for the SME team and other stakeholders.

RBS standards employ a defense-in-depth strategy for Reliability Standards development where each requirement has a role in preventing system failures and the roles are complementary and reinforcing. Reliability Standards should be viewed as a portfolio of requirements designed to achieve an overall defense-in-depth strategy and comply with the quality objectives identified in the resource document titled, "Acceptance Criteria of a Reliability Standard."

A Reliability Standard that adheres to the RBS format should strive to achieve a portfolio of performance-, risk-, and competency-based mandatory reliability requirements that support an effective defense-in-depth strategy. Each requirement should identify a clear and measurable expected outcome, such as: a) a stated level of reliability performance, b) a reduction in a specified reliability risk, or c) a necessary competency.

a. **Performance-Based**—defines a particular reliability objective or outcome to be achieved. In its simplest form, a results-based requirement has four components: who, under what conditions (if any), shall perform what action, to achieve what particular result or outcome?

b. **Risk-Based**—preventive requirements to reduce the risks of failure to acceptable tolerance levels. A risk-based reliability requirement should be framed as: who, under what conditions (if any), shall perform what action, to achieve what particular result or outcome that reduces a stated risk to the reliability of the bulk power system?

c. **Competency-Based**—defines a minimum set of capabilities an entity needs to have to demonstrate it is able to perform its designated reliability functions. A competency-based reliability requirement should be framed as: who, under what conditions (if any), shall have what capability, to achieve what particular result or outcome to perform an action to achieve a result or outcome or to reduce a risk to the reliability of the bulk power system?

Additionally, each RBS-adherent Reliability Standard should enable or support one or more of the eight reliability principles listed below. Each Reliability Standard should also be consistent with all of the reliability principles.

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.

7. The reliability 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.

If the Reliability Standard does not provide for a portfolio of performance-, risk-, and competency-based requirements or consistency with NERC's reliability principles, NERC staff should recommend that the Reliability Standard be reformatted in accordance with RBS format.

# Attachment 2: Paragraph 81 Criteria

The first question for the SME Review Team asks if one or more of the requirements in the Reliability Standard meet(s) criteria for retirement or modification based on Paragraph 81 concepts.[3] Use the Paragraph 81 criteria explained below to make this determination. Document the justification for the decisions throughout and provide them in the final assessment in the Five-Year Review worksheet.

For a Reliability Standard requirement to be proposed for retirement or modification based on Paragraph 81 concepts, it must satisfy **both**: (i) Criterion A (the overarching criterion) and (ii) at least one of the Criteria B listed below (identifying criteria). In addition, for each Reliability Standard requirement proposed for retirement or modification, the data and reference points set forth below in Criteria C should be considered for making a more informed decision.

### *Criterion A (Overarching Criterion)*

The Reliability Standard requirement requires responsible entities ("entities") to conduct an activity or task that does little, if anything, to benefit or protect the reliable operation of the BES.

Section 215(a) (4) of the United States Federal Power Act defines "reliable operation" as: "… operating the elements of the bulk-power system within equipment and electric 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, including a cybersecurity incident, or unanticipated failure of system elements."

### *Criteria B (Identifying Criteria)*

**B1. Administrative**

The Reliability Standard requirement requires responsible entities to perform a function that is administrative in nature, does not support reliability and is needlessly burdensome.

This criterion is designed to identify requirements that can be retired or modified with little effect on reliability and whose retirement or modification will result in an increase in the efficiency of the ERO compliance program. Administrative functions may include a task that is related to developing procedures or plans, such as establishing communication contacts. Thus, for certain requirements, Criterion B1 is closely related to Criteria B2, B3 and B4. Strictly administrative functions do not inherently negatively impact reliability directly and, where possible, should be eliminated or modified for purposes of efficiency and to allow the ERO and entities to appropriately allocate resources.

[3] In most cases, satisfaction of the Paragraph 81 criteria will result in the retirement of a requirement. In some cases, however, there may be a way to modify a requirement so that it no longer satisfies Paragraph 81 criteria. Recognizing that, this document refers to both options.

**B2. Data Collection/Data Retention**
These are requirements that obligate responsible entities to produce and retain data which document prior events or activities, and should be collected via some other method under NERC's rules and processes.

This criterion is designed to identify requirements that can be retired or modified with little effect on reliability. The collection and/or retention of data do not necessarily have a reliability benefit and yet are often required to demonstrate compliance. Where data collection and/or data retention is unnecessary for reliability purposes, such requirements should be retired or modified in order to increase the efficiency of the ERO compliance program.

**B3. Documentation**
The Reliability Standard requirement requires responsible entities to develop a document (*e.g.,* plan, policy or procedure) which is not necessary to protect BES reliability.

This criterion is designed to identify requirements that require the development of a document that is unrelated to reliability or has no performance or results-based function. In other words, the document is required, but no execution of a reliability activity or task is associated with or required by the document.

**B4. Reporting**
The Reliability Standard requirement obligates responsible entities to report to a Regional Entity, NERC or another party or entity. These are requirements that obligate responsible entities to report to a Regional Entity on activities which have no discernible impact on promoting the reliable operation of the BES and if the entity failed to meet this requirement there would be little reliability impact.

**B5. Periodic Updates**
The Reliability Standard requirement requires responsible entities to periodically update (*e.g.,* annually) documentation, such as a plan, procedure or policy without an operational benefit to reliability.

This criterion is designed to identify requirements that impose an updating requirement that is out of sync with the actual operations of the BES, unnecessary, or duplicative.

**B6. Commercial or Business Practice**
The Reliability Standard requirement is a commercial or business practice, or implicates commercial rather than reliability issues.

This criterion is designed to identify those requirements that require: (i) implementing a best or outdated business practice or (ii) implicating the exchange of or debate on commercially sensitive information while doing little, if anything, to promote the reliable operation of the BES.

**B7. Redundant**
The Reliability Standard requirement is redundant with: (i) another FERC-approved Reliability Standard requirement(s); (ii) the ERO compliance and monitoring program; or (iii) a governmental regulation (*e.g.,* Open Access Transmission Tariff, North American Energy Standards Board ("NAESB"), etc.).

This criterion is designed to identify requirements that are redundant with other requirements and are, therefore, unnecessary. Unlike the other criteria listed in Criterion B, in the case of redundancy, the task or activity itself may contribute to a reliable BES, but it is not necessary to have two duplicative requirements on the same or similar task or activity. Such requirements can be retired or modified with little or no effect on reliability and removal will result in an increase in efficiency of the ERO compliance program.

### *Criteria C (Additional data and reference points)*
Use the following data and reference points to assist in the determination of (and justification for) whether to proceed with retirement or modification of a Reliability Standard requirement that satisfies both Criteria A and B:

**C1. Was the Reliability Standard requirement part of a FFT filing?**
The application of this criterion involves determining whether the requirement was included in a FFT filing.

**C2. Is the Reliability Standard requirement being reviewed in an ongoing Standards Development Project?**
The application of this criterion involves determining whether the requirement proposed for retirement or modification is part of an active Standards Development Project, with consideration for the status of the project. If the requirement has been approved by Registered Ballot Body and is scheduled to be presented to the NERC Board of Trustees, in most cases it will not need to be addressed in the five-year review. The exception would be a requirement, such as the Critical Information Protection ("CIP") requirements for Version 3 and 4, that is not due to be retired for an extended period of time. Also, for informational purposes, whether the requirement is included in a future or pending Standards Development Project should be identified and discussed.

**C3. What is the VRF of the Reliability Standard requirement?**
The application of this criterion involves identifying the VRF of the requirement proposed for retirement or modification, with particular consideration of any requirement that has been assigned as having a Medium or High VRF. Also, the fact that a requirement has a Lower VRF is not dispositive that

it qualifies for retirement or modification. In this regard, Criterion C3 is considered in light of Criterion C5 (Reliability Principles) and C6 (Defense in Depth) to ensure that no reliability gap would be created by the retirement or modification of the Lower VRF requirement. For example, no requirement, including a Lower VRF requirement, should be retired or modified if doing so would harm the effectiveness of a larger scheme of requirements that are purposely designed to protect the reliable operation of the BES.

**C4. In which tier of the most recent Actively Monitored List (AML) does the Reliability Standard requirement fall?**

The application of this criterion involves identifying whether the requirement proposed for retirement or modification is on the most recent AML, with particular consideration for any requirement in the first tier of the AML.

**C5. Is there a possible negative impact on NERC's published and posted reliability principles?**

The application of this criterion involves consideration of the eight following reliability principles published on the NERC webpage.

> **Reliability Principles**
>
> NERC Reliability Standards are based on certain reliability principles that define the foundation of reliability for North American bulk power systems. Each reliability standard shall enable or support one or more of the reliability principles, thereby ensuring that each standard serves a purpose in support of reliability of the North American bulk power systems. Each reliability standard shall also be consistent with all of the reliability principles, thereby ensuring that no standard undermines reliability through an unintended consequence.
>
> > Principle 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.
> >
> > Principle 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.
> >
> > Principle 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.
> >
> > Principle 4. Plans for emergency operation and system restoration of interconnected bulk power systems shall be developed, coordinated, maintained, and implemented.

Principle 5. Facilities for communication, monitoring, and control shall be provided, used, and maintained for the reliability of interconnected bulk power systems.

Principle 6. Personnel responsible for planning and operating interconnected bulk power systems shall be trained, qualified, and have the responsibility and authority to implement actions.

Principle 7. The reliability of the interconnected bulk power systems shall be assessed, monitored, and maintained on a wide-area basis.

Principle 8. Bulk power systems shall be protected from malicious physical or cyber attacks. (footnote omitted).

**C6. Is there any negative impact on the defense in depth protection of the BES?**
The application of this criterion considers whether the requirement proposed for retirement or modification is part of a defense in depth protection strategy. In order words, the assessment is to verify whether other requirements rely on the requirement proposed for retirement or modification to protect the BES.

**C7. Does the retirement or modification promote results or performance based Reliability Standards?**
The application of this criterion considers whether the requirement, if retired or modified, will promote the initiative to implement results- and/or performance-based Reliability Standards.

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# Standards Announcement

## Project 2012-13 Nuclear Plant Interface Coordination Standard Authorization Request NUC-001-2.1

**Informal Comment Period Now Open through March 13, 2014**

**Now Available**

A 30-day comment period for the **NUC-001-2.1 – Nuclear Plant Interface Coordination** Standard Authorization Request is open through **8 p.m. Eastern on Thursday, March 13, 2014.**

### Instructions for Commenting

The comment period is open through **8 p.m. Eastern on Thursday, March 13, 2014.** Please use the electronic form to submit comments on the SAR. If you experience any difficulties in using the electronic form, please contact Wendy Muller. An off-line, unofficial copy of the comment form is posted on the project page.

For information on the **Standards Development Process**, please refer to the Standard Processes Manual.

*For more information or assistance, please contact Wendy Muller, Standards Development Administrator, or at 404-446-2560.*

North American Electric Reliability Corporation
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Atlanta, GA 30326
404-446-2560 | www.nerc.com

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

# Consideration of Comments

## Project 2012-13 NUC - Nuclear Plant Interface Coordination

The Nuclear Plant Interface Coordination SAR Drafting Team thanks all commenters who submitted comments on the SAR. These standards were posted for a 30-day public comment period from February 12, 2014 through March 13, 2014. Stakeholders were asked to provide feedback on the standards and associated documents through a special electronic comment form. There were 15 sets of comments, including comments from approximately 70 different people from approximately 51 companies representing 9 of the 10 Industry Segments as shown in the table on the following pages.

All comments submitted may be reviewed in their original format on the standard's project page.

If you feel that your comment has been overlooked, please let us know immediately. Our goal is to give every comment serious consideration in this process! If you feel there has been an error or omission, you can contact the Vice President and Director of Standards, Mark Lauby, at 404-446-2560 or at mark.lauby@nerc.net. In addition, there is a NERC Reliability Standards Appeals Process.[1]

[1] The appeals process is in the Standard Processes Manual: http://www.nerc.com/comm/SC/Documents/Appendix_3A_StandardsProcessesManual.pdf

## Index to Questions, Comments, and Responses

**The Industry Segments are:**

1 — Transmission Owners
2 — RTOs, 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, Regional Entities

| Group/Individual | | Commenter | Organization | Registered Ballot Body Segment | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1. | Group | Guy Zito | Northeast Power Coordinating Council | | | | | | | | | | X |

| | Additional Member | Additional Organization | Region | Segment Selection |
|---|---|---|---|---|
| 1. | Alan Adamson | New York State Reliability Council, LLC | NPCC | 10 |
| 2. | David Burke | Orange and Rockland Utilities Inc. | NPCC | 3 |
| 3. | Greg Campoli | New York Independent System Operator | NPCC | 2 |
| 4. | Sylvain Clermont | Hydro-Quebec TransEnergie | NPCC | 1 |
| 5. | Chris de Graffenried | Consolidated Edison Co. of New York, Inc. | NPCC | 1 |
| 6. | Gerry Dunbar | Northeast Power coordianting Council | NPCC | 10 |
| 7. | Mike Garton | Dominion Resources Services, Inc. | NPCC | 5 |
| 8. | Peter Yost | Consolidated Edison Co. of New York, Inc. | NPCC | 3 |
| 9. | Michael Jones | National Grid | NPCC | 1 |

| Group/Individual | Commenter | Organization | Registered Ballot Body Segment | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

| | | | | |
|---|---|---|---|---|
| 10. | Mark Kenny | Northeast Utilities | NPCC | 1 |
| 11. | Christina Koncz | PSEG Power LLC | NPCC | 5 |
| 12. | Helen Lainis | Independent Electricity System Operator | NPCC | 2 |
| 13. | Michael Lombardi | Northeast Power Coordinating Council | NPCC | 10 |
| 14. | Alan MacNaughton | New Brunswick Power Corporation | NPCC | 9 |
| 15. | Bruce Metruck | New York Power Authority | NPCC | 6 |
| 16. | Silvia Parada Mitchell | NextEra Energy, LLC | NPCC | 5 |
| 17. | Lee Pedowicz | Northeast Power Coodinating Council | NPCC | 10 |
| 18. | Robert Pellegrini | The Untied Illuminating Company | NPCC | 1 |
| 19. | Si Truc Phan | Hydro-Quebec TransEnergie | NPCC | 1 |
| 20. | David Ramkalawan | Ontario Power Generation, Inc. | NPCC | 5 |
| 21. | Brian Robinson | Utility Services | NPCC | 8 |
| 22. | Ayesha Sabouba | Hydro One Networks Inc, | NPCC | 1 |
| 23. | Brian Shanahan | National Grid | NPCC | 1 |
| 24. | Wayne Sipperly | New York Power Authority | NPCC | 5 |
| 25. | Ben Wu | Orange and Rockland Utilities Inc. | NPCC | 1 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2. | Group | Cindy Stewart | FirstEnergy Corp | X | | X | X | X | X | | | | |

| Additional Member | Additional Organization | Region | Segment Selection |
|---|---|---|---|
| William Smith | FirstEnergy Corp | RFC | 1 |
| Cindy Stewart | FirstEnergy Corp | RFC | 3 |
| Doug Hohlbaugh | Ohio Edison | RFC | 4 |
| Kenneth Dresner | FirstEnergy Solutions | RFC | 5 |
| Kevin Querry | FirstEnergy Solutions | RFC | 6 |
| Rich Hoag | | RFC | NA |
| Marissa Mclean | | RFC | NA |
| Bill Duge | | RFC | NA |
| Steve Wittenauer | | RFC | NA |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3. | Group | Joseph DePoorter | MRO NERC Standards Review Forum | X | X | X | X | X | X | | | | |

| | Additional Member | Additional Organization | Region | Segment Selection |
|---|---|---|---|---|
| 1. | Alice Ireland | Xcel Energy | MRO | 1, 3, 5, 6 |
| 2. | Chuck Wicklund | Otter Tail Power Company | MRO | 1, 3, 5 |

| Group/Individual | | Commenter | Organization | Registered Ballot Body Segment | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 3. | Dan Inman | Minnkota Power Cooperative | MRO | 1, 3, 5, 6 | | | | | | | | | |
| 4. | Dave Rudolph | Basin Electric Power Cooperative | MRO | 1, 3, 5, 6 | | | | | | | | | |
| 5. | Kayleigh Wilkerson | Lincoln Electric System | MRO | 1, 3, 5, 6 | | | | | | | | | |
| 6. | Jodi Jensen | Western Area Power Administration | MRO | 1, 6 | | | | | | | | | |
| 7. | Joseph DePoorter | Madison Gas & Electric | MRO | 3, 4, 5, 6 | | | | | | | | | |
| 8. | Ken Goldsmith | Alliant Energy | MRO | 4 | | | | | | | | | |
| 9. | Mahmood Safi | Omaha Public Power District | MRO | 1, 3, 5, 6 | | | | | | | | | |
| 10. | Marie Knox | Midcontinent Independent System Operator | MRO | 2 | | | | | | | | | |
| 11. | Mike Brytowski | Great River Energy | MRO | 1, 3, 5, 6 | | | | | | | | | |
| 12. | Randi Nyholm | Minnesota Power | MRO | 1, 5 | | | | | | | | | |
| 13. | Scott Bos | Muscatine Power & Water | MRO | 1, 3, 5, 6 | | | | | | | | | |
| 14. | Terry Harbour | MidAmerican Energy | MRO | 1, 3, 5, 6 | | | | | | | | | |
| 15. | Tom Breene | Wisconsin Public Service | MRO | 3, 4, 5, 6 | | | | | | | | | |
| 16. | Tony Eddleman | Nebraska Public Power District | MRO | 1, 3, 5 | | | | | | | | | |
| 4. | Group | Colby Bellville | Duke Energy | X | | X | | X | X | | | | |

| | Additional Member | Additional Organization | Region | Segment Selection |
|---|---|---|---|---|
| 1. | Doug Hils | Duke Energy | RFC | 1 |
| 2. | Lee Schuster | Duke Energy | FRCC | 3 |
| 3. | Dale Goodwine | Duke Energy | SERC | 5 |
| 4. | Greg Cecil | Duke Energy | RFC | 6 |

| 5. | Group | Mike Garton | Dominion | X | | X | | X | X | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Additional Member | Additional Organization | Region | Segment Selection |
|---|---|---|---|
| Louis Slade | Dominion Resources Services, Inc. | SERC | 1, 3, 5, 6 |
| Randi Heise | Dominion Resources Services, Inc. | MRO | 6 |
| Connie Lowe | Dominion Resources Services, Inc. | RFC | 5, 6 |
| Michael Crowley | Virginia Electric & Power Company | SERC | 1, 3, 5, 6 |

| 6. | Group | Marcus Pelt | Southern Company: SOuthern Company Sercives,Inc.; Alabama Power Company; Georgia Power Company; Gulf Power Company; Mississippi Power Comapny; | X | | X | | X | X | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Group/Individual | | Commenter | Organization | Registered Ballot Body Segment | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | | | Southern Comapny Genertation; Southern Company Generation and Energy Marketing | | | | | | | | | | |
| No Additional Responses | | | | | | | | | | | | | |
| 7. | Individual | Bruce Wertz | Wertz & Associates, Inc. | | | | | | | | | | |
| 8. | Individual | Andrew Z. Pusztai | American Transmissionn Company, LLC | X | | | | | | | | | |
| 9. | Individual | John Brockhan | CenterPoint Energy | X | | | | | | | | | |
| 10. | Individual | Michael Falvo | Independent Electricity System Operator | | X | | | | | | | | |
| 11. | Individual | David Thorne | Pepco Holdings Inc. | X | | X | | | | | | | |
| 12. | Individual | Tammy Porter | Oncor Electric Delivery Co. LLC | X | | X | | | | | | | |
| 13. | Individual | Thomas Foltz | American Electric Power | X | | X | | X | X | | | | |
| 14. | Individual | Catherine Wesley | PJM Interconnection | | | | | | | | | | |
| 15. | Individual | Lisa Martin | City of Austin dba Austin Energy | X | | X | X | X | X | | | | |

**If you support the comments submitted by another entity and would like to indicate you agree with their comments, please select "agree" below and enter the entity's name in the comment section (please provide the name of the organization, trade association, group, or committee, rather than the name of the individual submitter).**

**Summary Consideration:**

| Organization | Agree | Supporting Comments of "Entity Name" |
|---|---|---|
| Wertz & Associates, Inc. | Agree | Bruce D Wertz, PresidentWertz and Associates Inc |

**1. Do you agree with the scope and objectives of this SAR? If not, please explain why you do not agree, and, if possible, provide specific language revisions that would make it acceptable to you.**

**Summary Consideration:**

| Organization | Yes or No | Question 1 Comment |
|---|---|---|
| Northeast Power Coordinating Council | No | The proposed revisions of NUC-001-2.1 are not in depth enough to address P.81 and the consolidation of redundant requirements. Additionally, there are requirements in NUC-001 that should be moved to other families of standards. For example Requirement R3 should be moved to TPL-001-4, IRO-010-1a R1; Part R9.3.5 should be moved to EOP-005-2, EOP-006-2; Part R9.3.6 move to CIP Standards; Part R9.4.5 move to PER-005-1. NUC-001 should focus on the creation and communication of NPIRs by Nuclear Plant Generator Operators, the other standards should have requirements where applicable to implement the necessary controls around the NPIRs to ensure Nuclear Plants do not violate their NPLRs. |
| MRO NERC Standards Review Forum | No | In the Section on SAR Information, NSRF recommends that another bullet be added to address the Five Year Review Recommendation #4 on Page 4 which states that the NUC Standard needs to converted to the Results-based Standard (RBS) format as outlined in Attachment 1 at the next revision. |
| American Transmissionn Company, LLC | No | In the Section on SAR Information, ATC recommends that another bullet be added to address the Five Year Review Recommendation #4 on Page 4 which states that the NUC Standard needs to be converted to the Results-based standard (RBS) format as outlined in Attachment 1 at the next revision. |

| Organization | Yes or No | Question 1 Comment |
|---|---|---|
| CenterPoint Energy | No | CenterPoint Energy appreciates the efforts of Project 2012-13 NUC Standard Drafting Team. Additionally, CenterPoint Energy requests that the scope of the project be expanded to include a review of whether Load-Serving Entities can be removed from the Applicability section of NUC-001-2.1.In NERC's 2007-11-19 Petition for the approval of NUC-001-1, the SDT at the time stated that "the drafting team prefers at this time to keep the list of possible entities broad at this stage, with the option to drop some of the entities later."Furthermore, FERC's 2008-10-16 Order 716 which approved NUC-001-1 acknowledged "there is a significant amount of overlap among the entities that perform these functions."CenterPoint Energy believes that Load-Serving Entities do not perform any unique reliability tasks necessary during coordination with Nuclear Plant Generator Operators, and that all such necessary reliability tasks are already being performed by the other applicable functional entities of NUC-001-2.1. Thus, Project 2012-13 provides a good opportunity to delete the redundant Load-Serving Entities function from this Standard. |
| Duke Energy | Yes | Duke Energy agrees with the changes made by the 5-year Review Team. |
| PJM Interconnection | Yes | PJM supports the scope of the SAR with particular support for removing the reference to "Protection Systems" as referenced in R7 and R8 of NUC-001-2.1. The SAR, as written, supports development of a results-based standard. |
| FirstEnergy Corp | Yes | |
| Dominion | Yes | |
| Southern Company: SOuthern Company Sercives,Inc.; Alabama Power Company; Georgia Power Company; Gulf Power | Yes | |

| Organization | Yes or No | Question 1 Comment |
|---|---|---|
| Company; Mississippi Power Comapny; Southern Comapny Genertation; Southern Company Generation and Energy Marketing | | |
| Independent Electricity System Operator | Yes | |
| Pepco Holdings Inc. | Yes | |
| Oncor Electric Delivery Co. LLC | Yes | |
| American Electric Power | Yes | |
| City of Austin dba Austin Energy | Yes | |

**2. Are you aware of any Canadian provincial or other regulatory requirements that may need to be considered during this project in order to develop a continent-wide approach to the standards? If yes, please identify the jurisdiction and specific regulatory requirements.**

**Summary Consideration:**

| Organization | Yes or No | Question 2 Comment |
|---|---|---|
| FirstEnergy Corp | No | US entity - not applicable |
| Northeast Power Coordinating Council | No | |
| Duke Energy | No | |
| Dominion | No | |
| Southern Company: SOuthern Company Sercives,Inc.; Alabama Power Company; Georgia Power Company; Gulf Power Company; Mississippi Power Comapny; Southern Comapny Genertation; Southern Company Generation and Energy Marketing | No | |
| CenterPoint Energy | No | |

| Organization | Yes or No | Question 2 Comment |
|---|---|---|
| Independent Electricity System Operator | No | |
| Pepco Holdings Inc. | No | |
| Oncor Electric Delivery Co. LLC | No | |
| American Electric Power | No | |
| PJM Interconnection | No | |
| City of Austin dba Austin Energy | No | |
| MRO NERC Standards Review Forum | Yes | This was identified by the FYRT when proposing a definition change in Section E, Regional Differences within the Standard to eliminate a potential unintended conflict with the NERC Glossary of Terms as it relates to Nuclear Plant Licensing Requirements in Canadian Provinces. |
| American Transmissionn Company, LLC | Yes | This was identified by the FYRT when proposing to definition change in Section E, Regional Differences within the Standard to eliminate a potential unintended conflict with the NERC Glossary of Terms as it relates to Nuclear Plant Licensing Requirements in Canadian Provinces. |

**3. Are there any other concerns with this SAR that haven't been covered in previous questions?**

**Summary Consideration:**

| Organization | Yes or No | Question 3 Comment |
|---|---|---|
| Dominion | No | Dominion offers the following suggestions:1. Under detailed description on Page 3 the below items listed suggests this is being converted to a risk-based standard, but it's not stated.2. Modify the Violation Severity Level and Violation Risk Factor matrices to conform to NERC guidelines. 3. Revise measures to ensure appropriate clarity and applicability to each corresponding requirement. 4. Add Time Horizons to each requirement. 5. Dominion suggests at the end of "conform to NERC guidelines" add for risk-based standards. |
| Southern Company: SOuthern Company Sercives,Inc.; Alabama Power Company; Georgia Power Company; Gulf Power Company; Mississippi Power Comapny; Southern Comapny Genertation; Southern Company Generation and Energy Marketing | No | |
| CenterPoint Energy | No | |
| Independent Electricity System Operator | No | |

| Organization | Yes or No | Question 3 Comment |
|---|---|---|
| Pepco Holdings Inc. | No | |
| Oncor Electric Delivery Co. LLC | No | |
| American Electric Power | No | |
| PJM Interconnection | No | |
| Northeast Power Coordinating Council | Yes | 1. Making Nuclear Plant Generator Operator plural is not necessary. 2. Agree that R5 should be revised for consistency with R4 and to clarify that nuclear plants must be operated to meet the Nuclear Plant Interface Requirements. 3. The SDT proposes to replace the ambiguous term "Protection Systems" with language to clarify requirement applicability. To avoid complicating the Requirements, recommend the SDT include a Rationale Box for R7 and R8 that addresses the original Drafting Team's intent to identify what information is to be shared by affected entities. 4. Agree that R9 and R9.4.1 should be revised to clarify requirement applicability5. Disagree that Section E. Regional Differences should be revised to remove reference to specific Nuclear Regulatory Commission regulations and to clarify that there are no Canadian Regulatory requirements for electrical power from the electric network to permit safe shutdown. At a minimum a footnote should be provided for source of requirement (i.e. it is the NRC's NPLR's that drive most of the NPIRs being identified)6. Adding Time Horizons to each requirement is appropriate. |
| FirstEnergy Corp | Yes | Look at the use of "Agreement", "Agreements" and "Agreement(s)" language in the standard. Should these be consistent throughout the entire standard or is there a purpose for the language being different? If there is a reason for the variance in the usage of "Agreement", "Agreements" and "Agreement(s)", what is the intent or rational for the differences? |
| Duke Energy | Yes | Duke Energy believes that the term "electric systems" should be changed to Bulk Electric System (BES) to better align this standard and requirements with the NERC |

| Organization | Yes or No | Question 3 Comment |
|---|---|---|
| | | Glossary of Terms. However, if this is not the proper definition, we seek clarification from the 5-year Review Team on the term "electric systems" used in NUC-001.NUC-001 should address coordination, between the Nuclear Plant Generator Operator and the applicable Transmission Entities, of power system design & operation required to support nuclear site emergency preparedness/response. Transmission entities need to ensure they are not doing things that purposely disable facilities relied on to mitigate site events. |
| City of Austin dba Austin Energy | Yes | City of Austin dba Austin Energy (AE) supports the efforts of the Project 2012-13 NUC Standard Drafting Team (SDT). AE requests the SDT expand the scope of the project to include a review of whether Load-Serving Entities can be removed from the Applicability section of NUC-001-2.1. AE supports CenterPoint Energy's comment in this regard. |

END OF REPORT

## Standard Development Timeline

*This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.*

### Development Steps Completed

1. SC authorized moving the SAR forward to standard development to implement recommendations of Five-year review of NUC-001-2 - October 17, 2013.
2. SAR posted for informal comment February 12-March 13, 2014.
3. NUC-001-3 for 45 day Comment Period and Initial Ballot April 8 – May 22, 2014.

### Description of Current Draft

Draft 1 of NUC-001-3 implements recommendations from the NUC-001-2.1 Five-Year Review Team (NUC FYRT). The FYRT's recommendations were accepted by the Standards Committee in October 2013. This draft is being posted for a 45-day formal comment period and initial ballot.

| Anticipated Actions | Anticipated Date |
|---|---|
| 45-day Formal Comment Period with Parallel Initial Ballot | April 8, 2014 |
| Recirculation ballot | June 2014 |
| BOT adoption | August 2014 |

**Effective Dates:** First day of the first calendar quarter that is twelve months beyond the date that this standard is approved by applicable regulatory authorities or as otherwise provided for in a jurisdiction where approval by an applicable governmental authority is required for a standard to go into effect. Where approval by an applicable governmental authority is not required, the standard shall become effective on the first day of the first calendar quarter that is twelve months after the date this standard is adopted by the NERC Board of Trustees or as otherwise provided for in that jurisdiction.

## Version History

| Version | Date | Action | Change Tracking |
|---|---|---|---|
| 1 | May 2, 2007 | Approved by Board of Trustees | New |
| 2 | To be determined | Modifications for Order 716 to Requirement R9.3.5 and footnote 1; modifications to bring compliance elements into conformance with the latest version of the ERO Rules of Procedure. | Revision |
| 2 | August 5, 2009 | Adopted by Board of Trustees | Revised |
| 2 | January 22, 2010 | Approved by FERC on January 21, 2010<br>Added Effective Date | Update |
| 2 | February 7, 2013 | R9.1, R9.1.1, R9.1.2, R9.1.3, and R9.1.4 and associated elements approved by NERC Board of Trustees for retirement as part of the Paragraph 81 project (Project 2013-02) pending applicable regulatory approval. | |
| 2.1 | April 11, 2012 | Errata approved by the Standards Committee; (Capitalized “Protection System” in accordance with Implementation Plan for Project 2007-17 approval of revised definition of “Protection System”) | Errata associated with Project 2007-17 |
| 3 | March, 2014 | Modifications to implement the recommendations of the five-year review of NUC-001, which was accepted by the Standards Committee on October 17, 2013. | Revision |

## Definitions of Terms Used in Standard

*This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.*

**None**

*When this standard has received ballot approval, the text boxes will be moved to the Application Guidelines Section of the Standard.*

## A. Introduction

**1. Title:** **Nuclear Plant Interface Coordination**

**2. Number:** **NUC-001-3**

**3. Purpose:** This standard requires coordination between Nuclear Plant Generator Operators and Transmission Entities for the purpose of ensuring nuclear plant safe operation and shutdown.

**4. Applicability:**

**4.1. Functional Entities:**

**4.1.1** Nuclear Plant Generator Operators.

**4.2.** Transmission Entities shall mean all entities that are responsible for providing services related to Nuclear Plant Interface Requirements (NPIRs). Such entities may include one or more of the following:

**4.2.1** Transmission Operators.

**4.2.2** Transmission Owners.

**4.2.3** Transmission Planners.

**4.2.4** Transmission Service Providers.

**4.2.5** Balancing Authorities.

**4.2.6** Reliability Coordinators.

**4.2.7** Planning Coordinators.

**4.2.8** Distribution Providers.

**4.2.9** Load-serving Entities.

**4.2.10** Generator Owners.

**4.2.11** Generator Operators.

**5. Background:**

Project 2012-13 Nuclear Power Interface Coordination seeks to implement the changes that were proposed by the NUC FYRT. The NUC FYRT was appointed by the Standards Committee Executive Committee on April 22, 2013. The NUC FYRT reviewed the NUC-001-2.1 standard to identify opportunities for consolidation and additional improvements. The NUC FYRT posted its recommendation to revise NUC-001-2.1 for industry comment on July 27, 2013. The NUC FYRT considered comments and submitted its final recommendation to revise NUC-001-2.1, along with a Standards Authorization Request (SAR) to the Standards Committee on October 17, 2013. The Standards Committee accepted the recommendation of the FYRT and appointed the team as the Standard Drafting Team (SDT) to implement the recommendation.

## B. Requirements and Measures

**R1.** The Nuclear Plant Generator Operator shall provide the proposed NPIRs in writing to the applicable Transmission Entities and shall verify receipt. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning ]*

**M1.** The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, provide a copy of the transmittal and receipt of transmittal of the proposed NPIRs to the responsible Transmission Entities.

**R2.** The Nuclear Plant Generator Operator and the applicable Transmission Entities shall have in effect one or more Agreements[1] that include mutually agreed to NPIRs and document how the Nuclear Plant Generator Operator and the applicable Transmission Entities shall address and implement these NPIRs. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning ]*

**M2.** The Nuclear Plant Generator Operator and each Transmission Entity shall each have a copy of the Agreement(s) addressing and implementing the NPIRs available for inspection upon request of the Compliance Enforcement Authority.

**R3.** Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall incorporate the NPIRs into their planning analyses of the electric system and shall communicate the results of these analyses to the Nuclear Plant Generator Operator.: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning ]*

**M3.** Each Transmission Entity responsible for planning analyses in accordance with the Agreement shall, upon request of the Compliance Enforcement Authority, provide a copy of the planning analyses results transmitted to the Nuclear Plant Generator Operator, showing incorporation of the NPIRs. The Compliance Enforcement

[1]. Agreements may include mutually agreed upon procedures or protocols in effect between entities or between departments of a vertically integrated system.

Authority shall refer to the Agreements developed in accordance with this standard for specific requirements.

**R4.** Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall *[Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]*

**4.1.** Incorporate the NPIRs into their operating analyses of the electric system.

**4.2.** Operate the electric system to meet the NPIRs.

**4.3.** Inform the Nuclear Plant Generator Operator when the ability to assess the operation of the electric system affecting NPIRs is lost.

**M4.** Each Transmission Entity responsible for operating the electric system in accordance with the Agreement shall demonstrate or provide evidence of the following, upon request of the Compliance Enforcement Authority:

**M4.1** The NPIRs have been incorporated into the current operating analysis of the electric system. (Requirement 4.1)

**M4.2** The electric system was operated to meet the NPIRs. (Requirement 4.2)

**M4.3** The Transmission Entity informed the Nuclear Plant Generator Operator when it became aware it lost the capability to assess the operation of the electric system affecting the NPIRs

**R5.** Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall operate the nuclear plant to meet the NPIRs. *[Violation Risk Factor: High] [Time Horizon: Operations Planning ]*

**Rationale for R5**: Rationale for R5: The FYRT recommended R5 be revised for consistency with R4 and to clarify that nuclear plants must be operated to meet the Nuclear Plant Interface Requirements.

**M5.** The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, demonstrate or provide evidence that the Nuclear Power Plant is being operated consistent with the NPIRs.

**R6.** Per the Agreements developed in accordance with this standard, the applicable Transmission Entities and the Nuclear Plant Generator Operator shall coordinate outages and maintenance activities which affect the NPIRs. *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*

**M6.** The Transmission Entities and Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, provide evidence of the coordination between the Transmission Entities and the Nuclear Plant Generator Operator regarding outages and maintenance activities which affect the NPIRs.

**R7.** Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall inform the applicable Transmission Entities of actual or proposed changes to nuclear plant design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

**M7.** The Nuclear Plant Generator Operator shall provide evidence that it informed the applicable Transmission Entities of changes to nuclear plant design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that would impact the ability of the Transmission Entities to meet the NPIRs.

**Rationale for R7 and R8**: The FYRT recommended deleting "Protection Systems" in Requirements R7 and R8 since it is a subset of the "nuclear plant design" and "electric system design" elements currently contained in R7 and R8 respectively; and adding a parenthetical clause (e.g. protective setpoints) to R7 following "nuclear plant design" and parenthetical clause (e.g. relay setpoints) to R8 following "electric system design."

**R8.** Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall inform the Nuclear Plant Generator Operator of actual or proposed changes to electric system design (e.g., protective relay setpoints), configuration, operations, limits, , or capabilities that may impact the ability of the electric system to meet the NPIRs. *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

**M8.** The Transmission Entities shall each provide evidence that it informed the Nuclear Plant Generator Operator of changes to electric system design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that would impact the ability of the Nuclear Plant Generator Operator to meet the NPIRs.

**R9.** The Nuclear Plant Generator Operator and the applicable Transmission Entities shall include the following elements in aggregate within the Agreement(s) identified in R2.

- Where multiple Agreements with a single Transmission Entity are put into effect, the R9 elements must be addressed in aggregate within the Agreements; however, each Agreement does not have to contain each element. The Nuclear Plant Generator Operator and the Transmission Entity are responsible for ensuring all the R9 elements are addressed in aggregate within the Agreements.
- Where Agreements with multiple Transmission Entities are required, the Nuclear Plant Generator Operator is responsible for ensuring all the R9 elements are addressed in aggregate within the Agreements with the Transmission Entities. The Agreements with each Transmission Entity do not have to contain each element; however, the Agreements

**Rationale for R9**: The FYRT recommended that R9 be revised to clarify that all agreements do not have to discuss each of the elements in R9, but that the sum total of the agreements need to address the elements.
In addition, for clarity in Part 9.4.1, the FYRT recommended that "affecting the NPIRs" be inserted following "Provisions for communications" and "applicable unique" be inserted following ""definitions of."

with the multiple Transmission Entities, in the aggregate, must address all R9 elements. For each Agreement(s), the Nuclear Plant Generator Operator and the Transmission Entity are responsible to ensure the Agreement(s) contain(s) the elements of R9 applicable to that Transmission Entity. : *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

**9.1.** Retired. *[Note: Part 9.1 was retired under the Paragraph 81 project. The NUC SDT proposes to leave this Part blank to avoid renumbering Requirement parts that would impact existing agreements throughout the industry.]*

**9.2.** Technical requirements and analysis:

**9.2.1.** Identification of parameters, limits, configurations, and operating scenarios included in the NPIRs and, as applicable, procedures for providing any specific data not provided within the Agreement.

**9.2.2.** Identification of facilities, components, and configuration restrictions that are essential for meeting the NPIRs.

**9.2.3.** Types of planning and operational analyses performed specifically to support the NPIRs, including the frequency of studies and types of Contingencies and scenarios required.

**9.3.** Operations and maintenance coordination

**9.3.1.** Designation of ownership of electrical facilities at the interface between the electric system and the nuclear plant and responsibilities for operational control coordination and maintenance of these facilities.

**9.3.2.** Identification of any maintenance requirements for equipment not owned or controlled by the Nuclear Plant Generator Operator that are necessary to meet the NPIRs.

**9.3.3.** Coordination of testing, calibration and maintenance of on-site and off-site power supply systems and related components.

**9.3.4.** Provisions to address mitigating actions needed to avoid violating NPIRs and to address periods when responsible Transmission Entity loses the ability to assess the capability of the electric system to meet the NPIRs. These provisions shall include responsibility to notify the Nuclear Plant Generator Operator within a specified time frame.

**9.3.5.** Provision for considering, within the restoration process, the requirements and urgency of a nuclear plant that has lost all off-site and on-site AC power.

**9.3.6.** Coordination of physical and cyber security protection at the nuclear plant interface to ensure each asset is covered under at least one entity's plan.

**9.3.7.** Coordination of the NPIRs with transmission system Special Protection Systems and any programs that reduce or shed load based on underfrequency or undervoltage.

**9.4.** Communications and training Administrative elements:

**9.4.1.** Provisions for communications affecting the NPIRs between the Nuclear Plant Generator Operator and Transmission Entities, including communications protocols, notification time requirements, and definitions of applicable unique terms.

**9.4.2.** Provisions for coordination during an off-normal or emergency event affecting the NPIRs, including the need to provide timely information explaining the event, an estimate of when the system will be returned to a normal state, and the actual time the system is returned to normal.

**9.4.3.** Provisions for coordinating investigations of causes of unplanned events affecting the NPIRs and developing solutions to minimize future risk of such events.

**9.4.4.** Provisions for supplying information necessary to report to government agencies, as related to NPIRs.

**9.4.5.** Provisions for personnel training, as related to NPIRs.

**M9.** The Nuclear Plant Generator Operator shall have a copy of the Agreement(s) addressing the elements in Requirement 9 available for inspection upon request of the Compliance Enforcement Authority. Each Transmission Entity shall have a copy of the Agreement(s) addressing the elements in Requirement 9 for which it is responsible available for inspection upon request of the Compliance Enforcement Authority.

## C. Compliance

### 1. Compliance Monitoring Process

**1.1. Compliance Enforcement Authority**

Regional Entity

**1.2. Compliance Monitoring and Assessment Processes:**

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints Text

**1.3. Data Retention**

The Responsible Entity shall keep data or evidence to show compliance as identified below unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation:

- For Measure 1, the Nuclear Plant Generator Operator shall keep its latest transmittals and receipts.
- For Measure 2, the Nuclear Plant Generator Operator and each Transmission Entity shall have its current, in-force Agreement.
- For Measure 3, the Transmission Entity shall have the latest planning analysis results.
- For Measures 4.3, 6 and 8, the Transmission Entity shall keep evidence for two years plus current.
- For Measures 5, 6 and 7, the Nuclear Plant Generator Operator shall keep evidence for two years plus current.

If a Responsible Entity is found non-compliant it shall keep information related to the noncompliance until found compliant.

The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.

### 1.4. Additional Compliance Information

None

## Table of Compliance Elements

| R # | Time Horizon | VRF | Violation Severity Levels | | | |
|---|---|---|---|---|---|---|
| | | | Lower VSL | Moderate VSL | High VSL | Severe VSL |
| **R1** | | **Medium** | The Nuclear Plant Generator Operator provided the NPIR's to the applicable entities but did not verify receipt. | The Nuclear Plant Generator Operator did not provide the proposed NPIR to one of the applicable entities unless there was only one entity. | The Nuclear Plant Generator Operator did not provide the proposed NPIR's to two of the applicable entities unless there was only two entities. | The Nuclear Plant Generator Operator did not provide the proposed NPIR's to more than two of applicable entities.<br>OR<br>For a particular Nuclear Power Plant, if the number of possible applicable transmission entities is equal to the number of applicable transmission entities not provided NPIRs |
| **R2** | | **Medium** | N/A | N/A | N/A | The Nuclear Plant Generator Operator or the applicable Transmission Entity does not have in effect one or more agreements that include mutually agreed to NPIRs and document the implementation of the NPIRs. |
| **R3** | | **Medium** | N/A | The responsible entity incorporated the NPIRs into its planning analyses but did not communicate | N/A | The responsible entity did not incorporate the NPIRs into its planning analyses of the electric system. |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | the results to the Nuclear Plant Generator Operator. | | |
| **R4** | | **High** | N/A | The responsible entity did not comply with sub-requirement R4.3. | The responsible entity did not comply with R4.1. | The responsible entity did not comply with R4.2. |
| **R5** | | **High** | N/A | N/A | N/A | The Nuclear Plant Generator Operator failed to operate per the NPIRs developed in accordance with this standard. |
| **R6** | | **Medium** | N/A | The Nuclear Plant Generator Operator or Transmission Entity failed to provide outage or maintenance schedules to the appropriate parties as described in the agreement or on a time period consistent with the agreements. | The Nuclear Plant Generator Operator or Transmission Entity failed to coordinate one or more outages or maintenance activities in accordance the requirements of the agreements. | N/A |
| **R7** | | **High** | The Nuclear Plant Generator Operator did not inform the applicable Transmission Entities of proposed changes to nuclear plant design (e.g. protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. | N/A | The Nuclear Plant Generator Operator did not inform the applicable Transmission Entities of actual changes to nuclear plant design (e.g. protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. | The Nuclear Plant Generator Operator did not inform the applicable Transmission Entities of actual changes to nuclear plant design (e.g., protective relay setpoints), configuration, operations, limits or capabilities that directly impact the ability of the electric system to meet the NPIRs. |
| **R8** | | **High** | The applicable Transmission Entities did not inform the Nuclear | N/A | The applicable Transmission Entities did not inform the Nuclear | The applicable Transmission Entities did not inform the Nuclear |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | Plant Generator Operator of proposed changes to transmission system design, configuration (e.g. protective relay setpoints), operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. | | Plant Generator Operator of actual changes to transmission system design (e.g. protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. | Plant Generator Operator of actual changes to transmission system design (e.g. protective relay setpoints), configuration, operations, limits, or capabilities that directly impacts the ability of the electric system to meet the NPIRs. |
| **R9** | | **Medium** | | The Agreement(s) identified in R2. between the Nuclear Plant Generator Operator and the applicable Transmission Entity failed to include up to 20% of the combined sub-components in Parts 9.2, 9.3 and 9.4 applicable to that entity. | The Agreement(s) identified in R2. between the Nuclear Plant Generator Operator and the applicable Transmission Entity failed to include greater than 20%, but less than 40% of the combined sub-components in Parts 9.2, 9.3 and 9.4 applicable to the entity. | The Agreement(s) identified in R2. between the Nuclear Plant Generator Operator and the applicable Transmission Entity failed to include 40% or more of the combined sub-components in Parts 9.2, 9.3 and 9.4 applicable to the entity. |

## D. Regional Variances

The design basis for Canadian (CANDU) Nuclear Power Plants (NPPs) does not result in the same licensing requirements as U.S. NPPs. Nuclear Regulatory Commission (NRC) design criteria specifies that in addition to emergency on-site electrical power, electrical power from the electric network also be provided to permit safe shutdown. There are no equivalent Canadian Regulatory requirements for electrical power from the electric network to be provided to permit safe shutdown. Therefore the definition of Nuclear Plant Licensing Requirements (NPLR) for Canadian CANDU NPPs will be as follows:

Canadian Nuclear Plant Licensing Requirements (CNPLR) are requirements included in the design basis of the nuclear plant and are statutorily mandated for the operation of the plant; when used in this standard, NPLR shall mean nuclear power plant licensing requirements for avoiding preventable challenges to nuclear safety as a result of an electric system disturbance, transient, or condition.

## E. Interpretations

None.

## F. Associated Documents

None.

## Standard Development Timeline

*This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.*

### Development Steps Completed

1. SC authorized moving the SAR forward to standard development to implement recommendations of Five-year review of NUC-001-2 - October 17, 2013.
2. SAR posted for informal comment February 12-March 13, 2014.
3. NUC-001-3 for 45 day Comment Period and I~~i~~nitial B~~b~~allot April 8 – May 22, 2014.

### Description of Current Draft

~~(Describe~~Draft 1 of NUC-001-3 implements recommendations from the NUC-001-2.1 ~~type of action associated with this posting such as 30-day informal comment period, 30~~F~~f~~ive-Y~~y~~ear R~~r~~eview Team (NUC FYRT)~~of NUC-001-2~~. The FYRT's ~~These~~ recommendations ~~of the FYR team~~ were~~as~~ accepted by the Standards Committee in October 2013. This draft is being posted for a 45-day formal comment period~~, 45 day formal comment period with parallel~~ and initial ballot~~, 30-day formal comment period with parallel successive ballot, recirculation ballot).~~

| Anticipated Actions | Anticipated Date |
|---|---|
| 45-day Formal Comment Period with Parallel Initial Ballot | April 8, 2014 |
| Recirculation ballot | June 2014 |
| BOT adoption | August 2014 |

**~~Effective Dates:~~** ~~April 1, 2010~~**Effective Dates:** First day of the first calendar quarter that is twelve months beyond the date that this standard is approved by applicable regulatory authorities or as otherwise provided for in a jurisdiction where approval by an applicable governmental authority is required for a standard to go into effect. Where approval by an applicable governmental authority is not required, the standard shall become effective on the first day of the first calendar quarter that is twelve~~six~~ months after the date this standard is adopted by the NERC Board of Trustees or as otherwise provided for in that jurisdiction.

## Version History

| Version | Date | Action | Change Tracking |
|---|---|---|---|
| 1 | May 2, 2007 | Approved by Board of Trustees | New |
| 2 | To be determined | Modifications for Order 716 to Requirement R9.3.5 and footnote 1; modifications to bring compliance elements into conformance with the latest version of the ERO Rules of Procedure. | Revision |
| 2 | August 5, 2009 | Adopted by Board of Trustees | Revised |
| 2 | January 22, 2010 | Approved by FERC on January 21, 2010<br>Added Effective Date | Update |
| 2 | February 7, 2013 | R9.1, R9.1.1, R9.1.2, R9.1.3, and R9.1.4 and associated elements approved by NERC Board of Trustees for retirement as part of the Paragraph 81 project (Project 2013-02) pending applicable regulatory approval. | |
| 2.1 | April 11, 2012 | Errata approved by the Standards Committee; (Capitalized “Protection System” in accordance with Implementation Plan for Project 2007-17 approval of revised definition of “Protection System”) | Errata associated with Project 2007-17 |
| 3 | March, 2014 | Modifications to implement the recommendations of the five-year review of NUC-001, which was accepted by the Standards Committee on October 17, 2013. | Revision |

## Definitions of Terms Used in Standard

*This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.*

~~**Term:** definition.~~

**None**

*When this standard has received ballot approval, the text boxes will be moved to the Application Guidelines Section of the Standard.*

## A. Introduction

1. **Title:** **Nuclear Plant Interface Coordination**

2. **Number:** **NUC-001-~~2.1~~3**

3. **Purpose:** This standard requires coordination between Nuclear Plant Generator Operators and Transmission Entities for the purpose of ensuring nuclear plant safe operation and shutdown.

4. **Applicability:**

   **4.1. Functional Entities:**

   **4.1.1** Nuclear Plant Generator Operators.

   **4.2.** Transmission Entities shall mean all entities that are responsible for providing services related to Nuclear Plant Interface Requirements (NPIRs). Such entities may include one or more of the following:

   **4.2.1** Transmission Operators.

   **4.2.2** Transmission Owners.

   **4.2.3** Transmission Planners.

   **4.2.4** Transmission Service Providers.

   **4.2.5** Balancing Authorities.

   **4.2.6** Reliability Coordinators.

   **4.2.7** Planning Coordinators.

   **4.2.8** Distribution Providers.

   **4.2.9** Load-serving Entities.

   **4.2.10** Generator Owners.

   **4.2.11** Generator Operators.

**5. Background:**

Project 2012-13 Nuclear Power Interface Coordination seeks to implement the changes that were proposed by the NUC FYRT~~-001-2.1 Five Year Review Team~~. ~~-~~The NUC ~~Five Year Review Team (~~FYRT~~)~~ was appointed by the Standards Committee Executive Committee on April 22, 2013. The NUC FYRT reviewed the NUC-001-2.1 standard to identify opportunities for consolidation and additional improvements. The NUC FYRT posted its recommendation to revise NUC-001-2.1 for industry comment on July 27, 2013~~for industry comment its recommendation to revise NUC-001-2.1 on July 27, 2013.~~. The NUC FYRT considered comments and submitted its final recommendation to revise NUC-001-2.1, along with a Standards Authorization Request (SAR) to the Standards Committee on October 17, 2013~~ its final recommendation to revise NUC-001-2.1, along with a Standards Authorization Request (SAR) on October 17, 2013~~. The Standards Committee accepted the recommendation of the FYRT and appointed the team as the Standard Drafting Team (SDT) to implement the recommendation.

## B. Requirements and Measures

**R1.** The Nuclear Plant Generator Operator shall provide the proposed NPIRs in writing to the applicable Transmission Entities and shall verify receipt. *[Violation Risk Factor: ~~Lower~~Medium] [Time Horizon: -Long-term Planning ]*

**M1.** The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, provide a copy of the transmittal and receipt of transmittal of the proposed NPIRs to the responsible Transmission Entities.

**R2.** The Nuclear Plant Generator Operator and the applicable Transmission Entities shall have in effect one or more Agreements[1] that include mutually agreed to NPIRs and document how the Nuclear Plant Generator Operator and the applicable Transmission Entities shall address and implement these NPIRs. *[Violation Risk Factor: Medium] [Time Horizon: ~~]~~ Long-term Planning ]*

**M2.** The Nuclear Plant Generator Operator and each Transmission Entity shall each have a copy of the Agreement(s) addressing and implementing the ~~elements in Requirement 9~~NPIRs available for inspection upon request of the Compliance Enforcement Authority.

**R3.** Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall incorporate the NPIRs into their planning analyses of the electric system and shall communicate the results of these analyses to the Nuclear Plant Generator Operator.: *[Violation Risk Factor: Medium] [Time Horizon: ~~]~~ Long-term Planning ]*

[1]. Agreements may include mutually agreed upon procedures or protocols in effect between entities or between departments of a vertically integrated system.

**M3.** Each Transmission Entity responsible for planning analyses in accordance with the Agreement shall, upon request of the Compliance Enforcement Authority, provide a copy of the planning analyses results transmitted to the Nuclear Plant Generator Operator, showing incorporation of the NPIRs. The Compliance Enforcement Authority shall refer to the Agreements developed in accordance with this standard for specific requirements.

**R4.** Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall *[Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]*

**4.1.** Incorporate the NPIRs into their operating analyses of the electric system.

**4.2.** Operate the electric system to meet the NPIRs.

**4.3.** Inform the Nuclear Plant Generator Operator when the ability to assess the operation of the electric system affecting NPIRs is lost.

**M4.** Each Transmission Entity responsible for operating the electric system in accordance with the Agreement shall demonstrate or provide evidence of the following, upon request of the Compliance Enforcement Authority:

**M4.1** The NPIRs have been incorporated into the current operating analysis of the electric system. (Requirement 4.1)

**M4.2** The electric system was operated to meet the NPIRs. (Requirement 4.2)

**M4.3** The Transmission Entity informed the Nuclear Plant Generator Operator when it became aware it lost the capability to assess the operation of the electric system affecting the NPIRs

**R5.** ~~The Nuclear Plant Generator Operator shall operate per~~Per the Agreements developed in accordance with this standard~~.~~, the Nuclear Plant Generator Operator shall operate the nuclear plant to meet the NPIRs. *[Violation Risk Factor: High] [Time Horizon: ~~]~~Operations Planning ]*

**Rationale for R5**: Rationale for R5: The FYRT recommended R5 be revised for consistency with R4 and to clarify that nuclear plants must be operated to meet the Nuclear Plant Interface Requirements.

**M5.** The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, demonstrate or provide evidence that the Nuclear Power Plant is being operated consistent with the NPIRs~~. as per the Agreements developed in accordance with this standard.~~

**R6.** Per the Agreements developed in accordance with this standard, the applicable Transmission Entities and the Nuclear Plant Generator Operator shall coordinate outages and maintenance activities which affect the NPIRs. *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*

**M6.** The Transmission Entities and Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, provide evidence of the coordination between the Transmission Entities and the Nuclear Plant Generator Operator regarding outages and maintenance activities which affect the NPIRs.

**R7.** Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall inform the applicable Transmission Entities of actual or proposed changes to nuclear plant design~~,~~ (e.g., protective relay setpoints), configuration, operations, limits, ~~Protection Systems,~~ or capabilities that may impact the ability of the electric system to meet the NPIRs. *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

**M7.** The Nuclear Plant Generator Operator shall provide evidence that it informed the applicable Transmission Entities of changes to nuclear plant design~~,~~ (e.g., protective relay setpoints), configuration, operations, limits~~, Protection Systems~~, or capabilities that would impact the ability of the Transmission Entities to meet the NPIRs.

**Rationale for R7 and R8**: The FYRT recommended deleting “Protection Systems” in Requirements R7 and R8 since it is a subset of the "nuclear plant design" and "electric system design" elements currently contained in R7 and R8 respectively; and adding a parenthetical clause (e.g. protective setpoints) to R7 following "nuclear plant design" and parenthetical clause (e.g. relay setpoints) to R8 following "electric system design."

**R8.** Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall inform the Nuclear Plant Generator Operator of actual or proposed changes to electric system design~~,~~ (e.g., protective relay setpoints), configuration, operations, limits, ~~Protection Systems~~, or capabilities that may impact the ability of the electric system to meet the NPIRs. *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

**M8.** The Transmission Entities shall each provide evidence that it informed the Nuclear Plant Generator Operator of changes to electric system design~~,~~ (e.g., protective relay setpoints), configuration, operations, limits~~, Protection Systems~~, or capabilities that would impact the ability of the Nuclear Plant Generator Operator to meet the NPIRs.

**R9.** The Nuclear Plant Generator Operator and the applicable Transmission Entities shall include~~, as a minimum,~~ the following elements in aggregate within the ~~a~~Agreement(s) identified in R2.

- Where multiple Agreements with a single Transmission Entity are put into effect, the R9 elements must be addressed in aggregate within the Agreements; however, each Agreement does not have to contain each element. The Nuclear Plant Generator Operator and the Transmission Entity are responsible for ensuring all the R9 elements are addressed in aggregate within the Agreements.
- Where Agreements with multiple Transmission Entities are required, the Nuclear Plant Generator Operator is responsible for ensuring all the R9 elements are addressed in aggregate within the Agreements with the Transmission Entities. The Agreements with each Transmission Entity do not have to contain each element; however, the Agreements with the multiple Transmission Entities, in the aggregate, must address all R9 elements. For each Agreement(s), the Nuclear Plant Generator Operator and the Transmission Entity are responsible to ensure the Agreement(s) contain(s) the elements of R9 applicable to that Transmission Entity. : *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

**Rationale for R9**: The FYRT recommended that R9 be revised to clarify that all agreements do not have to discuss each of the elements in R9, but that the sum total of the agreements need to address the elements.
In addition, for clarity in Part 9.4.1, the FYRT recommended that "affecting the NPIRs" be inserted following "Provisions for communications" and "applicable unique" be inserted following ""definitions of."

**~~8.1.~~** Retired~~Administrative elements:~~

**~~8.1.1.~~** ~~Definitions of key terms used in the agreement.~~

**~~8.1.2.~~** ~~Names of the responsible entities, organizational relationships, and responsibilities related to the NPIRs.~~

**~~8.2.~~9.1.** ~~A requirement to review the agreement(s) at least every three years. A dispute resolution mechanism.~~. *[Note: Part 9.1 was retired under the Paragraph 81 project~~.~~. The NUC SDT proposes to leave this Part blank to avoid renumbering Requirement parts that would impact existing agreements throughout the industry.]*

**~~8.3.~~9.2.** Technical requirements and analysis:

**~~8.3.1.~~9.2.1.** Identification of parameters, limits, configurations, and operating scenarios included in the NPIRs and, as applicable, procedures for providing any specific data not provided within the Agreement.

**~~8.3.2.~~9.2.2.** Identification of facilities, components, and configuration restrictions that are essential for meeting the NPIRs.

**~~8.3.3.~~9.2.3.** Types of planning and operational analyses performed specifically to support the NPIRs, including the frequency of studies and types of Contingencies and scenarios required.

**~~8.4.~~9.3.** Operations and maintenance coordination

8.4.1.9.3.1. Designation of ownership of electrical facilities at the interface between the electric system and the nuclear plant and responsibilities for operational control coordination and maintenance of these facilities.

8.4.2.9.3.2. Identification of any maintenance requirements for equipment not owned or controlled by the Nuclear Plant Generator Operator that are necessary to meet the NPIRs.

8.4.3.9.3.3. Coordination of testing, calibration and maintenance of on-site and off-site power supply systems and related components.

8.4.4.9.3.4. Provisions to address mitigating actions needed to avoid violating NPIRs and to address periods when responsible Transmission Entity loses the ability to assess the capability of the electric system to meet the NPIRs. These provisions shall include responsibility to notify the Nuclear Plant Generator Operator within a specified time frame.

8.4.5.9.3.5. Provision for considering, within the restoration process, the requirements and urgency of a nuclear plant that has lost all off-site and on-site AC power.

8.4.6.9.3.6. Coordination of physical and cyber security protection ~~of the Bulk Electric System~~ at the nuclear plant interface to ensure each asset is covered under at least one entity's plan.

8.4.7. Coordination of the NPIRs with transmission system Special Protection Systems and any programs that reduce or shed load based on underfrequency ~~and~~or undervoltage ~~load shedding programs~~.

9.3.7.

8.5.9.4. Communications and training Administrative elements:

8.5.1.9.4.1. Provisions for communications affecting the NPIRs between the Nuclear Plant Generator Operator and Transmission Entities, including communications protocols, notification time requirements, and definitions of applicable unique terms.

8.5.2.9.4.2. Provisions for coordination during an off-normal or emergency event affecting the NPIRs, including the need to provide timely information explaining the event, an estimate of when the system will be returned to a normal state, and the actual time the system is returned to normal.

8.5.3.9.4.3. Provisions for coordinating investigations of causes of unplanned events affecting the NPIRs and developing solutions to minimize future risk of such events.

8.5.4.9.4.4. Provisions for supplying information necessary to report to government agencies, as related to NPIRs.

8.5.5.9.4.5. Provisions for personnel training, as related to NPIRs.

**M9.** The Nuclear Plant Generator Operator ~~and each Transmission Entity~~ shall ~~each~~ have a copy of the Agreement(s) addressing the elements in Requirement 9 available for inspection upon request of the Compliance Enforcement Authority. Each Transmission Entity shall have a copy of the Agreement(s) addressing the elements in Requirement 9 for which it is responsible available for inspection upon request of the Compliance Enforcement Authority.

## C. Compliance

### 1. Compliance Monitoring Process

#### 1.1. Compliance Enforcement Authority

Regional Entity

#### 1.2. Compliance Monitoring and Assessment Processes:

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints Text

#### 1.3. Data Retention

The Responsible Entity shall keep data or evidence to show compliance as identified below unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation:

- For Measure 1, the Nuclear Plant Generator Operator shall keep its latest transmittals and receipts.
- For Measure 2, the Nuclear Plant Generator Operator and each Transmission Entity shall have its current, in-force ~~a~~Agreement.
- For Measure 3, the Transmission Entity shall have the latest planning analysis results.
- For Measures 4.3, 6 and 8, the Transmission Entity shall keep evidence for two years plus current.
- For Measures 5, 6 and 7, the Nuclear Plant Generator Operator shall keep evidence for two years plus current.

If a Responsible Entity is found non-compliant it shall keep information related to the noncompliance until found compliant.

The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.

### 1.4. Additional Compliance Information

None

## Table of Compliance Elements

| R # | Time Horizon | VRF | Violation Severity Levels | | | |
|---|---|---|---|---|---|---|
| | | | Lower VSL | Moderate VSL | High VSL | Severe VSL |
| **R1** | | ~~Lower~~**Medium** | The Nuclear Plant Generator Operator provided the NPIR's to the applicable entities but did not verify receipt. | The Nuclear Plant Generator Operator did not provide the proposed NPIR to one of the applicable entities~~.~~ unless there was only one entity. | The Nuclear Plant Generator Operator did not provide the proposed NPIR's to two of the applicable entities~~.~~ unless there was only two entities. | The Nuclear Plant Generator Operator did not provide the proposed NPIR's to more than two of applicable entities.<br>OR<br>For a particular Nuclear Power Plant, if the number of possible applicable transmission entities is equal to the number of applicable transmission entities not provided NPIRs |
| **R2** | | **Medium** | N/A | N/A | N/A | The Nuclear Plant Generator Operator or the applicable Transmission Entity does not have in effect one or more agreements that include mutually agreed to NPIRs and document the implementation of the NPIRs. |
| **R3** | | **Medium** | N/A | The responsible entity incorporated the NPIRs into its planning analyses but did not communicate | N/A | The responsible entity did not incorporate the NPIRs into its planning analyses of the electric system. |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | the results to the Nuclear Plant Generator Operator. | | |
| **R4** | | **High** | N/A | The responsible entity did not comply with sub-requirement R4.3. | The responsible entity did not comply with R4.1. | The responsible entity did not comply with R4.2. |
| ~~**R4.1**~~ | | ~~**N/A**~~ | ~~N/A~~ | ~~The responsible entity did not comply with sub-requirement R4.3.~~ | ~~The responsible entity did not comply with R4.1.~~ | ~~The responsible entity did not comply with R4.2.~~ |
| ~~**R4.2**~~ | | ~~**N/A**~~ | ~~N/A~~ | ~~The responsible entity did not comply with sub-requirement R4.3.~~ | ~~The responsible entity did not comply with R4.1.~~ | ~~The responsible entity did not comply with R4.2.~~ |
| ~~**R4.3**~~ | | ~~**N/A**~~ | ~~N/A~~ | ~~The responsible entity did not comply with sub-requirement R4.3.~~ | ~~The responsible entity did not comply with R4.1.~~ | ~~The responsible entity did not comply with R4.2.~~ |
| **R5** | | **High** | N/A | N/A | N/A | The Nuclear Plant Generator Operator failed to operate per the NPIRs~~Agreements~~ developed in accordance with this standard. |
| **R6** | | **Medium** | ~~The Nuclear Operator or Transmission Entity failed to coordinate outages or maintenance activities in accordance with one or more of the administrative elements within the agreements.~~N/A | The Nuclear Plant Generator Operator or Transmission Entity failed to provide outage or maintenance schedules to the appropriate parties as described in the agreement or on a time period consistent with the agreements. | The Nuclear Plant Generator Operator or Transmission Entity failed to coordinate one or more outages or maintenance activities in accordance the requirements of the agreements. | N/A |
| **R7** | | **High** | The Nuclear Plant Generator Operator did not inform the applicable Transmission Entities of proposed | ~~The Nuclear Plant Generator Operator did not inform the applicable Transmission Entities of actual changes to nuclear~~ | The Nuclear Plant Generator Operator did not inform the applicable Transmission Entities of actual changes to nuclear | ~~N/A~~The Nuclear Plant Generator Operator did not inform the applicable Transmission Entities of actual changes to nuclear |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | changes to nuclear plant design~~,~~ (e.g. protective relay setpoints), configuration, operations, limits, ~~protection systems,~~ or capabilities that may impact the ability of the electric system to meet the NPIRs. | ~~plant design, configuration, operations, limits, protection systems, or capabilities that may impact the ability of the electric system to meet the NPIRs.~~N/A | plant design~~,~~ (e.g. protective relay setpoints), configuration, operations, limits, ~~protection systems,~~ or capabilities that ~~directly~~may impact the ability of the electric system to meet the NPIRs. | plant design (e.g., protective relay setpoints), configuration, operations, limits or capabilities that directly impact the ability of the electric system to meet the NPIRs. |
| **R8** | | **High** | The applicable Transmission Entities did not inform the Nuclear Plant Generator Operator of proposed changes to transmission system design, configuration~~,~~ (e.g. protective relay setpoints), operations, limits, ~~protection systems,~~ or capabilities that may impact the ability of the electric system to meet the NPIRs. | ~~The applicable Transmission Entities did not inform the Nuclear Plant Generator Operator of actual changes to transmission system design, configuration, operations, limits, protection systems, or capabilities that may impact the ability of the electric system to meet the NPIRs.~~N/A | The applicable Transmission Entities did not inform the Nuclear Plant Generator Operator of actual changes to transmission system design~~,~~ (e.g. protective relay setpoints), configuration, operations, limits, ~~protection systems,~~ or capabilities that ~~directly impacts~~may impact the ability of the electric system to meet the NPIRs. | ~~N/A~~The applicable Transmission Entities did not inform the Nuclear Plant Generator Operator of actual changes to transmission system design (e.g. protective relay setpoints), configuration, operations, limits, or capabilities that directly impacts the ability of the electric system to meet the NPIRs. |
| **R9** | | **Medium** | ~~The agreement identified in R2. between the Nuclear Plant Generator Operator and the applicable Transmission Entities is missing one or more sub-components of R9.1.~~ | The ~~agreement~~Agreement(s) identified in R2. between the Nuclear Plant Generator Operator and the applicable Transmission Entity~~ies is missing from one~~ failed to ~~five~~include up to 20% of the combined sub-components in ~~R9~~Parts 9.2, ~~R9~~9.3 and ~~R9~~9.4 applicable to that entity. | The ~~agreement~~Agreement(s) identified in R2. between the Nuclear Plant Generator Operator and the applicable Transmission Entity~~ies is missing from six~~ failed to ~~ten~~include greater than 20%, but less than 40% of the combined sub-components in ~~R9~~Parts | The ~~agreement~~Agreement(s) identified in R2. between the Nuclear Plant Generator Operator and the applicable Transmission Entity~~ies is missing eleven~~failed to include 40% or more of the combined sub-components in ~~R9~~Parts 9.2, ~~R9~~9.3 and ~~R9~~9.4 applicable to the entity. |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | 9.2, ~~R9~~9.3 and ~~R9~~9.4 applicable to the entity. | |

## D. Regional Variances

The design basis for Canadian (CANDU) Nuclear Power Plants (NPPs) does not result in the same licensing requirements as U.S. NPPs. Nuclear Regulatory Commission (NRC) design criteria specifies that in addition to emergency on-site electrical power, electrical power from the electric network also be provided to permit safe shutdown. ~~This requirement is specified in such NRC Regulations as 10 CFR 50 Appendix A — General Design Criterion 17 and 10 CFR 50.63 Loss of all alternating current power.~~ There are no equivalent Canadian Regulatory requirements for ~~Station Blackout (SBO) or coping times as they do not form part of~~electrical power from the ~~licensing basis for CANDU NPPs.~~electric network to be provided to permit safe shutdown. Therefore the definition of Nuclear Plant Licensing Requirements (NPLR) for Canadian CANDU ~~units~~ NPPs will be as follows:

Canadian Nuclear Plant Licensing Requirements (CNPLR) are requirements included in the design basis of the nuclear plant and are statutorily mandated for the operation of the plant; when used in this standard, NPLR shall mean nuclear power plant licensing requirements for avoiding preventable challenges to nuclear safety as a result of an electric system disturbance, transient, or condition.

## E. Interpretations

None.

## F. Associated Documents

None.

# Implementation Plan

## Project 2012-13 Nuclear Plant Interface Coordination

### Requested Approvals

- NUC-001-3 – Nuclear Plant Interface Coordination

### Requested Retirements

- NUC-001-2.1 – Nuclear Plant Interface Coordination

### Prerequisite Approvals

None

### Revisions to Defined Terms in the NERC Glossary

None

### Background

The Project 2012-13 Nuclear Power Interface Coordination Standards Drafting Team (NPIC SDT) seeks to implement the changes that were proposed by the NUC-001-2.1 Five Year Review Team (FYTR). The NUC FYRT was appointed by the Standards Committee Executive Committee on April 22, 2013. The NUC FYRT reviewed the NUC-001-2.1 standard to identify opportunities for consolidation and additional improvements. The NUC FYRT posted for industry comment its recommendation to revise NUC-001-2.1 on July 27, 2013. The NUC FYRT considered comments and submitted to the Standards Committee its final recommendation to revise NUC-001-2.1, along with a Standards Authorization Request (SAR) on October 17, 2013. The Standards Committee accepted the recommendation of the FYRT and appointed the team as the NPIC SDT to implement the recommendation.

## Applicable Entities

- Nuclear Plant Generator Operators.
- Transmission Entities shall mean all entities that are responsible for providing services related to Nuclear Plant Interface Requirements (NPIRs). Such entities may include one or more of the following:
- Transmission Operators.
- Transmission Owners.
- Transmission Planners.
- Transmission Service Providers.
- Balancing Authorities.
- Reliability Coordinators.
- Planning Coordinators.
- Distribution Providers.
- Load-serving Entities.
- Generator Owners.
- Generator Operators.

## Effective Date

First day of the first calendar quarter that is twelve months beyond the date that this standard is approved by applicable regulatory authorities or as otherwise provided for in a jurisdiction where approval by an applicable governmental authority is required for a standard to go into effect. Where approval by an applicable governmental authority is not required, the standard shall become effective on the first day of the first calendar quarter that is twelve s months after the date this standard is adopted by the NERC Board of Trustees or as otherwise provided for in that jurisdiction.

## Standards for Retirement

Midnight of the day immediately prior to the Effective Date of NUC-001-3 in the particular jurisdiction in which the new standard is becoming effective.

### Revisions or Retirements to Already Approved Standards

The following tables identify the sections of the approved standard that shall be retired or revised when this standard is implemented. If the drafting team is recommending the retirement or revision of a requirement, that text is blue.

| Already Approved Standard | Proposed Replacement Requirement(s) |
|---|---|
| NUC-001-2.1<br><br>**R5.** The Nuclear Plant Generator Operator shall operate per the Agreements developed in accordance with this standard. *[Violation Risk Factor: High] [Time Horizon: None]*<br><br>**R7.** Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall inform the applicable Transmission Entities of actual or proposed changes to nuclear plant design, configuration, operations, limits, Protection Systems, or capabilities that may impact the ability of the electric system to meet the NPIRs. [Violation Risk Factor: High] [Time Horizon: None]<br><br>**R8.** Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall inform the Nuclear Plant Generator Operator of actual or proposed changes to electric system design, configuration, operations, limits, Protection Systems, or capabilities that may impact the ability of the electric system to meet the NPIRs. [Violation Risk Factor: High] [Time Horizon: ] | NUC-001-3<br><br>R5. Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall operate the nuclear plant to meet the NPIRs. *[Violation Risk Factor: High] [Time Horizon: Operations Planning ]*<br><br>R7. Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall inform the applicable Transmission Entities of actual or proposed changes to nuclear plant design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*<br><br>R8. Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall inform the Nuclear Plant Generator Operator of actual or proposed changes to electric system design (e.g., protective relay setpoints), configuration, operations, limits, , or capabilities that may impact the ability of the electric system to meet the NPIRs. [Violation Risk Factor: High] [Time Horizon: Long-term Planning] |
| **Notes:** | |

| | |
|---|---|
| R9. The Nuclear Plant Generator Operator and the applicable Transmission Entities shall include, as a minimum, the following elements within the agreement(s) identified in R2: [Violation Risk Factor: Medium] [Time Horizon: ]<br>9.1. Administrative elements:<br>9.1.1. Definitions of key terms used in the agreement.<br>9.1.2. Names of the responsible entities, organizational relationships, and responsibilities related to the NPIRs.<br>9.1.3. A requirement to review the agreement(s) at least every three years. A dispute resolution mechanism.<br>9.2. Technical requirements and analysis:<br>9.2.1. Identification of parameters, limits, configurations, and operating scenarios included in the NPIRs and, as applicable, procedures for providing any specific data not provided within the Agreement.<br>9.2.2. Identification of facilities, components, and configuration restrictions that are essential for meeting the NPIRs.<br>9.2.3. Types of planning and operational analyses performed specifically to support the NPIRs, including the frequency of studies and types of Contingencies and scenarios required.<br>9.3. Operations and maintenance coordination<br>9.3.1. Designation of ownership of electrical facilities at the interface between the electric system and the nuclear plant and responsibilities for operational control coordination and maintenance of these facilities.<br>9.3.2. Identification of any maintenance requirements for equipment not owned or controlled by the Nuclear Plant Generator Operator that are necessary to meet the NPIRs.<br>9.3.3. Coordination of testing, calibration and maintenance of on-site and off-site power supply systems and related components.<br>9.3.4. Provisions to address mitigating actions needed to avoid violating NPIRs and to address periods when responsible | R9. The Nuclear Plant Generator Operator and the applicable Transmission Entities shall include the following elements in aggregate within the Agreement(s) identified in R2.<br>• Where multiple Agreements with a single Transmission Entity are put into effect, the R9 elements must be addressed in aggregate within the Agreements; however, each Agreement does not have to contain each element. The Nuclear Plant Generator Operator and the Transmission Entity are responsible for ensuring all the R9 elements are addressed in aggregate within the Agreements.<br>• Where Agreements with multiple Transmission Entities are required, the Nuclear Plant Generator Operator is responsible for ensuring all the R9 elements are addressed in aggregate within the Agreements with the Transmission Entities. The Agreements with each Transmission Entity do not have to contain each element; however, the Agreements with the multiple Transmission Entities, in the aggregate, must address all R9 elements. For each Agreement(s), the Nuclear Plant Generator Operator and the Transmission Entity are responsible to ensure the Agreement(s) contain(s) the elements of R9 applicable to that Transmission Entity. : [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]<br>9.1. Not used.<br>9.2. Technical requirements and analysis:<br>9.2.1. Identification of parameters, limits, configurations, and operating scenarios included in the NPIRs and, as applicable, procedures for providing any specific data not provided within the Agreement.<br>9.2.2. Identification of facilities, components, and configuration restrictions that are essential for meeting the NPIRs.<br>9.2.3. Types of planning and operational analyses performed specifically to support the NPIRs, including the frequency of studies and types of Contingencies and scenarios required. |

| | |
|---|---|
| Transmission Entity loses the ability to assess the capability of the electric system to meet the NPIRs. These provisions shall include responsibility to notify the Nuclear Plant Generator Operator within a specified time frame.<br>9.3.5. Provision for considering, within the restoration process, the requirements and urgency of a nuclear plant that has lost all off-site and on-site AC power.<br>9.3.6. Coordination of physical and cyber security protection of the Bulk Electric System at the nuclear plant interface to ensure each asset is covered under at least one entity's plan.<br>9.3.7. Coordination of the NPIRs with transmission system Special Protection Systems and underfrequency and undervoltage load shedding programs.<br><br>9.4. Communications and training Administrative elements:<br>9.4.1. Provisions for communications between the Nuclear Plant Generator Operator and Transmission Entities, including communications protocols, notification time requirements, and definitions of terms.<br>9.4.2. Provisions for coordination during an off-normal or emergency event affecting the NPIRs, including the need to provide timely information explaining the event, an estimate of when the system will be returned to a normal state, and the actual time the system is returned to normal.<br>9.4.3. Provisions for coordinating investigations of causes of unplanned events affecting the NPIRs and developing solutions to minimize future risk of such events.<br>9.4.4. Provisions for supplying information necessary to report to government agencies, as related to NPIRs.<br>9.4.5. Provisions for personnel training, as related to NPIRs. | 9.3. Operations and maintenance coordination<br>9.3.1. Designation of ownership of electrical facilities at the interface between the electric system and the nuclear plant and responsibilities for operational control coordination and maintenance of these facilities.<br>9.3.2. Identification of any maintenance requirements for equipment not owned or controlled by the Nuclear Plant Generator Operator that are necessary to meet the NPIRs.<br>9.3.3. Coordination of testing, calibration and maintenance of on-site and off-site power supply systems and related components.<br>9.3.4. Provisions to address mitigating actions needed to avoid violating NPIRs and to address periods when responsible Transmission Entity loses the ability to assess the capability of the electric system to meet the NPIRs. These provisions shall include responsibility to notify the Nuclear Plant Generator Operator within a specified time frame.<br>9.3.5. Provision for considering, within the restoration process, the requirements and urgency of a nuclear plant that has lost all off-site and on-site AC power.<br>9.3.6. Coordination of physical and cyber security protection at the nuclear plant interface to ensure each asset is covered under at least one entity's plan.<br>9.3.7. Coordination of the NPIRs with transmission system Special Protection Systems and any programs that reduce or shed load based on underfrequency or undervoltage.<br><br>9.4. Communications and training Administrative elements:<br>9.4.1. Provisions for communications affecting the NPIRs between the Nuclear Plant Generator Operator and Transmission Entities, including communications protocols, notification time requirements, and definitions of applicable unique terms. |

| Already Approved Standard | Proposed Replacement Requirement(s) |
|---|---|
| | 9.4.2. Provisions for coordination during an off-normal or emergency event affecting the NPIRs, including the need to provide timely information explaining the event, an estimate of when the system will be returned to a normal state, and the actual time the system is returned to normal.<br>9.4.3. Provisions for coordinating investigations of causes of unplanned events affecting the NPIRs and developing solutions to minimize future risk of such events.<br>9.4.4. Provisions for supplying information necessary to report to government agencies, as related to NPIRs.<br>9.4.5. Provisions for personnel training, as related to NPIRs. |
| **Notes:** Requirement R9.1 retired under Paragraph 81 criteria. Retirement approved by FERC January 2014. | |

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# Unofficial Comment Form

## Project 2012-13 Nuclear Plant Interface Coordination
## NUC-001-3

Please **DO NOT** use this form for submitting comments. Please use the electronic form to submit comments on the Standard. The electronic comment form must be completed by 8:00 p.m. ET **Thursday, May 22, 2014**.

If you have questions please contact Stephen Eldridge or by telephone at 404-446-9686.

The project page may be accessed by clicking here.

### Background Information

Project 2012-13 Nuclear Power Interface Coordination seeks to implement the changes that were proposed by the NUC-001-2.1 Five Year Review Team. The NUC Five Year Review Team (FYRT) was appointed by the Standards Committee Executive Committee on April 22, 2013. The NUC FYRT reviewed the NUC-001-2.1 standard to identify opportunities for consolidation and additional improvements. The NUC FYRT posted for industry comment its recommendation to revise NUC-001-2.1 on July 27, 2013. The NUC FYRT considered comments and submitted to the Standards Committee its final recommendation to revise NUC-001-2.1 on October 17, 2013. The Standards Authorization Request (SAR) to revise NUC-001-2.1 was developed in October 2013 and subsequently posted for a 30 day informal comment period from February 12th-March 13th of 2014. The NUC-001-3 Standards Drafting Team (SDT) met from March 18th-20th 2014 and made revisions to the currently effective NUC-001-2.1 standard for which it is requesting industry comment.

The following is a summary of changes the drafting team has made:

- Added Time Horizons to the Requirements
- Modified the language the Measurement M2 to enhance clarity
- Modified the language in Requirement R5 and Measure M5 to enhance clarity
- Removed the phrases “Protection Systems” and “undervoltage load shedding programs” in order to avoid conflict with other standards in development
- Removed the reference to Bulk Electric System in sub-requirement 9.3.6
- Modified Requirement R9 so that multiple agreements may be used to address all mandated elements
- Increased the VRF in Requirement R1 from “Lower” to “Medium”

- Modified and expaned the language within the VSLs to better align with the modified requirements

This posting solicits comment on the NUC-001-3 standard.

**Questions on NUC-001-3**

1. The FYRT recommended Requirement R5 be revised for consistency with R4 and to clarify that nuclear plants must be operated to meet the Nuclear Plant Interface Requirements, and the Project 2012-03 drafting team has implemented this recommendation. Do you agree or disagree with this requirement? If you disagree, please provide an alternative solution.

☐ Yes

☐ No

Comments:

2. The FYRT recommended that R9 be revised to clarify that all agreements do not have to discuss each of the elements in R9, but that the sum total of the agreements need to address the elements, and the Project 2012-03 drafting team has implemented this recommendation. Do you agree or disagree with this requirement? If you disagree, please provide an alternative solution.

☐ Yes

☐ No

Comments:

3. Do you agree with the VRFs and VSLs for Requirements R5 and R9? If not, please explain.

☐ Yes

☐ No

Comments:

4. Do you have any additional comments? Please provide them here.

☐ Yes

☐ No

Comments:

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# Standards Authorization Request Form

NERC welcomes suggestions to improve the reliability of the bulk power system through improved reliability standards. Please use this form to submit your request to propose a new or revised NERC Reliability Standard.

| Request to propose a new or a revised Reliability Standard | | | |
|---|---|---|---|
| Title of Proposed Standard: | Nuclear Plant Interface Coordination – NUC-001-2.1 (Project 2012-13) | | |
| Date Submitted: | October 1, 2013 | | |
| SAR Requester Information | | | |
| Name: | John Gyrath | | |
| Organization: | Exelon Generation LLC (Nuclear) | | |
| Telephone: | 610.765.5692 | E-mail: | john.gyrath@exeloncorp.com |
| SAR Type (Check as many as applicable) | | | |
| ☐ New Standard | | ☐ Withdrawal of existing Standard | |
| ☒ Revision to existing Standard | | ☐ Urgent Action | |

| SAR Information |
|---|
| Industry Need (What is the industry problem this request is trying to solve?): |
| The Standards Committee assigned seven subject matter experts to review the NUC standard as part of NERC's obligation to conduct periodic reviews of its standards. The Five-Year Review Team concluded that NUC-001-2.1 remains necessary for reliability by requiring coordination between Nuclear Plant Generator Operators and Transmission Entities to ensure nuclear plant safe operation and shutdown. The standard, however, requires revision to provide greater clarity and to sharpen industry focus on tasks that have a more direct impact on reliability. |
| Purpose or Goal (How does this request propose to address the problem described above?): |
| This SAR proposes revising NUC-001-2.1 in line with the recommendations of the NUC Five-Year Review Team as described in the *Five-Year Review Recommendation to Revise NUC-001-2.1*, (Attachment 1). |

| SAR Information |
| --- |
| The proposed changes to the standard add clarity, remove redundancy, and bring compliance elements in accordance with NERC guidelines. The NUC Five-Year Review Team recommends revising R5 to make it consistent with R4, and to state that the Nuclear Plant Generator Operator shall operate the nuclear plant to meet the NPIRs. The team also recommends removing the reference in R7 and R8 to "Protection Systems" as defined in the NERC Glossary of Terms to focus the standard on attributes that could impact the NPIRs, such as frequency or voltage setpoints, and not the expanded five elements of the defined term. Protection systems are a subset of the nuclear plant design and electric system design attributes referenced in R7 and R8 respectively, and reference to setpoints will be made with these attributes. The team recommends revising the Effective Date section to account for jurisdictional differences in the Canadian provinces. The team recommends revising R9 to clarify that that all agreements do not have to discuss each of the elements in R9, but that the sum total of the agreements need to address the elements. The team also recommends revising the Regional Differences section to remove reference to specific Nuclear Regulatory Commission regulations and to clarify that there are no Canadian Regulatory requirements for electrical power from the electric network to permit safe shutdown, and to revise the definition of "NPLR" to remove the potential conflict with a NERC Glossary of Terms definition. Finally, the team also recommends several errata type changes throughout the standard, as identified in the *Five-Year Review Recommendation to Revise NUC-001-2.1*. |
| Identify the Objectives of the proposed standard's requirements (What specific reliability deliverables are required to achieve the goal?): |
| The objective of NUC-001-2 is to require coordination between Nuclear Plant Generator Operators and Transmission Entities to ensure nuclear plant safe operation and shutdown. This objective supports reliability principles 1, 2, 3, 4, and 8 by requiring: (1) the planning and operation of the Bulk Electric System (BES) to consider the unique requirements of nuclear plants; (2) consideration of the nuclear plant requirements in the defined frequency and voltage limits established for BES operation; (3) the nuclear plant unique information necessary for the planning and operation of interconnected bulk power systems 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 system elements be coordinated with the requirements of nuclear plants; and (8) coordination of physical and cyber security protection of the BES at the nuclear plant interface. |
| Brief Description (Provide a paragraph that describes the scope of this standard action.) |
| The scope of this standard action is to revise NUC-001-2.1 in accordance with the recommendations made by the Five-Year Review Team in the *Five-Year Review Recommendation to Revise NUC-001-2.1*, |

| SAR Information |
| --- |
| (Attachment 1), and consistent with industry consensus to make additional standard revisions to the extent such consensus develops. |
| Detailed Description (Provide a description of the proposed project with sufficient details for the standard drafting team to execute the SAR. Also 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.) |
| The Five-Year Review Team identified several ambiguous, deficient, or duplicative elements during its review. The revisions proposed in the *Five-Year Review Recommendation to Revise NUC-001-2.1* would enhance clarity in several requirements critical to reliability, and improve compliance efficiency by removing elements not necessary for reliability. Specifically, the Five-Year Review Team has identified the following sections and requirements for revision:<br>• The standard applies to all Nuclear Plant Generator Operators. Therefore, the term "Nuclear Plant Generator Operator" should be pluralized in section A.4. Applicability.<br>• R5 should be revised for consistency with R4 and to clarify that nuclear plants must be operated to meet the Nuclear Plant Interface Requirements.<br>• As explained in the attached *Position Paper on NUC-001-2 R7 and R8*, the term "Protection Systems" should be omitted from requirements R7 and R8, and language should be added to clarify requirement applicability.<br>• R9 and R9.4.1 should be revised to clarify requirement applicability.<br>• Section E. Regional Differences should be revised to remove reference to specific Nuclear Regulatory Commission regulations and to clarify that there are no Canadian Regulatory requirements for electrical power from the electric network to permit safe shutdown. The term Canadian Nuclear Power Plant Licensing Requirements (CNPLR) is defined in the proposed revision to the standard as a means to differentiate the unique licensing requirements of the Canadian Nuclear Power Plants from those of the U.S. NPPs.<br>• Modify the Violation Severity Level and Violation Risk Factor matrices to conform to NERC guidelines.<br>• Revise measures to ensure appropriate clarity and applicability to each corresponding requirement.<br>• Add Time Horizons to each requirement. |

| Reliability Functions | | |
|---|---|---|
| The Standard will Apply to the Following Functions (Check 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). |
| ☒ | Transmission Owner | Owns and maintains transmission facilities. |
| ☒ | Transmission Operator | Ensures the real-time operating reliability of the transmission assets within a Transmission Operator Area. |
| ☒ | Distribution Provider | Delivers electrical energy to the End-use customer. |
| ☒ | 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. |

| Reliability 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 all that apply). | |
| ☒ | 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. |
| ☐ | 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? | Enter (yes/no) |
| 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 |
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| Related SARs – N/A | |
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| SAR ID | Explanation |
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| Regional Variances – N/A | |
|---|---|
| Region | Explanation |
| ERCOT | |
| FRCC | |
| MRO | |
| NPCC | |
| RFC | |

| Regional Variances – N/A | |
|---|---|
| SERC | |
| SPP | |
| WECC | |
| | The FYRT proposed a definition change in section E. Regional Differences to eliminate a potential unintended conflict with a NERC Glossary term. |

# Project 2012-13 Nuclear Plant Interface Coordination

Mapping Document

## NUC-001-2.1 to NUC-001-3

| Standard: NUC-001-3 | | |
|---|---|---|
| **Requirement in Approved Standard** | **Translation to New Standard or Other Action** | **Comments** |
| R5. The Nuclear Plant Generator Operator shall operate per the Agreements developed in accordance with this standard. | Replaced with NUC-001-3 R5. Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall operate the nuclear plant to meet the Nuclear Plant Interface | The FYRT recommended R5 be revised for consistency with R4 and to clarify that nuclear plants must be operated to meet the NPIRs. |

| Standard: NUC-001-3 | | |
|---|---|---|
| **Requirement in Approved Standard** | **Translation to New Standard or Other Action** | **Comments** |
| | Requirements (NPIRs). | |
| R7. Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall inform the applicable Transmission Entities of actual or proposed changes to nuclear plant design, configuration, operations, limits, Protection Systems, or capabilities that may impact the ability of the electric system to meet the NPIRs. | Inserted (e.g., protective relay setpoints) after the words “nuclear power plant design” | The FYRT recommended deleting “Protection Systems” in Requirements R7 and R8 since it is a subset of the "nuclear plant design" and "electric system design" elements currently contained in R7 and R8 respectively; and adding a parenthetical clause (e.g. protective setpoints) to R7 following "nuclear plant design" and parenthetical clause (e.g. relay setpoints) to R8 following "electric system design." |
| R8. Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall inform the Nuclear Plant Generator Operator of actual or proposed changes to electric system design, configuration, operations, limits, Protection Systems, or capabilities that may impact the ability of the electric system to meet the NPIRs. | Inserted (e.g., protective relay setpoints) after the words “electric system design.” Deleted the words “Protection Systems” | Same comment as above. |
| R9. The Nuclear Plant Generator Operator and the applicable Transmission Entities shall include, as a | Inserted the following text after | The FYRT recommended that R9 be revised to clarify that all Agreements do not have to discuss each of the |

| Standard: NUC-001-3 | | |
|---|---|---|
| **Requirement in Approved Standard** | **Translation to New Standard or Other Action** | **Comments** |
| minimum, the following elements within the agreement(s) identified in R2: [Violation Risk Factor: Medium] [Time Horizon: ]<br>9.1. Administrative elements:<br>9.1.1. Definitions of key terms used in the agreement.<br>9.1.2. Names of the responsible entities, organizational relationships, and responsibilities related to the NPIRs.<br>9.1.3. A requirement to review the agreement(s) at least every three years. A dispute resolution mechanism.<br>9.2. Technical requirements and analysis:<br>9.2.1. Identification of parameters, limits, configurations, and operating scenarios included in the NPIRs and, as applicable, procedures for providing any specific data not provided within the Agreement.<br>9.2.2. Identification of facilities, components, and configuration restrictions that are essential for meeting the NPIRs.<br>9.2.3. Types of planning and operational analyses performed specifically to support the NPIRs, including the frequency of studies and types of Contingencies and scenarios required. | R2: Where multiple Agreements with a single Transmission Entity are put into effect, the R9 elements must be addressed in aggregate within the Agreements; however, each Agreement does not have to contain each element. Where Agreements with multiple Transmission Entities are required, the Nuclear Plant Generator Operator has the responsibility for | elements in R9, but that the sum total of the agreements need to address the elements. In addition, for clarity in Part 9.4.1, the FYRT recommended that "affecting the NPIRs" be inserted following "Provisions for communications" and "applicable unique" be inserted following ""definitions of." The phrase “load shedding programs” in Requirement subpart 9.3.7 was deleted and replaced with the phrase “any programs that reduce or shed load based on underfrequency or undervoltage.” This was done to avoid potential conflicts with the Project 2008-02 Team which is attempting to make undervoltage loadshedding programs a NERC defined term. |

| Standard: NUC-001-3 | | |
|---|---|---|
| **Requirement in Approved Standard** | **Translation to New Standard or Other Action** | **Comments** |
| 9.3. Operations and maintenance coordination<br>9.3.1. Designation of ownership of electrical facilities at the interface between the electric system and the nuclear plant and responsibilities for operational control coordination and maintenance of these facilities.<br>9.3.2. Identification of any maintenance requirements for equipment not owned or controlled by the Nuclear Plant Generator Operator that are necessary to meet the NPIRs.<br>9.3.3. Coordination of testing, calibration and maintenance of on-site and off-site power supply systems and related components.<br>9.3.4. Provisions to address mitigating actions needed to avoid violating NPIRs and to address periods when responsible Transmission Entity loses the ability to assess the capability of the electric system to meet the NPIRs. These provisions shall include responsibility to notify the Nuclear Plant Generator Operator within a specified time frame. | ensuring all the R9 elements are addressed in aggregate within the Agreements with the Transmission Entities. The Agreements with each Transmission Entity do not have to contain each element; however, the Agreements with the multiple Transmission Entities, in the aggregate, must address all R9 elements. The Nuclear Plant Generator | |

| Standard: NUC-001-3 | | |
|---|---|---|
| **Requirement in Approved Standard** | **Translation to New Standard or Other Action** | **Comments** |
| 9.3.5. Provision for considering, within the restoration process, the requirements and urgency of a nuclear plant that has lost all off-site and on-site AC power.<br>9.3.6. Coordination of physical and cyber security protection of the Bulk Electric System at the nuclear plant interface to ensure each asset is covered under at least one entity's plan.<br>9.3.7. Coordination of the NPIRs with transmission system Special Protection Systems and underfrequency and undervoltage load shedding programs.<br><br>9.4. Communications and training Administrative elements:<br>9.4.1. Provisions for communications between the Nuclear Plant Generator Operator and Transmission Entities, including communications protocols, notification time requirements, and definitions of terms.<br>9.4.2. Provisions for coordination during an off-normal or emergency event affecting the NPIRs, including the need to provide timely information explaining the event, an estimate of when the system will be returned | Operator and the Transmission Entity have the responsibility to ensure the Agreement(s) with that Transmission Entity contains the elements of R9 applicable to that Transmission Entity."<br><br>Requirement R9.1 approved for retirement by FERC January 2014. | |

| Standard: NUC-001-3 | | |
|---|---|---|
| **Requirement in Approved Standard** | **Translation to New Standard or Other Action** | **Comments** |
| to a normal state, and the actual time the system is returned to normal.<br>9.4.3. Provisions for coordinating investigations of causes of unplanned events affecting the NPIRs and developing solutions to minimize future risk of such events.<br>9.4.4. Provisions for supplying information necessary to report to government agencies, as related to NPIRs.<br>9.4.5. Provisions for personnel training, as related to NPIRs. | Inserted the words "affecting the NPIRs" between the words "communications" and "between" in R 9.4<br><br>Inserted the words "applicable unique" between the words "of" and "terms" | |

# Project 2012-13- Nuclear Plant Interface Coordination

VRF and VSL Justifications

Note: Justifications for the requirements in which VRFs and VSLs that were changed are provided in the document below. The VRFs and VSLs for Requirements R2, R3, R4, and R5 were not substantively changed from the currently effective NUC-001-2.1 and as a result no additional justification has been provided.

| VRF and VSL Justifications – NUC-001-3, R1. | |
|---|---|
| **Proposed VRF** | |
| NERC VRF Discussion | R1 is a planning requirement that mandates Nuclear Power Plant Generator Operators provide their respective transmission entities with a copy of their NPIRs and verify receipt. Interface between Nuclear Power Plant Generator Operators and transmission entities is important to ensure the safe and reliable operation as well as the startup and shutdown of nuclear power plants. If this requirement was violated, it could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. The VRF for this requirement is "Medium," which is consistent with NERC guidelines. |
| FERC VRF G1 Discussion | **Guideline 1- Consistency w/ Blackout Report R1**<br>Requirement R1 establishes communications protocols and data exchange. |
| FERC VRF G2 Discussion | **Guideline 2- Consistency within a Reliability Standard**<br>Only one VRF is assigned for this requirement. |
| FERC VRF G3 Discussion | **Guideline 3- Consistency among Reliability Standards**<br>There are no other standards which address Nuclear Plant Interface Coordination. |
| FERC VRF G4 Discussion | **Guideline 4- Consistency with NERC Definitions of VRFs**<br>This is a planning requirement that requirement if violated, could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. |

| VRF and VSL Justifications – NUC-001-3, R1. | | | |
|---|---|---|---|
| FERC VRF G5 Discussion | **Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation**<br>Requirement R1 contains only one objective which is to require that Nuclear Plant Generator Operator's provide their proposed NPIRs to their respective Transmission Entities. | | |
| **Proposed VSL** | | | |
| **Lower** | **Moderate** | **High** | **Severe** |
| The Nuclear Plant Generator Operator provided the NPIR's to the applicable entities but did not verify receipt. | The Nuclear Plant Generator Operator did not provide the proposed NPIR to one of the applicable entities unless there was only one entity. | The Nuclear Plant Generator Operator did not provide the proposed NPIR's to two of the applicable entities unless there was only two entities. | The Nuclear Plant Generator Operator did not provide the proposed NPIR's to more than two of applicable entities.<br>OR<br>For a particular Nuclear Power Plant, if the number of possible applicable transmission entities is equal to the number of applicable transmission entities not provided NPIRs. |

| VRF and VSL Justifications – NUC-001-3, R1. | |
|---|---|
| | |
| **FERC VSL G1**<br>Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance | Based on the VSL Guidance, the SDT developed four VSLs based on to what degree, if any a Nuclear Plant Generator Operator provided its NPIRs to its respective transmission entities. The VSL is varied based on the number of transmission entities the NPIRs were or were not provided. If a Nuclear Plant Generator Operator failed to provide any NPIRs to its transmission entities it is a Severe Violation. |
| **FERC VSL G2**<br>Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties<br>Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent<br>Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language | Guideline 2a:<br>The VSL assignment for R1 is not binary.<br><br>Guideline 2b:<br>The proposed VSL does not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations. |

| VRF and VSL Justifications – NUC-001-3, R1. | |
|---|---|
| **FERC VSL G3**<br>Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement | The proposed VSL uses the same terminology as used in the associated requirement, and is, therefore, consistent with the requirement. In addition, the VSLs are consistent with Requirement R1. |
| **FERC VSL G4**<br>Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations | The VSL is based on a single violation and not cumulative violations |
| **FERC VSL G5**<br>Requirements where a single lapse in protection can compromise computer network security, i.e., the 'weakest link' characteristic, should apply binary VSLs | The requirement does not address cyber security protection. |

| VRF and VSL Justifications – NUC-001-3, R1. | |
|---|---|
| **FERC VSL G6**<br>VSLs for cyber security requirements containing interdependent tasks of documentation and implementation should account for their interdependence | The requirement does not address cyber security protection. |

| VRF and VSL Justifications – NUC-001-3, R6. | |
|---|---|
| **Proposed VRF** | |
| NERC VRF Discussion | Requirement R6 is an Operational Planning requirement that mandates that Nuclear Plant Generator Operators and their respective Transmission Entities coordinate outages and maintenance activities which affect NIPRs. If violated this requirement could 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 failures. Therefore, the VRF is High. |
| FERC VRF G1 Discussion | **Guideline 1- Consistency w/ Blackout Report**<br>Requirement R6 is consistent with the Blackout Report because it mandates data exchange. |
| FERC VRF G2 Discussion | **Guideline 2- Consistency within a Reliability Standard**<br>Only one VRF is assigned for this requirement. |

| VRF and VSL Justifications – NUC-001-3, R6. | | | |
|---|---|---|---|
| | | | |
| FERC VRF G3 Discussion | **Guideline 3- Consistency among Reliability Standards.**<br>There are no other standards which address Nuclear Plant Interface Coordination | | |
| FERC VRF G4 Discussion | **Guideline 4- Consistency with NERC Definitions of VRFs**<br>Requirement R6 is an Operational Planning requirement that mandates that Nuclear Plant Generator Operators and their respective Transmission Entities coordinate outages and maintenance activities which affect NIPRs. If violated this requirement could 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 failures. Therefore, the VRF is High. | | |
| FERC VRF G5 Discussion | **Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation**<br>This requirement is based on one obligation which is for Transmission Entities and Nuclear Plant Generator Operators to coordinate outages and maintenance activities. | | |
| **Proposed VSL** | | | |
| **Lower** | **Moderate** | **High** | **Severe** |
| N/A | The Nuclear Plant Generator Operator or Transmission Entity failed to provide outage or maintenance schedules to the appropriate parties as described in the agreement or on a time period consistent with the agreements. | The Nuclear Plant Generator Operator or Transmission Entity failed to coordinate one or more outages or maintenance activities in accordance the requirements of the agreements. | N/A |

| VRF and VSL Justifications – NUC-001-3, R6. | |
|---|---|
| | |
| **FERC VSL G1**<br>Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance | Based on the VSL Guidance, the SDT developed two VSLs based on if a Nuclear Plant Generator Operator or a Transmission Entity failed to provide a maintenance or outage schedule (Moderate Violation) or if a Nuclear Plant Generator Operator or Transmission Entity failed to coordinate one or more outages or maintenance activities in accordance the requirements of the agreements. |
| **FERC VSL G2**<br>Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties<br>Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent<br>Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language | Guideline 2a:<br>The VSL assignment for R6 is not binary.<br><br>Guideline 2b:<br>The proposed VSL does not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations. |

| VRF and VSL Justifications – NUC-001-3, R6. | |
|---|---|
| **FERC VSL G3**<br>Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement | The proposed VSL uses the same terminology as used in the associated requirement, and is, therefore, consistent with the requirement. In addition, the VSLs are consistent with Requirement R6. |
| **FERC VSL G4**<br>Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations | The VSL is based on a single violation and not cumulative violations |
| **FERC VSL G5**<br>Requirements where a single lapse in protection can compromise computer network security, i.e., the 'weakest link' characteristic, should apply binary VSLs | The requirement does not address cyber security protection. |

| VRF and VSL Justifications – NUC-001-3, R6. | |
|---|---|
| **FERC VSL G6**<br>VSLs for cyber security requirements containing interdependent tasks of documentation and implementation should account for their interdependence | The requirement does not address cyber security protection. |

| VRF and VSL Justifications – NUC-001-3, R7. | |
|---|---|
| **Proposed VRF** | |
| NERC VRF Discussion | Requirement R7 is a requirement which mandates that Nuclear Power Generator Operators inform their applicable Transmission Entities of actual or proposed changes to Nuclear Plant design, configuration, operations, limits or capabilities that may affect the NPIRs. If this requirement was violated it could 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 failures |
| FERC VRF G1 Discussion | **Guideline 1- Consistency w/ Blackout Report**<br>Requirement R7 is consistent with the Blackout Report because it mandates data exchange. |
| FERC VRF G2 Discussion | **Guideline 2- Consistency within a Reliability Standard**<br>Only one VRF is assigned for this requirement. |
| FERC VRF G3 Discussion | **Guideline 3- Consistency among Reliability Standards.**<br>There are no other standards which address Nuclear Plant Interface Coordination |

| VRF and VSL Justifications – NUC-001-3, R7. | | | |
|---|---|---|---|
| FERC VRF G4 Discussion | **Guideline 4- Consistency with NERC Definitions of VRFs**<br>Requirement R7 is a requirement which mandates that Nuclear Power Generator Operators inform their applicable Transmission Entities of actual or proposed changes to Nuclear Plant design, configuration, operations, limits or capabilities that may affect the NPIRs. If this requirement was violated it could 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 failures. | | |
| FERC VRF G5 Discussion | **Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation**<br>The only obligation within this requirement is that Nuclear Power Generator Operators inform their applicable Transmission Entities of actual or proposed changes to Nuclear Plant design, configuration, operations, limits or capabilities that may affect the NPIRs. | | |
| **Proposed VSL** | | | |
| **Lower** | **Moderate** | **High** | **Severe** |
| The Nuclear Plant Generator Operator did not inform the applicable Transmission Entities of proposed changes to nuclear plant design (e.g. protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. | N/A | The Nuclear Plant Generator Operator did not inform the applicable Transmission Entities of actual changes to nuclear plant design (e.g. protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. | The Nuclear Plant Generator Operator did not inform the applicable Transmission Entities of actual changes to nuclear plant design (e.g., protective relay setpoints), configuration, operations, limits or capabilities that directly impact the ability of the electric system to meet the NPIRs. |

| VRF and VSL Justifications – NUC-001-3, R7. | |
|---|---|
| | |
| **FERC VSL G1**<br>Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance | Based on the VSL Guidance, the SDT developed three VSLs based on if a Nuclear Power Plant Generator Operator failed to inform a Transmission Entity of changes to its design, configuration, operations, limits or capabilities and whether or not these were proposed or actual changes and whether or not those changes directly impact the ability of the electric system to meet the NPIRs. |
| **FERC VSL G2**<br>Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties<br>Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent<br>Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language | Guideline 2a:<br>The VSL assignment for R7 is not binary.<br><br>Guideline 2b:<br>The proposed VSL does not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations. |

| VRF and VSL Justifications – NUC-001-3, R7. | |
|---|---|
| **FERC VSL G3**<br>Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement | The proposed VSL uses the same terminology as used in the associated requirement, and is, therefore, consistent with the requirement. In addition, the VSLs are consistent with Requirement R7. |
| **FERC VSL G4**<br>Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations | The VSL is based on a single violation and not cumulative violations |
| **FERC VSL G5**<br>Requirements where a single lapse in protection can compromise computer network security, i.e., the 'weakest link' characteristic, should apply binary VSLs | The requirement does not address cyber security protection. |

| VRF and VSL Justifications – NUC-001-3, R7. | |
|---|---|
| **FERC VSL G6**<br>VSLs for cyber security requirements containing interdependent tasks of documentation and implementation should account for their interdependence | The requirement does not address cyber security protection. |

| VRF and VSL Justifications – NUC-001-3, R8. | |
|---|---|
| **Proposed VRF** | |
| NERC VRF Discussion | Requirement R8 is a requirement which mandates Transmission Entities shall inform the Nuclear Plant Generator Operator of actual or proposed changes to electric system design (e.g., protective relay setpoints), configuration, operations, limits, , or capabilities that may impact the ability of the electric system to meet the NPIRs. . If this requirement was violated it could 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 failures. |
| FERC VRF G1 Discussion | **Guideline 1- Consistency w/ Blackout Report**<br>Requirement R8 is consistent with the Blackout Report because it mandates data exchange. |
| FERC VRF G2 Discussion | **Guideline 2- Consistency within a Reliability Standard**<br>Only one VRF is assigned for this requirement. |
| FERC VRF G3 Discussion | **Guideline 3- Consistency among Reliability Standards.**<br>There are no other standards which address Nuclear Plant Interface Coordination |
| FERC VRF G4 Discussion | **Guideline 4- Consistency with NERC Definitions of VRFs** |

| VRF and VSL Justifications – NUC-001-3, R8. | | | |
|---|---|---|---|
| | Requirement R8 is a requirement which mandates Transmission Entities shall inform the Nuclear Plant Generator Operator of actual or proposed changes to electric system design (e.g., protective relay setpoints), configuration, operations, limits, , or capabilities that may impact the ability of the electric system to meet the NPIRs. ~~.~~ If this requirement was violated it could 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 failures. | | |
| FERC VRF G5 Discussion | **Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation**<br>The only obligation within this requirement is that Transmission Entities inform their applicable Nuclear Power Generator Operators of actual or proposed changes to Nuclear Plant design, configuration, operations, limits or capabilities that may affect the NPIRs. | | |
| **Proposed VSL** | | | |
| **Lower** | **Moderate** | **High** | **Severe** |
| The applicable Transmission Entities did not inform the Nuclear Plant Generator Operator of proposed changes to transmission system design, configuration (e.g. protective relay setpoints), operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. | N/A | The applicable Transmission Entities did not inform the Nuclear Plant Generator Operator of actual changes to transmission system design (e.g. protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. | The applicable Transmission Entities did not inform the Nuclear Plant Generator Operator of actual changes to transmission system design (e.g. protective relay setpoints), configuration, operations, limits, or capabilities that directly impacts the ability of the electric system to meet the NPIRs. |

| VRF and VSL Justifications – NUC-001-3, R8. | |
|---|---|
| | |
| **FERC VSL G1**<br>Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance | Based on the VSL Guidance, the SDT developed three VSLs based on if a Transmission Entity failed to inform a Nuclear Power Plant Generator Operator of changes to its design, configuration, operations, limits or capabilities and whether or not these were proposed or actual changes and whether or not those changes directly impact the ability of the electric system to meet the NPIRs. |
| **FERC VSL G2**<br>Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties<br>Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent<br>Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language | Guideline 2a:<br>The VSL assignment for R8 is not binary.<br><br>Guideline 2b:<br>The proposed VSL does not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations. |

| VRF and VSL Justifications – NUC-001-3, R8. | |
|---|---|
| **FERC VSL G3**<br>Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement | The proposed VSL uses the same terminology as used in the associated requirement, and is, therefore, consistent with the requirement. In addition, the VSLs are consistent with Requirement R8. |
| **FERC VSL G4**<br>Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations | The VSL is based on a single violation and not cumulative violations |
| **FERC VSL G5**<br>Requirements where a single lapse in protection can compromise computer network security, i.e., the 'weakest link' characteristic, should apply binary VSLs | The requirement does not address cyber security protection. |

| VRF and VSL Justifications – NUC-001-3, R8. | |
|---|---|
| **FERC VSL G6**<br>VSLs for cyber security requirements containing interdependent tasks of documentation and implementation should account for their interdependence | The requirement does not address cyber security protection. |

| VRF and VSL Justifications – NUC-001-3, R9. | |
|---|---|
| **Proposed VRF** | |
| NERC VRF Discussion | Requirement R9 is a requirement which mandates Nuclear Plant Generator Operator and the applicable Transmission Entities include a specific set of elements within their Agreements. If violated, this requirement could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. Therefore this requirement has a medium VRF. |
| FERC VRF G1 Discussion | **Guideline 1- Consistency w/ Blackout Report**<br>Requirement R9 is consistent with the Blackout Report because it mandates data exchange. |
| FERC VRF G2 Discussion | **Guideline 2- Consistency within a Reliability Standard**<br>Only one VRF is assigned for this requirement. |
| FERC VRF G3 Discussion | **Guideline 3- Consistency among Reliability Standards.**<br>There are no other standards which address Nuclear Plant Interface Coordination |
| FERC VRF G4 Discussion | **Guideline 4- Consistency with NERC Definitions of VRFs** |

| VRF and VSL Justifications – NUC-001-3, R9. | | | |
|---|---|---|---|
| | Requirement R9 is a requirement which mandates Nuclear Plant Generator Operator and the applicable Transmission Entities include a specific set of elements within their Agreements. If violated, this requirement could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. Therefore this requirement has a medium VRF. | | |
| FERC VRF G5 Discussion | **Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation**<br>This requirement only has one obligation which is for Nuclear Power Plant Generator Operators and Transmission Entities to include all of the mandated elements within R9 in their Agreements in aggregate. | | |
| **Proposed VSL** | | | |
| **Lower** | **Moderate** | **High** | **Severe** |
| N/A | The Agreement(s) identified in R2. between the Nuclear Plant Generator Operator and the applicable Transmission Entities failed to include up to 20% of the combined sub-components in Parts 9.2, 9.3 and 9.4 applicable to that entity. | The Agreement(s) identified in R2. between the Nuclear Plant Generator Operator and the applicable Transmission Entities failed to include greater than 20%, but less than 40% of the combined sub-components in Parts 9.2, 9.3 and 9.4 applicable to the entity. | The Agreement(s) identified in R2. between the Nuclear Plant Generator Operator and the applicable Transmission Entities failed to include 40% or more of the combined sub-components in Parts 9.2, 9.3 and 9.4 applicable to the entity. |

| VRF and VSL Justifications – NUC-001-3, R9. | |
|---|---|
| | |
| **FERC VSL G1**<br>Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance | Based on the VSL Guidance, the SDT developed four VSLs based on to what degree, if any Nuclear Power Plant Generator Operators and Transmission entities failed to include the elements listed within R9. The VSL is varied based on the percentage of sub-components that were not included. |
| **FERC VSL G2**<br>Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties<br>Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent<br>Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language | Guideline 2a:<br>The VSL assignment for R9 is not binary.<br><br>Guideline 2b:<br>The proposed VSL does not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations. |

| VRF and VSL Justifications – NUC-001-3, R9. | |
|---|---|
| **FERC VSL G3**<br>Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement | The proposed VSL uses the same terminology as used in the associated requirement, and is, therefore, consistent with the requirement. In addition, the VSLs are consistent with Requirement R9. |
| **FERC VSL G4**<br>Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations | The VSL is based on a single violation and not cumulative violations |
| **FERC VSL G5**<br>Requirements where a single lapse in protection can compromise computer network security, i.e., the 'weakest link' characteristic, should apply binary VSLs | The requirement does not address cyber security protection. |

| VRF and VSL Justifications – NUC-001-3, R9. | |
|---|---|
| **FERC VSL G6**<br>VSLs for cyber security requirements containing interdependent tasks of documentation and implementation should account for their interdependence | The requirement does not address cyber security protection. |

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

# Reliability Standard Audit Worksheet[1]

## NUC-001-3 – Nuclear Plant Interface Coordination [Developer to insert Reliability Standard Number and Title here]

***This section to be completed by the Compliance Enforcement Authority.***

| | |
|---|---|
| **Audit ID:** | Audit ID if available; or REG-NCRnnnnn-YYYYMMDD |
| **Registered Entity:** | Registered name of entity being audited |
| **NCR Number:** | NCRnnnnn |
| **Compliance Enforcement Authority:** | Region or NERC performing audit |
| **Compliance Assessment Date(s)[2]:** | Month DD, YYYY, to Month DD, YYYY |
| **Compliance Monitoring Method:** | [On-site Audit \| Off-site Audit \| Spot Check] |
| **Names of Auditors:** | Supplied by CEA |

**Applicability of Requirements** *[RSAW developer to insert correct applicability]*

| | BA | DP | GO | GOP | IA | LSE | PA/C | PSE | RC | RP | RSG | TO | TOP | TP | TSP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **R1** | | | | X[3] | | | | | | | | | | | |
| **R2** | | | | X[3] | | | | | | | | | | | |
| **R3** | X[4] | X[4] | X[4] | X[4] | | X[4] | X[4] | | X[4] | | | X[4] | X[4] | X[4] | X[4] |
| **R4** | X[4] | X[4] | X[4] | X[4] | | X[4] | X[4] | | X[4] | | | X[4] | X[4] | X[4] | X[4] |
| **R5** | | | | X[3] | | | | | | | | | | | |
| **R6** | X[4] | X[4] | X[4] | X[3,4] | | X[4] | X[4] | | X[4] | | | X[4] | X[4] | X[4] | X[4] |
| **R7** | | | | X[3] | | | | | | | | | | | |
| **R8** | X[4] | X[4] | X[4] | X[4] | | X[4] | X[4] | | X[4] | | | X[4] | X[4] | X[4] | X[4] |
| **R9** | X[4] | X[4] | X[4] | X[3,4] | | X[4] | X[4] | | X[4] | | | X[4] | X[4] | X[4] | X[4] |

[1] NERC developed this Reliability Standard Audit Worksheet (RSAW) language in order to facilitate NERC's and the Regional Entities' assessment of a registered entity's compliance with this Reliability Standard. The NERC RSAW language is written to specific versions of each NERC Reliability Standard. Entities using this RSAW should choose the version of the RSAW applicable to the Reliability Standard being assessed. While the information included in this RSAW provides some of the methodology that NERC has elected to use to assess compliance with the requirements of the Reliability Standard, this document should not be treated as a substitute for the Reliability Standard or viewed as additional Reliability Standard requirements. In all cases, the Regional Entity should rely on the language contained in the Reliability Standard itself, and not on the language contained in this RSAW, to determine compliance with the Reliability Standard. NERC's Reliability Standards can be found on NERC's website. Additionally, NERC Reliability Standards are updated frequently, and this RSAW may not necessarily be updated with the same frequency. Therefore, it is imperative that entities treat this RSAW as a reference document only, and not as a substitute or replacement for the Reliability Standard. It is the responsibility of the registered entity to verify its compliance with the latest approved version of the Reliability Standards, by the applicable governmental authority, relevant to its registration status.

The NERC RSAW language contained within this document provides a non-exclusive list, for informational purposes only, of examples of the types of evidence a registered entity may produce or may be asked to produce to demonstrate compliance with the Reliability Standard. A registered entity's adherence to the examples contained within this RSAW does not necessarily constitute compliance with the applicable Reliability Standard, and NERC and the Regional Entity using this RSAW reserves the right to request additional evidence from the registered entity that is not included in this RSAW. Additionally, this RSAW includes excerpts from FERC Orders and other regulatory references. The FERC Order cites are provided for ease of reference only, and this document does not necessarily include all applicable Order provisions. In the event of a discrepancy between FERC Orders, and the language included in this document, FERC Orders shall prevail.

[2] Compliance Assessment Date(s): The date(s) the actual compliance assessment (on-site audit, off-site spot check, etc.) occurs.
[3] Applicable to Generator Operators of nuclear plants.
[4] Defined as Transmission Entities in Section 4.2 of the Standard providing services related to Nuclear Plant Interface Requirements.

**Legend:**

| | |
|---|---|
| Text with blue background: | Fixed text – do not edit |
| Text entry area with Green background: | Entity-supplied information |
| Text entry area with white background: | Auditor-supplied information |

## Findings

**(This section to be completed by the Compliance Enforcement Authority)**

| Req. | Finding | Summary and Documentation | Functions Monitored |
|---|---|---|---|
| R1 | | | |
| R2 | | | |
| R3 | | | |
| R4 | | | |

| Req. | Areas of Concern |
|---|---|
| | |
| | |
| | |

| Req. | Recommendations |
|---|---|
| | |
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| | |

| Req. | Positive Observations |
|---|---|
| | |
| | |
| | |

## Subject Matter Experts

Identify the Subject Matter Expert(s) responsible for this Reliability Standard.

**Registered Entity Response (Required; Insert additional rows if needed):**

| SME Name | Title | Organization | Requirement(s) |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

## R1 Supporting Evidence and Documentation

**R1.** The Nuclear Plant Generator Operator shall provide the proposed NPIRs in writing to the applicable Transmission Entities and shall verify receipt.

**M1.** The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, provide a copy of the transmittal and receipt of transmittal of the proposed NPIRs to the responsible Transmission Entities.

**Registered Entity Response (Required):**

**Compliance Narrative:**

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

**Evidence Requested[i]:**

| **Provide the following evidence, or other evidence to demonstrate compliance.** |
|---|
| List of Transmission Entities where the Nuclear Plant Generator Operator has an executed Nuclear Plant Interface Requirement (NPIR). |
| Evidence that proposed NPIRs were communicated to applicable Transmission Entities. |
| Evidence that applicable Transmission Entities received the proposed NPIRs. |

**Registered Entity Evidence (Required):**

**The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.**

| File Name | Document Title | Revision or Version | Document Date | Relevant Page(s) or Section(s) | Description of Applicability of Document |
|---|---|---|---|---|---|
| | | | | | |
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**Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):**

| |
|---|
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| |
| |

**Compliance Assessment Approach Specific to NUC-001-3, R1**

***This section to be completed by the Compliance Enforcement Authority***

| | |
|---|---|
| | *The RSAW Developer will complete this section with a set of detailed steps for the audit process. See the RSAW Developer's Guide for more information.* |
| | Select all or a sample thereof from the list of Transmission Entities with an NPIR, and verify they were |

| | |
|---|---|
| | provided the proposed NPIRs and that the Nuclear Plant Generator Operator verified receipt. |
| | |
| **Note to Auditor:** The population of Transmission Entities that the auditor will select from should be those with executed NPIRs. Auditor should verify that the proposed NPIRs were provided prior to the date the NPIR was executed. | |

**Auditor Notes:**

## R2 Supporting Evidence and Documentation

**R2.** The Nuclear Plant Generator Operator and the applicable Transmission Entities shall have in effect one or more Agreements[Error! Bookmark not defined.] that include mutually agreed to NPIRs and document how the Nuclear Plant Generator Operator and the applicable Transmission Entities shall address and implement these NPIRs.

**M2.** The Nuclear Plant Generator Operator and each Transmission Entity shall each have a copy of the Agreement(s) addressing and implementing the NPIRs available for inspection upon request of the Compliance Enforcement Authority.

**Registered Entity Response (Required):**

**Compliance Narrative:**

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

**Evidence Requested[i]:**

| **Provide the following evidence, or other evidence to demonstrate compliance.** |
|---|
| Agreement(s) addressing implementing the NPIR(s). |
| |
| |

**Registered Entity Evidence (Required):**

| **The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.** | | | | | |
|---|---|---|---|---|---|
| **File Name** | **Document Title** | **Revision or Version** | **Document Date** | **Relevant Page(s) or Section(s)** | **Description of Applicability of Document** |
| | | | | | |
| | | | | | |
| | | | | | |

**Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):**

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|---|
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| |

**Compliance Assessment Approach Specific to NUC-001-3, R2**

***This section to be completed by the Compliance Enforcement Authority***

| | |
|---|---|
| | *The RSAW Developer will complete this section with a set of detailed steps for the audit process. See the RSAW Developer's Guide for more information.* |
| | Select all or a sample thereof from the list of Transmission Entities with an NPIR, and obtain the related |

| | |
|---|---|
| | Agreement(s) and verify it addresses implementing the NPIR(s). |
| | |
| **Note to Auditor:** | |

**Auditor Notes:**

## R3 Supporting Evidence and Documentation

**R3.** Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall incorporate the NPIRs into their planning analyses of the electric system and shall communicate the results of these analyses to the Nuclear Plant Generator Operator.

**M3.** Each Transmission Entity responsible for planning analyses in accordance with the Agreement shall, upon request of the Compliance Enforcement Authority, provide a copy of the planning analyses results transmitted to the Nuclear Plant Generator Operator, showing incorporation of the NPIRs. The Compliance Enforcement Authority shall refer to the Agreements developed in accordance with this standard for specific requirements.

**[The RSAW Developer may ask questions of the entity which require a response.]**

**Registered Entity Response (Required):**

**Question: [**Do you have any NPIRs with any Nuclear Plant Generator Operators?] ☐ Yes ☐ No

[Include additional information regarding the question here, including the type of response and format of the response requested, as appropriate.]

[Note: A separate spreadsheet or other document may be used. If so, provide the document reference below.]

**Registered Entity Response (Required):**

**Compliance Narrative:**

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

**Evidence Requested[i]:**

| **Provide the following evidence, or other evidence to demonstrate compliance.** |
|---|
| NPIRs with Nuclear Plant Generator Operators. |
| Planning analyses incorporating the NPIRs. |
| Evidence of communication of the planning analyses to the Nuclear Plant Generator Operators. |

**Registered Entity Evidence (Required):**

| **The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.** | | | | | |
|---|---|---|---|---|---|
| **File Name** | **Document Title** | **Revision or Version** | **Document Date** | **Relevant Page(s) or Section(s)** | **Description of Applicability of Document** |
| | | | | | |
| | | | | | |
| | | | | | |

**Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):**

| |
|---|
| |
| |
| |

**Compliance Assessment Approach Specific to NUC-001-3, R3**

***This section to be completed by the Compliance Enforcement Authority***

| | |
|---|---|
| | *The RSAW Developer will complete this section with a set of detailed steps for the audit process. See the RSAW Developer's Guide for more information.* |
| | Select all or a sample thereof from the list of NPIR(s) with Nuclear Plant Operators, obtain the related planning analyses, and verify they incorporate the NPIR(s). |
| | Verify the planning analyses were communicated to the Nuclear Plant Operators. |
| | |
| **Note to Auditor:** See entity's answer to above Question. If auditor can verify the entity does not have any NPIRs, then Requirement R3 is not applicable. | |

**Auditor Notes:**

## R4 Supporting Evidence and Documentation

**R4.** Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall

- **4.1.** Incorporate the NPIRs into their operating analyses of the electric system.
- **4.2.** Operate the electric system to meet the NPIRs.
- **4.3.** Inform the Nuclear Plant Generator Operator when the ability to assess the operation of the electric system affecting NPIRs is lost.

**M4.** Each Transmission Entity responsible for operating the electric system in accordance with the Agreement shall demonstrate or provide evidence of the following, upon request of the Compliance Enforcement Authority:

**M4.1** The NPIRs have been incorporated into the current operating analysis of the electric system. (Requirement 4.1)

**M4.2** The electric system was operated to meet the NPIRs. (Requirement 4.2)

**M4.3** The Transmission Entity informed the Nuclear Plant Generator Operator when it became aware it lost the capability to assess the operation of the electric system affecting the NPIRs

**[The RSAW Developer may ask questions of the entity which require a response.]**

**Registered Entity Response (Required):**

**Question: [**Do you have any NPIRs with any Nuclear Plant Generator Operators?] ☐ Yes ☐ No

[Include additional information regarding the question here, including the type of response and format of the response requested, as appropriate.]

[Note: A separate spreadsheet or other document may be used. If so, provide the document reference below.]

**Registered Entity Response (Required):**

**Compliance Narrative:**

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

**Evidence Requested[i]:**

| **Provide the following evidence, or other evidence to demonstrate compliance.** |
|---|
| (R4 Part 4.1) Operating analyses of the electric system. |
| (R4 Part 4.3) Notification of the Nuclear Plant Generator Operator in instances where the ability to assess the operation of the electric system affecting the NPIRs is lost. |

**Registered Entity Evidence (Required):**

| **The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.** |
|---|

| File Name | Document Title | Revision or Version | Document Date | Relevant Page(s) or Section(s) | Description of Applicability of Document |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |

**Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):**

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|---|
| |
| |
| |

**Compliance Assessment Approach Specific to NUC-001-3, R4**

***This section to be completed by the Compliance Enforcement Authority***

| | |
|---|---|
| | *The RSAW Developer will complete this section with a set of detailed steps for the audit process. See the RSAW Developer's Guide for more information.* |
| | (R4 Part 4.1) Select all or a sample thereof from the list of NPIR(s) with Nuclear Plant Operators, obtain the related operating analyses, and verify they incorporate the NPIR(s). |
| | (R4 Part 4.2) Understand entity's process for operating the electric system to meet the NPIR(s). |
| | (R4 Part 4.3) For instances where entity lost the ability to assess the operation of the electric system affecting an NPIR, examine evidence to verify entity informed the Nuclear Plant Generator Operator. |
| | |
| | |

**Note to Auditor:** See entity's answer to above Question. If auditor can verify the entity does not have any NPIRs, then Requirement R4 is not applicable.

Depending on the risk of compliance with this requirement to the reliability of the Bulk Electric System (BES), the auditor should attempt to identify potential instances where entity may have lost the ability to assess the operation of the electric system affecting an NPIR and verify the applicable Nuclear Plant Generator Operator was informed. Potential instances can be gleaned from inquiries of Nuclear Plant Generator Operators or from auditor analysis of events occurring on the BES in the entity's area, in cases where the risk of noncompliance to the BES is higher. In cases where such risk is lower, inquiry of the entity regarding the occurrence of such events may be appropriate.

**Auditor Notes:**

## R5 Supporting Evidence and Documentation

**R5.** Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall operate the nuclear plant to meet the NPIRs.

**M5.** The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, demonstrate or provide evidence that the Nuclear Power Plant is being operated consistent with the NPIRs as per the Agreements developed in accordance with this standard.

**Registered Entity Response (Required):**

**Compliance Narrative:**

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

**Evidence Requested[i]:**

| Provide the following evidence, or other evidence to demonstrate compliance. |
|---|
| |
| |

**Registered Entity Evidence (Required):**

| The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found. | | | | | |
|---|---|---|---|---|---|
| File Name | Document Title | Revision or Version | Document Date | Relevant Page(s) or Section(s) | Description of Applicability of Document |
| | | | | | |
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**Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):**

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| |

**Compliance Assessment Approach Specific to NUC-001-3, R5**

***This section to be completed by the Compliance Enforcement Authority***

| | *The RSAW Developer will complete this section with a set of detailed steps for the audit process. See the RSAW Developer's Guide for more information.* |
|---|---|
| | Understand entity's process for operating the nuclear plant to meet the NPIR(s). |
| | |
| | |

**Note to Auditor:** Depending on the risk of compliance with this requirement to the reliability of the Bulk Electric System (BES), the auditor should attempt to identify potential instances where entity may not have operated its nuclear plant to meet an NPIR. Potential instances can be gleaned from inquiries of Transmission Entities or from auditor analysis of events occurring on the BES in the entity's area, in cases where the risk of noncompliance to the BES is higher. In cases where such risk is lower, inquiry of the entity regarding their processes of operating nuclear plants to meet NPIRs should suffice.

**Auditor Notes:**

## R6 Supporting Evidence and Documentation

**R6.** Per the Agreements developed in accordance with this standard, the applicable Transmission Entities and the Nuclear Plant Generator Operator shall coordinate outages and maintenance activities which affect the NPIRs.

**M6.** The Transmission Entities and Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, provide evidence of the coordination between the Transmission Entities and the Nuclear Plant Generator Operator regarding outages and maintenance activities which affect the NPIRs.

**[The RSAW Developer may ask questions of the entity which require a response.]**

**Registered Entity Response (Required):**

**Question: [**Do you have any NPIRs with any Nuclear Plant Generator Operators?] ☐ Yes ☐ No

[Include additional information regarding the question here, including the type of response and format of the response requested, as appropriate.]

[Note: A separate spreadsheet or other document may be used. If so, provide the document reference below.]

**Registered Entity Response (Required):**

**Compliance Narrative:**

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

**Evidence Requested[i]:**

| **Provide the following evidence, or other evidence to demonstrate compliance.** |
|---|
| List of outages related to NPIRs occurring over the audit period. |
| Evidence of coordination. |

**Registered Entity Evidence (Required):**

| **The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.** | | | | | |
|---|---|---|---|---|---|
| **File Name** | **Document Title** | **Revision or Version** | **Document Date** | **Relevant Page(s) or Section(s)** | **Description of Applicability of Document** |
| | | | | | |
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| | | | | | |

**Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):**

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**Compliance Assessment Approach Specific to NUC-001-3, R6**

***This section to be completed by the Compliance Enforcement Authority***

| | |
|---|---|
| | *The RSAW Developer will complete this section with a set of detailed steps for the audit process. See the RSAW Developer's Guide for more information.* |
| | For a sample of outages, examine evidence to verify that outage was appropriately coordinated in accordance with Requirement R6. |
| | |
| | |
| **Note to Auditor:** See entity's answer to above Question. If auditor can verify the entity does not have any NPIRs, then Requirement R6 is not applicable. | |

**Auditor Notes:**

## R7 Supporting Evidence and Documentation

**R7.** Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall inform the applicable Transmission Entities of actual or proposed changes to nuclear plant design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs.

**M7.** The Nuclear Plant Generator Operator shall provide evidence that it informed the applicable Transmission Entities of changes to nuclear plant design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that would impact the ability of the Transmission Entities to meet the NPIRs.

**Registered Entity Response (Required):**

**Compliance Narrative:**

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

**Evidence Requested[i]:**

| **Provide the following evidence, or other evidence to demonstrate compliance.** |
|---|
| List of actual and proposed changes to nuclear plant design, configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. |
| Evidence of communication with Transmission Entities. |

**Registered Entity Evidence (Required):**

| **The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.** | | | | | |
|---|---|---|---|---|---|
| **File Name** | **Document Title** | **Revision or Version** | **Document Date** | **Relevant Page(s) or Section(s)** | **Description of Applicability of Document** |
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**Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):**

| |
|---|
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| |
| |

**Compliance Assessment Approach Specific to NUC-001-3, R7**

***This section to be completed by the Compliance Enforcement Authority***

| |
|---|
| *The RSAW Developer will complete this section with a set of detailed steps for the audit process. See the RSAW Developer's Guide for more information.* |

| | |
|---|---|
| | For a sample of actual or proposed changes, examine evidence to verify that change was communicated to Transmission Entity with related NPIR. |
| | |
| | |

**Note to Auditor:** In order to establish a population to sample, auditor should determine the types of changes that would impact the ability of the electric system to meet the NPIRs and inquire of the entity whether any such changes occurred during the audit period. In addition, auditors may also obtain sample items through inquiries of Transmission Entities with related NPIRs regarding changes made and whether they were communicated. Also, auditor analysis of events in the entity's area may reveal changes that were not communicated.

**Auditor Notes:**

## R8 Supporting Evidence and Documentation

**R8.** Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall inform the Nuclear Plant Generator Operator of actual or proposed changes to electric system design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs.

**M8.** The Transmission Entities shall each provide evidence that it informed the Nuclear Plant Generator Operator of changes to electric system design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that would impact the ability of the Nuclear Plant Generator Operator to meet the NPIRs.

**[The RSAW Developer may ask questions of the entity which require a response.]**

**Registered Entity Response (Required):**

**Question: [**Do you have any NPIRs with any Nuclear Plant Generator Operators?] ☐ Yes ☐ No

[Include additional information regarding the question here, including the type of response and format of the response requested, as appropriate.]

[Note: A separate spreadsheet or other document may be used. If so, provide the document reference below.]

**Registered Entity Response (Required):**

**Compliance Narrative:**

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

**Evidence Requested[i]:**

| **Provide the following evidence, or other evidence to demonstrate compliance.** |
|---|
| List of actual and proposed changes to nuclear plant design, configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. |
| Evidence of communication with Nuclear Plant Operators. |

**Registered Entity Evidence (Required):**

| **The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.** | | | | | |
|---|---|---|---|---|---|
| **File Name** | **Document Title** | **Revision or Version** | **Document Date** | **Relevant Page(s) or Section(s)** | **Description of Applicability of Document** |
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**Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):**

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**Compliance Assessment Approach Specific to NUC-001-3, R8**

***This section to be completed by the Compliance Enforcement Authority***

| | |
|---|---|
| | *The RSAW Developer will complete this section with a set of detailed steps for the audit process. See the RSAW Developer's Guide for more information.* |
| | For a sample of actual or proposed changes, examine evidence to verify that change was communicated to Nuclear Plant Operators with related NPIR. |
| | |
| | |

**Note to Auditor:** See entity's answer to above Question. If auditor can verify the entity does not have any NPIRs, then Requirement R8 is not applicable.

In order to establish a population to sample, auditor should determine the types of changes that would impact the ability of the electric system to meet the NPIRs and inquire of the entity whether any such changes occurred during the audit period. In addition, auditors may also obtain sample items through inquiries of Nuclear Plant Operators with related NPIRs regarding changes made and whether they were communicated. Also, auditor analysis of events in the entity's area may reveal changes that were not communicated.

**Auditor Notes:**

**R9 Supporting Evidence and Documentation**

**R9.**The Nuclear Plant Generator Operator and the applicable Transmission Entities shall include the following elements in aggregate within the Agreement(s) identified in R2.

- Where multiple Agreements with a single Transmission Entity are put into effect, the R9 elements must be addressed in aggregate within the Agreements; however, each Agreement does not have to contain each element. The Nuclear Plant Generator Operator and the Transmission Entity are responsible for ensuring all the R9 elements are addressed in aggregate within the Agreements.
- Where Agreements with multiple Transmission Entities are required, the Nuclear Plant Generator Operator is responsible for ensuring all the R9 elements are addressed in aggregate within the Agreements with the Transmission Entities. The Agreements with each Transmission Entity do not have to contain each element; however, the Agreements with the multiple Transmission Entities, in the aggregate, must address all R9 elements. For each Agreement(s), the Nuclear Plant Generator Operator and the Transmission Entity are responsible to ensure the Agreement(s) contain(s) the elements of R9 applicable to that Transmission Entity. :

**9.1.** Not used. *[Note: Part 9.1 was retired under the Paragraph 81 project.. The NUC SDT proposes to leave this Part blank to avoid renumbering Requirement parts.]*

**9.2.** Technical requirements and analysis:

**9.2.1.** Identification of parameters, limits, configurations, and operating scenarios included in the NPIRs and, as applicable, procedures for providing any specific data not provided within the Agreement.

**9.2.2.** Identification of facilities, components, and configuration restrictions that are essential for meeting the NPIRs.

**9.2.3.** Types of planning and operational analyses performed specifically to support the NPIRs, including the frequency of studies and types of Contingencies and scenarios required.

**9.3.** Operations and maintenance coordination

**9.3.1.** Designation of ownership of electrical facilities at the interface between the electric system and the nuclear plant and responsibilities for operational control coordination and maintenance of these facilities.

**9.3.2.** Identification of any maintenance requirements for equipment not owned or controlled by the Nuclear Plant Generator Operator that are necessary to meet the NPIRs.

**9.3.3.** Coordination of testing, calibration and maintenance of on-site and off-site power supply systems and related components.

**9.3.4.** Provisions to address mitigating actions needed to avoid violating NPIRs and to address periods when responsible Transmission Entity loses the ability to assess the capability of the electric system to meet the NPIRs. These provisions shall include responsibility to notify the Nuclear Plant Generator Operator within a specified time frame.

**9.3.5.** Provision for considering, within the restoration process, the requirements and urgency of a nuclear plant that has lost all off-site and on-site AC power.

**9.3.6.** Coordination of physical and cyber security protection at the nuclear plant interface to ensure each asset is covered under at least one entity's plan.

Coordination of the NPIRs with transmission system Special Protection Systems and any programs that reduce or shed load based on underfrequency or undervoltage.

**9.4.** Communications and training Administrative elements:

**9.4.1.** Provisions for communications affecting the NPIRs between the Nuclear Plant Generator Operator and Transmission Entities, including communications protocols, notification time requirements, and definitions of applicable unique terms.

**9.4.2.** Provisions for coordination during an off-normal or emergency event affecting the NPIRs, including the need to provide timely information explaining the event, an estimate of when the system will be returned to a normal state, and the actual time the system is returned to normal.

**9.4.3.** Provisions for coordinating investigations of causes of unplanned events affecting the NPIRs and developing solutions to minimize future risk of such events.

**9.4.4.** Provisions for supplying information necessary to report to government agencies, as related to NPIRs.

**9.4.5.** Provisions for personnel training, as related to NPIRs.

**M9.** The Nuclear Plant Generator Operator shall have a copy of the Agreement(s) addressing the elements in Requirement 9 available for inspection upon request of the Compliance Enforcement Authority. Each Transmission Entity shall have a copy of the Agreement(s) addressing the elements in Requirement 9 for which it is responsible available for inspection upon request of the Compliance Enforcement Authority.

**Registered Entity Response (Required):**

**Compliance Narrative:**

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

**Evidence Requested[i]:**

| **Provide the following evidence, or other evidence to demonstrate compliance.** |
|---|
| Copy of the Agreement(s) addressing the elements in Requirement R9 for which entity is responsible. |
| |

**Registered Entity Evidence (Required):**

| **The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.** |
|---|

| File Name | Document Title | Revision or Version | Document Date | Relevant Page(s) or Section(s) | Description of Applicability of Document |
|---|---|---|---|---|---|
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**Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):**

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**Compliance Assessment Approach Specific to NUC-001-3, R8**

***This section to be completed by the Compliance Enforcement Authority***

| | |
|---|---|
| | *The RSAW Developer will complete this section with a set of detailed steps for the audit process. See the RSAW Developer's Guide for more information.* |
| | Review evidence and verify that either the multiple Agreements with a single Transmission Entity, or multiple Agreements with multiple Transmission Entities address the following in the aggregate in accordance with Requirement R9: |
| | (Part 9.2.1) Identification of parameters, limits, configurations, and operating scenarios included in the NPIRs and, as applicable, procedures for providing any specific data not provided within the Agreement. |
| | (Part 9.2.2) Identification of facilities, components, and configuration restrictions that are essential for meeting the NPIRs. |
| | (Part 9.2.3) Types of planning and operational analyses performed specifically to support the NPIRs, including the frequency of studies and types of Contingencies and scenarios required. |
| | (Part 9.3.1) Designation of ownership of electrical facilities at the interface between the electric system and the nuclear plant and responsibilities for operational control coordination and maintenance of these facilities. |
| | (Part 9.3.2) Identification of any maintenance requirements for equipment not owned or controlled by the Nuclear Plant Generator Operator that are necessary to meet the NPIRs. |
| | (Part 9.3.3) Coordination of testing, calibration and maintenance of on-site and off-site power supply systems and related components. |
| | (Part 9.3.4) Provisions to address mitigating actions needed to avoid violating NPIRs and to address periods when responsible Transmission Entity loses the ability to assess the capability of the electric system to meet the NPIRs. These provisions shall include responsibility to notify the Nuclear Plant Generator Operator within a specified time frame. |
| | (Part 9.3.5) Provision for considering, within the restoration process, the requirements and urgency of a nuclear plant that has lost all off-site and on-site AC power. |
| | (Part 9.3.6) Coordination of physical and cyber security protection at the nuclear plant interface to ensure each asset is covered under at least one entity's plan. |
| | (Part 9.3.7) Coordination of the NPIRs with transmission system Special Protection Systems and any |

| | |
|---|---|
| | programs that reduce or shed load based on underfrequency or undervoltage. |
| | (Part 9.4.1) Provisions for communications affecting the NPIRs between the Nuclear Plant Generator Operator and Transmission Entities, including communications protocols, notification time requirements, and definitions of applicable unique terms. |
| | (Part 9.4.2) Provisions for coordination during an off-normal or emergency event affecting the NPIRs, including the need to provide timely information explaining the event, an estimate of when the system will be returned to a normal state, and the actual time the system is returned to normal. |
| | (Part 9.4.3) Provisions for coordinating investigations of causes of unplanned events affecting the NPIRs and developing solutions to minimize future risk of such events. |
| | (Part 9.4.4) Provisions for supplying information necessary to report to government agencies, as related to NPIRs. |
| | (Part 9.4.5) Provisions for personnel training, as related to NPIRs. |
| | |
| **Note to Auditor:** | |

**Auditor Notes:**

## Additional Information:

### Reliability Standard

*The RSAW developer should provide the following information without hyperlinks. Update the information below as appropriate.*

The full text of NUC-001-3 may be found on the NERC Web Site (www.nerc.com) under "Program Areas & Departments", "Reliability Standards."

In addition to the Reliability Standard, there is an applicable Implementation Plan available on the NERC Web Site.

In addition to the Reliability Standard, there is background information available on the NERC Web Site.

Capitalized terms in the Reliability Standard refer to terms in the NERC Glossary, which may be found on the NERC Web Site.

**Sampling Methodology [If developer deems reference applicable]**

Sampling is essential for auditing compliance with NERC Reliability Standards since it is not always possible or practical to test 100% of either the equipment, documentation, or both, associated with the full suite of enforceable standards. The Sampling Methodology Guidelines and Criteria (see NERC website), or sample guidelines, provided by the Electric Reliability Organization help to establish a minimum sample set for monitoring and enforcement uses in audits of NERC Reliability Standards.

**Regulatory Language [Developer to ensure RSAW has been provided to NERC Legal for links to appropriate Regulatory Language – See example below]**

E.g. FERC Order No. 742 paragraph 34: "Based on NERC's…….

E.g. FERC Order No. 742 Paragraph 55, Commission Determination: "We affirm NERC's…….

**Selected Glossary Terms [If developer deems applicable]**

The following Glossary terms are provided for convenience only. Please refer to the NERC web site for the current enforceable terms.

## Revision History for RSAW

| Version | Date | Reviewers | Revision Description |
|---|---|---|---|
| 1 | XX/XX/XXXX | RSAW Working Group | New Document |
| | | | |
| | | | |

[i] Items in the Evidence Requested section are suggested evidence that may, but will not necessarily, demonstrate compliance. These items are not mandatory and other forms and types of evidence may be submitted at the entity's discretion.

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# Standards Announcement

## Project 2012-13 Nuclear Plant Interface Coordination NUC-001-3

**Initial Ballot and Non-Binding Poll Now Open through May 22, 2014**

**Now Available**

An initial ballot **Project 2012-13 Nuclear Plant Interface Coordination (NUC-001-3)** and non-binding poll of the associated Violation Risk Factors (VRFs) and Violation Severity Levels (VSLs) is open **through Thursday, May 22, 2014.**

If you have questions please contact Stephen Eldridge via email or by telephone at (404) 446-9686.

Background information for this project can be found on the project page.

### Instructions for Commenting

Please use the electronic form to submit comments on the standard. If you experience any difficulties in using the electronic form, please contact Wendy Muller. An off-line, unofficial copy of the comment form is posted on the project page.

### Next Steps

The ballot results will be announced and posted on the project page. The drafting team will consider all comments received during the formal comment period and, if needed, make revisions to the standards. If the comments do not show the need for significant revisions, the standards will proceed to a final ballot.

For information on the **Standards Development Process**, please refer to the Standard Processes Manual.

*For more information or assistance, please contact Wendy Muller, Standards Development Administrator, or at 404-446-2560.*

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# Standards Announcement

## Project 2012-13 Nuclear Plant Interface Coordination NUC-001-3

**Formal Comment Period Now Open through May 22, 2014**
**Ballot Pools Forming Now through May 7, 2014**

**Now Available**

A 45-day formal comment period for **Project 2012-13 Nuclear Plant Interface Coordination (NUC-001-3)** is open through **8 p.m. Eastern on Thursday, May 22, 2014.**

If you have questions please contact Stephen Eldridge via email or by telephone at (404) 446-9686.

Background information for this project can be found on the project page.

### Instructions for Commenting

Please use the electronic form to submit comments on the standard. If you experience any difficulties in using the electronic form, please contact Wendy Muller. An off-line, unofficial copy of the comment form is posted on the project page.

### Instructions for Joining Ballot Pools

Ballots pools are being formed for the standard and non-binding poll for NUC-001-3. Registered Ballot Body members must join both ballot pools to be eligible to vote in the balloting of NUC-001-3 and to submit an opinion for the non-binding poll of the associated Violation Risk Factors (VRFs) and Violation Severity Levels (VSLs). Registered Ballot Body members may join the ballot pools at the following page: Join Ballot Pool.

During the pre-ballot window, members of the ballot pool may communicate with one another by using their "ballot pool list server." (Once the balloting begins, ballot pool members are prohibited from using the ballot pool list servers.) The list servers for this project are:

**Ballot for NUC-001-3:** bp-2012-13_NUC-001-3_in@nerc.com
**Non-Binding Poll for NUC-001-3:** bp-2012-13_NUC-001-3_NB_in@nerc.com

## Next Steps

An initial ballot period for the standard and non-binding poll of the associated VRFs and VSLs will be conducted **May 13-22, 2014**.

For information on the **Standards Development Process**, please refer to the Standard Processes Manual.

*For more information or assistance, please contact Wendy Muller, Standards Development Administrator, or at 404-446-2560.*

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# Standards Announcement

## Project 2012-13 Nuclear Plant Interface Coordination NUC-001-3

**Formal Comment Period Now Open through May 22, 2014**
**Ballot Pools Forming Now through May 7, 2014**

**Now Available**

A 45-day formal comment period for **Project 2012-13 Nuclear Plant Interface Coordination (NUC-001-3)** is open through **8 p.m. Eastern on Thursday, May 22, 2014.**

If you have questions please contact Stephen Eldridge via email or by telephone at (404) 446-9686.

Background information for this project can be found on the project page.

### Instructions for Commenting

Please use the electronic form to submit comments on the standard. If you experience any difficulties in using the electronic form, please contact Wendy Muller. An off-line, unofficial copy of the comment form is posted on the project page.

### Instructions for Joining Ballot Pools

Ballots pools are being formed for the standard and non-binding poll for NUC-001-3. Registered Ballot Body members must join both ballot pools to be eligible to vote in the balloting of NUC-001-3 and to submit an opinion for the non-binding poll of the associated Violation Risk Factors (VRFs) and Violation Severity Levels (VSLs). Registered Ballot Body members may join the ballot pools at the following page: Join Ballot Pool.

During the pre-ballot window, members of the ballot pool may communicate with one another by using their "ballot pool list server." (Once the balloting begins, ballot pool members are prohibited from using the ballot pool list servers.) The list servers for this project are:

**Ballot for NUC-001-3:** bp-2012-13_NUC-001-3_in@nerc.com
**Non-Binding Poll for NUC-001-3:** bp-2012-13_NUC-001-3_NB_in@nerc.com

## Next Steps

An initial ballot period for the standard and non-binding poll of the associated VRFs and VSLs will be conducted **May 13-22, 2014**.

For information on the **Standards Development Process**, please refer to the Standard Processes Manual.

*For more information or assistance, please contact Wendy Muller, Standards Development Administrator, or at 404-446-2560.*

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# Standards Announcement

## Project 2012-13 Nuclear Plant Interface Coordination
## NUC-001-3

### Ballot and Non-Binding Poll Results

**Now Available**

A ballot for **NUC-001-3 – Nuclear Plant Interface Coordination** and non-binding poll of the associated Violation Risk Factors and Violation Severity Levels concluded at **8 p.m. Eastern on Thursday, May 22, 2014**.

The standard achieved a quorum and received sufficient affirmative votes for approval. Voting statistics are listed below, and the Ballot Results page provides a link to the detailed results for the ballots.

| Ballot Results | Non-Binding Poll Results |
|---|---|
| Quorum /Approval | Quorum/Supportive Opinions |
| 80.60% / 97.36% | 80.95% / 97.22% |

Background information for this project can be found on the project page.

**Next Steps**

The drafting team will consider all comments received during the formal comment period and, if needed, make revisions to the standard. If the comments do not show the need for significant revisions, the standard will proceed to a final ballot.

For information on the **Standards Development Process**, please refer to the Standard Processes Manual.

*For more information or assistance, please contact Wendy Muller (via email), Standards Development Administrator, or at 404-446-2560.*

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| Ballot Results | |
|---|---|
| **Ballot Name:** | Project 2012-13 Nuclear Plant Interface Coordination NUC-001-3 |
| **Ballot Period:** | 5/13/2014 - 5/22/2014 |
| **Ballot Type:** | Initial |
| **Total # Votes:** | 241 |
| **Total Ballot Pool:** | 299 |
| **Quorum:** | **80.60 % The Quorum has been reached** |
| **Weighted Segment Vote:** | 97.36 % |
| **Ballot Results:** | **The ballot has closed** |

**Summary of Ballot Results**

| Segment | Ballot Pool | Segment Weight | Affirmative # Votes | Affirmative Fraction | Negative # Votes | Negative Fraction | Negative Vote without a Comment | Abstain | No Vote |
|---|---|---|---|---|---|---|---|---|---|
| 1 - Segment 1 | 78 | 1 | 50 | 0.98 | 1 | 0.02 | 0 | 11 | 16 |
| 2 - Segment 2 | 9 | 0.4 | 3 | 0.3 | 1 | 0.1 | 0 | 2 | 3 |
| 3 - Segment 3 | 66 | 1 | 38 | 0.974 | 1 | 0.026 | 0 | 15 | 12 |
| 4 - Segment 4 | 22 | 1 | 14 | 1 | 0 | 0 | 0 | 6 | 2 |
| 5 - Segment 5 | 63 | 1 | 35 | 0.972 | 1 | 0.028 | 0 | 11 | 16 |
| 6 - Segment 6 | 47 | 1 | 30 | 1 | 0 | 0 | 0 | 9 | 8 |
| 7 - Segment 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 - Segment 8 | 4 | 0.3 | 3 | 0.3 | 0 | 0 | 0 | 0 | 1 |
| 9 - Segment 9 | 2 | 0.2 | 2 | 0.2 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10 - Segment 10 | 8 | 0.7 | 7 | 0.7 | 0 | 0 | 0 | 1 | 0 |
| **Totals** | **299** | **6.6** | **182** | **6.426** | **4** | **0.174** | **0** | **55** | **58** |

**Individual Ballot Pool Results**

| Segment | Organization | Member | Ballot | NERC Notes |
|---|---|---|---|---|
| 1 | Ameren Services | Eric Scott | Affirmative | |
| 1 | American Electric Power | Paul B Johnson | Affirmative | |
| 1 | American Transmission Company, LLC | Andrew Z Pusztai | Affirmative | |
| 1 | Arizona Public Service Co. | Robert Smith | Affirmative | |
| 1 | Associated Electric Cooperative, Inc. | John Bussman | | |
| 1 | Austin Energy | James Armke | Affirmative | |
| 1 | Balancing Authority of Northern California | Kevin Smith | Affirmative | |
| 1 | Baltimore Gas & Electric Company | Christopher J Scanlon | Affirmative | |
| 1 | Black Hills Corp | Wes Wingen | Abstain | |
| 1 | Bonneville Power Administration | Donald S. Watkins | Affirmative | |
| 1 | Bryan Texas Utilities | John C Fontenot | Affirmative | |
| 1 | CenterPoint Energy Houston Electric, LLC | John Brockhan | Affirmative | |
| 1 | Central Electric Power Cooperative | Michael B Bax | Abstain | |
| 1 | City of Tacoma, Department of Public Utilities, Light Division, dba Tacoma Power | Chang G Choi | Abstain | |
| 1 | Clark Public Utilities | Jack Stamper | Affirmative | |
| 1 | Colorado Springs Utilities | Shawna Speer | Affirmative | |
| 1 | Consolidated Edison Co. of New York | Christopher L de Graffenried | Affirmative | |
| 1 | CPS Energy | Glenn Pressler | Affirmative | |
| 1 | Dominion Virginia Power | Larry Nash | Affirmative | |
| 1 | Duke Energy Carolina | Doug E Hils | Affirmative | |
| 1 | Duquesne Light Co. | Hugh R Conley | | |
| 1 | Entergy Transmission | Oliver A Burke | Affirmative | |
| 1 | FirstEnergy Corp. | William J Smith | Affirmative | |
| 1 | Florida Keys Electric Cooperative Assoc. | Dennis Minton | Abstain | |
| 1 | Florida Power & Light Co. | Mike O'Neil | Affirmative | |
| 1 | Gainesville Regional Utilities | Richard Bachmeier | Affirmative | |
| 1 | Georgia Transmission Corporation | Jason Snodgrass | Affirmative | |
| 1 | Great River Energy | Gordon Pietsch | Affirmative | |
| 1 | Hydro One Networks, Inc. | Muhammed Ali | Affirmative | |
| 1 | International Transmission Company Holdings Corp | Michael Moltane | Affirmative | |
| 1 | JDRJC Associates | Jim D Cyrulewski | Affirmative | |
| 1 | JEA | Ted E Hobson | Affirmative | |
| 1 | KAMO Electric Cooperative | Walter Kenyon | | |
| 1 | Kansas City Power & Light Co. | Daniel Gibson | Affirmative | |
| 1 | Keys Energy Services | Stanley T Rzad | | |
| 1 | Lakeland Electric | Larry E Watt | Affirmative | |
| 1 | Lee County Electric Cooperative | John Chin | | |
| 1 | Lincoln Electric System | Doug Bantam | | |
| 1 | Long Island Power Authority | Robert Ganley | | |
| 1 | M & A Electric Power Cooperative | William Price | | |
| 1 | MidAmerican Energy Co. | Terry Harbour | Affirmative | |
| 1 | N.W. Electric Power Cooperative, Inc. | Mark Ramsey | | |
| 1 | National Grid USA | Michael Jones | Affirmative | |
| 1 | NB Power Corporation | Alan MacNaughton | Abstain | |
| 1 | Nebraska Public Power District | Jamison Cawley | Negative | SUPPORTS THIRD PARTY COMMENTS - (Nebraska Public Power District Comments) |
| 1 | New York Power Authority | Bruce Metruck | Affirmative | |
| 1 | Northeast Missouri Electric Power Cooperative | Kevin White | | |
| 1 | Northeast Utilities | William Temple | Affirmative | |
| 1 | Northern Indiana Public Service Co. | Julaine Dyke | Abstain | |

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|---|---|---|---|---|
| 1 | Ohio Valley Electric Corp. | Scott R Cunningham | | |
| 1 | Omaha Public Power District | Doug Peterchuck | | |
| 1 | Oncor Electric Delivery | Jen Fiegel | Affirmative | |
| 1 | Pacific Gas and Electric Company | Bangalore Vijayraghavan | Affirmative | |
| 1 | Platte River Power Authority | John C. Collins | Abstain | |
| 1 | Portland General Electric Co. | John T Walker | | |
| 1 | Potomac Electric Power Co. | David Thorne | Affirmative | |
| 1 | PPL Electric Utilities Corp. | Brenda L Truhe | Affirmative | |
| 1 | Public Service Company of New Mexico | Laurie Williams | Abstain | |
| 1 | Public Service Electric and Gas Co. | Kenneth D. Brown | Affirmative | |
| 1 | Rochester Gas and Electric Corp. | John C. Allen | Affirmative | |
| 1 | Sacramento Municipal Utility District | Tim Kelley | Affirmative | |
| 1 | Salt River Project | Robert Kondziolka | Affirmative | |
| 1 | SaskPower | Wayne Guttormson | Abstain | |
| 1 | Seattle City Light | Pawel Krupa | Affirmative | |
| 1 | Seminole Electric Cooperative, Inc. | Glenn Spurlock | Abstain | |
| 1 | Sho-Me Power Electric Cooperative | Denise Stevens | | |
| 1 | Snohomish County PUD No. 1 | Long T Duong | Affirmative | |
| 1 | South Carolina Electric & Gas Co. | Tom Hanzlik | Affirmative | |
| 1 | Southern California Edison Company | Steven Mavis | Affirmative | |
| 1 | Southern Company Services, Inc. | Robert A. Schaffeld | Affirmative | |
| 1 | Tampa Electric Co. | Beth Young | | |
| 1 | Tennessee Valley Authority | Howell D Scott | Affirmative | |
| 1 | Tucson Electric Power Co. | John Tolo | Abstain | |
| 1 | U.S. Bureau of Reclamation | Richard T Jackson | Affirmative | |
| 1 | Vermont Electric Power Company, Inc. | Kim Moulton | | |
| 1 | Westar Energy | Allen Klassen | Affirmative | |
| 1 | Western Area Power Administration | Lloyd A Linke | Affirmative | |
| 1 | Xcel Energy, Inc. | Gregory L Pieper | Affirmative | |
| 2 | BC Hydro | Venkataramakrishnan Vinnakota | | |
| 2 | California ISO | Rich Vine | Affirmative | |
| 2 | Electric Reliability Council of Texas, Inc. | Cheryl Moseley | Abstain | |
| 2 | Independent Electricity System Operator | Leonard Kula | Negative | COMMENT RECEIVED |
| 2 | ISO New England, Inc. | Matthew F Goldberg | Affirmative | |
| 2 | MISO | Marie Knox | | |
| 2 | New York Independent System Operator | Gregory Campoli | | |
| 2 | PJM Interconnection, L.L.C. | stephanie monzon | Affirmative | |
| 2 | Southwest Power Pool, Inc. | Charles H. Yeung | Abstain | |
| 3 | AEP | Michael E Deloach | Affirmative | |
| 3 | Alabama Power Company | Robert S Moore | Affirmative | |
| 3 | APS | Sarah Kist | Affirmative | |
| 3 | Associated Electric Cooperative, Inc. | Todd Bennett | Abstain | |
| 3 | Atlantic City Electric Company | NICOLE BUCKMAN | Affirmative | |
| 3 | BC Hydro and Power Authority | Pat G. Harrington | Abstain | |
| 3 | Bonneville Power Administration | Rebecca Berdahl | Affirmative | |
| 3 | Central Electric Power Cooperative | Adam M Weber | | |
| 3 | City of Anaheim Public Utilities Department | Dennis M Schmidt | Abstain | |
| 3 | City of Austin dba Austin Energy | Andrew Gallo | Affirmative | |
| 3 | City of Clewiston | Lynne Mila | | |
| 3 | City of Green Cove Springs | Mark Schultz | Abstain | |
| 3 | Colorado Springs Utilities | Jean Mueller | Affirmative | |
| 3 | ComEd | John Bee | Affirmative | |
| 3 | Consolidated Edison Co. of New York | Peter T Yost | Affirmative | |
| 3 | Consumers Energy Company | Gerald G Farringer | | |
| 3 | Cowlitz County PUD | Russell A Noble | Affirmative | |
| 3 | CPS Energy | Jose Escamilla | Affirmative | |
| 3 | Delmarva Power & Light Co. | Michael R. Mayer | Affirmative | |
| 3 | Dominion Resources, Inc. | Connie B Lowe | Affirmative | |
| 3 | DTE Electric | Kent Kujala | Affirmative | |
| 3 | FirstEnergy Corp. | Cindy E Stewart | Affirmative | |
| 3 | Florida Keys Electric Cooperative | Tom B Anthony | Abstain | |
| 3 | Florida Municipal Power Agency | Joe McKinney | Affirmative | |
| 3 | Florida Power Corporation | Lee Schuster | Affirmative | |
| 3 | Georgia System Operations Corporation | Scott McGough | Affirmative | |
| 3 | Great River Energy | Brian Glover | Affirmative | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| 3 | Hydro One Networks, Inc. | Ayesha Sabouba | Affirmative | |
| 3 | JEA | Garry Baker | Abstain | |
| 3 | KAMO Electric Cooperative | Theodore J Hilmes | | |
| 3 | Kansas City Power & Light Co. | Joshua D Bach | | |
| 3 | Kissimmee Utility Authority | Gregory D Woessner | | |
| 3 | Lakeland Electric | Mace D Hunter | Abstain | |
| 3 | Lee County Electric Cooperative | David A Hadzima | | |
| 3 | Lincoln Electric System | Jason Fortik | Abstain | |
| 3 | Louisville Gas and Electric Co. | Charles A. Freibert | Affirmative | |
| 3 | M & A Electric Power Cooperative | Stephen D Pogue | | |
| 3 | MEAG Power | Roger Brand | Affirmative | |
| 3 | MidAmerican Energy Co. | Thomas C. Mielnik | Affirmative | |
| 3 | Muscatine Power & Water | John S Bos | | |
| 3 | National Grid USA | Brian E Shanahan | Affirmative | |
| 3 | Nebraska Public Power District | Tony Eddleman | Negative | SUPPORTS THIRD PARTY COMMENTS - (Nebraska Public Power District comments) |
| 3 | New York Power Authority | David R Rivera | Affirmative | |
| 3 | Northern Indiana Public Service Co. | Ramon J Barany | Abstain | |
| 3 | NW Electric Power Cooperative, Inc. | David McDowell | | |
| 3 | Ocala Utility Services | Randy Hahn | | |
| 3 | Omaha Public Power District | Blaine R. Dinwiddie | Affirmative | |
| 3 | Orlando Utilities Commission | Ballard K Mutters | Abstain | |
| 3 | Owensboro Municipal Utilities | Thomas T Lyons | Abstain | |
| 3 | Pacific Gas and Electric Company | John H Hagen | Affirmative | |
| 3 | Platte River Power Authority | Terry L Baker | Abstain | |
| 3 | PNM Resources | Michael Mertz | Abstain | |
| 3 | Potomac Electric Power Co. | Mark Yerger | Affirmative | |
| 3 | Public Service Electric and Gas Co. | Jeffrey Mueller | Affirmative | |
| 3 | Sacramento Municipal Utility District | James Leigh-Kendall | Affirmative | |
| 3 | Salt River Project | John T. Underhill | Affirmative | |
| 3 | Seattle City Light | Dana Wheelock | Affirmative | |
| 3 | Seminole Electric Cooperative, Inc. | James R Frauen | Abstain | |
| 3 | Sho-Me Power Electric Cooperative | Jeff L Neas | | |
| 3 | Snohomish County PUD No. 1 | Mark Oens | Affirmative | |
| 3 | South Carolina Electric & Gas Co. | Hubert C Young | Affirmative | |
| 3 | Southern California Edison Company | Lujuanna Medina | Affirmative | |
| 3 | Tacoma Power | Marc Donaldson | Abstain | |
| 3 | Tennessee Valley Authority | Ian S Grant | Affirmative | |
| 3 | Westar Energy | Bo Jones | Affirmative | |
| 3 | Xcel Energy, Inc. | Michael Ibold | Affirmative | |
| 4 | Alliant Energy Corp. Services, Inc. | Kenneth Goldsmith | Abstain | |
| 4 | Blue Ridge Power Agency | Duane S Dahlquist | Abstain | |
| 4 | City of Austin dba Austin Energy | Reza Ebrahimian | Affirmative | |
| 4 | City Utilities of Springfield, Missouri | John Allen | Abstain | |
| 4 | Constellation Energy Control & Dispatch, L.L.C. | Margaret Powell | Affirmative | |
| 4 | Consumers Energy Company | Tracy Goble | | |
| 4 | Cowlitz County PUD | Rick Syring | Affirmative | |
| 4 | DTE Electric | Daniel Herring | Affirmative | |
| 4 | Florida Municipal Power Agency | Frank Gaffney | Affirmative | |
| 4 | Georgia System Operations Corporation | Guy Andrews | Affirmative | |
| 4 | Herb Schrayshuen | Herb Schrayshuen | Affirmative | |
| 4 | Illinois Municipal Electric Agency | Bob C. Thomas | Affirmative | |
| 4 | Madison Gas and Electric Co. | Joseph DePoorter | Abstain | |
| 4 | Ohio Edison Company | Douglas Hohlbaugh | Affirmative | |
| 4 | Public Utility District No. 1 of Snohomish County | John D Martinsen | Affirmative | |
| 4 | Sacramento Municipal Utility District | Mike Ramirez | Affirmative | |
| 4 | Seattle City Light | Hao Li | Affirmative | |
| 4 | Seminole Electric Cooperative, Inc. | Steven R Wallace | Abstain | |
| 4 | South Mississippi Electric Power Association | Steve McElhaney | Affirmative | |
| 4 | Tacoma Public Utilities | Keith Morisette | Abstain | |
| 4 | Utility Services, Inc. | Brian Evans-Mongeon | Affirmative | |

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|---|---|---|---|---|
| 4 | Wisconsin Energy Corp. | Anthony Jankowski | | |
| 5 | Amerenue | Sam Dwyer | Affirmative | |
| 5 | American Electric Power | Thomas Foltz | Affirmative | |
| 5 | Arizona Public Service Co. | Scott Takinen | Affirmative | |
| 5 | Boise-Kuna Irrigation District/dba Lucky peak power plant project | Mike D Kukla | Affirmative | |
| 5 | Bonneville Power Administration | Francis J. Halpin | Affirmative | |
| 5 | Calpine Corporation | Hamid Zakery | | |
| 5 | City of Austin dba Austin Energy | Jeanie Doty | | |
| 5 | Cleco Power | Stephanie Huffman | | |
| 5 | Cogentrix Energy Power Management, LLC | Mike D Hirst | | |
| 5 | Colorado Springs Utilities | Kaleb Brimhall | Affirmative | |
| 5 | Con Edison Company of New York | Brian O'Boyle | Affirmative | |
| 5 | Cowlitz County PUD | Bob Essex | Affirmative | |
| 5 | Dominion Resources, Inc. | Mike Garton | Affirmative | |
| 5 | DTE Electric | Mark Stefaniak | | |
| 5 | Duke Energy | Dale Q Goodwine | Affirmative | |
| 5 | E.ON Climate & Renewables North America, LLC | Dana Showalter | Abstain | |
| 5 | EDP Renewables North America LLC | Heather Bowden | Abstain | |
| 5 | El Paso Electric Company | Gustavo Estrada | | |
| 5 | Electric Power Supply Association | John R Cashin | | |
| 5 | Entergy Services, Inc. | Tracey Stubbs | Affirmative | |
| 5 | Exelon Nuclear | Mark F Draper | Affirmative | |
| 5 | First Wind | John Robertson | | |
| 5 | FirstEnergy Solutions | Kenneth Dresner | Affirmative | |
| 5 | Florida Municipal Power Agency | David Schumann | Affirmative | |
| 5 | Great River Energy | Preston L Walsh | Affirmative | |
| 5 | JEA | John J Babik | Affirmative | |
| 5 | Kansas City Power & Light Co. | Brett Holland | Affirmative | |
| 5 | Kissimmee Utility Authority | Mike Blough | Affirmative | |
| 5 | Liberty Electric Power LLC | Daniel Duff | Abstain | |
| 5 | Lincoln Electric System | Dennis Florom | | |
| 5 | Los Angeles Department of Water & Power | Kenneth Silver | | |
| 5 | Luminant Generation Company LLC | Rick Terrill | | |
| 5 | Manitoba Hydro | Chris Mazur | | |
| 5 | Massachusetts Municipal Wholesale Electric Company | David Gordon | Abstain | |
| 5 | MEAG Power | Steven Grego | Affirmative | |
| 5 | Muscatine Power & Water | Mike Avesing | Abstain | |
| 5 | Nebraska Public Power District | Don Schmit | Negative | COMMENT RECEIVED |
| 5 | New York Power Authority | Wayne Sipperly | Affirmative | |
| 5 | NextEra Energy | Allen D Schriver | Affirmative | |
| 5 | Northern Indiana Public Service Co. | Michael D Melvin | | |
| 5 | Oglethorpe Power Corporation | Bernard Johnson | Affirmative | |
| 5 | Omaha Public Power District | Mahmood Z. Safi | Affirmative | |
| 5 | Ontario Power Generation Inc. | David Ramkalawan | Affirmative | |
| 5 | Orlando Utilities Commission | Richard K Kinas | | |
| 5 | Pacific Gas and Electric Company | Alex Chua | Abstain | |
| 5 | Platte River Power Authority | Christopher R Wood | Abstain | |
| 5 | Portland General Electric Co. | Matt E. Jastram | Abstain | |
| 5 | PPL Generation LLC | Annette M Bannon | Affirmative | |
| 5 | PSEG Fossil LLC | Tim Kucey | Affirmative | |
| 5 | Puget Sound Energy, Inc. | Lynda Kupfer | Abstain | |
| 5 | Sacramento Municipal Utility District | Susan Gill-Zobitz | Affirmative | |
| 5 | Salt River Project | William Alkema | Affirmative | |
| 5 | Seattle City Light | Michael J. Haynes | Affirmative | |
| 5 | Seminole Electric Cooperative, Inc. | Brenda K. Atkins | | |
| 5 | Snohomish County PUD No. 1 | Sam Nietfeld | Affirmative | |
| 5 | South Carolina Electric & Gas Co. | Edward Magic | | |
| 5 | Southern California Edison Company | Denise Yaffe | Affirmative | |
| 5 | Southern Company Generation | William D Shultz | Affirmative | |
| 5 | Tacoma Power | Chris Mattson | Abstain | |
| 5 | Tampa Electric Co. | RJames Rocha | Abstain | |
| 5 | Tennessee Valley Authority | David Thompson | Affirmative | |
| 5 | USDI Bureau of Reclamation | Erika Doot | Affirmative | |
| 5 | Westar Energy | Bryan Taggart | Affirmative | |

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|---|---|---|---|---|
| 6 | AEP Marketing | Edward P. Cox | Affirmative | |
| 6 | Ameren Missouri | Robert Quinlivan | | |
| 6 | APS | Randy A. Young | Affirmative | |
| 6 | Associated Electric Cooperative, Inc. | Brian Ackermann | | |
| 6 | Bonneville Power Administration | Brenda S. Anderson | Affirmative | |
| 6 | City of Austin dba Austin Energy | Lisa Martin | Affirmative | |
| 6 | Cleco Power LLC | Robert Hirchak | | |
| 6 | Colorado Springs Utilities | Shannon Fair | Affirmative | |
| 6 | Con Edison Company of New York | David Balban | Affirmative | |
| 6 | Constellation Energy Commodities Group | David J Carlson | Affirmative | |
| 6 | Dominion Resources, Inc. | Louis S. Slade | Affirmative | |
| 6 | Duke Energy | Greg Cecil | | |
| 6 | FirstEnergy Solutions | Kevin Querry | Affirmative | |
| 6 | Florida Municipal Power Agency | Richard L. Montgomery | Affirmative | |
| 6 | Florida Municipal Power Pool | Thomas Washburn | Abstain | |
| 6 | Florida Power & Light Co. | Silvia P Mitchell | Affirmative | |
| 6 | Great River Energy | Donna Stephenson | | |
| 6 | Kansas City Power & Light Co. | Jessica L Klinghoffer | Affirmative | |
| 6 | Lakeland Electric | Paul Shipps | Affirmative | |
| 6 | Lincoln Electric System | Eric Ruskamp | Abstain | |
| 6 | Los Angeles Department of Water & Power | Brad Packer | | |
| 6 | Lower Colorado River Authority | Michael Shaw | Abstain | |
| 6 | Luminant Energy | Brenda Hampton | Affirmative | |
| 6 | Muscatine Power & Water | John Stolley | | |
| 6 | New York Power Authority | Shivaz Chopra | Affirmative | |
| 6 | Northern Indiana Public Service Co. | Joseph O'Brien | Abstain | |
| 6 | Oglethorpe Power Corporation | Donna Johnson | Affirmative | |
| 6 | Omaha Public Power District | Douglas Collins | Affirmative | |
| 6 | PacifiCorp | Sandra L Shaffer | Affirmative | |
| 6 | Platte River Power Authority | Carol Ballantine | Abstain | |
| 6 | Portland General Electric Co. | Shawn P Davis | Abstain | |
| 6 | Power Generation Services, Inc. | Stephen C Knapp | Affirmative | |
| 6 | PPL EnergyPlus LLC | Elizabeth Davis | Affirmative | |
| 6 | PSEG Energy Resources & Trade LLC | Peter Dolan | Affirmative | |
| 6 | Sacramento Municipal Utility District | Diane Enderby | Affirmative | |
| 6 | Salt River Project | William Abraham | Affirmative | |
| 6 | Seattle City Light | Dennis Sismaet | Affirmative | |
| 6 | Seminole Electric Cooperative, Inc. | Trudy S. Novak | Abstain | |
| 6 | Snohomish County PUD No. 1 | Kenn Backholm | Affirmative | |
| 6 | Southern California Edison Company | Joseph T Marone | Affirmative | |
| 6 | Southern Company Generation and Energy Marketing | John J. Ciza | Affirmative | |
| 6 | Tacoma Public Utilities | Michael C Hill | Abstain | |
| 6 | Tampa Electric Co. | Benjamin F Smith II | | |
| 6 | Tennessee Valley Authority | Marjorie S. Parsons | Affirmative | |
| 6 | Westar Energy | Grant L Wilkerson | Affirmative | |
| 6 | Western Area Power Administration - UGP Marketing | Peter H Kinney | Abstain | |
| 6 | Xcel Energy, Inc. | Peter Colussy | Affirmative | |
| 8 | | Roger C Zaklukiewicz | Affirmative | |
| 8 | | David L Kiguel | Affirmative | |
| 8 | Massachusetts Attorney General | Frederick R Plett | Affirmative | |
| 8 | Volkmann Consulting, Inc. | Terry Volkmann | | |
| 9 | Commonwealth of Massachusetts Department of Public Utilities | Donald Nelson | Affirmative | |
| 9 | New York State Public Service Commission | Diane J Barney | Affirmative | |
| 10 | Florida Reliability Coordinating Council | Linda C Campbell | Affirmative | |
| 10 | Midwest Reliability Organization | Russel Mountjoy | Affirmative | |
| 10 | New York State Reliability Council | Alan Adamson | Affirmative | |
| 10 | Northeast Power Coordinating Council | Guy V. Zito | Affirmative | |
| 10 | ReliabilityFirst | Anthony E Jablonski | Affirmative | |
| 10 | SERC Reliability Corporation | Joseph W Spencer | Affirmative | |
| 10 | Southwest Power Pool RE | Bob Reynolds | Abstain | |
| 10 | Western Electricity Coordinating Council | Steven L. Rueckert | Affirmative | |
| | | | | |

Legal and Privacy : 404.446.2560 voice : 404.467.0474 fax : 3353 Peachtree Road, N.E. : Suite 600, North Tower : Atlanta, GA 30326
*Washington Office:* 1325 G Street, N.W. : Suite 600 : Washington, DC 20005-3801

Account Log-In/Register

# Non-Binding Poll Results

## Project 2012-13 Nuclear Plant Interface Coordination

| Non-Binding Poll Results | |
|---|---|
| **Non-Binding Poll Name:** | Project 2012-13 NUC-001-3 |
| **Poll Period:** | 5/13/2014 - 5/22/2014 |
| **Total # Opinions:** | 221 |
| **Total Ballot Pool:** | 273 |
| **Summary Results:** | 80.95% of those who registered to participate provided an opinion or an abstention; 97.22% of those who provided an opinion indicated support for the VRFs and VSLs |

**Individual Ballot Pool Results**

| Segment | Organization | Member | Opinions | NERC Notes |
|---|---|---|---|---|
| 1 | Ameren Services | Eric Scott | Abstain | |
| 1 | American Electric Power | Paul B Johnson | Abstain | |
| 1 | Arizona Public Service Co. | Robert Smith | Affirmative | |
| 1 | Austin Energy | James Armke | Affirmative | |
| 1 | Avista Utilities | Heather Rosentrater | | |
| 1 | Balancing Authority of Northern California | Kevin Smith | Affirmative | |
| 1 | Black Hills Corp | Wes Wingen | Abstain | |
| 1 | Bonneville Power Administration | Donald S. Watkins | Affirmative | |
| 1 | Bryan Texas Utilities | John C Fontenot | Affirmative | |
| 1 | CenterPoint Energy Houston Electric, LLC | John Brockhan | Abstain | |
| 1 | City of Tacoma, Department of Public Utilities, Light Division, dba Tacoma Power | Chang G Choi | Abstain | |
| 1 | Clark Public Utilities | Jack Stamper | Affirmative | |
| 1 | Colorado Springs Utilities | Shawna Speer | Affirmative | |
| 1 | Consolidated Edison Co. of New York | Christopher L de Graffenried | Affirmative | |
| 1 | CPS Energy | Glenn Pressler | Affirmative | |
| 1 | Dominion Virginia Power | Larry Nash | Abstain | |
| 1 | Duke Energy Carolina | Doug E Hils | Affirmative | |
| 1 | Entergy Transmission | Oliver A Burke | Affirmative | |
| 1 | FirstEnergy Corp. | William J Smith | Affirmative | |
| 1 | Florida Keys Electric Cooperative Assoc. | Dennis Minton | Abstain | |

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|---|---|---|---|---|
| 1 | Florida Power & Light Co. | Mike O'Neil | Affirmative | |
| 1 | Gainesville Regional Utilities | Richard Bachmeier | Affirmative | |
| 1 | Georgia Transmission Corporation | Jason Snodgrass | Affirmative | |
| 1 | Great River Energy | Gordon Pietsch | Affirmative | |
| 1 | Hydro One Networks, Inc. | Muhammed Ali | Affirmative | |
| 1 | International Transmission Company Holdings Corp | Michael Moltane | Abstain | |
| 1 | JDRJC Associates | Jim D Cyrulewski | Affirmative | |
| 1 | JEA | Ted E Hobson | Affirmative | |
| 1 | KAMO Electric Cooperative | Walter Kenyon | | |
| 1 | Kansas City Power & Light Co. | Daniel Gibson | Affirmative | |
| 1 | Keys Energy Services | Stanley T Rzad | | |
| 1 | Lakeland Electric | Larry E Watt | Affirmative | |
| 1 | Lee County Electric Cooperative | John Chin | | |
| 1 | Lincoln Electric System | Doug Bantam | | |
| 1 | Long Island Power Authority | Robert Ganley | | |
| 1 | MidAmerican Energy Co. | Terry Harbour | Affirmative | |
| 1 | N.W. Electric Power Cooperative, Inc. | Mark Ramsey | | |
| 1 | National Grid USA | Michael Jones | Affirmative | |
| 1 | NB Power Corporation | Alan MacNaughton | Abstain | |
| 1 | Nebraska Public Power District | Jamison Cawley | Negative | SUPPORTS THIRD PARTY COMMENTS - (Nebraska Public Power District comments) |
| 1 | New York Power Authority | Bruce Metruck | Affirmative | |
| 1 | Northeast Utilities | William Temple | Affirmative | |
| 1 | Northern Indiana Public Service Co. | Julaine Dyke | Abstain | |
| 1 | Ohio Valley Electric Corp. | Scott R Cunningham | | |
| 1 | Omaha Public Power District | Doug Peterchuck | | |
| 1 | Oncor Electric Delivery | Jen Fiegel | Affirmative | |
| 1 | Pacific Gas and Electric Company | Bangalore Vijayraghavan | Affirmative | |
| 1 | Platte River Power Authority | John C. Collins | Abstain | |
| 1 | Portland General Electric Co. | John T Walker | | |
| 1 | PPL Electric Utilities Corp. | Brenda L Truhe | Affirmative | |
| 1 | Public Service Company of New Mexico | Laurie Williams | Abstain | |
| 1 | Public Service Electric and Gas Co. | Kenneth D. Brown | Abstain | |
| 1 | Rochester Gas and Electric Corp. | John C. Allen | Affirmative | |
| 1 | Sacramento Municipal Utility District | Tim Kelley | Affirmative | |
| 1 | Salt River Project | Robert Kondziolka | Affirmative | |
| 1 | SaskPower | Wayne Guttormson | Abstain | |
| 1 | Seattle City Light | Pawel Krupa | Abstain | |
| 1 | Seminole Electric Cooperative, Inc. | Glenn Spurlock | Abstain | |

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|---|---|---|---|---|
| 1 | Sho-Me Power Electric Cooperative | Denise Stevens | | |
| 1 | Snohomish County PUD No. 1 | Long T Duong | Affirmative | |
| 1 | South Carolina Electric & Gas Co. | Tom Hanzlik | Affirmative | |
| 1 | Southern California Edison Company | Steven Mavis | Affirmative | |
| 1 | Southern Company Services, Inc. | Robert A. Schaffeld | Affirmative | |
| 1 | Tampa Electric Co. | Beth Young | | |
| 1 | Tennessee Valley Authority | Howell D Scott | Abstain | |
| 1 | Tucson Electric Power Co. | John Tolo | Abstain | |
| 1 | U.S. Bureau of Reclamation | Richard T Jackson | Affirmative | |
| 1 | Vermont Electric Power Company, Inc. | Kim Moulton | | |
| 1 | Westar Energy | Allen Klassen | Affirmative | |
| 1 | Western Area Power Administration | Lloyd A Linke | Affirmative | |
| 2 | BC Hydro | Venkataramakrishnan Vinnakota | | |
| 2 | California ISO | Rich Vine | Affirmative | |
| 2 | Electric Reliability Council of Texas, Inc. | Cheryl Moseley | Abstain | |
| 2 | Independent Electricity System Operator | Leonard Kula | Affirmative | |
| 2 | ISO New England, Inc. | Matthew F Goldberg | Affirmative | |
| 2 | MISO | Marie Knox | | |
| 2 | New York Independent System Operator | Gregory Campoli | | |
| 2 | PJM Interconnection, L.L.C. | stephanie monzon | Affirmative | |
| 2 | Southwest Power Pool, Inc. | Charles H. Yeung | Affirmative | |
| 3 | AEP | Michael E Deloach | Abstain | |
| 3 | Alabama Power Company | Robert S Moore | Affirmative | |
| 3 | APS | Sarah Kist | Affirmative | |
| 3 | Associated Electric Cooperative, Inc. | Todd Bennett | Abstain | |
| 3 | BC Hydro and Power Authority | Pat G. Harrington | Abstain | |
| 3 | Bonneville Power Administration | Rebecca Berdahl | Affirmative | |
| 3 | Central Electric Power Cooperative | Adam M Weber | | |
| 3 | City of Anaheim Public Utilities Department | Dennis M Schmidt | Abstain | |
| 3 | City of Austin dba Austin Energy | Andrew Gallo | Affirmative | |
| 3 | City of Clewiston | Lynne Mila | | |
| 3 | City of Green Cove Springs | Mark Schultz | Abstain | |
| 3 | Colorado Springs Utilities | Jean Mueller | Affirmative | |
| 3 | Consolidated Edison Co. of New York | Peter T Yost | Affirmative | |
| 3 | Consumers Energy Company | Gerald G Farringer | | |
| 3 | Cowlitz County PUD | Russell A Noble | Affirmative | |
| 3 | CPS Energy | Jose Escamilla | Affirmative | |
| 3 | Dominion Resources, Inc. | Connie B Lowe | Abstain | |
| 3 | DTE Electric | Kent Kujala | Affirmative | |
| 3 | FirstEnergy Corp. | Cindy E Stewart | Affirmative | |
| 3 | Florida Keys Electric Cooperative | Tom B Anthony | Abstain | |
| 3 | Florida Municipal Power Agency | Joe McKinney | Affirmative | |
| 3 | Florida Power Corporation | Lee Schuster | Affirmative | |
| 3 | Georgia System Operations Corporation | Scott McGough | Affirmative | |

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|---|---|---|---|---|
| 3 | Great River Energy | Brian Glover | Affirmative | |
| 3 | Hydro One Networks, Inc. | Ayesha Sabouba | Affirmative | |
| 3 | JEA | Garry Baker | Abstain | |
| 3 | Kansas City Power & Light Co. | Joshua D Bach | | |
| 3 | Lakeland Electric | Mace D Hunter | Abstain | |
| 3 | Lee County Electric Cooperative | David A Hadzima | | |
| 3 | Lincoln Electric System | Jason Fortik | Abstain | |
| 3 | Louisville Gas and Electric Co. | Charles A. Freibert | | |
| 3 | Manitoba Hydro | Greg C. Parent | | |
| 3 | MEAG Power | Roger Brand | Affirmative | |
| 3 | MidAmerican Energy Co. | Thomas C. Mielnik | Affirmative | |
| 3 | Muscatine Power & Water | John S Bos | | |
| 3 | National Grid USA | Brian E Shanahan | Affirmative | |
| 3 | Nebraska Public Power District | Tony Eddleman | Negative | SUPPORTS THIRD PARTY COMMENTS - (Nebraska Public Power District comments) |
| 3 | New York Power Authority | David R Rivera | Affirmative | |
| 3 | Northern Indiana Public Service Co. | Ramon J Barany | Abstain | |
| 3 | NW Electric Power Cooperative, Inc. | David McDowell | | |
| 3 | Ocala Utility Services | Randy Hahn | | |
| 3 | Omaha Public Power District | Blaine R. Dinwiddie | Affirmative | |
| 3 | Orlando Utilities Commission | Ballard K Mutters | Abstain | |
| 3 | Owensboro Municipal Utilities | Thomas T Lyons | Abstain | |
| 3 | Pacific Gas and Electric Company | John H Hagen | Affirmative | |
| 3 | Platte River Power Authority | Terry L Baker | Abstain | |
| 3 | PNM Resources | Michael Mertz | Abstain | |
| 3 | Public Service Electric and Gas Co. | Jeffrey Mueller | Abstain | |
| 3 | Sacramento Municipal Utility District | James Leigh-Kendall | Affirmative | |
| 3 | Salt River Project | John T. Underhill | Affirmative | |
| 3 | Seminole Electric Cooperative, Inc. | James R Frauen | Abstain | |
| 3 | Snohomish County PUD No. 1 | Mark Oens | Affirmative | |
| 3 | South Carolina Electric & Gas Co. | Hubert C Young | Affirmative | |
| 3 | Southern California Edison Company | Lujuanna Medina | Affirmative | |
| 3 | Tacoma Power | Marc Donaldson | Abstain | |
| 3 | Tennessee Valley Authority | Ian S Grant | Abstain | |
| 3 | Westar Energy | Bo Jones | Affirmative | |
| 3 | Xcel Energy, Inc. | Michael Ibold | Abstain | |
| 4 | Alliant Energy Corp. Services, Inc. | Kenneth Goldsmith | Abstain | |
| 4 | Blue Ridge Power Agency | Duane S Dahlquist | Abstain | |
| 4 | City of Austin dba Austin Energy | Reza Ebrahimian | Affirmative | |
| 4 | City Utilities of Springfield, Missouri | John Allen | Abstain | |

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|---|---|---|---|---|
| 4 | Consumers Energy Company | Tracy Goble | | |
| 4 | Cowlitz County PUD | Rick Syring | Affirmative | |
| 4 | DTE Electric | Daniel Herring | Affirmative | |
| 4 | Florida Municipal Power Agency | Frank Gaffney | Affirmative | |
| 4 | Georgia System Operations Corporation | Guy Andrews | Affirmative | |
| 4 | Herb Schrayshuen | Herb Schrayshuen | Affirmative | |
| 4 | Illinois Municipal Electric Agency | Bob C. Thomas | Abstain | |
| 4 | Madison Gas and Electric Co. | Joseph DePoorter | Abstain | |
| 4 | Ohio Edison Company | Douglas Hohlbaugh | Affirmative | |
| 4 | Public Utility District No. 1 of Snohomish County | John D Martinsen | Affirmative | |
| 4 | Sacramento Municipal Utility District | Mike Ramirez | Affirmative | |
| 4 | Seminole Electric Cooperative, Inc. | Steven R Wallace | Abstain | |
| 4 | South Mississippi Electric Power Association | Steve McElhaney | Affirmative | |
| 4 | Tacoma Public Utilities | Keith Morisette | Abstain | |
| 4 | Utility Services, Inc. | Brian Evans-Mongeon | Abstain | |
| 4 | Wisconsin Energy Corp. | Anthony Jankowski | | |
| 5 | Amerenue | Sam Dwyer | Abstain | |
| 5 | American Electric Power | Thomas Foltz | Abstain | |
| 5 | Arizona Public Service Co. | Scott Takinen | Affirmative | |
| 5 | Boise-Kuna Irrigation District/dba Lucky peak power plant project | Mike D Kukla | | |
| 5 | Bonneville Power Administration | Francis J. Halpin | Affirmative | |
| 5 | City of Austin dba Austin Energy | Jeanie Doty | | |
| 5 | Cleco Power | Stephanie Huffman | | |
| 5 | Cogentrix Energy Power Management, LLC | Mike D Hirst | | |
| 5 | Colorado Springs Utilities | Kaleb Brimhall | Affirmative | |
| 5 | Con Edison Company of New York | Brian O'Boyle | Affirmative | |
| 5 | Cowlitz County PUD | Bob Essex | Affirmative | |
| 5 | Dominion Resources, Inc. | Mike Garton | Abstain | |
| 5 | DTE Electric | Mark Stefaniak | | |
| 5 | Duke Energy | Dale Q Goodwine | Affirmative | |
| 5 | E.ON Climate & Renewables North America, LLC | Dana Showalter | Abstain | |
| 5 | EDP Renewables North America LLC | Heather Bowden | Abstain | |
| 5 | El Paso Electric Company | Gustavo Estrada | | |
| 5 | Electric Power Supply Association | John R Cashin | | |
| 5 | Entergy Services, Inc. | Tracey Stubbs | Affirmative | |
| 5 | First Wind | John Robertson | | |
| 5 | FirstEnergy Solutions | Kenneth Dresner | Affirmative | |
| 5 | Florida Municipal Power Agency | David Schumann | Affirmative | |
| 5 | Great River Energy | Preston L Walsh | Affirmative | |
| 5 | JEA | John J Babik | Affirmative | |
| 5 | Kansas City Power & Light Co. | Brett Holland | Affirmative | |
| 5 | Kissimmee Utility Authority | Mike Blough | Affirmative | |
| 5 | Liberty Electric Power LLC | Daniel Duff | Affirmative | |

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|---|---|---|---|---|
| 5 | Lincoln Electric System | Dennis Florom | | |
| 5 | Los Angeles Department of Water & Power | Kenneth Silver | | |
| 5 | Luminant Generation Company LLC | Rick Terrill | | |
| 5 | Manitoba Hydro | Chris Mazur | | |
| 5 | Massachusetts Municipal Wholesale Electric Company | David Gordon | Abstain | |
| 5 | MEAG Power | Steven Grego | Affirmative | |
| 5 | Muscatine Power & Water | Mike Avesing | Abstain | |
| 5 | Nebraska Public Power District | Don Schmit | Negative | COMMENT RECEIVED |
| 5 | New York Power Authority | Wayne Sipperly | Affirmative | |
| 5 | NextEra Energy | Allen D Schriver | Affirmative | |
| 5 | Northern Indiana Public Service Co. | Michael D Melvin | | |
| 5 | Oglethorpe Power Corporation | Bernard Johnson | Affirmative | |
| 5 | Omaha Public Power District | Mahmood Z. Safi | Affirmative | |
| 5 | Ontario Power Generation Inc. | David Ramkalawan | Affirmative | |
| 5 | Orlando Utilities Commission | Richard K Kinas | | |
| 5 | Pacific Gas and Electric Company | Alex Chua | Abstain | |
| 5 | Platte River Power Authority | Christopher R Wood | Abstain | |
| 5 | Portland General Electric Co. | Matt E. Jastram | Abstain | |
| 5 | PPL Generation LLC | Annette M Bannon | Affirmative | |
| 5 | PSEG Fossil LLC | Tim Kucey | Abstain | |
| 5 | Puget Sound Energy, Inc. | Lynda Kupfer | Abstain | |
| 5 | Sacramento Municipal Utility District | Susan Gill-Zobitz | Affirmative | |
| 5 | Salt River Project | William Alkema | Affirmative | |
| 5 | Seattle City Light | Michael J. Haynes | Abstain | |
| 5 | Seminole Electric Cooperative, Inc. | Brenda K. Atkins | | |
| 5 | Snohomish County PUD No. 1 | Sam Nietfeld | Affirmative | |
| 5 | South Carolina Electric & Gas Co. | Edward Magic | | |
| 5 | Southern California Edison Company | Denise Yaffe | Affirmative | |
| 5 | Southern Company Generation | William D Shultz | Affirmative | |
| 5 | Tacoma Power | Chris Mattson | Abstain | |
| 5 | Tampa Electric Co. | RJames Rocha | Abstain | |
| 5 | Tennessee Valley Authority | David Thompson | Affirmative | |
| 5 | USDI Bureau of Reclamation | Erika Doot | Affirmative | |
| 6 | AEP Marketing | Edward P. Cox | Abstain | |
| 6 | Ameren Missouri | Robert Quinlivan | Negative | |
| 6 | APS | Randy A. Young | Affirmative | |
| 6 | Associated Electric Cooperative, Inc. | Brian Ackermann | | |
| 6 | Bonneville Power Administration | Brenda S. Anderson | Affirmative | |
| 6 | City of Austin dba Austin Energy | Lisa Martin | Affirmative | |
| 6 | Cleco Power LLC | Robert Hirchak | | |
| 6 | Colorado Springs Utilities | Shannon Fair | Affirmative | |
| 6 | Con Edison Company of New York | David Balban | Affirmative | |
| 6 | Duke Energy | Greg Cecil | | |
| 6 | FirstEnergy Solutions | Kevin Querry | Affirmative | |

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| 6 | Florida Municipal Power Agency | Richard L. Montgomery | Affirmative | |
| 6 | Florida Municipal Power Pool | Thomas Washburn | Abstain | |
| 6 | Florida Power & Light Co. | Silvia P Mitchell | Affirmative | |
| 6 | Great River Energy | Donna Stephenson | | |
| 6 | Kansas City Power & Light Co. | Jessica L Klinghoffer | Affirmative | |
| 6 | Lakeland Electric | Paul Shipps | Affirmative | |
| 6 | Lincoln Electric System | Eric Ruskamp | Abstain | |
| 6 | Los Angeles Department of Water & Power | Brad Packer | | |
| 6 | Lower Colorado River Authority | Michael Shaw | Abstain | |
| 6 | Luminant Energy | Brenda Hampton | Affirmative | |
| 6 | Muscatine Power & Water | John Stolley | | |
| 6 | New York Power Authority | Shivaz Chopra | Affirmative | |
| 6 | Northern Indiana Public Service Co. | Joseph O'Brien | Abstain | |
| 6 | Oglethorpe Power Corporation | Donna Johnson | Affirmative | |
| 6 | Omaha Public Power District | Douglas Collins | Affirmative | |
| 6 | PacifiCorp | Sandra L Shaffer | Affirmative | |
| 6 | Platte River Power Authority | Carol Ballantine | Abstain | |
| 6 | Portland General Electric Co. | Shawn P Davis | Abstain | |
| 6 | Power Generation Services, Inc. | Stephen C Knapp | Affirmative | |
| 6 | PPL EnergyPlus LLC | Elizabeth Davis | Affirmative | |
| 6 | PSEG Energy Resources & Trade LLC | Peter Dolan | Abstain | |
| 6 | Sacramento Municipal Utility District | Diane Enderby | Affirmative | |
| 6 | Salt River Project | William Abraham | Affirmative | |
| 6 | Seattle City Light | Dennis Sismaet | Affirmative | |
| 6 | Seminole Electric Cooperative, Inc. | Trudy S. Novak | Abstain | |
| 6 | Snohomish County PUD No. 1 | Kenn Backholm | Affirmative | |
| 6 | Southern California Edison Company | Joseph T Marone | Affirmative | |
| 6 | Southern Company Generation and Energy Marketing | John J. Ciza | Affirmative | |
| 6 | Tacoma Public Utilities | Michael C Hill | Abstain | |
| 6 | Tampa Electric Co. | Benjamin F Smith II | | |
| 6 | Tennessee Valley Authority | Marjorie S. Parsons | Abstain | |
| 6 | Western Area Power Administration - UGP Marketing | Peter H Kinney | Abstain | |
| 8 | | Roger C Zaklukiewicz | Affirmative | |
| 8 | | David L Kiguel | Affirmative | |
| 8 | Massachusetts Attorney General | Frederick R Plett | Affirmative | |
| 8 | Volkmann Consulting, Inc. | Terry Volkmann | | |
| 9 | Commonwealth of Massachusetts Department of Public Utilities | Donald Nelson | Affirmative | |
| 10 | Florida Reliability Coordinating Council | Linda C Campbell | Affirmative | |
| 10 | Midwest Reliability Organization | Russel Mountjoy | Affirmative | |
| 10 | New York State Reliability Council | Alan Adamson | Affirmative | |
| 10 | Northeast Power Coordinating Council | Guy V. Zito | Affirmative | |
| 10 | ReliabilityFirst | Anthony E Jablonski | Negative | COMMENT RECEIVED |
| 10 | SERC Reliability Corporation | Joseph W Spencer | Affirmative | |

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|---|---|---|---|---|
| 10 | Southwest Power Pool RE | Bob Reynolds | Abstain | |
| 10 | Western Electricity Coordinating Council | Steven L. Rueckert | Abstain | |

**Individual or group. (29 Responses)**
**Name (15 Responses)**
**Organization (15 Responses)**
**Group Name (14 Responses)**
**Lead Contact (14 Responses)**
**Contact Organization (14 Responses)**
**IF YOU WISH TO EXPRESS SUPPORT FOR ANOTHER ENTITY'S COMMENTS WITHOUT ENTERING ANY ADDITIONAL COMMENTS, YOU MAY DO SO HERE. (2 Responses)**
**Comments (29 Responses)**
**Question 1 (26 Responses)**
**Question 1 Comments (27 Responses)**
**Question 2 (26 Responses)**
**Question 2 Comments (27 Responses)**
**Question 3 (26 Responses)**
**Question 3 Comments (27 Responses)**
**Question 4 (14 Responses)**
**Question 4 Comments (14 Responses)**

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| Group |
| Northeast Power Coordinating Council |
| Guy Zito |
| Northeast Power Coordinating Council |
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| Yes |
| |
| Yes |
| |
| Yes |
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| Yes |
| Real-time Operations should be added to the Time Horizon for R5 so as to be consistent with those stipulated for R4 (which is applicable to the Transmission Entities). In Section D. Regional Variances, add the words “and nuclear plant safe operation” as follows: Canadian Nuclear Plant Licensing Requirements (CNPLR) are requirements included in the design basis of the nuclear plant and are statutorily mandated for the operation of the plant; when used in this standard, NPLR shall mean nuclear power plant licensing requirements for avoiding preventable challenges to nuclear safety and nuclear plant safe operation as a result of an electric system disturbance, transient, or condition. |
| Group |

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|---|
| Florida Power & Light |
| Mike O'Neil |
| Florida Power & Light |
| |
| Yes |
| |
| Yes |
| |
| Yes |
| |
| Group |
| Arizona Public Service Company |
| Janet Smith |
| Arizona Public Service Company |
| |
| Yes |
| |
| Yes |
| |
| Yes |
| |
| Group |
| FirstEnergy Corp |
| Cindy Stewart |
| FirstEnergy Corp |
| |
| Yes |
| |
| Yes |
| ADDITIONAL COMMENTS: FirstEnergy acknowledges that Part 9.1 was retired under the Paragraph 81 project. We also agree with not renumbering Requirement parts that would impact existing agreements throughout the industry. However, we strongly suggest that Part 9.1 be marked Retired instead of being left blank as this could lead to future confusion. Our concern is that someone not aware of the history of NUC-001 may do unnecessary research to understand why Part 9.1 is blank. Stating “Retired” will provide clarity and eliminate the possibility of any confusion. |
| Yes |
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| Individual |
| Andrew Z. Pusztai |
| American Transmission Company, LLC |
| |
| Yes |
| Agree. |
| Yes |
| Agree |
| Yes |
| |
| Group |
| Dominion |
| Mike Garton |
| Dominion Resources Services, Inc. |
| |
| Yes |
| Dominion agrees with the changes to R5, but suggests M5 be updated; where 'Nuclear Power Plant' is used, change this to 'nuclear power plant' (lower case), as this is not a defined term. Also in section D - Regional Variances - Nuclear Power Plant is also capitalized here and it should not be capatilized and suggest changing this to 'nuclear power plant'. |
| Yes |
| |
| No |
| Dominion does not see how the VSLs in R6 can have N/A under Severe. According to the last sentence on page 2 of the VSL guideline and combine that with the chart at the top of the page, it seems that failure to coordinate one or more outages or maintenance activities which affect the NPIRs, indicates that the entity failed to meet the performance of the requirement. Therefore Dominion suggests that the VSL currently marked High be changed to Severe. Question 4 Comments: 1. The impact identified in Requirement R8 does not match the impact identified in Measure M8 . Specifically, R8 "impact the ability of the electric system to meet the NPIRs" while M8 "impact the ability of the Nuclear Plant Generator Operator to meet the NPIRs." Dominion believes the language in M8 is correct and suggest revising R8 accordingly. 2. The Data Retention section addresses Measure M4.3 but does not address M4.1 or M4.2. 3. Requirements R7 and R8 uses the term 'may impact the ability of the electric system' and the M7 and M8 uses the term 'would impact the ability of the electric system'. Dominion suggests that the SDT replace 'may' with 'will' in requirements R7 and R8, or delete both "may" and "would" and simply use present tense "impact' in the Requirements and past tense "impacted" in the Measures. |
| Individual |
| Tammy Porter |

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| Oncor Electric Delivery |
| |
| Yes |
| |
| Yes |
| |
| Yes |
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| Individual |
| David Thorne |
| Pepco Holdings Inc. |
| |
| Yes |
| |
| Yes |
| |
| Yes |
| |
| Individual |
| Leonard Kula |
| Independent Electricity System Operator |
| |
| Yes |
| |
| Yes |
| |
| Yes |
| Question 4: Additional Comments Provided a. R3 as written has a very broad scope and mandate for the Transmission Entities as it implies that the Transmission Entities need to communication the results of all planning analyses that have NPIRs incorporated, either as assumption or in the model, to the Nuclear Plant Generator Operator (NPGO), regardless of the potential impacts on the NPGO. This is unnecessary, and the amount of information provided to the NPGO can be overwhelming. We suggest revising R3 as follows: R3. Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall incorporate the NPIRs into their planning analyses of the electric system and shall communicate the analysis results to those Nuclear Plant Generator Operators that may be affected by such results. With the proposed revision, the Transmission Entities do not have to communicate the results of all analyses that have NPIRs incorporated, and the NPGO will not be inundate by analysis results that do not affect them. b. Real-time Opertions should be |

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| added to the Time Horizon for R5 so as to be consistent with those stipulated for R4 (which is applicable to the Transmission Entities). c. The MEDIUM VRF for R1 stipualted in the VSL should be LOWER, not MEDIUM as it is inconsistent with the LOWER VRF stipulated in the requirement itself. |
| Individual |
| Don Schmit |
| Nebraska Public Power District |
| |
| No |
| We recommend that R5 revert back to version 2 wording as follows: “R5 - The Nuclear Plant Generator Operator shall operate per the Agreements developed in accordance with this standard.” (The reason for reversion back to the version 2 R5 is identified in our comments in #4 below.) We would also recommend that the Time Horizon change for R5 to match R4 [Operations Planning and Real-time Operations]. Since Q4 from the draft comment form does not show up on this Official comment site we are including Q4 (any other comments) here: The Glossary of Terms for the definition of NPIRs [Nuclear Plant Interface Requirements] needs revision (along with our other Standard revisions noted in comments above) in order for version 3 of NUC-001 to capture the requirements put upon the Nuclear Plant Operator for operation of the nuclear plant; and the requirements placed upon the Nuclear Plant Operator and the Transmission Entity for interface requirements between the two based upon the NPLR’s. NPLR’s or Nuclear Plant Licensing Requirements are the license requirements that the Nuclear Plant Operator must operate to [the Nuclear Plant Operator does not operate to the NPIR’s as suggested under R5]. The NPIR’s are indeed the mutually agreed upon requirements between the Nuclear Plant Operator and the Transmission Entity that are based upon the NPLR’s. The NPIR’s are not Bulk Electric System (BES) requirements “mutually” agreed upon between the Nuclear Plant Operator and the Transmission Entity as suggested by the current definition of NPIR. BES requirements are applicable to the Nuclear Plant Operator as a Generator Owner under other NERC Standards and Requirements and are not “mutually agreeable” between the two entities. In alignment with the stated Purpose of this Standard, NPPD suggests that the definition of NPIR be changed to “The requirements based on NPLR’s that have been mutually agreed to by the Nuclear Plant Operator and the applicable Transmission Entities to ensure nuclear plant safe operation and shutdown”. Please note that the definition of NPLR (as referenced in the NPIR proposed definition) already has the applicable parameters [plant design basis and statutorily mandated for operation; and including off-site power supply and avoiding preventable challenges to nuclear safety as a result of electric system disturbance, transient, or condition]. When the NPIR’s are agreed upon between the Nuclear Plant Operator and the Transmission Entity then they both operate to the Agreements between the two. R4 is correct in stating that the Transmission Entity application shall be “per the Agreement”. Likewise R5 should require the Nuclear Plant Operator to follow the Agreements as agreed to (see comment changes in #1 above) for R5; which we state that R5 should revert back to version 2 language. |
| Yes |

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| No |
| Change the VSL for R5 based on our comments in #1 and #4. Change the reference to “NPIRs” in this VSL to “Agreement’s”. R9 VSL’s: Please revert back to version 2 VSL’s for R9. A percentage basis as used in version 3 will lead to improper application by regulators. Version 2 is a much cleaner approach. |
| Individual |
| Ayesha Sabouba |
| Hydro One |
| Agree |
| NPCC-RSC |
| Group |
| SERC OC Review Group |
| Jim Porter |
| TVA |
| |
| Yes |
| The SERC OC Review Group recommends that M5 be updated to use the term “nuclear power plant” (without capitalization) instead of “Nuclear Power Plant” as this is not a defined term. Current M5 language: The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, demonstrate or provide evidence that the Nuclear Power Plant is being operated consistent with the NPIRs. Proposed M5 language: The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, demonstrate or provide evidence that the nuclear power plant is being operated consistent with the NPIRs. If this change is acceptable then R1 VSL Severe is recommended for modification for consistency. Current R1 VSL Severe language: The Nuclear Plant Generator Operator did not provide the proposed NPIR's to more than two of applicable entities. OR For a particular Nuclear Power Plant, if the number of possible applicable transmission entities is equal to the number of applicable transmission entities not provided NPIRs Proposed R1 VSL Severe language: The Nuclear Plant Generator Operator did not provide the proposed NPIR's to more than two of applicable entities. OR For a particular nuclear power plant, if the number of possible applicable transmission entities is equal to the number of applicable transmission entities not provided NPIRs |
| Yes |
| |
| No |
| The SERC OC Review Team requests clarification as to why the SDT chose to use the “high” VSL category and not the “severe” VSL category. Using the VSL guideline (page 2 last sentence) it appears that failure to coordinate one or more outages or maintenance activities which affect the NPIRs indicates that the entity failed to meet the performance of the requirement. Thus, it may be appropriate that the “severe” VSL should be utilized. Software |

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| did not allow access to Question 4. Please see additional comments below. The SERC OC Review Team respectfully requests clarification on the use of “may” vs. “would” in R7 and M7. The same clarification is requested for R8 and M7. The concern is the interpretation that is used for “may” and “would”. An example is included below: R7. Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall inform the applicable Transmission Entities of actual or proposed changes to nuclear plant design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. [Violation Risk Factor: High] [Time Horizon: Long-term Planning] M7. The Nuclear Plant Generator Operator shall provide evidence that it informed the applicable Transmission Entities of changes to nuclear plant design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that would impact the ability of the Transmission Entities to meet the NPIRs. Data Retention: The SERC OC Review Group noticed that M4.1 and M4.2 are not included in the Data Retention section. It is requested that the SDT review and evaluate whether or not M4.1 and M4.2 should be included in the Data Retention section. The comments expressed herein represent a consensus of the views of the above named members of the SERC OC Review Group only and should not be construed as the position of the SERC Reliability Corporation, or its board or its officers. |
| Individual |
| Joshua Andersen |
| Salt River Project |
| |
| Yes |
| |
| Yes |
| |
| Yes |
| |
| Individual |
| Anthony Jablonski |
| ReliabilityFirst |
| |
| No |
| ReliabilityFirst submits the following comments for consideration (question 4 was missing from the online form so we submitted it here): Requirement R7 and R8 – Without the terms “nuclear plant design” or “electric system design” being defined in the standard, ReliabilityFirst believes the original intent of requiring the entity to inform the Transmission Entities of changes to the Protection System may be getting lost. The original standard required information regarding changes to Protection Systems and ReliabilityFirst requests the justification for no longer requiring elements such as Protective relays, communications |

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| systems, voltage and current sensing devices, station dc supply and control circuitry be included as being reportable to the Transmission Entities in the standard. |
| No |
| ReliabilityFirst submits the following comments for consideration: Requirement R9 – Even though the intent of Requirement R9 is understood, ReliabilityFirst believes it can be stated in a more clear and concise manner. ReliabilityFirst recommends the following for consideration: "The Nuclear Plant Generator Operator and the applicable Transmission Entities shall include the following elements in aggregate within the Agreement(s) identified in R2. Regardless if there are single or multiple Agreements with single or multiple Transmission Entities, all elements under Requirement R9 need to be addressed, in aggregate, within the Agreement(s)" |
| No |
| ReliabilityFirst submits the following comments for consideration: VSL for Requirement R4 – For consistency, all VSLs under Requirement R4 should reference "sub-parts" and not "sub-requirements". VSL for Requirement R6 – For consistency with the language in Requirement R6, the Moderate VSL should reference "maintenance activities" and not "maintenance schedules". |
| Individual |
| Thomas Foltz |
| American Electric Power |
| |
| Yes |
| |
| Yes |
| |
| No |
| The correct pluralization of NPIR is "NPIRs", without an apostrophe. There are a number of instances in the VSL table where an apostrophe is incorrectly used. |
| Individual |
| Robert Coughlin |
| ISO New England Inc. |
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| Yes |
| ISO-NE suggests that the SDT clarify the definition of Nuclear Plant Interface Requirements (NPIRs). Adding a second sentence to the definition would help to avoid inappropriate identification of NPIRs. Nuclear Plant Interface Requirements (NPIRs) The requirements based on NPLRs and Bulk Electric System requirements that have been mutually agreed to by the |

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| Nuclear Plant Generator Operator and the applicable Transmission Entities. NPIRs reflect limits, parameters, equipment configuration control or administrative tasks associated with maintaining the NPLRs or BES requirements. Rationale: As currently defined, NPIRs are tied to both Nuclear Plant License Requirements (NPLRs) and Bulk Electric System (BES) requirements. NPLRs and BES requirements are each typically expressed as measurable values, specified facilities, or specified equipment configurations. NPLRs are defined by the Nuclear Regulatory Commission (NRC) through the 10 CFR Part 50 process (Domestic Licensing of "Production and Utilization Facilities"), which defines the requirements for the licensing of nuclear power plants in the United States. From these requirements, design basis scenarios are created to identify limits, parameters or configuration control (e.g., minimum number of lines to the station) that must be met to operate/maintain the plant within the license requirements. NPLRs could also include administrative tasks required by the NRC, also expressed in terms of a measurable value (e.g. certain studies must be reviewed on a prescribed timeframe). BES requirements are also typically expressed as values (e.g., transmission system limit). This clarification would help to avoid inappropriate identification of actions to address and implement a NPIR as a NPIR itself. Actions to address and implement a NPIR are required by NUC-001-3 R2, but those actions should not be identified as NPIRs themselves because they are not directly related to either licensing requirements or BES requirements. |
| Individual |
| Chris Scanlon |
| Exelon Corporation |
| |
| Yes |
| |
| Yes |
| |
| Yes |
| |
| No |
| |
| Group |
| Florida Municipal Power Agency |
| Frank Gaffney |
| Florida Municipal Power Agency |
| |
| Yes |
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| Yes |
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| Yes |
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| Yes |
| FMPA suggests that Applicability Section 4.2.9 Load Serving Entity should be removed from the list. FERC's 2008-10-16 Order 716 which approved NUC-001-1 acknowledged "there is a significant amount of overlap among the entities that perform these functions." FMPA believes that Load-Serving Entities do not perform any unique reliability tasks necessary during coordination with Nuclear Plant Generator Operators, and that all such necessary reliability tasks are already being performed by the other applicable functional entities of NUC-001-2.1. Thus, Project 2012-13 provides a good opportunity to delete the redundant Load-Serving Entities function from this Standard. |
| Individual |
| Bob Thomas |
| Illinois Municipal Electric Agency |
| Agree |
| Florida Municipal Power Agency |
| Individual |
| RoLynda Shumpert |
| South Carolina Electric and Gas |
| |
| Yes |
| |
| Yes |
| |
| Yes |
| |
| No |
| |
| Group |
| Southern Company: Southern Company Services,Inc.; Alabama Power Company; Georgia Power Company; Gulf Power Company; Mississippi Power COmpany; Southern Company Generation; Southern Company Generation and Energy Marketing |
| Marcus Pelt |
| Southern Company Operations Compliance |
| |
| Yes |
| |
| Yes |
| |

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| Yes |
| |
| No |
| |
| Individual |
| David Ramkalawan |
| OPG |
| |
| Yes |
| |
| Yes |
| |
| Yes |
| |
| Yes |
| In section D. Regional Variances, OPG would like to add the words “and nuclear plant safe operation” as follows: Canadian Nuclear Plant Licensing Requirements (CNPLR) are requirements included in the design basis of the nuclear plant and are statutorily mandated for the operation of the plant; when used in this standard, NPLR shall mean nuclear power plant licensing requirements for avoiding preventable challenges to nuclear safety and nuclear plant safe operation as a result of an electric system disturbance, transient, or condition. |
| Group |
| Tennessee Valley Authority |
| Brandy Spraker |
| NERC Regulatory Compliance |
| |
| Yes |
| Recommend to follow the SERC OC comment that M5 be updated to use the term “nuclear power plant” (without capitalization) instead of “Nuclear Power Plant” as this is not a defined term. Current M5 language: The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, demonstrate or provide evidence that the Nuclear Power Plant is being operated consistent with the NPIRs. Proposed M5 language: The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, demonstrate or provide evidence that the nuclear power plant is being operated consistent with the NPIRs. If this change is acceptable then R1 VSL Severe is recommended for modification for consistency. Current R1 VSL Severe language: The Nuclear Plant Generator Operator did not provide the proposed NPIR's to more than two of applicable entities. OR For a particular Nuclear Power Plant, if the number of possible applicable transmission entities is equal to the number of applicable transmission entities not provided NPIRs Proposed R1 VSL |

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| Severe language: The Nuclear Plant Generator Operator did not provide the proposed NPIR's to more than two of applicable entities. OR For a particular nuclear power plant, if the number of possible applicable transmission entities is equal to the number of applicable transmission entities not provided NPIRs |
| Yes |
| |
| Yes |
| |
| Yes |
| Recommend to follow the SERC OC comments following: The SERC OC Review Team respectfully requests clarification on the use of “may” vs. “would” in R7 and M7. The same clarification is requested for R8 and M7. The concern is the interpretation that is used for “may” and “would”. An example is included below: R7. Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall inform the applicable Transmission Entities of actual or proposed changes to nuclear plant design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. [Violation Risk Factor: High] [Time Horizon: Long-term Planning] M7. The Nuclear Plant Generator Operator shall provide evidence that it informed the applicable Transmission Entities of changes to nuclear plant design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that would impact the ability of the Transmission Entities to meet the NPIRs. Data Retention: The SERC OC Review Group noticed that M4.1 and M4.2 are not included in the Data Retention section. It is requested that the SDT review and evaluate whether or not M4.1 and M4.2 should be included in the Data Retention section. |
| Group |
| ACES Standards Collaborators |
| Brian Van Gheem |
| ACES |
| |
| Yes |
| We commend the NUC Five-Year Review Team for this recommendation and the SDT with its implementation to revise R5 and make it consistent with R4. Following this revision, Nuclear Plant Generator Operators will be obligated to operate their nuclear plants in a manner to meet the NPIRs, which will address possible reliability concerns that result when operations are outside of these requirements. |
| Yes |
| We commend the NUC Five-Year Review Team for this recommendation and the SDT with its implementation to revise R9. This clarification allows entities to address the elements of Requirement R9 across several agreements and not limit them to just one. |
| No |

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| We believe the VRFs identified for requirements R5 and R9 are appropriate for their level of impact to the BES. However, we do have concerns regards the VSLs for these requirements. The VSL for Requirement R5 is binary in nature and should be modified to a graduated severity level. We feel that weighing each NPIR equally does not identify the significance of some NPIRs, such as power supply restoration times and safety. We also find the percentage approach taken for R9 confusing and that the previous approach identifying a specific number of elements easier. |
| Yes |
| (1) We appreciate the SDT with their efforts to incorporate the various recommendations from the NUC Five-Year Review Team in this revision of NERC Standard NUC-001. In particular, we welcome the clarification in Requirement R5 regarding nuclear plant operations meeting the NPIRs. We also welcome the omission of the NERC Glossary Term “Protection Systems” from requirements R7 and R8 to better identify the intent of those requirements. Finally, we welcome the administrative details taken to identify appropriate timing horizons, clarify measures, and modify the VSLs and VRFs. (2) However, we feel that further revision is still needed. We feel a communication gap exists when Nuclear Plant Generator Operators neglect to communicate with Transmission Entities when Nuclear Plant Generator Operators lose the ability to assess the operation of their plants and ability to meet the NPIRs. We believe addressing this gap will be a step towards situational awareness for all affected Parties involved. (3) We feel the number of elements listed under Requirement R9 should be limited to those elements affecting the NPIRs. For example, Requirement R9.3.3 identifies a need for coordination of testing, calibration, and maintenance of power supplies within the aggregated agreements. While we agree with the importance of testing, calibrating, and maintaining power supplies, we believe such activities are already addressed by the owner of such facilities through other NERC Standards. Likewise, Requirement R9.3.6 identifies the coordination of physical and cyber security protection of assets near the nuclear plant interface. While we agree with the importance of physical and cyber security protection, we believe such activities are already addressed with existing NERC Critical Infrastructure Protection requirements. Moreover, these activities will be further enhanced with Revision 5 of these NERC Critical Infrastructure Protection standards. (4) Finally, we thank you for the opportunity to comment. |
| Group |
| Duke Energy |
| Colby Bellville |
| Duke Energy |
| |
| Yes |
| Duke Energy agrees with the revisions made by the SDT. |
| Yes |
| Duke Energy agrees with the revisions made by the SDT. |
| Yes |

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|---|
| No |
| |
| Group |
| DTE Electric |
| Kathleen Black |
| NERC Training & Standards Development |
| |
| Yes |
| |
| Yes |
| |
| Yes |
| There is a question as to why R5's VRF and VSL are called out. The VRF remains at High and the VSL is High for the NPGOP to operate to the NPIRs. |
| No |
| |
| Individual |
| Catherine Wesley |
| PJM Interconnection |
| |
| Yes |
| |
| Yes |
| |
| Yes |
| |
| Yes |
| PJM has also signed onto the SRC's comments. |
| Group |
| ISO/RTO Council Standards Review Committee |
| Greg Campoli |
| NYISO |
| |
| Yes |
| |
| Yes |
| |
| Yes |

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| Yes |
| a. Measure M2 is unclear: M2. The Nuclear Plant Generator Operator and each Transmission Entity shall each have a copy of the Agreement(s) [addressing and implementing the NPIRs] available for inspection upon request of the Compliance Enforcement Authority. The Agreement doesn't "address and implement" the NPIRs – it describes how the entities address and implement them. The measure should simply state that the responsible entity has a copy of the agreement – i.e. we suggest to delete the language in [bracket]. b. R3 as written has a very broad scope and mandate for the Transmission Entities as it implies that the Transmission Entities need to communicate the results of all planning analyses that have NPIRs incorporated, either as an assumption or in the model, to the Nuclear Plant Generator Operator (NPGO) regardless of the potential impacts on the NPGO. This is unnecessary, and the amount of information provided to the NPGO can be overwhelming. We suggest revising R3 as follows: R3. Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall incorporate the NPIRs into their planning analyses of the electric system and shall communicate those analysis results that affect the relevant Nuclear Plant Generator Operators that may be affected by such results. With the proposed revision, there will not be a suggestion that Transmission Entities have to communicate the results of all analyses that have NPIRs incorporated, and the NPGO will not be inundated by analysis results that do not affect them. c. Requirement R4: There appears to be an inconsistency between R4 and Measure M4 which has created some confusion in assessing compliance. It is our understanding that most Agreements between Nuclear Plant Generator Operators and Transmission Entities include specific tasks/actions that both parties need to perform. Hence, each Transmission Entity has specific tasks assigned but is not held responsible for all aspects of a plant's NPIRs or those performed by other Transmission Entities associated with that plant. To ensure the Transmission Entity is assessed only on its specific tasks per the Agreement, we suggest to deleted the word "current" from Measure M4.1, and add "per the Agreements" to Measures M4.2 and M4.3, as follows: M4. Each Transmission Entity responsible for operating the electric system in accordance with the Agreement shall demonstrate or provide evidence of the following, upon request of the Compliance Enforcement Authority: M4.1: The NPIRs have been incorporated into the current operating analysis of the electric system. (Requirement 4.1) requirement R4 does not specify "current", and one may not know what this means, which can be current as at the day of the audit. We suggest deleting the word "current". M4.2 The electric system was operated to meet the NPIRs per the agreements. (Requirement 4.2) M4.3 The Transmission Entity informed the Nuclear Plant Generator Operator when it became aware it lost the capability to assess the operation of the electric system affecting the NPIRs per the agreements. d. Real-time Operations should be added to the Time Horizon for R5 so as to be consistent with those stipulated for R4 (which is applicable to the Transmission Entities). e. Requirements R1, R2, R3, R7, R8, and R9 specify the Time Horizon as "Long-term Planning", which differs somewhat from the NERC Glossary defined term of "Long-Term Transmission Planning Horizon", which NERC defines as covering years 6 – 10 and beyond. We suggest adding "Near-Term Planning" to the Time Horizon, which NERC defines as covering years 1 – 5. With the Near-Term Planning and Long- Term Planning included in the Time Horizon, the one to ten year planning |

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| horizon would be covered. This is particularly relevant to Requirements R3 and R9 (i.e., R9.2.3) where they are specific to planning analyses. Similarly, it's relevant to Requirement R8, where the analysis to identify system changes to the electric system should include year's 1 - 5 in the planning horizon and planning analyses. f. The MEDIUM VRF for R1 stipulated in the VSL should be LOWER, not MEDIUM as it is inconsistent with the LOWER VRF stipulated in the requirement itself. |
| Group |
| Bonneville Power Administration |
| Andrea Jessup |
| Transmission Reliability Standards Group |
| |
| Yes |
| BPA concurs the NPIRS should drive the interface requirements; however NPIRS must be concurred between transmission provider and nuclear plant prior to inclusion in an Interface Agreement. |
| Yes |
| |
| Yes |
| |
| No |
| |

Question 4 – Response: Yes

Comments: The Implementation Plan can be read that it obligates applicable entities to complete the initial risk assessment in Requirement R1, on or before the effective date of the standard. The implementation plan should be adjusted.

The following is a suggestion to facilitate reading of the standard and stay whitn defined terms without introfucing new terms which are undefined: For all requirements: Replace the expression "Transmission stations and Transmission substations" with "Transmission facilities". Otherwise, please explain why such a distinction is necessary.

While the requirement for unaffiliated third party verification of the physical security plan is something required by the FERC in its order, the mandate is misguided and will lead to security breaches while at the same time adding no incremental value to the physical security plan. The utility, which owns the assets, is already highly incentivized to put together a good security plan to avoid loss of its facilities to terrorism without third party verification. The utility may decide to use security consultants to help develop the plan if it involves new, state of the art physical security topics outside the utilities experience base. On balance the third party verification requirement outlined in R6 regarding the physical security plan is unneeded.

**Additional comment received from Marcus Pelt, Southern Company**

"The wording of Requirement R2.s, as it stands currently, could be interpreted to place requirements on the unaffiliated third party verifier when the responsible entity is actually the Transmission Owner. Southern recommends that R2.2 be reworded as follows to address this concern:

Proposed R2.2
2.2 The responsible Transmission Owner shall ensure the unaffiliated third party verification is completed within 90 calendar days following the completion of the Requirement R1 risk assessment. The unaffiliated third party verification may, but is not required to, include recommended additions or deletions of Transmission station(s) or Transmission substation(s)."

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

# Consideration of Comments

## Project 2012-13 NUC - Nuclear Plant Interface Coordination

The Nuclear Plant Interface Coordination Drafting Team thanks all commenters who submitted comments on the standard. These standards were posted for a 30-day public comment period from April 8, 2014 through May 22, 2014. Stakeholders were asked to provide feedback on the standards and associated documents through a special electronic comment form. There were 29 sets of comments, including comments from approximately 103 different people from approximately 57 companies representing all 10 Industry Segments as shown in the table on the following pages.

All comments submitted may be reviewed in their original format on the standard's project page.

If you feel that your comment has been overlooked, please let us know immediately. Our goal is to give every comment serious consideration in this process! If you feel there has been an error or omission, you can contact the Vice President and Director of Standards, Valerie Agnew, at 404-446-2566 or at valerie.agnew@nerc.net . In addition, there is a NERC Reliability Standards Appeals Process.[1]

[1] The appeals process is in the Standard Processes Manual: http://www.nerc.com/comm/SC/Documents/Appendix_3A_StandardsProcessesManual.pdf

## Index to Questions, Comments, and Responses

**The Industry Segments are:**

1 — Transmission Owners
2 — RTOs, 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, Regional Entities

| Group/Individual | | Commenter | Organization | Registered Ballot Body Segment | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1. | Group | Guy Zito | Northeast Power Coordinating Council | | | | | | | | | | X |

| | Additional Member | Additional Organization | Region | Segment Selection |
|---|---|---|---|---|
| 1. | Alan Adamson | New York State Reliability Council, LLC | NPCC | 10 |
| 2. | David Burke | Orange and Rockland Utilities Inc. | NPCC | 3 |
| 3. | Greg Campoli | New York Independent System Operator | NPCC | 2 |
| 4. | Sylvain Clermont | Hydro-Québec TransÉnergie | NPCC | 1 |
| 5. | Ben Wu | Orange and Rockland Utilities Inc. | NPCC | 1 |
| 6. | Gerry Dunbar | Northeast Power Coordinating Council | NPCC | 10 |
| 7. | Mike Garton | Dominion Resources Services, Inc. | NPCC | 5 |
| 8. | Matt Goldberg | ISO - New England | NPCC | 2 |
| 9. | Michael Jones | National Grid | NPCC | 1 |
| 10. | Mark Kenny | Northeast Utilities | NPCC | 1 |

| Group/Individual | Commenter | Organization | Registered Ballot Body Segment | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11. Christina Koncz | PSEG Power, LLC | NPCC 5 | | | | | | | | | | |
| 12. Helen Lainis | Independent Electricity System Operator | NPCC 2 | | | | | | | | | | |
| 13. Wayne Sipperly | New York Power Authority | NPCC 5 | | | | | | | | | | |
| 14. Alan MacNaughton | New Brunswick Power Corp. | NPCC 9 | | | | | | | | | | |
| 15. Bruce Metruck | New York Power Authority | NPCC 6 | | | | | | | | | | |
| 16. Silvia Parada Mitchell | NextEra Energy, LLC | NPCC 5 | | | | | | | | | | |
| 17. Lee Pedowicz | Northeast Power Coordinating Council | NPCC 10 | | | | | | | | | | |
| 18. Robert Pellegrini | The United Illuminating Company | NPCC 1 | | | | | | | | | | |
| 19. Si Truc Phan | Hydro-Québec TransÉnergie | NPCC 1 | | | | | | | | | | |
| 20. David Ramkalawan | Ontario Power Generation, Inc. | NPCC 5 | | | | | | | | | | |
| 21. Brian Robinson | Utility Services | NPCC 8 | | | | | | | | | | |
| 22. Ayesha Sabouba | Hydro One Networks Inc. | NPCC 1 | | | | | | | | | | |
| 23. Brian Shanahan | National Grid | NPCC 1 | | | | | | | | | | |
| 2. Group | Mike O'Neil | Florida Power & Light | X | | | | | | | | | |
| No Additional Responses | | | | | | | | | | | | |
| 3. Group | Janet Smith | Arizona Public Service Company | X | | X | | X | X | | | | |
| No Additional Responses | | | | | | | | | | | | |
| 4. Group | Cindy Stewart | FirstEnergy Corp | X | | X | X | X | X | | | | |

| | Additional Member | Additional Organization | Region | Segment Selection |
|---|---|---|---|---|
| 1. | William Smith | FirstEnergy Corp. | RFC | 1 |
| 2. | Douglas Hohlbaugh | Ohio Edison | RFC | 4 |
| 3. | Kenneth Dresner | FirstEnergy Solutions Corp. | RFC | 5 |
| 4. | Kevin Querry | FirstEnergy Solutions Corp. | RFC | 6 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5. Group | Mike Garton | Dominion | X | | X | | X | X | | | | |

| Additional Member | Additional Organization | Region | Segment Selection |
|---|---|---|---|

| Group/Individual | | Commenter | Organization | Registered Ballot Body Segment | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1. | Connie Lowe | NERC Compliance Policy | NA - Not Applicable | 1, 3, 5, 6 | | | | | | | | | |
| 2. | Louis Slade | NERC Compliance Policy | NA - Not Applicable | 1, 3, 5, 6 | | | | | | | | | |
| 3. | Randi Heise | NERC Compliance Policy | NA - Not Applicable | 1, 3, 5, 6 | | | | | | | | | |
| 4. | Chip Humphrey | Power Generation Compliance | NA - Not Applicable | 5 | | | | | | | | | |
| 5. | Dan Goyne | Power Generation Compliance | NA - Not Applicable | 5 | | | | | | | | | |
| 6. | Jarad L. Morton | Power Generation Compliance | NPCC | 5 | | | | | | | | | |
| 7. | Larry Whanger | Power Generation Compliance | SERC | 5 | | | | | | | | | |
| 8. | Nancy Ashberry | Power Generation Compliance | RFC | 5 | | | | | | | | | |
| 9. | Angela Park | Electric Transmission Compliance | SERC | 1, 3 | | | | | | | | | |
| 10. | Candace L. Marshall | Electric Transmission Compliance | SERC | 1, 3 | | | | | | | | | |
| 11. | John Calder | Electric Transmission Compliance | SERC | 1, 3 | | | | | | | | | |
| 12. | Larry Nash | Electric Transmission Compliance | SERC | 1, 3 | | | | | | | | | |
| 13. | Larry W. Bateman | Electric Transmission Compliance | SERC | 1, 3 | | | | | | | | | |
| 14. | Jeffrey N. Bailey | Nuclear Compliance | SERC | 5 | | | | | | | | | |
| 15. | Tom Huber | Nuclear Compliance | NPCC | 5 | | | | | | | | | |
| 6. | Group | Jim Porter | SERC OC Review Group | X | | X | | X | X | | | | |

| | Additional Member | Additional Organization | Region | Segment Selection |
|---|---|---|---|---|
| 1. | Connie Lowe | Dominion | SERC | 1, 3, 6 |
| 2. | Mike Garton | Dominion | SERC | 1, 3, 6 |

| Group/Individual | | Commenter | Organization | Registered Ballot Body Segment | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 7. | Group | Frank Gaffney | Florida Municipal Power Agency | X | | X | X | X | X | | | | |

| | Additional Member | Additional Organization | Region | Segment Selection |
|---|---|---|---|---|
| 1. | Tim Beyrle | City of New Smyrna Beach | FRCC | 4 |
| 2. | Jim Howard | Lakeland Electric | FRCC | 3 |
| 3. | Greg Woessner | Kissimmee Utility Authority | FRCC | 3 |
| 4. | Lynne Mila | City of Clewiston | FRCC | 3 |
| 5. | Cairo Vanegas | Fort Pierce Utility Authority | FRCC | 4 |
| 6. | Randy Hahn | Ocala Utility Services | FRCC | 3 |
| 7. | Stanley Rzad | Keys Energy Services | FRCC | 1 |
| 8. | Don Cuevas | Beaches Energy Services | FRCC | 1 |
| 9. | Mark Schultz | City of Green Cove Springs | FRCC | 3 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8. | Group | Marcus Pelt | Southern Company: Southern Company Services, Inc.; Alabama Power Company; Georgia Power Company; Gulf Power Company; Mississippi Power Company; Southern Company Generation; Southern Company Generation and Energy Marketing | X | | X | | X | X | | | | |

No Additional Responses

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9. | Group | Brandy Spraker | Tennessee Valley Authority | X | | X | | X | X | | | | |

| | Additional Member | Additional Organization | Region | Segment Selection |
|---|---|---|---|---|
| 1. | Lee Thomas | | SERC | 5 |
| 2. | Darrin Church | | SERC | 1 |
| 3. | Marjorie Parsons | | SERC | 6 |
| 4. | DeWayne Scott | | SERC | 1 |
| 5. | David Thompson | | SERC | 5 |
| 6. | Ian Grant | | SERC | 3 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10. | Group | Brian Van Gheem | ACES Standards Collaborators | | | | | | X | | | | |

| | Additional Member | Additional Organization | Region | Segment Selection |
|---|---|---|---|---|
| 1. | David Viar | Southern Maryland Electric Coop. | RFC | 3 |
| 2. | Michael Brytowski | Great River Energy | MRO | 1, 3, 5, 6 |
| 3. | Brian Hobbs | Western Farmers Electric Coop. | ERCOT | 1, 5 |

| Group/Individual | | Commenter | Organization | Registered Ballot Body Segment | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 4. | Ellen Watkins | Sunflower Electric Power Corp. | SPP 1 | | | | | | | | | | |
| 11. | Group | Colby Bellville | Duke Energy | X | | X | | X | X | | | | |

| | Additional Member | Additional Organization | Region | Segment Selection |
|---|---|---|---|---|
| 1. | Doug Hils | Duke Energy | RFC | 1 |
| 2. | Lee Schuster | Duke Energy | FRCC | 3 |
| 3. | Dale Goodwine | Duke Energy | SERC | 5 |
| 4. | Greg Cecil | Duke Energy | RFC | 6 |

| 12. | Group | Kathleen Black | DTE Electric | | | X | X | X | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | Additional Member | Additional Organization | Region | Segment Selection |
|---|---|---|---|---|
| 1. | Kent Kujala | NERC Compliance | RFC | 3 |
| 2. | Daniel Herring | NERC Training & Standards Development | NPCC | 4 |
| 3. | Mark Stefaniak | Regulated Marketing | RFC | 5 |
| 4. | Karie Barczak | NERC Compliance | | |
| 5. | Barbara Holland | DO SOC | | |
| 6. | Joseph Staniak | DO SOC | | |

| 13. | Group | Greg Campoli | ISO/RTO Council Standards Review Committee | | X | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | Additional Member | Additional Organization | Region | Segment Selection |
|---|---|---|---|---|
| 1. | Matt Goldberg | ISO-NE | NPCC | 2 |
| 2. | Ali Miremadi | CAISO | WECC | 2 |
| 3. | Terry Bilke | MISO | MRO | 2 |
| 4. | Charles Yeung | SPP | SPP | 2 |
| 5. | Al DiCaprio | PJM | RFC | 2 |
| 6. | Cheryl Moseley | ERCOT | ERCOT | 2 |
| 7. | Ben Li | IESO | NPCC | 2 |

| 14. | Group | Andrea Jessup | Bonneville Power Administration | X | | X | | X | | X | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | Additional Member | Additional Organization | Region | Segment Selection |
|---|---|---|---|---|
| 1. | Charles Sweeney | Transmission Sales | WECC | 1 |

| 15. | Individual | Andrew Z. Pusztai | American Transmission Company, LLC | X | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16. | Individual | Tammy Porter | Oncor Electric Delivery | X | | X | | | | | | | |

| Group/Individual | | Commenter | Organization | Registered Ballot Body Segment | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 17. | Individual | David Thorne | Pepco Holdings, Inc. | X | | X | | | | | | | |
| 18. | Individual | Leonard Kula | Independent Electricity System Operator | | X | | | | | | | | |
| 19. | Individual | Don Schmit | Nebraska Public Power District | X | | X | | X | | | | | |
| 20. | Individual | Ayesha Sabouba | Hydro One | | | X | | | | | | | |
| 21. | Individual | Joshua Andersen | Salt River Project | X | | X | | X | X | | | | |
| 22. | Individual | Anthony Jablonski | ReliabilityFirst Corp. | | | | | | | | | | X |
| 23. | Individual | Thomas Foltz | American Electric Power | X | | X | | X | X | | | | |
| 24. | Individual | Robert Coughlin | ISO New England, Inc. | | X | | | | | | | | |
| 25. | Individual | Chris Scanlon | Exelon Corp. | X | | X | X | X | X | | | | |
| 26. | Individual | Bob Thomas | Illinois Municipal Electric Agency | | | | X | | | | | | |
| 27. | Individual | RoLynda Shumpert | South Carolina Electric and Gas | X | | X | | X | X | | | | |
| 28. | Individual | David Ramkalawan | OPG | | | | | X | | | | | |
| 29. | Individual | Catherine Wesley | PJM Interconnection | | X | | | | | | | | |

**If you support the comments submitted by another entity and would like to indicate you agree with their comments, please select "agree" below and enter the entity's name in the comment section (please provide the name of the organization, trade association, group, or committee, rather than the name of the individual submitter).**

| Organization | Agree | Supporting Comments of "Entity Name" |
|---|---|---|
| Hydro One | Agree | NPCC-RSC |
| Illinois Municipal Electric Agency | Agree | Florida Municipal Power Agency |

1. **The FYRT recommended Requirement R5 be revised for consistency with R4 and to clarify that nuclear plants must be operated to meet the Nuclear Plant Interface Requirements, and the Project 2012-03 drafting team has implemented this recommendation. Do you agree or disagree with this requirement? If you disagree, please provide an alternative solution.**

**Summary Consideration:** The NUC SDT appreciates all the stakeholders who submitted comments in response to Question 1. In response to the comments, the NUC SDT added Real-time Operations to the Time Horizon for Requirement R5 and un-capitalized the term "nuclear power plant" as it is not a NERC defined term. Some commenters suggested that the wording in Requirements R4 and R5 should be reverted back to the previous version. However, the NUC SDT chose not to make those changes. This is because the NUC SDT asserts that Nuclear Plant Generator Operators should operate to meet NPIRs and not the Agreements themselves.

See individual responses below.

| Organization | Yes or No | Question 1 Comment |
|---|---|---|
| Nebraska Public Power District | No | We recommend that R5 revert back to version 2 wording as follows: "R5 - The Nuclear Plant Generator Operator shall operate per the Agreements developed in accordance with this standard."(The reason for reversion back to the version 2 R5 is identified in our comments in #4 below.)<br>**The SDT believes Requirement R5 should be consistent with Requirement R4 in requiring the Nuclear Power Plant to operate to the NPIRs as required of the Transmission Entities in R4.**<br><br>We would also recommend that the Time Horizon change for R5 to match R4 [Operations Planning and Real-time Operations].<br>**The SDT agrees and will make this change in the draft standard.**<br>Since Q4 from the draft comment form does not show up on this Official comment site we are including Q4 (any other comments) here: The Glossary of Terms for the definition of NPIRs [Nuclear Plant Interface Requirements] needs revision (along with our other Standard revisions |

| Organization | Yes or No | Question 1 Comment |
|---|---|---|
| | | noted in comments above) in order for version 3 of NUC-001 to capture the requirements put upon the Nuclear Plant Operator for operation of the nuclear plant; and the requirements placed upon the Nuclear Plant Operator and the Transmission Entity for interface requirements between the two based upon the NPLR's. NPLR's or Nuclear Plant Licensing Requirements are the license requirements that the Nuclear Plant Operator must operate to [the Nuclear Plant Operator does not operate to the NPIR's as suggested under R5]. The NPIR's are indeed the mutually agreed upon requirements between the Nuclear Plant Operator and the Transmission Entity that are based upon the NPLR's. The NPIR's are not Bulk Electric System (BES) requirements "mutually" agreed upon between the Nuclear Plant Operator and the Transmission Entity as suggested by the current definition of NPIR. BES requirements are applicable to the Nuclear Plant Operator as a Generator Owner under other NERC Standards and Requirements and are not "mutually agreeable" between the two entities. In alignment with the stated Purpose of this Standard, NPPD suggests that the definition of NPIR be changed to "The requirements based on NPLR's that have been mutually agreed to by the Nuclear Plant Operator and the applicable Transmission Entities to ensure nuclear plant safe operation and shutdown". Please note that the definition of NPLR (as referenced in the NPIR proposed definition) already has the applicable parameters [plant design basis and statutorily mandated for operation; and including off-site power supply and avoiding preventable challenges to nuclear safety as a result of electric system disturbance, transient, or condition].When the NPIR's are agreed upon between the Nuclear Plant Operator and the Transmission Entity then they both operate to the Agreements between the two. R4 is correct in stating that the Transmission Entity application shall be "per the Agreement". Likewise R5 should require the Nuclear Plant Operator to follow the Agreements as agreed to (see comment changes in |

| Organization | Yes or No | Question 1 Comment |
|---|---|---|
| | | #1 above) for R5; which we state that R5 should revert back to version 2 language.<br><br>**The NUC-001 SDT recognizes that the content of the NPIRs will vary among nuclear plants and their interfacing transmission entities due to differing licensing requirements and equipment configurations. The SDT is not of the opinion that the addition of the proposed "second sentence" would add clarity to avoid inappropriate identification of NPIRs. The SDT understands the concern with regard to inclusion of actions to address and implement a NPIR in addition to the NPIR itself, however, in some cases it may not be possible to separate the two, and this issue is best left to the nuclear plant and the associated transmission entities to resolve as part of the process of attaining the mutually agreed upon NPIRs. The proposed "second sentence" appropriately includes the terms "…configuration control or administrative tasks," in an attempt to encompass requirements that are more than simply numeric, however, this points out the difficultly in refining the definition. The SDT believes the NPIR definition is acceptable as currently written and does not believe the "second sentence" will provide the desired clarity.** |
| ReliabilityFirst | No | ReliabilityFirst submits the following comments for consideration (question 4 was missing from the online form so we submitted it here): Requirement R7 and R8 - Without the terms "nuclear plant design" or "electric system design" being defined in the standard, ReliabilityFirst believes the original intent of requiring the entity to inform the Transmission Entities of changes to the Protection System may be getting lost. The original standard required information regarding changes to Protection Systems and ReliabilityFirst requests the justification for no longer requiring elements such as Protective relays, communications systems, voltage and current |

| Organization | Yes or No | Question 1 Comment |
|---|---|---|
| | | sensing devices, station dc supply and control circuitry be included as being reportable to the Transmission Entities in the standard.<br><br>**The SDT believes the revision to R7 and R8 are consistent with the original intent of the NUC-001-1 authors. The SDT deleted "Protection Systems" in Requirements R7 and R8 since it is a subset of "nuclear plant design" and "electric system design," and because the SDT did not want to limit itself to the NERC defined definition of Protection Systems. The use of "e.g. protective relay setpoints," provides for a more inclusive requirement that encompasses elements such as protective relays without creating an exhaustive list of all possible elements within the requirement. Additionally, the requirement contains the language, "that may impact the ability of electric system (or Transmission Entities) to meet the NPIRs," which is designed to capture any element that could interfere with the ability to meet NPIRs.** |
| Northeast Power Coordinating Council | Yes | |
| Florida Power & Light | Yes | |
| Arizona Public Service Company | Yes | |
| FirstEnergy Corp | Yes | |
| Dominion | Yes | Dominion agrees with the changes to R5, but suggests M5 be updated; where 'Nuclear Power Plant' is used, change this to 'nuclear power plant' (lower case), as this is not a defined term. Also in section D - Regional Variances - Nuclear Power Plant is also capitalized here and it should not be capatilized and suggest changing this to 'nuclear power plant'. |

| Organization | Yes or No | Question 1 Comment |
|---|---|---|
| | | **The drafting team agrees with this comment and will make the change.** |
| SERC OC Review Group | Yes | The SERC OC Review Group recommends that M5 be updated to use the term “nuclear power plant” (without capitalization) instead of “Nuclear Power Plant” as this is not a defined term.<br><br>Current M5 language: The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, demonstrate or provide evidence that the Nuclear Power Plant is being operated consistent with the NPIRs.<br><br>Proposed M5 language: The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, demonstrate or provide evidence that the nuclear power plant is being operated consistent with the NPIRs.<br><br>If this change is acceptable then R1 VSL Severe is recommended for modification for consistency.<br><br>Current R1 VSL Severe language: The Nuclear Plant Generator Operator did not provide the proposed NPIR's to more than two of applicable entities. OR For a particular Nuclear Power Plant, if the number of possible applicable transmission entities is equal to the number of applicable transmission entities not provided NPIRs<br><br>Proposed R1 VSL Severe language: The Nuclear Plant Generator Operator did not provide the proposed NPIR's to more than two of applicable entities. OR For a particular nuclear power plant, if the number of possible |

| Organization | Yes or No | Question 1 Comment |
|---|---|---|
| | | applicable transmission entities is equal to the number of applicable transmission entities not provided NPIRs<br><br>**The drafting team agrees with this comment and will make the change.** |
| Florida Municipal Power Agency | Yes | |
| Southern Company: Southern Company Services,Inc.; Alabama Power Company; Georgia Power Company; Gulf Power Company; Mississippi Power COmpany; Southern Company Generation; Southern Company Generation and Energy Marketing | Yes | |
| Tennessee Valley Authority | Yes | Recommend to follow the SERC OC comment that M5 be updated to use the term “nuclear power plant” (without capitalization) instead of “Nuclear Power Plant” as this is not a defined term. Current M5 language: The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, demonstrate or provide evidence that the Nuclear Power Plant is being operated consistent with the NPIRs. Proposed M5 language: The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, demonstrate or provide evidence that the nuclear power plant is being operated consistent with the NPIRs. If this change is acceptable then R1 VSL Severe is recommended for modification for consistency. Current R1 VSL Severe language: The Nuclear Plant Generator Operator did not provide the proposed NPIR's to more than two of applicable entities. OR For a particular Nuclear Power Plant, if the number of possible applicable transmission entities is equal to the number |

| Organization | Yes or No | Question 1 Comment |
|---|---|---|
| | | of applicable transmission entities not provided NPIRsProposed R1 VSL Severe language: The Nuclear Plant Generator Operator did not provide the proposed NPIR's to more than two of applicable entities. OR For a particular nuclear power plant, if the number of possible applicable transmission entities is equal to the number of applicable transmission entities not provided NPIRs<br><br>**The drafting team agrees with this comment and will make the change.** |
| ACES Standards Collaborators | Yes | We commend the NUC Five-Year Review Team for this recommendation and the SDT with its implementation to revise R5 and make it consistent with R4. Following this revision, Nuclear Plant Generator Operators will be obligated to operate their nuclear plants in a manner to meet the NPIRs, which will address possible reliability concerns that result when operations are outside of these requirements. |
| Duke Energy | Yes | Duke Energy agrees with the revisions made by the SDT. |
| DTE Electric | Yes | |
| ISO/RTO Council Standards Review Committee | Yes | |
| Bonneville Power Administration | Yes | BPA concurs the NPIRS should drive the interface requirements; however NPIRS must be concurred between transmission provider and nuclear plant prior to inclusion in an Interface Agreement. |

| Organization | Yes or No | Question 1 Comment |
|---|---|---|
| | | **The SDT believes that NPIRs need to be agreed to by the Nuclear Plant Generator Operator and all Transmission Entities.** |
| American Transmission Company, LLC | Yes | Agree. |
| Oncor Electric Delivery | Yes | |
| Pepco Holdings Inc. | Yes | |
| Independent Electricity System Operator | Yes | |
| Salt River Project | Yes | |
| American Electric Power | Yes | |
| Exelon Corporation | Yes | |
| South Carolina Electric and Gas | Yes | |
| OPG | Yes | |
| PJM Interconnection | Yes | |

**2. The FYRT recommended that R9 be revised to clarify that all agreements do not have to discuss each of the elements in R9, but that the sum total of the agreements need to address the elements, and the Project 2012-03 drafting team has implemented this recommendation. Do you agree or disagree with this requirement? If you disagree, please provide an alternative solution.**

**Summary Consideration:** The NUC SDT thanks all stakeholders who provided comments in response to Question 2. While one entity felt that the language within Requirement R9 was too ambiguous, the NUC SDT chose to keep the language in Requirement R9 the same because it felt the Requirement was sufficiently clear. See individual responses below.

| Organization | Yes or No | Question 2 Comment |
|---|---|---|
| ReliabilityFirst | No | ReliabilityFirst submits the following comments for consideration: Requirement R9 - Even though the intent of Requirement R9 is understood, ReliabilityFirst believes it can be stated in a more clear and concise manner. ReliabilityFirst recommends the following for consideration: "The Nuclear Plant Generator Operator and the applicable Transmission Entities shall include the following elements in aggregate within the Agreement(s) identified in R2. Regardless if there are single or multiple Agreements with single or multiple Transmission Entities, all elements under Requirement R9 need to be addressed, in aggregate, within the Agreement(s)"<br><br>**The SDT reviewed and discussed the above language, however, ultimately the drafting team agreed the current language is sufficiently clear and not ambiguous.** |
| Northeast Power Coordinating Council | Yes | |
| Florida Power & Light | Yes | |
| Arizona Public Service Company | Yes | |

| Organization | Yes or No | Question 2 Comment |
|---|---|---|
| FirstEnergy Corp | Yes | ADDITIONAL COMMENTS: FirstEnergy acknowledges that Part 9.1 was retired under the Paragraph 81 project. We also agree with not renumbering Requirement parts that would impact existing agreements throughout the industry. However, we strongly suggest that Part 9.1 be marked Retired instead of being left blank as this could lead to future confusion. Our concern is that someone not aware of the history of NUC-001 may do unnecessary research to understand why Part 9.1 is blank. Stating "Retired" will provide clarity and eliminate the possibility of any confusion.<br><br>**Requirement R9.1 will continue to state that the sub-part is "Retired" as it currently is in the draft standard. It will not be left blank to avoid confusion.** |
| Dominion | Yes | |
| SERC OC Review Group | Yes | |
| Florida Municipal Power Agency | Yes | |
| Southern Company: Southern Company Services,Inc.; Alabama Power Company; Georgia Power Company; Gulf Power Company; Mississippi Power COmpany; Southern Company Generation; Southern Company Generation and Energy Marketing | Yes | |

| Organization | Yes or No | Question 2 Comment |
|---|---|---|
| Tennessee Valley Authority | Yes | |
| ACES Standards Collaborators | Yes | We commend the NUC Five-Year Review Team for this recommendation and the SDT with its implementation to revise R9. This clarification allows entities to address the elements of Requirement R9 across several agreements and not limit them to just one.<br><br>**The SDT thanks you for your comment.** |
| Duke Energy | Yes | Duke Energy agrees with the revisions made by the SDT. |
| DTE Electric | Yes | |
| ISO/RTO Council Standards Review Committee | Yes | |
| Bonneville Power Administration | Yes | |
| American Transmission Company, LLC | Yes | Agree |
| Oncor Electric Delivery | Yes | |
| Pepco Holdings Inc. | Yes | |
| Independent Electricity System Operator | Yes | |
| Nebraska Public Power District | Yes | |

| Organization | Yes or No | Question 2 Comment |
|---|---|---|
| Salt River Project | Yes | |
| American Electric Power | Yes | |
| Exelon Corporation | Yes | |
| South Carolina Electric and Gas | Yes | |
| OPG | Yes | |
| PJM Interconnection | Yes | |

**3. Do you agree with the VRFs and VSLs for Requirements R5 and R9? If not, please explain.**

**Summary Consideration**: The NUC SDT appreciates all the stakeholders who submitted comments in response to Question 3. In response to the comments that were submitted, the NUC SDT made minor grammar changes including changing "NPIR's" to "NPIRs" and updating the Data Retention section. Some commenters felt that the High VSL for Requirement R6 should be changed to Severe, however the NUC SDT chose not to change the VSLs because of the high number of maintenance activities that occur between a Transmission Entity and a Nuclear Plant Generator Operator. Additionally, other commenters suggested minor language revisions, which the NUC SDT ultimately chose not to adopt because the Team felt the requirements were sufficiently clear. See individual responses below.

| Organization | Yes or No | Question 3 Comment |
|---|---|---|
| Dominion | No | Dominion does not see how the VSLs in R6 can have N/A under Severe. According to the last sentence on page 2 of the VSL guideline and combine that with the chart at the top of the page, it seems that failure to coordinate one or more outages or maintenance activities which affect the NPIRs, indicates that the entity failed to meet the performance of the requirement. Therefore Dominion suggests that the VSL currently marked High be changed to Severe.<br><br>**The SDT has considered this comment; however, given the number of maintenance activities that need to be scheduled between a Nuclear Plant Generator Operator and Transmission Entities, failure to coordinate one or several would not constitute a Severe Violation, and the SDT believes the High severity level is appropriate. Entities that would continue to violate this requirement would be subject to penalties associated with repeat occurrences.**<br><br>Question 4 Comments: 1. The impact identified in Requirement R8 does not match the impact identified in Measure M8. Specifically, R8 "impact the ability of the electric system to meet the NPIRs" while M8 "impact the ability of the Nuclear Plant Generator Operator to meet the NPIRs." Dominion believes the language in M8 is correct and suggest revising R8 accordingly. |

| Organization | Yes or No | Question 3 Comment |
|---|---|---|
| | | **The SDT believes that this language should be consistent and will revise Measure M8 to be consistent with the language in Requirement R8.**<br><br>2. The Data Retention section addresses Measure M4.3 but does not address M4.1 or M4.2.3.<br><br>**The SDT agrees with this comment and has made this change.**<br><br>Requirements R7 and R8 uses the term 'may impact the ability of the electric system' and the M7 and M8 uses the term 'would impact the ability of the electric system'. Dominion suggests that the SDT replace 'may' with 'will' in requirements R7 and R8, or delete both "may" and "would" and simply use present tense "impact' in the Requirements and past tense "impacted" in the Measures.<br><br>**The SDT agrees with this comment and will make this change.** |
| SERC OC Review Group | No | The SERC OC Review Team requests clarification as to why the SDT chose to use the "high" VSL category and not the "severe" VSL category. Using the VSL guideline (page 2 last sentence) it appears that failure to coordinate one or more outages or maintenance activities which affect the NPIRs indicates that the entity failed to meet the performance of the requirement. Thus, it may be appropriate that the "severe" VSL should be utilized.<br><br>**The SDT has considered this comment; however, given the number of maintenance activities that need to be scheduled between a Nuclear Plant Generator Operator and Transmission Entities, failure to coordinate one or several would not constitute** |

| Organization | Yes or No | Question 3 Comment |
|---|---|---|
| | | **a Severe Violation, and the SDT believes the High severity level is appropriate. Entities that would continue to violate this requirement would be subject to penalties associated with repeat occurrences.**<br><br>Software did not allow access to Question 4. Please see additional comments below. The SERC OC Review Team respectfully requests clarification on the use of "may" vs. "would" in R7 and M7. The same clarification is requested for R8 and M7. The concern is the interpretation that is used for "may" and "would". An example is included below: R7. Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall inform the applicable Transmission Entities of actual or proposed changes to nuclear plant design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. [Violation Risk Factor: High] [Time Horizon: Long-term Planning]M7. The Nuclear Plant Generator Operator shall provide evidence that it informed the applicable Transmission Entities of changes to nuclear plant design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that would impact the ability of the Transmission Entities to meet the NPIRs.<br><br>**The SDT agrees with this comment and will make this change.**<br><br>Data Retention: The SERC OC Review Group noticed that M4.1 and M4.2 are not included in the Data Retention section. It is requested that the SDT review and evaluate whether or not M4.1 and M4.2 should be included in the Data Retention section. The comments expressed herein represent a consensus of the views of the above named members of the SERC OC Review Group only and should not be construed as the position of the SERC Reliability Corporation, or its board or its officers.<br><br>**The SDT agrees with this comment and will make this change.** |

| Organization | Yes or No | Question 3 Comment |
|---|---|---|
| | | |
| ACES Standards Collaborators | No | We believe the VRFs identified for requirements R5 and R9 are appropriate for their level of impact to the BES. However, we do have concerns regards the VSLs for these requirements. The VSL for Requirement R5 is binary in nature and should be modified to a graduated severity level. We feel that weighing each NPIR equally does not identify the significance of some NPIRs, such as power supply restoration times and safety. We also find the percentage approach taken for R9 confusing and that the previous approach identifying a specific number of elements easier.<br>**The SDT has reviewed this comment, but contends that there are very few NPIRs that require Nuclear Plant Generator Operator action, therefore, the SDT chose to maintain this Requirement as binary. A graded approach with such a few number of required actions would not be plausible.**<br>**The SDT believes the approach of using percentages in Requirement R9 is the most workable solution to developing the VSLs, and that attempting to weigh them in accordance with specific elements of the Agreements would be extremely difficult.** |
| Nebraska Public Power District | No | Change the VSL for R5 based on our comments in #1 and #4.<br>**The SDT believes Requirement R5 should be consistent with Requirement R4 in requiring the Nuclear Power Plant to operate to the NPIRs as required of the Transmission Entities in R4.**<br>Change the reference to “NPIRs” in this VSL to “Agreement’s”.R9 VSL’s: Please revert back to version 2 VSL’s for R9. A percentage basis as used in version 3 will lead to improper application by regulators. Version 2 is a much cleaner approach. |

| Organization | Yes or No | Question 3 Comment |
|---|---|---|
| | | **The SDT believes the approach of using percentages in Requirement R9 is the most workable solution to developing the VSLs, and that attempting to weigh them in accordance with specific elements of the Agreements would be extremely difficult.** |
| ReliabilityFirst | No | ReliabilityFirst submits the following comments for consideration:VSL for Requirement R4 - For consistency, all VSLs under Requirement R4 should reference "sub-parts" and not "sub-requirements".<br>**The SDT agrees with this comment and will make changes where needed.**<br>VSL for Requirement R6 - For consistency with the language in Requirement R6, the Moderate VSL should reference "maintenance activities" and not "maintenance schedules".<br>**The SDT has reviewed this comment, but asserts that the current language is correct. The intent of Requirement R6 is to ensure applicable Transmission Entities and Nuclear Plant Generator Operators coordinate outages and maintenance activities. The moderate VSL for Requirement R6 is designed to penalize entities that fail to give their respective Transmission or Nuclear Plant Generator Operator advanced notice, via a schedule, of planned outages or maintenance activities that have not yet occurred. The High VSL represents a more significant violation of this requirement as it is applied to entities who initiate a maintenance or outage activity without coordinating this activity with their respective Transmission Entities or Nuclear Plant Generator Operator.** |
| American Electric Power | No | The correct pluralization of NPIR is "NPIRs", without an apostrophe. There are a number of instances in the VSL table where an apostrophe is incorrectly used.<br>**The SDT agrees with this comment and will make changes where needed.** |

| Organization | Yes or No | Question 3 Comment |
|---|---|---|
| Northeast Power Coordinating Council | Yes | |
| Florida Power & Light | Yes | |
| Arizona Public Service Company | Yes | |
| FirstEnergy Corp | Yes | |
| Florida Municipal Power Agency | Yes | |
| Southern Company: Southern Company Services,Inc.; Alabama Power Company; Georgia Power Company; Gulf Power Company; Mississippi Power COmpany; Southern Company Generation; Southern Company Generation and Energy Marketing | Yes | |
| Tennessee Valley Authority | Yes | |
| Duke Energy | Yes | |
| DTE Electric | Yes | There is a question as to why R5's VRF and VSL are called out. The VRF remains at High and the VSL is High for the NPGOP to operate to the NPIRs. |

| Organization | Yes or No | Question 3 Comment |
|---|---|---|
| | | **The SDT has reviewed this comment and determined that the only change made to Requirement R5 was to replace "Agreements" with "NPIRs."** |
| ISO/RTO Council Standards Review Committee | Yes | |
| Bonneville Power Administration | Yes | |
| American Transmission Company, LLC | Yes | |
| Oncor Electric Delivery | Yes | |
| Pepco Holdings Inc. | Yes | |
| Independent Electricity System Operator | Yes | Question 4: Additional Comments Provided. R3 as written has a very broad scope and mandate for the Transmission Entities as it implies that the Transmission Entities need to communication the results of all planning analyses that have NPIRs incorporated, either as assumption or in the model, to the Nuclear Plant Generator Operator (NPGO), regardless of the potential impacts on the NPGO. This is unnecessary, and the amount of information provided to the NPGO can be overwhelming. We suggest revising R3 as follows: R3. Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall incorporate the NPIRs into their planning analyses of the electric system and shall communicate the analysis results to those Nuclear Plant Generator Operators that may be affected by such results. |

| Organization | Yes or No | Question 3 Comment |
|---|---|---|
| | | With the proposed revision, the Transmission Entities do not have to communicate the results of all analyses that have NPIRs incorporated, and the NPGO will not be inundate by analysis results that do not affect them.<br>**The SDT has reviewed the requested revision, but asserts per Requirement R 9.2.3 that the Agreement between the Transmission Entity and the Nuclear Plant Generator Operator will define what type of planning information needs to be provided to Nuclear Plant Generator Operator.**<br><br>Real-time Operations should be added to the Time Horizon for R5 so as to be consistent with those stipulated for R4 (which is applicable to the Transmission Entities).c.<br>**The SDT agrees with this comment and will make the change.**<br><br>The MEDIUM VRF for R1 stipulated in the VSL should be LOWER, not MEDIUM as it is inconsistent with the LOWER VRF stipulated in the requirement itself.<br>**The VRF for Requirement R1 was corrected to Medium for consistency. The intent of the SDT was for the VRF for Requirement R1 to be Medium.** |
| Salt River Project | Yes | |
| Exelon Corporation | Yes | |
| South Carolina Electric and Gas | Yes | |

| Organization | Yes or No | Question 3 Comment |
|---|---|---|
| OPG | Yes | |
| PJM Interconnection | Yes | |

**4. Do you have any additional comments? Please provide them here.**

**Summary Consideration:** The NUC SDT appreciates all the stakeholders who submitted comments in response to Question 4. Some commenters felt that Load Serving Entities should not be an applicable entity in this standard and that the elements within Requirement R9 should be modified. The NUC SDT considered these comments but asserts that LSEs should be a part of this standard as they have a unique relationship with Nuclear Plant Generator Operators. Additionally, the NUC SDT believes the language in Requirement R9 encompasses all of the critical elements that need to be in the Agreements, while also not being overly prescriptive. See individual responses below.

| Organization | Yes or No | Question 4 Comment |
|---|---|---|
| Southern Company: Southern Company Services,Inc.; Alabama Power Company; Georgia Power Company; Gulf Power Company; Mississippi Power COmpany; Southern Company Generation; Southern Company Generation and Energy Marketing | No | |
| Duke Energy | No | |
| DTE Electric | No | |
| Bonneville Power Administration | No | |
| Exelon Corporation | No | |

| Organization | Yes or No | Question 4 Comment |
|---|---|---|
| South Carolina Electric and Gas | No | |
| Northeast Power Coordinating Council | Yes | Real-time Operations should be added to the Time Horizon for R5 so as to be consistent with those stipulated for R4 (which is applicable to the Transmission Entities).<br>**The SDT agrees and will make this change.**<br><br>In Section D. Regional Variances, add the words “and nuclear plant safe operation” as follows: Canadian Nuclear Plant Licensing Requirements (CNPLR) are requirements included in the design basis of the nuclear plant and are statutorily mandated for the operation of the plant; when used in this standard, NPLR shall mean nuclear power plant licensing requirements for avoiding preventable challenges to nuclear safety and nuclear plant safe operation as a result of an electric system disturbance, transient, or condition.<br><br>**The SDT believes the revised wording is consistent with the licensing requirement for the Canadian Nuclear Plants. See reference to OPG comment above.** |
| Florida Municipal Power Agency | Yes | FMPA suggests that Applicability Section 4.2.9 Load Serving Entity should be removed from the list.<br>FERC's 2008-10-16 Order 716 which approved NUC-001-1 acknowledged "there is a significant amount of overlap among the entities that perform these functions." FMPA believes that Load-Serving Entities do not perform any unique reliability tasks necessary during coordination with Nuclear Plant Generator Operators, and that all such necessary reliability tasks are already being performed by the other applicable functional entities of NUC-001-2.1. Thus, Project 2012-13 provides a good |

| Organization | Yes or No | Question 4 Comment |
|---|---|---|
| | | opportunity to delete the redundant Load-Serving Entities function from this Standard.<br><br>**The SDT asserts that LSEs need to be an applicable entity to this standard because when nuclear plants are off-line (planned or unplanned) electric power is supplied to a nuclear plant by an entity that may include a Load Serving Entity (LSE). During instances where an LSE is providing such services, they may be providing a NPIR related function to a nuclear plant. Therefore, SDT decided not to remove LSE's from the applicability section.** |
| Tennessee Valley Authority | Yes | Recommend to follow the SERC OC comments following: The SERC OC Review Team respectfully requests clarification on the use of "may" vs. "would" in R7 and M7. The same clarification is requested for R8 and M7. The concern is the interpretation that is used for "may" and "would". An example is included below: R7. Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall inform the applicable Transmission Entities of actual or proposed changes to nuclear plant design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. [Violation Risk Factor: High] [Time Horizon: Long-term Planning] M7. The Nuclear Plant Generator Operator shall provide evidence that it informed the applicable Transmission Entities of changes to nuclear plant design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that would impact the ability of the Transmission Entities to meet the NPIRs.<br><br>Data Retention: The SERC OC Review Group noticed that M4.1 and M4.2 are not included in the Data Retention section. It is requested that the SDT review and evaluate whether or not M4.1 and M4.2 should be included in the Data Retention section.<br><br>**Please see response to SERC OC.** |

| Organization | Yes or No | Question 4 Comment |
|---|---|---|
| ACES Standards Collaborators | Yes | (1) We appreciate the SDT with their efforts to incorporate the various recommendations from the NUC Five-Year Review Team in this revision of NERC Standard NUC-001. In particular, we welcome the clarification in Requirement R5 regarding nuclear plant operations meeting the NPIRs. We also welcome the omission of the NERC Glossary Term "Protection Systems" from requirements R7 and R8 to better identify the intent of those requirements.<br><br>Finally, we welcome the administrative details taken to identify appropriate timing horizons, clarify measures, and modify the VSLs and VRFs.(2)<br><br>However, we feel that further revision is still needed. We feel a communication gap exists when Nuclear Plant Generator Operators neglect to communicate with Transmission Entities when Nuclear Plant Generator Operators lose the ability to assess the operation of their plants and ability to meet the NPIRs. We believe addressing this gap will be a step towards situational awareness for all affected Parties involved.â€ƒ(3)<br><br>**The SDT has reviewed this comment and asserts that Nuclear Plants Generator Operator capability to assess operation of the nuclear plant is governed by applicable nuclear regulations and the SDT cannot draw a parallel to Requirement R4.3.**<br><br>We feel the number of elements listed under Requirement R9 should be limited to those elements affecting the NPIRs. For example, Requirement R9.3.3 identifies a need for coordination of testing, calibration, and maintenance of power supplies within the aggregated agreements. While we agree with the importance of testing, calibrating, and maintaining power supplies, we believe such activities are already addressed by the owner of such facilities through other NERC Standards. Likewise, Requirement R9.3.6 identifies the coordination of physical and cyber security protection of assets near the nuclear plant interface. While we agree with the importance of physical and cyber security protection, we believe such activities are already addressed with existing NERC Critical Infrastructure Protection requirements. |

| Organization | Yes or No | Question 4 Comment |
|---|---|---|
| | | Moreover, these activities will be further enhanced with Revision 5 of these NERC Critical Infrastructure Protection standards.<br><br>**The SDT has reviewed these comments, and the elements in Requirement R9, and believes those elements are necessary to bring the desired interface between the Transmission Entities and the Nuclear Plant Generator to achieve the stated purpose of the standard.**<br><br>(4) Finally, we thank you for the opportunity to comment. |
| ISO/RTO Council Standards Review Committee | Yes | a. Measure M2 is unclear: M2. The Nuclear Plant Generator Operator and each Transmission Entity shall each have a copy of the Agreement(s) [addressing and implementing the NPIRs] available for inspection upon request of the Compliance Enforcement Authority. The Agreement doesn't "address and implement" the NPIRs - it describes how the entities address and implement them. The measure should simply state that the responsible entity has a copy of the agreement - i.e. we suggest to delete the language in [bracket].<br><br>**In response to this comment, the SDT has made changes to the language in M2 to improve the clarity of the measure.**<br><br>b. R3 as written has a very broad scope and mandate for the Transmission Entities as it implies that the Transmission Entities need to communicate the results of all planning analyses that have NPIRs incorporated, either as an assumption or in the model, to the Nuclear Plant Generator Operator (NPGO) regardless of the potential impacts on the NPGO. This is unnecessary, and the amount of information provided to the NPGO can be overwhelming. We suggest revising R3 as follows: R3. Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall incorporate the NPIRs into their planning analyses of the electric system and shall communicate those analysis results that affect the relevant Nuclear Plant Generator Operators that may be affected by such results. With the proposed revision, there will not be a suggestion that Transmission Entities have to |

| Organization | Yes or No | Question 4 Comment |
|---|---|---|
| | | communicate the results of all analyses that have NPIRs incorporated, and the NPGO will not be inundated by analysis results that do not affect them.<br><br>**The SDT has reviewed the requested revision, but asserts per Requirement R 9.2.3, that the Agreement between the Transmission Entity and the Nuclear Plant Generator Operator will define what type of planning information needs to be provided to Nuclear Plant Generator Operator.**<br><br>c. Requirement R4: There appears to be an inconsistency between R4 and Measure M4 which has created some confusion in assessing compliance. It is our understanding that most Agreements between Nuclear Plant Generator Operators and Transmission Entities include specific tasks/actions that both parties need to perform. Hence, each Transmission Entity has specific tasks assigned but is not held responsible for all aspects of a plant's NPIRs or those performed by other Transmission Entities associated with that plant. To ensure the Transmission Entity is assessed only on its specific tasks per the Agreement, we suggest to deleted the word "current" from Measure M4.1, and add "per the Agreements" to Measures M4.2 and M4.3, as follows:<br><br>M4. Each Transmission Entity responsible for operating the electric system in accordance with the Agreement shall demonstrate or provide evidence of the following, uponrequest of the Compliance Enforcement Authority:<br><br>M4.1: The NPIRs have been incorporated into the current operating analysis of the electric system. (Requirement 4.1) requirement R4 does not specify "current", and one may not know what this means, which can be current as at the day of the audit. We suggest deleting the word "current".<br><br>M4.2 The electric system was operated to meet the NPIRs per the agreements. (Requirement 4.2)<br><br>M4.3 The Transmission Entity informed the Nuclear Plant Generator Operator when it became aware it lost the capability to assess the operation of the electric system affecting the NPIRs per the agreements. |

| Organization | Yes or No | Question 4 Comment |
|---|---|---|
| | | **The SDT asserts that the word 'current' in M4.1 is equivalent to 'latest.' It is implicit that any audit would be looking at the most recent operating analysis of the electrical system. As such, the SDT does not believe deleting the word 'current' from the measure will have any impact on the measure's purpose.**<br><br>d. Real-time Operations should be added to the Time Horizon for R5 so as to be consistent with those stipulated for R4 (which is applicable to the Transmission Entities).<br><br>**The SDT agrees and will make this change.**<br><br>e. Requirements R1, R2, R3, R7, R8, and R9 specify the Time Horizon as "Long-term Planning", which differs somewhat from the NERC Glossary defined term of "Long-Term Transmission Planning Horizon", which NERC defines as covering years 6 - 10 and beyond. We suggest adding "Near-Term Planning" to the Time Horizon, which NERC defines as covering years 1 - 5. With the Near-Term Planning and Long- Term Planning included in the Time Horizon, the one to ten year planning horizon would be covered. This is particularly relevant to Requirements R3 and R9 (i.e., R9.2.3) where they are specific to planning analyses. Similarly, it's relevant to Requirement R8, where the analysis to identify system changes to the electric system should include year's 1 - 5 in the planning horizon and planning analyses.<br><br>**The NERC Time Horizons document, which has been approved by the Standards Committee, defines Long-term Planning as "a planning horizon of one year or longer." On the contrary, Long-Term Transmission Planning only refers to transmission planning, and is defined in the NERC Glossary of Terms as a "Transmission planning period that covers years six through ten…" Long-Term Transmission Planning is not a standard's time horizon and may only be used when specifically discussing planning periods for transmission.**<br><br>f. The MEDIUM VRF for R1 stipulated in the VSL should be LOWER, not MEDIUM as it is inconsistent with the LOWER VRF stipulated in the requirement itself. |

| Organization | Yes or No | Question 4 Comment |
|---|---|---|
| | | **In the current version of the draft Standard that is posted, the VRF for listed in the Requirement and in the VRF/VSL table is medium. This matches the intent of the SDT which was to make the VRF for Requirement R1 medium.** |
| ISO New England Inc. | Yes | ISO-NE suggests that the SDT clarify the definition of Nuclear Plant Interface Requirements (NPIRs). Adding a second sentence to the definition would help to avoid inappropriate identification of NPIRs. Nuclear Plant Interface Requirements (NPIRs)The requirements based on NPLRs and Bulk Electric System requirements that have been mutually agreed to by the Nuclear Plant Generator Operator and the applicable Transmission Entities. NPIRs reflect limits, parameters, equipment configuration control or administrative tasks associated with maintaining the NPLRs or BES requirements. Rationale: As currently defined, NPIRs are tied to both Nuclear Plant License Requirements (NPLRs) and Bulk Electric System (BES) requirements. NPLRs and BES requirements are each typically expressed as measurable values, specified facilities, or specified equipment configurations. NPLRs are defined by the Nuclear Regulatory Commission (NRC) through the 10 CFR Part 50 process (Domestic Licensing of "Production and Utilization Facilities"), which defines the requirements for the licensing of nuclear power plants in the United States. From these requirements, design basis scenarios are created to identify limits, parameters or configuration control (e.g., minimum number of lines to the station) that must be met to operate/maintain the plant within the license requirements. NPLRs could also include administrative tasks required by the NRC, also expressed in terms of a measurable value (e.g. certain studies must be reviewed on a prescribed timeframe). BES requirements are also typically expressed as values (e.g., transmission system limit). This clarification would help to avoid inappropriate identification of actions to address and implement a NPIR as a NPIR itself. Actions to address and implement a NPIR are required by NUC-001-3 R2, but those actions should not be identified as NPIRs themselves because they are not directly related to either licensing requirements or BES requirements. |

| Organization | Yes or No | Question 4 Comment |
|---|---|---|
| | | **The NUC-001 SDT recognizes that the content of the NPIRs will vary among nuclear plants and their interfacing transmission entities due to differing licensing requirements and equipment configurations. The SDT is not of the opinion that the addition of the proposed "second sentence" would add clarity to avoid inappropriate identification of NPIRs. The SDT understands the concern with regard to including actions to address and implement a NPIR in addition to the NPIR itself, however, in some cases it may not be possible to separate the two, and this issue is best left to the nuclear plant and the associated transmission entities to resolve as part of the process of attaining the mutually agreed upon NPIRs. The proposed "second sentence" appropriately includes the terms "…configuration control or administrative tasks" in an attempt to encompass requirements that are more than simply numeric, however, this points out the difficultly in refining the definition. The SDT believes the NPIR definition is acceptable as currently written and does not believe the "second sentence" will provide the desired clarity.** |
| OPG | Yes | In section D. Regional Variances, OPG would like to add the words "and nuclear plant safe operation" as follows: Canadian Nuclear Plant Licensing Requirements (CNPLR) are requirements included in the design basis of the nuclear plant and are statutorily mandated for the operation of the plant; when used in this standard, NPLR shall mean nuclear power plant licensing requirements for avoiding preventable challenges to nuclear safety and nuclear plant safe operation as a result of an electric system disturbance, transient, or condition.<br>**Per subsequent discussion by a SDT member who is associated with the entity that submitted this comment, the comment has been rescinded.** |
| PJM Interconnection | Yes | PJM has also signed onto the SRC's comments. |

| Organization | Yes or No | Question 4 Comment |
|---|---|---|
| | | Please see the SDT's response to SRC's comments above. |

**END OF REPORT**

## Standard Development Timeline

*This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.*

### Development Steps Completed

1. SC authorized moving the SAR forward to standard development to implement recommendations of Five-year review of NUC-001-2 - October 17, 2013.
2. SAR posted for informal comment February 12 – March 13, 2014.
3. NUC-001-3 for 45 day Comment Period and Initial Ballot April 8 – May 22, 2014.

### Description of Current Draft

Draft 2 of NUC-001-3 includes minor, non-substantive revisions that were made in response to the comments that were received following the initial posting of NUC-001-3. These changes included adding clarifying language to Measure M2, revising the Time Horizons in Requirement R4 and R5 for consistency, and grammar corrections. Additionally, to align with on-going NERC standards development in Project 2010-05.2: Special Protection Systems, the term "Special Protection Systems" in Requirement R 9.3.7 was replaced by the term "Remedial Action Schemes." These terms are synonymous in the NERC Glossary of Terms. NUC-001-3 was posted for a 45 day Comment and Ballot from April-May 2014. The initial posting of Draft 1 of NUC-001-3 received a 97.36% approval rating. The purpose of NUC-001-3 is to implement the recommendations from the NUC-001-2.1 Five-Year Review Team (NUC FYRT). The NUC FYRT's recommendations were accepted by the Standards Committee in October 2013. This draft is being posted for a final 10 day recirculation ballot.

| Anticipated Actions | Anticipated Date |
|---|---|
| Final ballot | June 2014 |
| Board of Trustees adoption | August 2014 |

**Effective Dates:** First day of the first calendar quarter that is twelve months beyond the date that this standard is approved by applicable regulatory authorities, or as otherwise provided for in a jurisdiction where approval by an applicable governmental authority is required for a standard to go into effect. Where approval by an applicable governmental authority is not required, the standard shall become effective on the first day of the first calendar quarter that is twelve months after the date this standard is adopted by the NERC Board of Trustees or as otherwise provided for in that jurisdiction.

## Version History

| Version | Date | Action | Change Tracking |
|---|---|---|---|
| 1 | May 2, 2007 | Approved by Board of Trustees | New |
| 2 | To be determined | Modifications for Order 716 to Requirement R9.3.5 and footnote 1; modifications to bring compliance elements into conformance with the latest version of the ERO Rules of Procedure. | Revision |
| 2 | August 5, 2009 | Adopted by Board of Trustees | Revised |
| 2 | January 22, 2010 | Approved by FERC on January 21, 2010<br>Added Effective Date | Update |
| 2 | February 7, 2013 | R9.1, R9.1.1, R9.1.2, R9.1.3, and R9.1.4 and associated elements approved by NERC Board of Trustees for retirement as part of the Paragraph 81 project (Project 2013-02) pending applicable regulatory approval. | |
| 2.1 | April 11, 2012 | Errata approved by the Standards Committee; (Capitalized “Protection System” in accordance with Implementation Plan for Project 2007-17 approval of revised definition of “Protection System”) | Errata associated with Project 2007-17 |
| 3 | March 2014 | Modifications to implement the recommendations of the five-year review of NUC-001, which was accepted by the Standards Committee on October 17, 2013. | Revision |

## Definitions of Terms Used in Standard

*This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.*

**None**

*When this standard has received ballot approval, the text boxes will be moved to the Application Guidelines Section of the Standard.*

## A. Introduction

**1. Title:** **Nuclear Plant Interface Coordination**

**2. Number:** **NUC-001-3**

**3. Purpose:** This standard requires coordination between Nuclear Plant Generator Operators and Transmission Entities for the purpose of ensuring nuclear plant safe operation and shutdown.

**4. Applicability:**

**4.1. Functional Entities:**

**4.1.1** Nuclear Plant Generator Operators.

**4.2.** Transmission Entities shall mean all entities that are responsible for providing services related to Nuclear Plant Interface Requirements (NPIRs). Such entities may include one or more of the following:

**4.2.1** Transmission Operators.

**4.2.2** Transmission Owners.

**4.2.3** Transmission Planners.

**4.2.4** Transmission Service Providers.

**4.2.5** Balancing Authorities.

**4.2.6** Reliability Coordinators.

**4.2.7** Planning Coordinators.

**4.2.8** Distribution Providers.

**4.2.9** Load-Serving Entities.

**4.2.10** Generator Owners.

**4.2.11** Generator Operators.

**5. Background:**

Project 2012-13 Nuclear Power Interface Coordination seeks to implement the changes that were proposed by the NUC FYRT. The NUC FYRT was appointed by the Standards Committee Executive Committee on April 22, 2013. The NUC FYRT reviewed the NUC-001-2.1 standard to identify opportunities for consolidation and additional improvements. The NUC FYRT posted its recommendation to revise NUC-001-2.1 for industry comment on July 27, 2013. The NUC FYRT considered comments and submitted its final recommendation to revise NUC-001-2.1, along with a Standards Authorization Request (SAR) to the Standards Committee on October 17, 2013. The Standards Committee accepted the recommendation of the FYRT and appointed the team as the Standard Drafting Team (SDT) to implement the recommendation.

## B. Requirements and Measures

**R1.** The Nuclear Plant Generator Operator shall provide the proposed NPIRs in writing to the applicable Transmission Entities and shall verify receipt. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning ]*

**M1.** The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, provide a copy of the transmittal and receipt of transmittal of the proposed NPIRs to the responsible Transmission Entities.

**R2.** The Nuclear Plant Generator Operator and the applicable Transmission Entities shall have in effect one or more Agreements[1] that include mutually agreed to NPIRs and document how the Nuclear Plant Generator Operator and the applicable Transmission Entities shall address and implement these NPIRs. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning ]*

**M2.** The Nuclear Plant Generator Operator and each Transmission Entity shall each have a copy of the currently effective Agreement(s) which document how the Nuclear Plant Generator Operator and the applicable Transmission Entities address and implement the NPIRs available for inspection upon request of the Compliance Enforcement Authority.

**R3.** Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall incorporate the NPIRs into their planning analyses of the electric system and shall communicate the results of these analyses to the Nuclear Plant Generator Operator.: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning ]*

**M3.** Each Transmission Entity responsible for planning analyses in accordance with the Agreement shall, upon request of the Compliance Enforcement Authority, provide a copy of the planning analyses results transmitted to the Nuclear Plant Generator

[1]. Agreements may include mutually agreed upon procedures or protocols in effect between entities or between departments of a vertically integrated system.

Operator, showing incorporation of the NPIRs. The Compliance Enforcement Authority shall refer to the Agreements developed in accordance with this standard for specific requirements.

**R4.** Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall *[Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]*

**4.1.** Incorporate the NPIRs into their operating analyses of the electric system.

**4.2.** Operate the electric system to meet the NPIRs.

**4.3.** Inform the Nuclear Plant Generator Operator when the ability to assess the operation of the electric system affecting NPIRs is lost.

**M4.** Each Transmission Entity responsible for operating the electric system in accordance with the Agreement shall demonstrate or provide evidence of the following, upon request of the Compliance Enforcement Authority:

- The NPIRs have been incorporated into the current operating analysis of the electric system. (Requirement 4.1)
- The electric system was operated to meet the NPIRs. (Requirement 4.2)
- The Transmission Entity informed the Nuclear Plant Generator Operator when it became aware it lost the capability to assess the operation of the electric system affecting the NPIRs

**R5.** Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall operate the nuclear plant to meet the NPIRs. *[Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations ]*

**Rationale for R5**: Rationale for R5: The NUC FYRT recommended R5 be revised for consistency with R4 and to clarify that nuclear plants must be operated to meet the Nuclear Plant Interface Requirements.

**M5.** The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, demonstrate or provide evidence that the nuclear power plant is being operated consistent with the NPIRs.

**R6.** Per the Agreements developed in accordance with this standard, the applicable Transmission Entities and the Nuclear Plant Generator Operator shall coordinate outages and maintenance activities which affect the NPIRs. *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*

**M6.** The Transmission Entities and Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, provide evidence of the coordination between the Transmission Entities and the Nuclear Plant Generator Operator regarding outages and maintenance activities which affect the NPIRs.

**R7.** Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall inform the applicable Transmission Entities of actual or proposed changes to nuclear plant design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

**M7.** The Nuclear Plant Generator Operator shall provide evidence that it informed the applicable Transmission Entities of changes to nuclear plant design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the Transmission Entities to meet the NPIRs.

**Rationale for R7 and R8**: The NUC FYRT recommended deleting “Protection Systems” in Requirements R7 and R8 since it is a subset of the "nuclear plant design" and "electric system design" elements currently contained in R7 and R8 respectively; and adding a parenthetical clause (e.g. protective setpoints) to R7 following "nuclear plant design" and parenthetical clause (e.g. relay setpoints) to R8 following "electric system design."

**R8.** Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall inform the Nuclear Plant Generator Operator of actual or proposed changes to electric system design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

**M8.** The Transmission Entities shall each provide evidence that the entities informed the Nuclear Plant Generator Operator of changes to electric system design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the Nuclear Plant Generator Operator to meet the NPIRs.

**R9.** The Nuclear Plant Generator Operator and the applicable Transmission Entities shall include the following elements in aggregate within the Agreement(s) identified in R2.

- Where multiple Agreements with a single Transmission Entity are put into effect, the R9 elements must be addressed in aggregate within the Agreements; however, each Agreement does not have to contain each element. The Nuclear Plant Generator Operator and the Transmission Entity are responsible for ensuring all the R9 elements are addressed in aggregate within the Agreements.
- Where Agreements with multiple Transmission Entities are required, the Nuclear Plant Generator Operator is responsible for ensuring all the R9 elements are addressed in aggregate within the Agreements with the Transmission Entities. The Agreements with each Transmission Entity do not have to contain each element; however, the Agreements

**Rationale for R9**: The NUC FYRT recommended that R9 be revised to clarify that all agreements do not have to discuss each of the elements in R9, but that the sum total of the agreements need to address the elements. In addition, for clarity in Part 9.4.1, the NUC FYRT recommended that "affecting the NPIRs" be inserted following "Provisions for communications" and "applicable unique" be inserted following ""definitions of."

with the multiple Transmission Entities, in the aggregate, must address all R9 elements. For each Agreement(s), the Nuclear Plant Generator Operator and the Transmission Entity are responsible to ensure the Agreement(s) contain(s) the elements of R9 applicable to that Transmission Entity. : *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

**9.1.** Retired. *[Note: Part 9.1 was retired under the Paragraph 81 project. The NUC SDT proposes to leave this Part blank to avoid renumbering Requirement parts that would impact existing agreements throughout the industry.]*

**9.2.** Technical requirements and analysis:

**9.2.1.** Identification of parameters, limits, configurations, and operating scenarios included in the NPIRs and, as applicable, procedures for providing any specific data not provided within the Agreement.

**9.2.2.** Identification of facilities, components, and configuration restrictions that are essential for meeting the NPIRs.

**9.2.3.** Types of planning and operational analyses performed specifically to support the NPIRs, including the frequency of studies and types of Contingencies and scenarios required.

**9.3.** Operations and maintenance coordination

**9.3.1.** Designation of ownership of electrical facilities at the interface between the electric system and the nuclear plant and responsibilities for operational control coordination and maintenance of these facilities.

**9.3.2.** Identification of any maintenance requirements for equipment not owned or controlled by the Nuclear Plant Generator Operator that are necessary to meet the NPIRs.

**9.3.3.** Coordination of testing, calibration and maintenance of on-site and off-site power supply systems and related components.

**9.3.4.** Provisions to address mitigating actions needed to avoid violating NPIRs and to address periods when responsible Transmission Entity loses the ability to assess the capability of the electric system to meet the NPIRs. These provisions shall include responsibility to notify the Nuclear Plant Generator Operator within a specified time frame.

**9.3.5.** Provision for considering, within the restoration process, the requirements and urgency of a nuclear plant that has lost all off-site and on-site AC power.

**9.3.6.** Coordination of physical and cyber security protection at the nuclear plant interface to ensure each asset is covered under at least one entity’s plan.

**9.3.7.** Coordination of the NPIRs with transmission system Remedial Action Schemes and any programs that reduce or shed load based on underfrequency or undervoltage.

Rationale for R9.3.7.: The term "Special Protection Systems" (SPS) was replaced with "Remedial Action Schemes" (RAS) in order to align with other current NERC standards development work in Project 2010-05.2: Special Protection Systems. Project 2010-05.2 has proposed to replace SPS with RAS throughout all of the NERC Standards in order to move to the use of a single term. RAS and SPS have the same definition in the NERC Glossary of Terms.

**9.4.** Communications and training Administrative elements:

**9.4.1.** Provisions for communications affecting the NPIRs between the Nuclear Plant Generator Operator and Transmission Entities, including communications protocols, notification time requirements, and definitions of applicable unique terms.

**9.4.2.** Provisions for coordination during an off-normal or emergency event affecting the NPIRs, including the need to provide timely information explaining the event, an estimate of when the system will be returned to a normal state, and the actual time the system is returned to normal.

**9.4.3.** Provisions for coordinating investigations of causes of unplanned events affecting the NPIRs and developing solutions to minimize future risk of such events.

**9.4.4.** Provisions for supplying information necessary to report to government agencies, as related to NPIRs.

**9.4.5.** Provisions for personnel training, as related to NPIRs.

**M9.** The Nuclear Plant Generator Operator shall have a copy of the Agreement(s) addressing the elements in Requirement 9 available for inspection upon request of the Compliance Enforcement Authority. Each Transmission Entity shall have a copy of the Agreement(s) addressing the elements in Requirement 9 for which it is responsible available for inspection upon request of the Compliance Enforcement Authority.

## C. Compliance

### 1. Compliance Monitoring Process

#### 1.1. Compliance Enforcement Authority

Regional Entity

#### 1.2. Compliance Monitoring and Assessment Processes:

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints Text

### 1.3. Data Retention

The Responsible Entity shall keep data or evidence to show compliance as identified below unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation:

- For Measure 1, the Nuclear Plant Generator Operator shall keep its latest transmittals and receipts.
- For Measure 2, the Nuclear Plant Generator Operator and each Transmission Entity shall have its current, in-force Agreement.
- For Measure 3, the Transmission Entity shall have the latest planning analysis results.
- For Measures 4, 6 and 8, the Transmission Entity shall keep evidence for two years plus current.
- For Measures 5, 6 and 7, the Nuclear Plant Generator Operator shall keep evidence for two years plus current.

If a Responsible Entity is found non-compliant it shall keep information related to the noncompliance until found compliant.

The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.

### 1.4. Additional Compliance Information

None

## Table of Compliance Elements

| R # | Time Horizon | VRF | Violation Severity Levels | | | |
|---|---|---|---|---|---|---|
| | | | Lower VSL | Moderate VSL | High VSL | Severe VSL |
| **R1** | | **Medium** | The Nuclear Plant Generator Operator provided the NPIRs to the applicable entities but did not verify receipt. | The Nuclear Plant Generator Operator did not provide the proposed NPIR to one of the applicable entities unless there was only one entity. | The Nuclear Plant Generator Operator did not provide the proposed NPIRs to two of the applicable entities unless there were only two entities. | The Nuclear Plant Generator Operator did not provide the proposed NPIRs to more than two of applicable entities.<br>OR<br>For a particular nuclear power plant, if the number of possible applicable transmission entities is equal to the number of applicable transmission entities not provided NPIRs |
| **R2** | | **Medium** | N/A | N/A | N/A | The Nuclear Plant Generator Operator or the applicable Transmission Entity does not have in effect one or more agreements that include mutually agreed to NPIRs and document the implementation of the NPIRs. |
| **R3** | | **Medium** | N/A | The responsible entity incorporated the NPIRs into its planning analyses but did not communicate | N/A | The responsible entity did not incorporate the NPIRs into its planning analyses of the electric system. |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | the results to the Nuclear Plant Generator Operator. | | |
| **R4** | | **High** | N/A | The responsible entity did not comply with Requirement R4, Part 4.3. | The responsible entity did not comply with Requirement R4, Part R4.1. | The responsible entity did not comply with Requirement R4, Part R4.2. |
| **R5** | | **High** | N/A | N/A | N/A | The Nuclear Plant Generator Operator failed to operate per the NPIRs developed in accordance with this standard. |
| **R6** | | **Medium** | N/A | The Nuclear Plant Generator Operator or Transmission Entity failed to provide outage or maintenance schedules to the appropriate parties as described in the agreement or on a time period consistent with the agreements. | The Nuclear Plant Generator Operator or Transmission Entity failed to coordinate one or more outages or maintenance activities in accordance the requirements of the agreements. | N/A |
| **R7** | | **High** | The Nuclear Plant Generator Operator did not inform the applicable Transmission Entities of proposed changes to nuclear plant design (e.g. protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. | N/A | The Nuclear Plant Generator Operator did not inform the applicable Transmission Entities of actual changes to nuclear plant design (e.g. protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. | The Nuclear Plant Generator Operator did not inform the applicable Transmission Entities of actual changes to nuclear plant design (e.g., protective relay setpoints), configuration, operations, limits or capabilities that directly impact the ability of the electric system to meet the NPIRs. |
| **R8** | | **High** | The applicable Transmission Entities did not inform the Nuclear | N/A | The applicable Transmission Entities did not inform the Nuclear | The applicable Transmission Entities did not inform the Nuclear |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | Plant Generator Operator of proposed changes to transmission system design, configuration (e.g. protective relay setpoints), operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. | | Plant Generator Operator of actual changes to transmission system design (e.g. protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. | Plant Generator Operator of actual changes to transmission system design (e.g. protective relay setpoints), configuration, operations, limits, or capabilities that directly impacts the ability of the electric system to meet the NPIRs. |
| **R9** | | **Medium** | | The Agreement(s) identified in R2. between the Nuclear Plant Generator Operator and the applicable Transmission Entity failed to include up to 20% of the combined sub-components in Requirement R9 Parts 9.2, 9.3 and 9.4 applicable to that entity. | The Agreement(s) identified in R2. between the Nuclear Plant Generator Operator and the applicable Transmission Entity failed to include greater than 20%, but less than 40% of the combined sub-components in Requirement R9 Parts 9.2, 9.3 and 9.4 applicable to the entity. | The Agreement(s) identified in R2. between the Nuclear Plant Generator Operator and the applicable Transmission Entity failed to include 40% or more of the combined sub-components in Requirement R9 Parts 9.2, 9.3 and 9.4 applicable to the entity. |

## D. Regional Variances

The design basis for Canadian (CANDU) nuclear power plants (NPPs) does not result in the same licensing requirements as U.S. NPPs. Nuclear Regulatory Commission (NRC) design criteria specifies that in addition to emergency on-site electrical power, electrical power from the electric network also be provided to permit safe shutdown. There are no equivalent Canadian Regulatory requirements for electrical power from the electric network to be provided to permit safe shutdown. Therefore the definition of Nuclear Plant Licensing Requirements (NPLR) for Canadian CANDU NPPs will be as follows:

Canadian Nuclear Plant Licensing Requirements (CNPLR) are requirements included in the design basis of the nuclear plant and are statutorily mandated for the operation of the plant; when used in this standard, NPLR shall mean nuclear power plant licensing requirements for avoiding preventable challenges to nuclear safety as a result of an electric system disturbance, transient, or condition.

## E. Interpretations

None.

## F. Associated Documents

None

## Standard Development Timeline

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### Development Steps Completed

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|---|---|
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| Board of Trustees adoption | August 2014 |

**Effective Dates:** First day of the first calendar quarter that is twelve months beyond the date that this standard is approved by applicable regulatory authorities, or as otherwise provided for in a jurisdiction where approval by an applicable governmental authority is required for a standard to go into effect. Where approval by an applicable governmental authority is not required, the standard shall become effective on the first day of the first calendar quarter that is twelve months after the date this standard is adopted by the NERC Board of Trustees or as otherwise provided for in that jurisdiction.

## Version History

| Version | Date | Action | Change Tracking |
|---|---|---|---|
| 1 | May 2, 2007 | Approved by Board of Trustees | New |
| 2 | To be determined | Modifications for Order 716 to Requirement R9.3.5 and footnote 1; modifications to bring compliance elements into conformance with the latest version of the ERO Rules of Procedure. | Revision |
| 2 | August 5, 2009 | Adopted by Board of Trustees | Revised |
| 2 | January 22, 2010 | Approved by FERC on January 21, 2010<br>Added Effective Date | Update |
| 2 | February 7, 2013 | R9.1, R9.1.1, R9.1.2, R9.1.3, and R9.1.4 and associated elements approved by NERC Board of Trustees for retirement as part of the Paragraph 81 project (Project 2013-02) pending applicable regulatory approval. | |
| 2.1 | April 11, 2012 | Errata approved by the Standards Committee; (Capitalized “Protection System” in accordance with Implementation Plan for Project 2007-17 approval of revised definition of “Protection System”) | Errata associated with Project 2007-17 |
| 3 | March, 2014 | Modifications to implement the recommendations of the five-year review of NUC-001, which was accepted by the Standards Committee on October 17, 2013. | Revision |

## Definitions of Terms Used in Standard

*This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.*

**None**

*When this standard has received ballot approval, the text boxes will be moved to the Application Guidelines Section of the Standard.*

## A. Introduction

**1. Title:** **Nuclear Plant Interface Coordination**

**2. Number:** **NUC-001-3**

**3. Purpose:** This standard requires coordination between Nuclear Plant Generator Operators and Transmission Entities for the purpose of ensuring nuclear plant safe operation and shutdown.

**4. Applicability:**

**4.1. Functional Entities:**

**4.1.1** Nuclear Plant Generator Operators.

**4.2.** Transmission Entities shall mean all entities that are responsible for providing services related to Nuclear Plant Interface Requirements (NPIRs). Such entities may include one or more of the following:

**4.2.1** Transmission Operators.

**4.2.2** Transmission Owners.

**4.2.3** Transmission Planners.

**4.2.4** Transmission Service Providers.

**4.2.5** Balancing Authorities.

**4.2.6** Reliability Coordinators.

**4.2.7** Planning Coordinators.

**4.2.8** Distribution Providers.

**4.2.9** Load-Serving Entities.

**4.2.10** Generator Owners.

**4.2.11** Generator Operators.

**5. Background:**

Project 2012-13 Nuclear Power Interface Coordination seeks to implement the changes that were proposed by the NUC FYRT.~~-~~ The NUC FYRT was appointed by the Standards Committee Executive Committee on April 22, 2013. The NUC FYRT reviewed the NUC-001-2.1 standard to identify opportunities for consolidation and additional improvements. The NUC FYRT posted its recommendation to revise NUC-001-2.1 for industry comment on July 27, 2013.~~-~~ The NUC FYRT considered comments and submitted its final recommendation to revise NUC-001-2.1, along with a Standards Authorization Request (SAR) to the Standards Committee on October 17, 2013. ~~-~~The Standards Committee accepted the recommendation of the FYRT and appointed the team as the Standard Drafting Team (SDT) to implement the recommendation.

## B. Requirements and Measures

**R1.** The Nuclear Plant Generator Operator shall provide the proposed NPIRs in writing to the applicable Transmission Entities and shall verify receipt. *[Violation Risk Factor: Medium] [Time Horizon:~~-~~ Long-term Planning ]*

**M1.** The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, provide a copy of the transmittal and receipt of transmittal of the proposed NPIRs to the responsible Transmission Entities.

**R2.** The Nuclear Plant Generator Operator and the applicable Transmission Entities shall have in effect one or more Agreements[1] that include mutually agreed to NPIRs and document how the Nuclear Plant Generator Operator and the applicable Transmission Entities shall address and implement these NPIRs. *[Violation Risk Factor: Medium] [Time Horizon: ~~-~~Long-term Planning ]*

**M2.** The Nuclear Plant Generator Operator and each Transmission Entity shall each have a copy of the currently effective Agreement(s) which document how the Nuclear Plant Generator Operator and the applicable Transmission Entities address~~ing~~ and implement~~ing~~ the NPIRs available for inspection upon request of the Compliance Enforcement Authority.

**R3.** Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall incorporate the NPIRs into their planning analyses of the electric system and shall communicate the results of these analyses to the Nuclear Plant Generator Operator.: *[Violation Risk Factor: Medium] [Time Horizon: ~~-~~Long-term Planning ]*

**M3.** Each Transmission Entity responsible for planning analyses in accordance with the Agreement shall, upon request of the Compliance Enforcement Authority, provide a copy of the planning analyses results transmitted to the Nuclear Plant Generator

[1]. Agreements may include mutually agreed upon procedures or protocols in effect between entities or between departments of a vertically integrated system.

Operator, showing incorporation of the NPIRs. The Compliance Enforcement Authority shall refer to the Agreements developed in accordance with this standard for specific requirements.

**R4.** Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall *[Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations]*

**4.1.** Incorporate the NPIRs into their operating analyses of the electric system.
**4.2.** Operate the electric system to meet the NPIRs.

**4.3.** Inform the Nuclear Plant Generator Operator when the ability to assess the operation of the electric system affecting NPIRs is lost.

**M4.** Each Transmission Entity responsible for operating the electric system in accordance with the Agreement shall demonstrate or provide evidence of the following, upon request of the Compliance Enforcement Authority:

- The NPIRs have been incorporated into the current operating analysis of the electric system. (Requirement 4.1)
- The electric system was operated to meet the NPIRs. (Requirement 4.2)
- The Transmission Entity informed the Nuclear Plant Generator Operator when it became aware it lost the capability to assess the operation of the electric system affecting the NPIRs

**R5.** Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall operate the nuclear plant to meet the NPIRs. *[Violation Risk Factor: High] [Time Horizon: Operations Planning and Real-time Operations ]*

**Rationale for R5**: Rationale for R5: The NUC FYRT recommended R5 be revised for consistency with R4 and to clarify that nuclear plants must be operated to meet the Nuclear Plant Interface Requirements.

**M5.** The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, demonstrate or provide evidence that the nNuclear pPower pPlant is being operated consistent with the NPIRs.

**R6.** Per the Agreements developed in accordance with this standard, the applicable Transmission Entities and the Nuclear Plant Generator Operator shall coordinate outages and maintenance activities which affect the NPIRs. *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*

**M6.** The Transmission Entities and Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, provide evidence of the coordination between the Transmission Entities and the Nuclear Plant Generator Operator regarding outages and maintenance activities which affect the NPIRs.

**R7.** Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall inform the applicable Transmission Entities of actual or proposed changes to nuclear plant design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

**M7.** The Nuclear Plant Generator Operator shall provide evidence that it informed the applicable Transmission Entities of changes to nuclear plant design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that ~~would~~may impact the ability of the Transmission Entities to meet the NPIRs.

**Rationale for R7 and R8**: The NUC FYRT recommended deleting "Protection Systems" in Requirements R7 and R8 since it is a subset of the "nuclear plant design" and "electric system design" elements currently contained in R7 and R8 respectively; and adding a parenthetical clause (e.g. protective setpoints) to R7 following "nuclear plant design" and parenthetical clause (e.g. relay setpoints) to R8 following "electric system design."

**R8.** Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall inform the Nuclear Plant Generator Operator of actual or proposed changes to electric system design (e.g., protective relay setpoints), configuration, operations, limits, ~~,~~ or capabilities that may impact the ability of the electric system to meet the NPIRs. *[Violation Risk Factor: High] [Time Horizon: Long-term Planning]*

**M8.** The Transmission Entities shall each provide evidence that the entities~~it~~ informed the Nuclear Plant Generator Operator of changes to electric system design (e.g., protective relay setpoints), configuration, operations, limits, or capabilities that may~~would~~ impact the ability of the Nuclear Plant Generator Operator to meet the NPIRs.

**R9.** The Nuclear Plant Generator Operator and the applicable Transmission Entities shall include the following elements in aggregate within the Agreement(s) identified in R2.

- Where multiple Agreements with a single Transmission Entity are put into effect, the R9 elements must be addressed in aggregate within the Agreements; however, each Agreement does not have to contain each element. The Nuclear Plant Generator Operator and the Transmission Entity are responsible for ensuring all the R9 elements are addressed in aggregate within the Agreements.
- Where Agreements with multiple Transmission Entities are required, the Nuclear Plant Generator Operator is responsible for ensuring all the R9 elements are addressed in aggregate within the Agreements with the Transmission Entities. The Agreements with each Transmission Entity do not have to contain each element; however, the Agreements

**Rationale for R9**: The NUC FYRT recommended that R9 be revised to clarify that all agreements do not have to discuss each of the elements in R9, but that the sum total of the agreements need to address the elements. In addition, for clarity in Part 9.4.1, the NUC FYRT recommended that "affecting the NPIRs" be inserted following "Provisions for communications" and "applicable unique" be inserted following ""definitions of."

with the multiple Transmission Entities, in the aggregate, must address all R9 elements. For each Agreement(s), the Nuclear Plant Generator Operator and the Transmission Entity are responsible to ensure the Agreement(s) contain(s) the elements of R9 applicable to that Transmission Entity. : -*[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

**9.1.** Retired. -*[Note: Part 9.1 was retired under the Paragraph 81 project. -The NUC SDT proposes to leave this Part blank to avoid renumbering Requirement parts that would impact existing agreements throughout the industry.]*

**9.2.** Technical requirements and analysis:

**9.2.1.** Identification of parameters, limits, configurations, and operating scenarios included in the NPIRs and, as applicable, procedures for providing any specific data not provided within the Agreement.

**9.2.2.** Identification of facilities, components, and configuration restrictions that are essential for meeting the NPIRs.

**9.2.3.** Types of planning and operational analyses performed specifically to support the NPIRs, including the frequency of studies and types of Contingencies and scenarios required.

**9.3.** Operations and maintenance coordination

**9.3.1.** Designation of ownership of electrical facilities at the interface between the electric system and the nuclear plant and responsibilities for operational control coordination and maintenance of these facilities.

**9.3.2.** Identification of any maintenance requirements for equipment not owned or controlled by the Nuclear Plant Generator Operator that are necessary to meet the NPIRs.

**9.3.3.** Coordination of testing, calibration and maintenance of on-site and off-site power supply systems and related components.

**9.3.4.** Provisions to address mitigating actions needed to avoid violating NPIRs and to address periods when responsible Transmission Entity loses the ability to assess the capability of the electric system to meet the NPIRs. These provisions shall include responsibility to notify the Nuclear Plant Generator Operator within a specified time frame.

**9.3.5.** Provision for considering, within the restoration process, the requirements and urgency of a nuclear plant that has lost all off-site and on-site AC power.

**9.3.6.** Coordination of physical and cyber security protection –at the nuclear plant interface to ensure each asset is covered under at least one entity's plan.

**9.3.7.** Coordination of the NPIRs with transmission system ~~Special Protection Systems~~ Remedial Action Schemes and any programs that reduce or shed load based on underfrequency or undervoltage.

**9.4.** Communications and training Administrative elements:

**9.4.1.** Provisions for communications affecting the NPIRs between the Nuclear Plant Generator Operator and Transmission Entities, including communications protocols, notification time requirements, and definitions of applicable unique terms.

**9.4.2.** Provisions for coordination during an off-normal or emergency event affecting the NPIRs, including the need to provide timely information explaining the event, an estimate of when the system will be returned to a normal state, and the actual time the system is returned to normal.

**9.4.3.** Provisions for coordinating investigations of causes of unplanned events affecting the NPIRs and developing solutions to minimize future risk of such events.

**9.4.4.** Provisions for supplying information necessary to report to government agencies, as related to NPIRs.

**9.4.5.** Provisions for personnel training, as related to NPIRs.

Rationale for R9.3.7.: The term "Special Protection Systems" (SPS) was replaced with "Remedial Action Schemes" (RAS) in order to align with other current NERC standards development work in Project 2010-05.2: Special Protection Systems. -Project 2010-05.2 has proposed to replace SPS with RAS throughout all of the NERC Standards in order to move to the use of a single term. -RAS and SPS have the same definition in the NERC Glossary of Terms.

**M9.** -The Nuclear Plant Generator Operator shall- have a copy of the Agreement(s) addressing the elements in Requirement 9 available for inspection upon request of the Compliance Enforcement Authority. -Each Transmission Entity shall have a copy of the Agreement(s) addressing the elements in Requirement 9 for which it is responsible available for inspection upon request of the Compliance Enforcement Authority.

## C. Compliance

### 1. Compliance Monitoring Process

#### 1.1. Compliance Enforcement Authority

Regional Entity

#### 1.2. Compliance Monitoring and Assessment Processes:

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints Text

### 1.3. Data Retention

The Responsible Entity shall keep data or evidence to show compliance as identified below unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation:

- For Measure 1, the Nuclear Plant Generator Operator shall keep its latest transmittals and receipts.
- For Measure 2, the Nuclear Plant Generator Operator and each Transmission Entity shall have its current, in-force Agreement.
- For Measure 3, the Transmission Entity shall have the latest planning analysis results.
- For Measures 4~~.3~~, 6 and 8, the Transmission Entity shall keep evidence for two years plus current.
- For Measures 5, 6 and 7, the Nuclear Plant Generator Operator shall keep evidence for two years plus current.

If a Responsible Entity is found non-compliant it shall keep information related to the noncompliance until found compliant.

The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.

### 1.4. Additional Compliance Information

None

## Table of Compliance Elements

| R # | Time Horizon | VRF | Violation Severity Levels | | | |
|---|---|---|---|---|---|---|
| | | | Lower VSL | Moderate VSL | High VSL | Severe VSL |
| **R1** | | **Medium** | The Nuclear Plant Generator Operator provided the NPIR~~'~~s to the applicable entities but did not verify receipt. | The Nuclear Plant Generator Operator did not provide the proposed NPIR to one of the applicable entities unless there was only one entity. | The Nuclear Plant Generator Operator did not provide the proposed NPIR~~'~~s to two of the applicable entities unless there were only two entities. | The Nuclear Plant Generator Operator did not provide the proposed NPIR~~'~~s to more than two of applicable entities.<br>OR<br>For a particular n~~N~~uclear p~~P~~ower p~~P~~lant, if the number of possible applicable transmission entities is equal to the number of applicable transmission entities not provided NPIRs |
| **R2** | | **Medium** | N/A | N/A | N/A | The Nuclear Plant Generator Operator or the applicable Transmission Entity does not have in effect one or more agreements that include mutually agreed to NPIRs and document the implementation of the NPIRs. |
| **R3** | | **Medium** | N/A | The responsible entity incorporated the NPIRs into its planning analyses but did not communicate | N/A | The responsible entity did not incorporate the NPIRs into its planning analyses of the electric system. |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | the results to the Nuclear Plant Generator Operator. | | |
| **R4** | | **High** | N/A | The responsible entity did not comply with Requirement R4, Part 4.3. | The responsible entity did not comply with Requirement R4, Part R4.1. | The responsible entity did not comply with Requirement R4, Part R4.2. |
| **R5** | | **High** | N/A | N/A | N/A | The Nuclear Plant Generator Operator failed to operate per the NPIRs developed in accordance with this standard. |
| **R6** | | **Medium** | N/A | The Nuclear Plant Generator Operator or Transmission Entity failed to provide outage or maintenance schedules to the appropriate parties as described in the agreement or on a time period consistent with the agreements. | The Nuclear Plant Generator Operator or Transmission Entity failed to coordinate one or more outages or maintenance activities in accordance the requirements of the agreements. | N/A |
| **R7** | | **High** | The Nuclear Plant Generator Operator did not inform the applicable Transmission Entities of proposed changes to nuclear plant design (e.g. protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. | N/A | The Nuclear Plant Generator Operator did not inform the applicable Transmission Entities of actual changes to nuclear plant design (e.g. protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. | The Nuclear Plant Generator Operator did not inform the applicable Transmission Entities of actual changes to nuclear plant design (e.g., protective relay setpoints), configuration, operations, limits or capabilities that directly impact the ability of the electric system to meet the NPIRs. |
| **R8** | | **High** | The applicable Transmission Entities did not inform the Nuclear | N/A | The applicable Transmission Entities did not inform the Nuclear | The applicable Transmission Entities did not inform the Nuclear |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | Plant Generator Operator of proposed changes to transmission system design, configuration (e.g. protective relay setpoints), operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. | | Plant Generator Operator of actual changes to transmission system design (e.g. protective relay setpoints), configuration, operations, limits, or capabilities that may impact the ability of the electric system to meet the NPIRs. | Plant Generator Operator of actual changes to transmission system design (e.g. protective relay setpoints), configuration, operations, limits, or capabilities that directly impacts the ability of the electric system to meet the NPIRs. |
| **R9** | | **Medium** | | The Agreement(s) identified in R2. between the Nuclear Plant Generator Operator and the applicable Transmission Entity failed to include up to 20% of the combined sub-components in Requirement R9 Parts 9.2, 9.3 and 9.4 applicable to that entity. | The Agreement(s) identified in R2. between the Nuclear Plant Generator Operator and the applicable Transmission Entity failed to include greater than 20%, but less than 40% of the combined sub-components in Requirement R9 Parts 9.2, 9.3 and 9.4 applicable to the entity. | The Agreement(s) identified in R2. between the Nuclear Plant Generator Operator and the applicable Transmission Entity failed to include 40% or more of the combined sub-components in Requirement R9 Parts 9.2, 9.3 and 9.4 applicable to the entity. |

## D. Regional Variances

The design basis for Canadian (CANDU) nNuclear pPower pPlants (NPPs) does not result in the same licensing requirements as U.S. NPPs. Nuclear Regulatory Commission (NRC) design criteria specifies that in addition to emergency on-site electrical power, electrical power from the electric network also be provided to permit safe shutdown. There are no equivalent Canadian Regulatory requirements for electrical power from the electric network to be provided to permit safe shutdown. -Therefore the definition of Nuclear Plant Licensing Requirements (NPLR) for Canadian CANDU -NPPs will be as follows:

Canadian Nuclear Plant Licensing Requirements (CNPLR) are requirements included in the design basis of the nuclear plant and are statutorily mandated for the operation of the plant; when used in this standard, NPLR shall mean nuclear power plant licensing requirements for avoiding preventable challenges to nuclear safety as a result of an electric system disturbance, transient, or condition.

## E. Interpretations

None.

## F. Associated Documents

None

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# Standards Announcement

## Project 2012-13 Nuclear Plant Interface Coordination NUC-001-3

**Final Ballot Now Open through July 2, 2014**

**Now Available**

A final ballot for **NUC-001-3 – Nuclear Plant Interface Coordination** is open through **Monday, July 2, 2014.**

If you have questions please contact Stephen Eldridge via email or by telephone at (404) 446-9686.

Background information for this project can be found on the project page.

### Instructions for Balloting

In the final ballot, votes are counted by exception. Only members of the ballot pool may cast a ballot; all ballot pool members may change their previously cast votes. A ballot pool member who failed to cast a vote during the last ballot window may cast a vote in the final ballot window. If a ballot pool member cast a vote in the previous ballot and does not participate in the final ballot, that member's vote will be carried over in the final ballot.

Members of the ballot pool associated with this project may log in and submit their vote for the standards by clicking here.

For information on the **Standards Development Process**, please refer to the Standard Processes Manual.

*For more information or assistance, please contact Wendy Muller, Standards Development Administrator, or at 404-446-2560.*

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NERC
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# Standards Announcement

## Project 2012-13 Nuclear Plant Interface Coordination NUC-001-3

### Final Ballot Results

**Now Available**

A final ballot for **NUC-001-3 – Nuclear Plant Interface Coordination** concluded at **8 p.m. Eastern on Thursday, July 3, 2014**.

The standard achieved a quorum and received sufficient affirmative votes for approval. Voting statistics are listed below, and the Ballot Results page provides a link to the detailed results for the ballot.

| Ballot Results |
| --- |
| Quorum /Approval |
| 88.63% / 97.23% |

Background information for this project can be found on the project page.

### Next Steps

The standard will be submitted to the Board of Trustees for adoption and then filed with the appropriate regulatory authorities.

For information on the **Standards Development Process**, please refer to the Standard Processes Manual.

*For more information or assistance, please contact Wendy Muller (via email), Standards Development Administrator, or at 404-446-2560.*

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| Ballot Results | |
|---|---|
| **Ballot Name:** | Project 2012-13 Nuclear Plant Interface Coordination NUC-001-3 |
| **Ballot Period:** | 6/23/2014 - 7/3/2014 |
| **Ballot Type:** | Final |
| **Total # Votes:** | 265 |
| **Total Ballot Pool:** | 299 |
| **Quorum:** | **88.63 % The Quorum has been reached** |
| **Weighted Segment Vote:** | 97.23 % |
| **Ballot Results:** | **A quorum was reached and there were sufficient affirmative votes for approval.** |

**Summary of Ballot Results**

| Segment | Ballot Pool | Segment Weight | Affirmative # Votes | Affirmative Fraction | Negative # Votes | Negative Fraction | Negative Vote without a Comment | Abstain | No Vote |
|---|---|---|---|---|---|---|---|---|---|
| 1 - Segment 1 | 78 | 1 | 51 | 0.981 | 1 | 0.019 | 0 | 12 | 14 |
| 2 - Segment 2 | 9 | 0.6 | 5 | 0.5 | 1 | 0.1 | 0 | 3 | 0 |
| 3 - Segment 3 | 66 | 1 | 42 | 0.955 | 2 | 0.045 | 0 | 15 | 7 |
| 4 - Segment 4 | 22 | 1 | 13 | 1 | 0 | 0 | 0 | 8 | 1 |
| 5 - Segment 5 | 63 | 1 | 41 | 0.976 | 1 | 0.024 | 0 | 16 | 5 |
| 6 - Segment 6 | 47 | 1 | 30 | 1 | 0 | 0 | 0 | 10 | 7 |
| 7 - Segment 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 - Segment 8 | 4 | 0.4 | 4 | 0.4 | 0 | 0 | 0 | 0 | 0 |
| 9 - Segment 9 | 2 | 0.2 | 2 | 0.2 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10 - Segment 10 | 8 | 0.6 | 6 | 0.6 | 0 | 0 | 0 | 2 | 0 |
| **Totals** | **299** | **6.8** | **194** | **6.612** | **5** | **0.188** | **0** | **66** | **34** |

## Individual Ballot Pool Results

| Segment | Organization | Member | Ballot | NERC Notes |
|---|---|---|---|---|
| 1 | Ameren Services | Eric Scott | Affirmative | |
| 1 | American Electric Power | Paul B Johnson | Affirmative | |
| 1 | American Transmission Company, LLC | Andrew Z Pusztai | Affirmative | |
| 1 | Arizona Public Service Co. | Robert Smith | Affirmative | |
| 1 | Associated Electric Cooperative, Inc. | John Bussman | | |
| 1 | Austin Energy | James Armke | Affirmative | |
| 1 | Balancing Authority of Northern California | Kevin Smith | Affirmative | |
| 1 | Baltimore Gas & Electric Company | Christopher J Scanlon | Affirmative | |
| 1 | Black Hills Corp | Wes Wingen | Abstain | |
| 1 | Bonneville Power Administration | Donald S. Watkins | Affirmative | |
| 1 | Bryan Texas Utilities | John C Fontenot | Affirmative | |
| 1 | CenterPoint Energy Houston Electric, LLC | John Brockhan | Affirmative | |
| 1 | Central Electric Power Cooperative | Michael B Bax | Abstain | |
| 1 | City of Tacoma, Department of Public Utilities, Light Division, dba Tacoma Power | Chang G Choi | Abstain | |
| 1 | Clark Public Utilities | Jack Stamper | Affirmative | |
| 1 | Colorado Springs Utilities | Shawna Speer | Affirmative | |
| 1 | Consolidated Edison Co. of New York | Christopher L de Graffenried | Affirmative | |
| 1 | CPS Energy | Glenn Pressler | Affirmative | |
| 1 | Dominion Virginia Power | Larry Nash | Affirmative | |
| 1 | Duke Energy Carolina | Doug E Hils | Affirmative | |
| 1 | Duquesne Light Co. | Hugh R Conley | | |
| 1 | Entergy Transmission | Oliver A Burke | Affirmative | |
| 1 | FirstEnergy Corp. | William J Smith | Affirmative | |
| 1 | Florida Keys Electric Cooperative Assoc. | Dennis Minton | Abstain | |
| 1 | Florida Power & Light Co. | Mike O'Neil | Affirmative | |
| 1 | Gainesville Regional Utilities | Richard Bachmeier | Affirmative | |
| 1 | Georgia Transmission Corporation | Jason Snodgrass | Affirmative | |
| 1 | Great River Energy | Gordon Pietsch | Affirmative | |
| 1 | Hydro One Networks, Inc. | Muhammed Ali | Affirmative | |
| 1 | International Transmission Company Holdings Corp | Michael Moltane | Affirmative | |
| 1 | JDRJC Associates | Jim D Cyrulewski | Affirmative | |
| 1 | JEA | Ted E Hobson | Affirmative | |
| 1 | KAMO Electric Cooperative | Walter Kenyon | | |
| 1 | Kansas City Power & Light Co. | Daniel Gibson | Affirmative | |
| 1 | Keys Energy Services | Stanley T Rzad | | |
| 1 | Lakeland Electric | Larry E Watt | Affirmative | |
| 1 | Lee County Electric Cooperative | John Chin | | |
| 1 | Lincoln Electric System | Doug Bantam | | |
| 1 | Long Island Power Authority | Robert Ganley | | |
| 1 | M & A Electric Power Cooperative | William Price | | |
| 1 | MidAmerican Energy Co. | Terry Harbour | Affirmative | |
| 1 | N.W. Electric Power Cooperative, Inc. | Mark Ramsey | | |
| 1 | National Grid USA | Michael Jones | Affirmative | |
| 1 | NB Power Corporation | Alan MacNaughton | Abstain | |
| 1 | Nebraska Public Power District | Jamison Cawley | Negative | SUPPORTS THIRD PARTY COMMENTS |
| 1 | New York Power Authority | Bruce Metruck | Affirmative | |
| 1 | Northeast Missouri Electric Power Cooperative | Kevin White | | |
| 1 | Northeast Utilities | William Temple | Affirmative | |
| 1 | Northern Indiana Public Service Co. | Julaine Dyke | Abstain | |
| 1 | Ohio Valley Electric Corp. | Scott R Cunningham | | |
| 1 | Omaha Public Power District | Doug Peterchuck | Affirmative | |
| 1 | Oncor Electric Delivery | Jen Fiegel | Affirmative | |

| | | | | |
|---|---|---|---|---|
| 1 | Pacific Gas and Electric Company | Bangalore Vijayraghavan | Affirmative | |
| 1 | Platte River Power Authority | John C. Collins | Abstain | |
| 1 | Portland General Electric Co. | John T Walker | Abstain | |
| 1 | Potomac Electric Power Co. | David Thorne | Affirmative | |
| 1 | PPL Electric Utilities Corp. | Brenda L Truhe | Affirmative | |
| 1 | Public Service Company of New Mexico | Laurie Williams | Abstain | |
| 1 | Public Service Electric and Gas Co. | Kenneth D. Brown | Affirmative | |
| 1 | Rochester Gas and Electric Corp. | John C. Allen | Affirmative | |
| 1 | Sacramento Municipal Utility District | Tim Kelley | Affirmative | |
| 1 | Salt River Project | Robert Kondziolka | Affirmative | |
| 1 | SaskPower | Wayne Guttormson | Abstain | |
| 1 | Seattle City Light | Pawel Krupa | Affirmative | |
| 1 | Seminole Electric Cooperative, Inc. | Glenn Spurlock | Abstain | |
| 1 | Sho-Me Power Electric Cooperative | Denise Stevens | | |
| 1 | Snohomish County PUD No. 1 | Long T Duong | Affirmative | |
| 1 | South Carolina Electric & Gas Co. | Tom Hanzlik | Affirmative | |
| 1 | Southern California Edison Company | Steven Mavis | Affirmative | |
| 1 | Southern Company Services, Inc. | Robert A. Schaffeld | Affirmative | |
| 1 | Tampa Electric Co. | Beth Young | | |
| 1 | Tennessee Valley Authority | Howell D Scott | Affirmative | |
| 1 | Tucson Electric Power Co. | John Tolo | Abstain | |
| 1 | U.S. Bureau of Reclamation | Richard T Jackson | Affirmative | |
| 1 | Vermont Electric Power Company, Inc. | Kim Moulton | | |
| 1 | Westar Energy | Allen Klassen | Affirmative | |
| 1 | Western Area Power Administration | Lloyd A Linke | Affirmative | |
| 1 | Xcel Energy, Inc. | Gregory L Pieper | Affirmative | |
| 2 | BC Hydro | Venkataramakrishnan Vinnakota | Abstain | |
| 2 | California ISO | Rich Vine | Affirmative | |
| 2 | Electric Reliability Council of Texas, Inc. | Cheryl Moseley | Affirmative | |
| 2 | Independent Electricity System Operator | Leonard Kula | Negative | COMMENT RECEIVED |
| 2 | ISO New England, Inc. | Matthew F Goldberg | Affirmative | |
| 2 | MISO | Marie Knox | Affirmative | |
| 2 | New York Independent System Operator | Gregory Campoli | Abstain | |
| 2 | PJM Interconnection, L.L.C. | stephanie monzon | Affirmative | |
| 2 | Southwest Power Pool, Inc. | Charles H. Yeung | Abstain | |
| 3 | AEP | Michael E Deloach | Affirmative | |
| 3 | Alabama Power Company | Robert S Moore | Affirmative | |
| 3 | APS | Sarah Kist | Affirmative | |
| 3 | Associated Electric Cooperative, Inc. | Todd Bennett | Abstain | |
| 3 | Atlantic City Electric Company | NICOLE BUCKMAN | Affirmative | |
| 3 | BC Hydro and Power Authority | Pat G. Harrington | Abstain | |
| 3 | Bonneville Power Administration | Rebecca Berdahl | Affirmative | |
| 3 | Central Electric Power Cooperative | Adam M Weber | | |
| 3 | City of Anaheim Public Utilities Department | Dennis M Schmidt | Abstain | |
| 3 | City of Austin dba Austin Energy | Andrew Gallo | Affirmative | |
| 3 | City of Clewiston | Lynne Mila | Affirmative | |
| 3 | City of Green Cove Springs | Mark Schultz | Affirmative | |
| 3 | Colorado Springs Utilities | Jean Mueller | Affirmative | |
| 3 | ComEd | John Bee | Affirmative | |
| 3 | Consolidated Edison Co. of New York | Peter T Yost | Affirmative | |
| 3 | Consumers Energy Company | Gerald G Farringer | | |
| 3 | Cowlitz County PUD | Russell A Noble | Affirmative | |
| 3 | CPS Energy | Jose Escamilla | Affirmative | |
| 3 | Delmarva Power & Light Co. | Michael R. Mayer | Affirmative | |
| 3 | Dominion Resources, Inc. | Connie B Lowe | Affirmative | |
| 3 | DTE Electric | Kent Kujala | Affirmative | |
| 3 | FirstEnergy Corp. | Cindy E Stewart | Affirmative | |
| 3 | Florida Keys Electric Cooperative | Tom B Anthony | Abstain | |
| 3 | Florida Municipal Power Agency | Joe McKinney | Affirmative | |
| 3 | Florida Power Corporation | Lee Schuster | Affirmative | |
| 3 | Georgia System Operations Corporation | Scott McGough | Abstain | |
| 3 | Great River Energy | Brian Glover | Affirmative | |
| 3 | Hydro One Networks, Inc. | Ayesha Sabouba | Affirmative | |
| 3 | JEA | Garry Baker | Abstain | |
| 3 | KAMO Electric Cooperative | Theodore J Hilmes | Negative | |
| | | | | |

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|---|---|---|---|---|
| 3 | Kansas City Power & Light Co. | Joshua D Bach | Affirmative | |
| 3 | Kissimmee Utility Authority | Gregory D Woessner | Abstain | |
| 3 | Lakeland Electric | Mace D Hunter | Abstain | |
| 3 | Lee County Electric Cooperative | David A Hadzima | | |
| 3 | Lincoln Electric System | Jason Fortik | Abstain | |
| 3 | Louisville Gas and Electric Co. | Charles A. Freibert | Affirmative | |
| 3 | M & A Electric Power Cooperative | Stephen D Pogue | | |
| 3 | MEAG Power | Roger Brand | Affirmative | |
| 3 | MidAmerican Energy Co. | Thomas C. Mielnik | Affirmative | |
| 3 | Muscatine Power & Water | John S Bos | | |
| 3 | National Grid USA | Brian E Shanahan | Affirmative | |
| 3 | Nebraska Public Power District | Tony Eddleman | Negative | SUPPORTS THIRD PARTY COMMENTS |
| 3 | New York Power Authority | David R Rivera | Affirmative | |
| 3 | Northern Indiana Public Service Co. | Ramon J Barany | Abstain | |
| 3 | NW Electric Power Cooperative, Inc. | David McDowell | | |
| 3 | Ocala Utility Services | Randy Hahn | Affirmative | |
| 3 | Omaha Public Power District | Blaine R. Dinwiddie | Affirmative | |
| 3 | Orlando Utilities Commission | Ballard K Mutters | Affirmative | |
| 3 | Owensboro Municipal Utilities | Thomas T Lyons | Abstain | |
| 3 | Pacific Gas and Electric Company | John H Hagen | Affirmative | |
| 3 | Platte River Power Authority | Terry L Baker | Abstain | |
| 3 | PNM Resources | Michael Mertz | Abstain | |
| 3 | Potomac Electric Power Co. | Mark Yerger | Affirmative | |
| 3 | Public Service Electric and Gas Co. | Jeffrey Mueller | Affirmative | |
| 3 | Sacramento Municipal Utility District | James Leigh-Kendall | Affirmative | |
| 3 | Salt River Project | John T. Underhill | Affirmative | |
| 3 | Seattle City Light | Dana Wheelock | Affirmative | |
| 3 | Seminole Electric Cooperative, Inc. | James R Frauen | Abstain | |
| 3 | Sho-Me Power Electric Cooperative | Jeff L Neas | | |
| 3 | Snohomish County PUD No. 1 | Mark Oens | Affirmative | |
| 3 | South Carolina Electric & Gas Co. | Hubert C Young | Affirmative | |
| 3 | Southern California Edison Company | Lujuanna Medina | Affirmative | |
| 3 | Tacoma Power | Marc Donaldson | Abstain | |
| 3 | Tennessee Valley Authority | Ian S Grant | Affirmative | |
| 3 | Westar Energy | Bo Jones | Affirmative | |
| 3 | Xcel Energy, Inc. | Michael Ibold | Affirmative | |
| 4 | Alliant Energy Corp. Services, Inc. | Kenneth Goldsmith | Abstain | |
| 4 | Blue Ridge Power Agency | Duane S Dahlquist | Abstain | |
| 4 | City of Austin dba Austin Energy | Reza Ebrahimian | Affirmative | |
| 4 | City Utilities of Springfield, Missouri | John Allen | Abstain | |
| 4 | Constellation Energy Control & Dispatch, L.L.C. | Margaret Powell | Affirmative | |
| 4 | Consumers Energy Company | Tracy Goble | Abstain | |
| 4 | Cowlitz County PUD | Rick Syring | Affirmative | |
| 4 | DTE Electric | Daniel Herring | Affirmative | |
| 4 | Florida Municipal Power Agency | Frank Gaffney | Affirmative | |
| 4 | Georgia System Operations Corporation | Guy Andrews | Abstain | |
| 4 | Herb Schrayshuen | Herb Schrayshuen | Affirmative | |
| 4 | Illinois Municipal Electric Agency | Bob C. Thomas | Affirmative | |
| 4 | Madison Gas and Electric Co. | Joseph DePoorter | Abstain | |
| 4 | Ohio Edison Company | Douglas Hohlbaugh | Affirmative | |
| 4 | Public Utility District No. 1 of Snohomish County | John D Martinsen | Affirmative | |
| 4 | Sacramento Municipal Utility District | Mike Ramirez | Affirmative | |
| 4 | Seattle City Light | Hao Li | Affirmative | |
| 4 | Seminole Electric Cooperative, Inc. | Steven R Wallace | Abstain | |
| 4 | South Mississippi Electric Power Association | Steve McElhaney | Affirmative | |
| 4 | Tacoma Public Utilities | Keith Morisette | Abstain | |
| 4 | Utility Services, Inc. | Brian Evans-Mongeon | Affirmative | |
| 4 | Wisconsin Energy Corp. | Anthony Jankowski | | |
| 5 | Amerenue | Sam Dwyer | Affirmative | |
| 5 | American Electric Power | Thomas Foltz | Affirmative | |
| 5 | Arizona Public Service Co. | Scott Takinen | Affirmative | |
| 5 | Boise-Kuna Irrigation District/dba Lucky peak power plant project | Mike D Kukla | Abstain | |

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|---|---|---|---|---|
| 5 | Bonneville Power Administration | Francis J. Halpin | Affirmative | |
| 5 | Calpine Corporation | Hamid Zakery | Abstain | |
| 5 | City of Austin dba Austin Energy | Jeanie Doty | Affirmative | |
| 5 | Cleco Power | Stephanie Huffman | Abstain | |
| 5 | Cogentrix Energy Power Management, LLC | Mike D Hirst | Abstain | |
| 5 | Colorado Springs Utilities | Kaleb Brimhall | Affirmative | |
| 5 | Con Edison Company of New York | Brian O'Boyle | Affirmative | |
| 5 | Cowlitz County PUD | Bob Essex | Affirmative | |
| 5 | Dominion Resources, Inc. | Mike Garton | Affirmative | |
| 5 | DTE Electric | Mark Stefaniak | Affirmative | |
| 5 | Duke Energy | Dale Q Goodwine | Affirmative | |
| 5 | E.ON Climate & Renewables North America, LLC | Dana Showalter | Abstain | |
| 5 | EDP Renewables North America LLC | Heather Bowden | Abstain | |
| 5 | El Paso Electric Company | Gustavo Estrada | | |
| 5 | Electric Power Supply Association | John R Cashin | | |
| 5 | Entergy Services, Inc. | Tracey Stubbs | Affirmative | |
| 5 | Exelon Nuclear | Mark F Draper | Affirmative | |
| 5 | First Wind | John Robertson | Affirmative | |
| 5 | FirstEnergy Solutions | Kenneth Dresner | Affirmative | |
| 5 | Florida Municipal Power Agency | David Schumann | Affirmative | |
| 5 | Great River Energy | Preston L Walsh | Affirmative | |
| 5 | JEA | John J Babik | Affirmative | |
| 5 | Kansas City Power & Light Co. | Brett Holland | Affirmative | |
| 5 | Kissimmee Utility Authority | Mike Blough | Affirmative | |
| 5 | Liberty Electric Power LLC | Daniel Duff | Affirmative | |
| 5 | Lincoln Electric System | Dennis Florom | Abstain | |
| 5 | Los Angeles Department of Water & Power | Kenneth Silver | | |
| 5 | Luminant Generation Company LLC | Rick Terrill | Affirmative | |
| 5 | Manitoba Hydro | Chris Mazur | | |
| 5 | Massachusetts Municipal Wholesale Electric Company | David Gordon | Abstain | |
| 5 | MEAG Power | Steven Grego | Affirmative | |
| 5 | Muscatine Power & Water | Mike Avesing | Abstain | |
| 5 | Nebraska Public Power District | Don Schmit | Negative | COMMENT RECEIVED |
| 5 | New York Power Authority | Wayne Sipperly | Affirmative | |
| 5 | NextEra Energy | Allen D Schriver | Affirmative | |
| 5 | Northern Indiana Public Service Co. | Michael D Melvin | Abstain | |
| 5 | Oglethorpe Power Corporation | Bernard Johnson | Affirmative | |
| 5 | Omaha Public Power District | Mahmood Z. Safi | Affirmative | |
| 5 | Ontario Power Generation Inc. | David Ramkalawan | Affirmative | |
| 5 | Orlando Utilities Commission | Richard K Kinas | | |
| 5 | Pacific Gas and Electric Company | Alex Chua | Affirmative | |
| 5 | Platte River Power Authority | Christopher R Wood | Abstain | |
| 5 | Portland General Electric Co. | Matt E. Jastram | Abstain | |
| 5 | PPL Generation LLC | Annette M Bannon | Affirmative | |
| 5 | PSEG Fossil LLC | Tim Kucey | Affirmative | |
| 5 | Puget Sound Energy, Inc. | Lynda Kupfer | Abstain | |
| 5 | Sacramento Municipal Utility District | Susan Gill-Zobitz | Affirmative | |
| 5 | Salt River Project | William Alkema | Affirmative | |
| 5 | Seattle City Light | Michael J. Haynes | Affirmative | |
| 5 | Seminole Electric Cooperative, Inc. | Brenda K. Atkins | Abstain | |
| 5 | Snohomish County PUD No. 1 | Sam Nietfeld | Affirmative | |
| 5 | South Carolina Electric & Gas Co. | Edward Magic | Affirmative | |
| 5 | Southern California Edison Company | Denise Yaffe | Affirmative | |
| 5 | Southern Company Generation | William D Shultz | Affirmative | |
| 5 | Tacoma Power | Chris Mattson | Abstain | |
| 5 | Tampa Electric Co. | RJames Rocha | Abstain | |
| 5 | Tennessee Valley Authority | David Thompson | Affirmative | |
| 5 | USDI Bureau of Reclamation | Erika Doot | Affirmative | |
| 5 | Westar Energy | Bryan Taggart | Affirmative | |
| 6 | AEP Marketing | Edward P. Cox | Affirmative | |
| 6 | Ameren Missouri | Robert Quinlivan | | |
| 6 | APS | Randy A. Young | Affirmative | |
| 6 | Associated Electric Cooperative, Inc. | Brian Ackermann | | |
| 6 | Bonneville Power Administration | Brenda S. Anderson | Affirmative | |
| 6 | City of Austin dba Austin Energy | Lisa Martin | Affirmative | |

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|---|---|---|---|---|
| 6 | Cleco Power LLC | Robert Hirchak | Abstain | |
| 6 | Colorado Springs Utilities | Shannon Fair | Affirmative | |
| 6 | Con Edison Company of New York | David Balban | Affirmative | |
| 6 | Constellation Energy Commodities Group | David J Carlson | Affirmative | |
| 6 | Dominion Resources, Inc. | Louis S. Slade | Affirmative | |
| 6 | Duke Energy | Greg Cecil | | |
| 6 | FirstEnergy Solutions | Kevin Querry | Affirmative | |
| 6 | Florida Municipal Power Agency | Richard L. Montgomery | Affirmative | |
| 6 | Florida Municipal Power Pool | Thomas Washburn | Abstain | |
| 6 | Florida Power & Light Co. | Silvia P Mitchell | Affirmative | |
| 6 | Great River Energy | Donna Stephenson | | |
| 6 | Kansas City Power & Light Co. | Jessica L Klinghoffer | Affirmative | |
| 6 | Lakeland Electric | Paul Shipps | Affirmative | |
| 6 | Lincoln Electric System | Eric Ruskamp | Abstain | |
| 6 | Los Angeles Department of Water & Power | Brad Packer | | |
| 6 | Lower Colorado River Authority | Michael Shaw | Abstain | |
| 6 | Luminant Energy | Brenda Hampton | Affirmative | |
| 6 | Muscatine Power & Water | John Stolley | | |
| 6 | New York Power Authority | Shivaz Chopra | Affirmative | |
| 6 | Northern Indiana Public Service Co. | Joseph O'Brien | Abstain | |
| 6 | Oglethorpe Power Corporation | Donna Johnson | Affirmative | |
| 6 | Omaha Public Power District | Douglas Collins | Affirmative | |
| 6 | PacifiCorp | Sandra L Shaffer | Affirmative | |
| 6 | Platte River Power Authority | Carol Ballantine | Abstain | |
| 6 | Portland General Electric Co. | Shawn P Davis | Abstain | |
| 6 | Power Generation Services, Inc. | Stephen C Knapp | Affirmative | |
| 6 | PPL EnergyPlus LLC | Elizabeth Davis | Affirmative | |
| 6 | PSEG Energy Resources & Trade LLC | Peter Dolan | Affirmative | |
| 6 | Sacramento Municipal Utility District | Diane Enderby | Affirmative | |
| 6 | Salt River Project | William Abraham | Affirmative | |
| 6 | Seattle City Light | Dennis Sismaet | Affirmative | |
| 6 | Seminole Electric Cooperative, Inc. | Trudy S. Novak | Abstain | |
| 6 | Snohomish County PUD No. 1 | Kenn Backholm | Affirmative | |
| 6 | Southern California Edison Company | Joseph T Marone | Affirmative | |
| 6 | Southern Company Generation and Energy Marketing | John J. Ciza | Affirmative | |
| 6 | Tacoma Public Utilities | Michael C Hill | Abstain | |
| 6 | Tampa Electric Co. | Benjamin F Smith II | | |
| 6 | Tennessee Valley Authority | Marjorie S. Parsons | Affirmative | |
| 6 | Westar Energy | Grant L Wilkerson | Affirmative | |
| 6 | Western Area Power Administration - UGP Marketing | Peter H Kinney | Abstain | |
| 6 | Xcel Energy, Inc. | Peter Colussy | Affirmative | |
| 8 | | David L Kiguel | Affirmative | |
| 8 | | Roger C Zaklukiewicz | Affirmative | |
| 8 | Massachusetts Attorney General | Frederick R Plett | Affirmative | |
| 8 | Volkmann Consulting, Inc. | Terry Volkmann | Affirmative | |
| 9 | Commonwealth of Massachusetts Department of Public Utilities | Donald Nelson | Affirmative | |
| 9 | New York State Public Service Commission | Diane J Barney | Affirmative | |
| 10 | Florida Reliability Coordinating Council | Linda C Campbell | Affirmative | |
| 10 | Midwest Reliability Organization | Russel Mountjoy | Affirmative | |
| 10 | New York State Reliability Council | Alan Adamson | Affirmative | |
| 10 | Northeast Power Coordinating Council | Guy V. Zito | Affirmative | |
| 10 | ReliabilityFirst | Anthony E Jablonski | Affirmative | |
| 10 | SERC Reliability Corporation | Joseph W Spencer | Affirmative | |
| 10 | Southwest Power Pool RE | Bob Reynolds | Abstain | |
| 10 | Western Electricity Coordinating Council | Steven L. Rueckert | Abstain | |
| | | | | |

Account Log-In/Register

**Exhibit H**

**Standard Drafting Team Roster**

# Project 2012-13 Nuclear Plant Interface Coordination
# Standard Drafting Team

| Name and Title | Company and Address | Contact Info | Bio |
|---|---|---|---|
| John Gyrath<br>Chair | Exelon Generation LLC (Nuclear)<br>200 Exelon Way, Kennett Square, PA 19348 | 610-765-5692<br>john.gyrath@exeloncorp.com | Member of the NUC-001 drafting team. Responsible for the interfaces between ten nuclear stations and the interconnected transmission owners. The stations are in both the RFC and SERC regions and involve both affiliated and non-affiliated transmission owners. Member of the PJM Nuclear Generator Owners and Operators Users Group (also past chairman), PJM Planning Committee, and PJM Reliability Standards and Compliance Subcommittee. Responsible for implementation of a subset of NERC standards including NUC-001 in Exelon Nuclear. On the Nuclear Energy Institute (NEI) NERC Standards Task Force. |
| George Attarian<br>Vice Chair | Duke Energy<br>410 S. Wilmington Street, Raleigh, NC 27601 | 919-546-4573<br>george.attarian@pgnmail.com | Major contributor to and drafting team member for NUC-001 from the Nuclear generator side. Chair of IEEE working group 4.6 for standard IEEE Recommended Practice 1792 "Recommended Practice for Nuclear Power Generating Stations" and IEEE Recommended Practice 1792" Recommended Practice for Nuclear Power Generating Station Preferred Power Supply Reliability. Author of grid/nuclear plant interface documents prior to NERC NUC-001. Co-author of two IEEE papers concerning Degraded Grid and Impact to Nuclear Power Stations. |
| Mukund "Mookie" Chander | Entergy Services Inc.<br>639, Loyola Ave, L-ENT-17A, New Orleans, LA 70113 | 504-576-5085<br>mchande@entergy.com | Overall experience 28 plus years, four years of electrical system design, 11 years experience in nuclear power plant electrical system design, and 13 years of experience in transmission planning and transmission system analysis. Former Chair/member of SERC's Short Circuit |

| Name and Title | Company and Address | Contact Info | Bio |
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| | | | Database Working Group, former member of SERC's Engineering Compliance Advisory Group, and former member of NERC's NUC-001 drafting team. |
| Kevin Donnelly | Consolidated Edison of NY<br>128 West End Ave, NY, NY 10023 | 212-580-6791<br>donnellyk@coned.com | North American Transmission Forum representative on Transmission / NPP Interface Practices Group. Past SRO licensed operator at Commercial Nuclear Power plant. Senior System Operator for Transmission Owner, Con Edison. |
| Pete Jenkins | Luminant Generation Company LLC<br>PO Box 1002 Glen Rose, Texas 76043 | 817-357-7962<br>james.jenkins@luminant.com | 26 years experience of protection and control experience in a nuclear power plant interfacing with switchyard protection and coordination. Served for the last three years as the switchyard coordinator for the Comanche Peak Nuclear Power Plant. Instrumental in developing the original NPIRs for the facility and in developing the Nuclear Plant Interface agreements between the nuclear power plant, the transmission owner, transmission operator, and generator operator. Responsible for the ongoing review and management of the current nuclear interface agreements. |
| Jerry Whooley | PJM Interconnection<br>955 Jefferson Avenue, Norristown, PA 19403 | 610-666-8861<br>whoolj@pjm.com | Currently serving as PJM coordinator for Nuclear Generator Owner User Group (NGOUG). Coordination of regular NGOUG meetings, updates to plant specific Nuclear Plant Interface Requirements (NPIRs) and updates to PJM Manual M39 (Nuclear Plant Interface Coordination). |
| Les Carter | Carter & Associates Inc.<br>89 German Mills Road,<br>Thornhill, Ontario, Canada<br>L3T 4H9 | 416-676-5647<br>les-carter@rogers.com | Les Carter is a nuclear professional who has spent over 30 years in the nuclear power business. While with Ontario Power Generation, he held various positions of authority including in Operations as a Certified Shift Manager and Duty Manager, Outage Manager, Performance Engineering Manager, Refurbishment Shift Manager and inspection specialist. He was also responsible for the |

| Name and Title | Company and Address | Contact Info | Bio |
|---|---|---|---|
| | | | development and oversight of loss of off-site power testing required as part of returning refurbished units to service. Through his own consulting company, Les is currently providing specialized Engineering and Operational expertise to the nuclear industry.<br><br>Les is a Licensed Professional Engineer in the province of Ontario and has a Master's degree in Mechanical Engineering from the University of Toronto. |