NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

May 27, 2011

Kimberly D. Bose
Secretary
Attn: Joseph H. McClelland
Director, Office of Electric Reliability
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

Dear Mr. McClelland,

Attached are the initial set of responses of the North American Electric Reliability Corporation ("NERC") to the Federal Energy Regulatory Commission's ("FERC") Office of Electric Reliability's April 12, 2011 letter to NERC ("FERC Data Request") requesting additional information regarding NERC's February 10, 2011 petition seeking approval of the proposed CIP Version 4 Reliability Standards. By this filing, NERC is providing a response to questions 1, 2, 8, 10, 11, and 12. Pursuant to the Office of Electric Reliability's April 14, 2011 Notice of Extension of Time to submit responses to the data requests, NERC will provide responses to the remaining questions 3-7 and 9 no later than July 11, 2011. The responses attached to this transmittal letter also include extensive cross references (in *italics*) to show where in the previously submitted petition these answers or supporting information can be found.

The proposed CIP Reliability Standards serve the important reliability goal of providing a cyber security framework for the identification and protection of Critical Cyber Assets to support the reliable operation of the Bulk Electric System. While NERC recognizes that the proposed bright-line criteria included in the CIP-002-4 Reliability Standard do not capture all assets in North America, the criteria presented mark a significant step toward capturing a list of Critical Assets necessary for reliability. As evidenced by NERC's petition and the responses to these data requests, the bright-line criteria presents a good, comprehensive list that helps to ensure the reliability of the bulk power system by capturing those assets that are most important and essential for the reliability and security of the system.

NERC expects that the standard drafting teams will address the remaining FERC Order No. 706 directives in the next phase of the development plan. The standard drafting team has developed a schedule that provides for a first ballot of the next version of the CIP Reliability Standards by the end of 2011, with an expected delivery to the Board of Trustees by the end of June, 2012, and a filing of these standards with the Commission by the end of the third quarter 2012.

The exhibits presented in NERC's February 10, 2011 petition and in the errata to NERC's petition filed on April 12, 2011 present a comprehensive set of exhibits that fully

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support NERC's petition for approval of the CIP Version 4 standards. Despite the fact that the record totals nearly 5,000 pages, the record evidence is organized in a very straight-forward manner. Each of the primary documents cited in response to the Data Request questions submitted with this response, which are included in NERC's petition filed in this docket, is described below:

- NERC filed, at the request of FERC staff, the standard drafting team meeting minutes, included as **Exhibit G** to the petition, which include minutes from October 2008 through March 2011. The meeting minutes demonstrate the standard drafting team's diligence in examining each of the bright-line criteria and in discussing every option regarding the criteria before deciding on the language to include in the proposed CIP-002-4 standard.

- The development record, filed as **Exhibit E** to the petition, includes several documents that support the drafting team's analysis in developing the bright-line criteria. These documents are:
    - *Categorizing Cyber Systems, an Approach Based on BES Reliability Functions*, prepared by the Cyber Security Standards Drafting Team for Project 2008-06, dated July 2009. This document presents an early view of the drafting team in proposing a broader, more comprehensive approach for providing appropriate and effective cyber security to protect the systems which support a reliable Bulk Electric System;

    - Five Consideration of Comments Documents, which include comments organized by entity, with each of the bright-line criteria being addressed described by criterion number. The standard drafting team prepared documents responding to *all* of the comments received, and prepared an Executive Summary of each Consideration of Comment Report. The standard drafting team organized its responses to comments on the bright-line criteria by criterion number.

    - The *CIP-002-4—Cyber Security – Critical Asset Identification, Rationale and Implementation Reference Document*, prepared by the standard drafting team. This document was initially prepared in September 2010 and was updated by the standard drafting team in November and December 2010. This document presents the standard drafting team's high-level rationale for the bright-line criteria included in the proposed CIP-002-4 standard. Because of this document's importance in explaining the standard drafting team's reasoning in making the choices that it did, NERC is including the final version of this document as an attachment to this response.

      Please contact me with additional questions.

/s/ Holly A. Hawkins
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North American Electric Reliability Corporation

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION	**)**	**Docket No. RM11-11-000**

RESPONSE OF THE NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION TO THE FEDERAL ENERGY REGULATORY COMMISSION OFFICE OF ELECTRIC RELIABILITY'S APRIL 12, 2011 DATA REQUEST

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May 27, 2011

I. Introduction

This filing is a partial response to the data request issued by the Federal Energy Regulatory Commission's ("FERC" or the "Commission") Director of the Office of Electric Reliability on April 12, 2011 to the North American Electric Reliability Corporation ("NERC") for additional information in support of NERC's February 10, 2011 petition for approval of the CIP Version 4 Reliability Standards, including CIP-002-4, the bright line test for determining critical assets (the "Petition"). This filing addresses questions 1, 2, 8 and 10 through 12 of the data request. Questions 3-7 and 9 will be addressed no later than July 11, 2011.

II. Data Request Response

QUESTION 1:

> NERC's Transmittal Letter at 6 describes the Version 4 standards as an "interim step" to address immediate concerns and that the SDT continues to address remaining directives set forth in Order No. 706. Please describe and discuss NERC's plans for future revisions to the CIP standards to achieve full compliance with Order No. 706. Since this Version 4 "interim step" was not anticipated in the timetable NERC submitted in its December 29, 2009 compliance filing, please provide an updated timetable to reflect NERC's current schedule for completely addressing the remaining Commission directives from Order No. 706.

NERC Response:

As stated on page 6 of the Petition:

> *"The standard drafting team has continued efforts to address the remaining FERC Order No. 706 directives. The team limited the scope of requirements in the development of CIP-002-4 through CIP-009-4 as an interim step to address the more immediate concerns raised in FERC Order No. 706, paragraph 236. The standard drafting team is continuing to address the remaining FERC Order No. 706 directives. The next version of the CIP-002 through CIP-009 Reliability Standards will build on the CIP-002-4 standards' establishment of uniform criteria for the identification of Critical Assets. Given this approach, no Responsible Entity's work toward compliance with the proposed Version 4 CIP Reliability Standards will be wasted. A phased approach to meeting the directives in FERC Order No. 706 has consistently built upon prior versions of the CIP-002 through CIP-009 standards to enhance the reliability of the Bulk Electric System. While the standard drafting team is still working to determine what form the next version of the CIP Reliability Standards will take, with the revisions in Version 4, an established baseline of cyber protection will be extended to all Bulk Electric System Cyber Assets."*

The standard drafting team expects that the filing for the next version of the CIP Reliability Standards will address the remaining FERC Order No. 706 directives. The drafting team has developed a schedule that provides for a first ballot of the next version of the CIP Reliability Standards by the end of 2011, with an expected delivery to the NERC Board of Trustees by the

end of June, 2012. This will allow for the filing of these developed and approved standards with the Commission by the end of the third quarter of 2012.

QUESTION 2:

Please provide a detailed explanation of the 2010 survey data relied on by NERC to support the February 10, 2011 filing, *e.g.*, what facilities or elements were counted and were facilities or elements grouped and counted as entire substations or not. Your response should explain why the survey data is still relevant given the fact that it is based on assumptions not reflected in the proposed CIP Reliability Standards. In this regard, please explain why the 2010 survey was not updated to reflect the criteria proposed in the February 10, 2011 filing.

NERC Response:

The CIP-002 Critical Asset Methodology Data Request issued by NERC to the industry on August 6, 2010 ("Data Request") is attached as **Exhibit A**. In the Data Request, entities were provided instructions about the data requested. In specific, the following information was provided on page 1 in paragraph 2 of the attached Data Request:

> *"In the interim and in the interest of adding more structure to the critical asset identification process, the team is proposing to revise the existing CIP-002-3 standard by adding specific criteria to be used for identifying critical assets. The team is uncertain of the impact the application of the proposed criteria will have regarding the identification of critical assets. Therefore, NERC is issuing this data request to gather empirical data that will be used to guide the determination of the final criteria to be used in CIP-002. NERC is expecting to obtain a reasonable estimate of the impact of applying the proposed CIP-002-4 criteria and not an exhaustive detailed analysis in response."*

Entities were provided specific criteria on pages 11 to 13 of the Data Request. These criteria were used by entities to compile information on an enterprise-wide basis. These criteria also specified what facilities or elements were counted. Because Critical Assets are not specifically limited to substations, no direction was provided pertaining to whether entire substations must be counted as Critical Assets. As stated in the data request, NERC issued the data request "to gather empirical data that will be used to guide the determination of the final criteria to be used in CIP-002." The intent was not to compile a specific count or target for each criterion. Instead, it was to "obtain a reasonable estimate of the impact of applying the proposed CIP-002-4 criteria." Each criterion from CIP-002-4 that was filed was compared with the corresponding criterion in the data survey. That comparison also provided an explanation regarding why the "reasonable estimate" was still valid.

As stated on page 13 of the Petition:

> *Attachment 1 of CIP-002-4 provides uniform criteria for the identification of Critical Assets across all Responsible Entities. A form of these criteria was first proposed in a version of CIP-002-4 that was posted for informal industry comment on December 19, 2009. The standard drafting team analyzed comments from industry and subsequently posted a new document for industry comment—CIP-010-1—on May 4, 2010. The team analyzed these comments from industry and continued to refine the criteria.*

NERC then issued a data request to the industry, in accordance with Section 1600 of the NERC Rules of Procedure, in order to gather empirical data that could be used to guide the determination of the final criteria used in the development of the CIP-002-4 standard. Section 1600 of the NERC Rules of Procedure gives NERC the authority to request data or information that is deemed necessary to meet its obligations under Section 215 of the Federal Power Act, as authorized by Section 39.2(d) of FERC's regulations. The results of this data request were analyzed and used to develop a new proposed CIP-002-4 standard that was posted for industry comment on October 20, 2010. After two ballot and comment periods, the industry approved the CIP-002-4 standard and the associated Attachment 1.

Given the time involved in issuing an additional data request and significant commitment required from the industry to respond to a data request, NERC chose not to update the Data Request from the version sent out on August 6, 2010 so that the standard drafting team could focus its efforts on making the necessary modifications to the CIP-002-4 Reliability Standard. The standard drafting team gathered enough evidence in response to the Data Request to conduct analyses that allowed them to determine how the criteria should be modified to adequately capture a list of Critical Assets necessary for the reliability of the Bulk Power System.

QUESTION 8:

Most of the proposed criteria are significantly revised from the criteria on which the 2010 survey was based. For a number of these criteria, the February 10, 2011 filing provides statements as to NERC's belief concerning the effect of the proposed criterion on Critical Asset identification without providing an objective rationale for its conclusions. For the following criteria, please explain the basis for NERC's conclusions, including any underlying assumptions, and identify by Exhibit and page number any supporting data in the record.

NERC Response:

a. Criterion 1.3

1.3 Each generation Facility that the Planning Coordinator or Transmission Planner designates and informs the Generator Owner or Generator Operator as necessary to avoid BES Adverse Reliability Impacts in the long-term planning horizon.

NERC Data Request (summary results in parenthesis):

1.4 Any generation Facility that the Planning Coordinator identifies as Reliability "must run" assigned units. (14 using CIP-002-3, 44 using this criterion)

As stated on page 16 of the Petition:

"The drafting team sought to ensure that those generation Facilities that have been designated by the Planning Coordinator as necessary to avoid Bulk Electric System Adverse Reliability Impacts in the long term planning horizon are designated as Critical Assets. These Facilities may be designated as "Reliability Must Run," which is distinct from those generation Facilities designated as "must run" for market stabilization purposes. Because the use of the term "must run" creates some confusion in many areas, the drafting team chose to avoid using this term and instead drafted the requirement using terms included in the NERC Glossary. In particular, the focus on preventing an Adverse Reliability Impact dictates that these units are designated as must run for reliability purposes beyond the local area. Those units designated as must run for voltage support in the local area would not generally be given this designation."

An Adverse Reliability Impact is defined as "The impact of an event that results in frequency-related instability; unplanned tripping of load or generation; or uncontrolled separation or cascading outages that affects a widespread area of the Interconnection."

The data request responses showed that only 14 units across North America were designated as Reliability "must run" using existing risk-based methodology. Using the bright line criteria in the data survey, 44 units were identified. Based on an analysis of this data, the standard drafting team determined that the change in terms from Reliability "must run" to "necessary to avoid BES Adverse Reliability Impacts in the long-term planning horizon" captures the reliability

reason for including this criterion as a bright line, and the numbers reported for this criterion show that any change in identified generation using this criterion would have an insignificant statistical impact on the total number of all Critical Assets in North America.

Criterion 1.3: Record Evidence

Exhibit G, Meeting Minutes:

March 9-12, 2010 minutes at pp. 29, 32

April 13-16, 2010 minutes at p. 18

July 13-16, 2010 minutes at pp. 43, 46

August 10-13 minutes at pp 17, 36, 41, 42, 48-50

September 8-9, 2010 minutes at pp 11, 17

October 12,-14, 2010 minutes at pp. 31, 51, 52

November 16-18, 2010 minutes at pp 4, 6, 11, 12, 22

December 29, 2009 to February 12, 2010 Consideration of Comments:

pp: 196, 205, 220, 242, 279, 282, 285, 294, 297, 299, 300, 301, 302, 304, 306, 310, 311, 312, 314, 318, 320, 324, 325, 326, 327, 330, 375, 383, 386, 378, 405

May 3, 2010 Consideration of Comments Report:

pp: 194, 203, 219, 240, 293, 296, 298, 299, 301, 302, 303, 304, 306, 310, 312, 313, 318, 320, 324, 325, 326, 327, 330, 375, 383, 387, 398, 406

September 20, 2010 Consideration of Comments Document:

pp: 3, 4, 5, 9. 10, 11, 12, 15, 18, 19, 25, 26, 27, 30, 31, 33, 34, 35

Rational and Implementation Reference Document – September 2010

pp: 9, 10

November 30, 2010 Consideration of Comments Document:

pp: 17, 18, 30, 34, 35, 38, 39, 40, 41, 42, 44, 45, 46, 47, 48, 50, 51, 53, 54, 59, 62, 63, 66, 67, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 81, 82, 83, 84, 87, 88, 89, 90, 91, 92, 93, 94, 111, 112, 113, 115, 116, 117, 118, 120, 121, 122, 124, 126, 127, 128, 129, 133, 134, 137, 138, 139, 140, 141, 142, 143, 147, 148, 155, 158, 159, 160, 161, 163, 226, 243

Summary of Comments: November 30, 2010 – Standard Drafting Team Document:

pp: 2, 4, 5,14, 15, 17, 18, 19, 21, 22, 24, 27, 28, 29, 31, 33, 34, 35, 37, 38, 46, 47, 48, 49, 50, 51, 53, 55, 56, 59, 62, 63, 64, 65, 67, 68, 74, 75, 77, 78, 79, 82, 82, 83, 84, 85, 87, 88, 95, 97, 99, 100, 102, 103, 104, 105, 107, 108, 110, 113, 116, 117, 118, 119, 120, 121, 123, 124, 125, 127, 130, 132, 135, 138, 140, 142, 146, 147, 148, 149

Rational and Implementation Reference Document – November 2010:

pp: 8, 9

December 20, 2010 Consideration of Comments Document:

pp: 9, 12, 15, 19, 20, 21, 25, 26, 31, 32, 33, 35, 36, 41, 42, 45, 46, 49, 50, 51, 52, 53, 54, 56

Consideration of Comments for Successive Ballots for CIP-706 Document:

pp: 4, 5, 8, 12, 20, 29, 30, 34, 35, 36, 38, 40, 43, 44, 46, 48, 55, 57, 58, 59, 65, 66, 68, 70, 71, 72

Rational and Implementation Reference Document – December 2010:

pp: 8, 9, 16

b. Criterion 1.7

1.7. Transmission Facilities operated at 300 kV or higher at stations or substations interconnected at 300 kV or higher with three or more other transmission stations or substations.

NERC Data Request (summary results in parenthesis):

1.7. Transmission Facilities with four or more Transmission lines operated at 300 kV or higher in the Eastern Interconnection or the Western Interconnection. (140 using CIP-002-3, 224 using this criterion)

1.8. Transmission Facilities with four or more Transmission lines operated at 200 kV or higher in the Texas Interconnection or the Quebec Interconnection. (48 using CIP-002-3, 115 using this criterion)

As stated on page 20 and 21 of the Petition:

"The threshold for the criterion was lowered from four to three in the Eastern and Western Interconnection, and raised from 200 kV to 300kV in the Texas Interconnection and the Quebec Interconnection. Based on the survey results, the standard drafting team believes that more Facilities will be captured under criterion 1.7 than the criterion included in the Data Request. Criterion 1.7 includes the lower end of the EHV range for Transmission Facilities between 300kV and 500 kV, (primarily Facilities operated at 345kV) with qualifications for inclusion as Critical Assets if they are deemed highly likely to have a significant impact on the Bulk Electric System. While the criterion has been specified as part of the rationale for requiring protection for EHV Transmission Facilities, the standard drafting team also included additional qualifications that would ensure the required level of impact to the Bulk Electric System. At the lower end of the EHV spectrum, the drafting team excluded radial facilities that would only provide support for single generation facilities and specified interconnection to at least three transmission stations or substations to ensure that the level of impact would be appropriate."

Additionally, there are no Transmission Facilities in the Texas Interconnection from 200 kV to 299 kV. Therefore, raising the voltage threshold in the Texas Interconnection would not change the number of Critical Assets in the U.S. It is also noted that the criterion in the NERC issued data request would not have included transmission substations that had only three transmission lines greater that 300kV and less than 500kV. Therefore, the criterion 1.7 included in the proposed CIP-002-4 standard was modified to take this into account.

Criterion 1.7: Record Evidence

Exhibit G, Meeting Minutes:

December 15-16, 2009, SDT Meeting Summary at pp. 6, 22, 23

March 9-12, 2010, SDT Meeting Draft Summary at pp. 31

April 13-16, 2010, SDT Meeting Summary at pp. 19

July 13-16, 2010, SDT Meeting Summary at pp. 6, 36, 45, 46

August 10-13, 2010, SDT Meeting Draft Summary at pp. 18, 36, 41, 51

September 8-10, 2010, SDT Meeting Summary at p. 11, 18, 42

October 12-14, 2010, SDT Meeting Summary at p. 47, 49

November 16-18. 2010, SDT Meeting Summary at p. 6, 7, 12, 13, 22

December 29, 2009 to February 12, 2010 Consideration of Comments:
pp: 196, 199, 206, 220, 221, 242, 299, 300, 304, 305, 307, 309, 311, 313, 314, 319, 320, 326, 327, 328, 332, 384, 398

May 3, 2010 Consideration of Comments Report:
pp. 195, 197, 204, 219, 241, 298, 299, 303, 304, 307, 308, 309, 311, 313, 314, 318, 319, 326, 327, 328, 332, 384, 399,

September 20, 2010 Consideration of Comments Document:
None

Rational and Implementation Reference Document – September 2010
p. 13

November 30, 2010 Consideration of Comments Document:
pp. 30, 34, 37, 39, 43, 44, 45, 49, 52, 57, 59, 64, 66, 67, 68, 69, 70, 72, 75, 76, 78, 82, 83, 85, 86, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 114, 115, 116, 117, 119, 121, 122, 123, 124, 126, 127, 128, 129, 131, 132, 135, 137, 138, 140, 141, 143, 147, 149, 151, 153, 155, 156, 161, 162, 163, 176

Summary of Comments: November 30, 2010 – Standard Drafting Team Document: (starts on page 1560)
pp. 3, 5, 9, 10, 12, 14, 19, 20, 21, 22, 24, 29, 33, 35, 36, 37, 39, 40, 42, 43, 45, 46, 47, 50, 56, 61, 62, 68, 70, 76, 77, 81, 88, 90, 91, 92, 96, 97, 100, 101, 107, 110, 111, 112, 115, 116, 121, 123, 125, 126, 127, 130, 131, 132, 135, 137, 138, 140, 142, 145, 146, 147, 149

Rational and Implementation Reference Document – November 2010:
pp. 13, 15

December 20, 2010 Consideration of Comments Document:
pp. 10, 14, 15, 25, 26, 33, 47, 50, 54, 56

Consideration of Comments for Successive Ballots for CIP-706 Document:

pp. 6, 11, 19, 20, 29, 30, 34, 35, 39, 40, 55

Rational and Implementation Reference Document – December 2010:
pp. 13, 16

c. Criterion 1.8

1.8. Transmission Facilities at a single station or substation location that are identified by the Reliability Coordinator, Planning Authority or Transmission Planner as critical to the derivation of Interconnection Reliability Operating Limits (IROLs) and their associated contingencies.

NERC Data Request (summary results in parenthesis):

1.10 Transmission Facilities that, if destroyed, degraded, misused or otherwise rendered unavailable, violate one or more Interconnection Reliability Operating Limits (IROLs). (115 using CIP-002-3, 151 using this criterion)

As stated on page 21 of the Petition:

"Commenters stated that Item 1.10 in the data request was confusing for entities to determine the applicability if this item, because a change in operation of a Transmission Facility does not violate an IROL. The standard drafting team revisited the intent behind the criterion, which was to include those Transmission Facilities that have been identified as critical to the derivation of IROLs and their associated contingencies, as specified by FAC-014-2—Establish and Communicate System Operating Limits, Requirements R5.1.1 and R5.1.3. The criterion was changed to reflect this, and the standard drafting team now believes that more Facilities will be captured with the revised criterion than the criterion included in the Data Response."

The criterion included in the NERC Data Request was "Transmission Facilities that, if destroyed, degraded, misused or otherwise rendered unavailable, violate one or more Interconnection Reliability Operating Limits (IROLs)." The modification to criterion 1.8 from what was included in the Data Request now includes not only Facilities that are the critical contingency, but also Facilities that are critical to the derivation of the IROL. Therefore, the standard drafting team determined that the modification to the criterion would capture more Critical Assets than what would have been captured with the original criterion included in the Data Request.

Criterion 1.8: Record Evidence

Exhibit G, Meeting Minutes:

August 20-21, 2009 Draft Meeting Summary at pp. 49

December 15-16, 2009 SDT Meeting Summary at pp. 22

July 13-16, 2010, SDT Meeting Summary at. pg. 46

August 10-13, 2010, SDT Meeting Draft Summary at pp. 51

September 8-10, 2010, SDT Meeting Summary at pp. 11, 19

October 12-14, 2010, SDT Meeting Summary at pp. 54, 55, 57

November 16-18, 2010, SDT Meeting Summary at pp. 6, 7, 12, 13, 22

December 29, 2009 to February 12, 2010 Consideration of Comments:
pp. 199, 206, 221, 242, 299, 300, 302, 304, 306, 311, 313, 314, 319, 325, 327, 384, 398

May 3, 2010 Consideration of Comments Report:
pp. 197, 204, 219, 241, 299, 301, 303, 305, 311, 313, 314, 319, 325, 327, 384, 399

September 20, 2010 Consideration of Comments Document:
None

Rational and Implementation Reference Document – September 2010
pp. 13

November 30, 2010 Consideration of Comments Document:
pp. 30, 34, 37, 38, 39, 49, 52, 58, 59, 64, 67, 69, 70, 71, 72, 73, 74, 78, 79, 82, 83, 84, 88, 90, 91, 93, 111, 112, 113, 114, 117, 119, 121, 122, 124, 125, 126, 127, 129, 130, 131, 132, 133, 135, 137, 138, 139, 140, 141, 149, 151, 153, 155, 156, 157, 158, 159, 160, 161, 163, 164

Summary of Comments: November 30, 2010 – Standard Drafting Team Document:
pp. 4, 5, 9, 10, 14, 16, 18, 19, 22, 24, 37, 38, 46, 47, 50, 53, 55, 56, 58, 62, 66, 68, 75, 77, 85, 87, 88, 90, 92, 95, 97, 103, 104, 107, 108, 109, 110, 116, 117, 118, 119, 120, 121, 122, 123, 125, 127, 128, 129, 130, 132, 133, 134, 135, 138, 139, 140, 141, 142, 146, 147, 148, 149

Rational and Implementation Reference Document – November 2010:
pp. 13, 15

December 20, 2010 Consideration of Comments Document:
pp. 11, 15, 16, 17, 19, 21, 29, 30, 31, 33, 45, 46, 50, 54, 56

Consideration of Comments for Successive Ballots for CIP-706 Document:
pp. 7, 11, 34, 39, 40, 41, 47

Rational and Implementation Reference Document – December 2010:
pp. 13, 16

d. Criterion 1.10

1.10. Transmission Facilities providing the generation interconnection required to connect generator output to the transmission system that, if destroyed, degraded, misused, or otherwise rendered unavailable, would result in the loss of the assets identified by any Generator Owner as a result of its application of Attachment 1, criterion 1.1 or 1.3.

NERC Data Request (summary results in parenthesis):

1.12. Transmission Facilities providing the generation interconnection that if destroyed, degraded, misused, or otherwise rendered unavailable, would result in the loss of the assets identified in Attachment 1, criterion 1.1. (39 using CIP-002-3, 82 using this criterion)

As stated on page 23 of the Petition:

"Criterion 1.10 designates those Transmission Facilities as Critical Assets that provide the generation interconnection for generation Facilities identified as Critical Assets to the Transmission system. The intent is to ensure the availability of Facilities necessary to support those generation Critical Assets. The criterion was changed to add Transmission Facilities providing the generation interconnection for Blackstart Resources. Although the majority of these facilities will likely be captured in criterion 1.5 (Cranking Path), this criterion was added to ensure that all Transmission Facilities providing the generation interconnection for generation Critical Assets be designated as Critical Assets."

Upon further review, an error was made in the discussion of criterion 1.10 in the filing. Criterion 1.10 does not include the Transmission Facilities providing the generation interconnection for Blackstart Resources. These Facilities are captured in criterion 1.5. Instead, it includes the Transmission Facilities providing the generation interconnection for each generation Facility that a Planning Coordinator or Transmission Planner designates and informs a Generator Owner or Generator Operator as necessary to avoid Bulk Electric System Adverse Reliability Impacts in the long-term planning horizon. This modification, in conjunction with criterion 1.5, ensures that the Transmission interconnection Facilities for all generation Facilities identified as Critical Assets are also identified as Critical Assets and evaluated for Critical Cyber Assets.

Criterion 1.10: Record Evidence

Exhibit G, Meeting Minutes:

December 15-16, 2009 SDT Meeting Summary at p. 22
March 9-12, 2010 SDT Meeting Draft Summary at p. 31
July 13-16, 2010 SDT Meeting Summary at p. 48, 64, 66
August 10-13, 2010 SDT Meeting Draft Summary at p. 36
September 8-10, 2010 SDT Meeting Summary at p. 11, 20, 42
October 12-14, 2010 SDT Meeting Summary at p. 54

November 16-18, 2010 SDT Meeting Summary at p. 6, 7, 12, 13, 22

December 29, 2009 to February 12, 2010 Consideration of Comments:
pp. 196, 199, 206, 221, 242, 299, 300, 301, 304, 309, 310, 311, 313, 314, 317, 318, 319, 320, 321, 325, 326, 328, 332, 406, 408, 432

May 3, 2010 Consideration of Comments Report:
pp. 177, 194, 197, 204, 219, 241, 298, 299, 300, 303, 304, 309, 310, 311, 313, 314, 317, 318, 319, 321, 325, 326, 328, 332, 407, 409, 434

September 20, 2010 Consideration of Comments Document:
None

Rational and Implementation Reference Document – September 2010
pp. 13

November 30, 2010 Consideration of Comments Document:
pp. 30, 38, 39, 46, 50, 52, 59, 67, 69, 70, 72, 73, 75, 76, 82, 83, 88, 89, 91, 93, 111, 114, 117, 119, 122, 124, 126, 127, 129, 130, 138, 140, 141, 143, 155, 156, 159, 160, 161, 163

Summary of Comments: November 30, 2010 – Standard Drafting Team Document:
pp. 4, 5, 14, 19, 22, 24, 34, 35, 46, 47, 48, 49, 50, 56, 59, 60, 62, 63, 68, 77, 78, 79, 81, 83, 84, 88, 97, 99, 100, 102, 103, 107, 110, 113, 114, 116, 119, 120, 121, 123, 124, 125, 127, 130, 132, 135, 138, 140, 142, 146, 147, 149

Rational and Implementation Reference Document – November 2010:
pp. 13, 15

December 20, 2010 Consideration of Comments Document:
pp. 12, 14, 15, 19, 21, 29, 33, 36, 37, 38, 41, 42, 49, 51, 55, 56

Consideration of Comments for Successive Ballots for CIP-706 Document:
pp. 8, 11, 17, 18, 31, 32, 39, 41, 44, 47, 48, 60

Rational and Implementation Reference Document – December 2010:
pp. 14, 16

e. Criterion 1.12

1.12. Each Special Protection System (SPS), Remedial Action Scheme (RAS) or automated switching system that operates BES Elements that, if destroyed, degraded, misused or otherwise rendered unavailable, would cause one or more Interconnection Reliability Operating Limits (IROLs) violations for failure to operate as designed.

NERC Data Request (summary results in parenthesis):

1.14. Special Protection Systems (SPS), Remedial Action Schemes (RAS) or automated switching systems that operate BES Elements and that have impact beyond the local area. (105 using CIP-002-3, 158 using this criterion)

Please refer to the answer to Question 10 below.

f. Criterion 1.13

1.13. Each system or Facility that performs automatic load shedding, without human operator initiation, of 300 MW or more implementing Under Voltage Load Shedding (UVLS) or Under Frequency Load Shedding (UFLS) as required by the regional load shedding program.

NERC Data Request (summary results in parenthesis):

1.15. Common control system(s) critical to automatic load shedding that are capable of shedding 300 MW or more. (12 using CIP-002-3, 13 using this criterion)

As stated on page 25 and 26 of the Petition:

"This criterion was intended to include as Critical Assets regional Under Frequency Load Shedding ("UFLS") and Under Voltage Load Shedding ("UVLS") schemes. Some commenters noted that including this criteria might inadvertently require all SCADA systems with the capability of shedding load to be declared as Critical Assets, even if such SCADA systems are in fact not planned or operated to perform load shedding. This was not the intent of this criterion. Other commenters stated that this item needed to be clarified to confirm that it applies to a single common control system only, and not multiple but separate "like" systems that in aggregate are capable of load shedding up to 300 MW. Additionally, the criterion needed to be clarified to confirm that it applies to systems "configured" for automatic load shedding, not simply just systems that are "capable" of load shedding.

"In light of the comments received, the drafting team chose to change the criterion to specifically include only those systems that did not require human operator initiation, and targeted in particular those UFLS facilities and systems and UVLS facilities and systems that would be implemented as part of a regional load shedding requirement to prevent Adverse Reliability Impact. These include automated UFLS systems or UVLS systems that are capable of load shedding 300 MW or more. While these qualifying systems require a human operator to arm the system, once armed, they trigger automatically. Therefore the criteria to designate these systems as Critical Assets removed the human operator initiation requirement from criterion 1.13. Additionally, the 300MW threshold is consistent with prior versions of CIP-002. The standard drafting team does not believe that the change will reduce the number of systems classified as Critical Assets below the number reported in response to the NERC Data Request."

Criterion 1.13: Record Evidence

Exhibit G, Meeting Minutes:

February 16-19, 2010 SDT Meeting Draft Summary at p. 34

July 13-16, 2010 SDT Meeting Summary at p. 49

September 8-10, 2010 at p. 11, 21, 27

October 12-14, 2010 at p. 48

November 16-18, 2010 at p. 6, 7, 14, 15, 22

December 29, 2009 to February 12, 2010 Consideration of Comments:
pp. 206, 221, 243, 279, 282, 285, 299, 301, 302, 305, 311, 312, 313, 314, 315, 318, 319, 321, 325, 326, 328, 330, 332, 379, 384, 398, 432, 433

May 3, 2010 Consideration of Comments Report:
pp. 204, 219, 241, 278, 281, 284, 298, 300, 301, 304, 311, 312, 313, 314, 315, 317, 318, 319, 321, 325, 326, 328, 330, 332, 379, 384, 399, 434

September 20, 2010 Consideration of Comments Document:
none

Rational and Implementation Reference Document – September 2010
pp. 12, 14

November 30, 2010 Consideration of Comments Document:
pp. 17, 30, 34, 39, 40, 48, 50, 52, 53, 57, 58, 59, 60, 63, 65, 67, 69, 70, 72, 75, 76, 78, 79, 82, 83, 91, 93, 111, 113, 114, 115, 117, 118, 119, 121, 122, 124, 126, 127, 128, 129, 131, 132, 133, 134, 136, 138, 140, 142, 145, 148, 150, 152, 154, 155, 156, 159, 161, 163, 164, 165, 182

Summary of Comments: November 30, 2010 – Standard Drafting Team Document:
pp. 5, 9, 10, 12 ,14, 16, 18, 19, 22, 24, 28, 35, 36, 40, 44, 45, 46, 47, 50, 56, 60, 61, 62, 63, 64, 68, 70, 75, 76, 77, 88, 90, 92, 96, 97, 107, 110, 115, 117, 119, 121, 123, 125, 126, 127, 130, 131, 132, 135, 137, 138, 140, 142, 145, 146, 148, 149

Rational and Implementation Reference Document – November 2010:
pp. 11, 14, 15

December 20, 2010 Consideration of Comments Document:
pp. 12, 15, 22, 25, 26, 31, 33, 35, 36, 37, 38, 41, 42, 44, 55, 57

Consideration of Comments for Successive Ballots for CIP-706 Document:
pp. 9, 12, 13, 17, 19, 22, 23, 24, 28, 29, 30, 32, 40, 41, 43, 44, 45, 46, 52, 65, 72, 73

Rational and Implementation Reference Document – December 2010:
pp. 12, 14, 16

g. Criterion 1.14

1.14. Each control center or backup control center used to perform the functional obligations of the Reliability Coordinator.

NERC Data Request (summary results in parenthesis):

1.16. Any primary control center or any backup control center used to perform Reliability Coordinator functions. (44 using CIP-002-3, 38 using this criterion)

As stated on page 26 and 27 of the Petition:

"There were no changes to the criteria from the NERC Data Request to Criterion 1.14, therefore there is no expected impact to the numbers reported. A follow up to a few respondents served to clarify why the number went down. There was confusion about how to classify a control center that performs multiple functions. After further discussion with the entities, it was clear that the net number for all control centers would be a more accurate count of Critical Assets. The standard drafting team believes that the sum of Critical Assets declared under the new criteria 1.14, 1.15, 1.16, and 1.17 will total more than the sum of the responses from the NERC Data Request items 1.16, 1.17, 1.18, 1.19."

The decrease in numbers explained above refers to the responses received in response to the Data Request. Entities were asked to provide the number of control centers that are used to perform Reliability Coordinator functions that are included on their existing Critical Asset list and how many would be categorized as Critical Assets based on the new criterion. Based on the Data Request responses received, that number decreased for some entities. For those entities that reported a lower number, clarifying conversations revealed confusion regarding how to classify control centers that perform multiple functions. After careful analysis, the standard drafting team determined that the reduction in numbers for this criterion corresponded to increased numbers in other control center criteria. Accordingly, the standard drafting team determined that the overall number of Critical Assets would not decrease by the change in the Criterion 1.14 included in the CIP-002-4 standard.

Criterion 1.14: Record Evidence

Exhibit G, Meeting Minutes:

February 16-19, 2010 SDT Meeting Draft Summary at p. 44, 45

July 13-16, 2010 SDT Meeting Summary at p.6, 36, 37, 50, 53, 64, 65, 66

September 8-10, 2010 SDT Meeting Summary at p. 11, 22, 23, 42

October 12-14, 2010 SDT Meeting Summary at p. 32, 33, 49

November 16-18, 2010 SDT Meeting Summary at p. 7, 13, 14, 23

December 29, 2009 to February 12, 2010 Consideration of Comments:
pp. 206, 221, 243, 298, 299, 303, 309, 312, 314, 319, 325, 365, 366, 432

May 3, 2010 Consideration of Comments Report:
pp. 204, 219, 241, 298, 299, 303, 309, 312, 314, 319, 325, 366, 434

September 20, 2010 Consideration of Comments Document:
none

Rational and Implementation Reference Document – September 2010
pp. 15

November 30, 2010 Consideration of Comments Document:
pp. 30, 34, 39, 40, 44, 50, 51, 52, 58, 59, 65, 67, 68, 69, 70, 71, 72, 79, 80, 82, 83, 85, 86, 90, 91, 92, 93, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 016, 017, 108, 109, 110, 111, 113, 114, 115, 116, 117, 120, 122, 123, 124, 125, 126, 127, 129, 136, 138, 139, 140, 142, 150, 152, 154, 155, 159, 161, 162, 163, 165

Summary of Comments: November 30, 2010 – Standard Drafting Team Document:
pp. 5, 14, 16, 18, 22, 23, 24, 44, 45, 46, 47, 50, 53, 54, 56, 60, 61, 62, 65, 66, 68, 75, 76, 77, 85, 88, 96, 97, 105, 107, 108, 109, 110, 116, 119, 121, 122, 123, 124, 125, 127, 128, 129, 130, 132, 133, 134, 135, 138, 139, 140, 141, 142, 146, 148, 149

Rational and Implementation Reference Document – November 2010:
pp. 14, 15

December 20, 2010 Consideration of Comments Document:
pp. 33, 60

Consideration of Comments for Successive Ballots for CIP-706 Document:
pp. 15

Rational and Implementation Reference Document – December 2010:
None

h. Criterion 1.15

1.15. Each control center or backup control center used to control generation at multiple plant locations, for any generation Facility or group of generation Facilities identified in criteria 1.1, 1.3, or 1.4. Each control center or backup control center used to control generation equal to or exceeding 1500 MW in a single Interconnection.

NERC Data Request (summary results in parenthesis):

1.16. Any control center or systems or any backup control center or systems used to perform Generator Operator functions for generation that has an aggregate highest rated net Real Power capability in the preceding 12 months exceeding:
   a. the lowest value of the Contingency Reserve requirement of the associated Balancing Authority, for the 12 months preceding the identification or reassessment of the generating unit, or
   b. 2000 MW, if no Contingency Reserve or total of reserve sharing obligations for the Reserve Sharing Group is established. (81 using CIP-002-3, 121 using this criterion)

As stated on page 27 and 28 of the Petition:

"The analysis used to develop criterion 1.15 is similar to the development of criterion 1.1. In addition, the drafting team believed that any generation control center that controls generation that is designated a Critical Asset must also be classified as a Critical Asset. For this reason, criteria 1.3 and 1.4 were added to the proposed CIP-002-4 standard. The standard drafting team believes that adding the additional criteria and lowering the MW threshold to 1500 MW will increase the number of systems classified as Critical Assets above the number reported in the NERC Data Survey."

Criterion 1.15 designates generation control centers that control generation Facilities designated as Critical Assets, or used to control generation greater than an aggregate of 1500 MW in a single Interconnection, as Critical Assets. In the development of this criterion, the drafting team used 1500 MW as a bright line for aggregate generation controlled based on the bright-line used in Part 1.1, which designates as Critical Assets any group of generation units in a single plant location, whose net Real Power capability exceeds 1500 MW. The 1500 MW value is sourced partly from the Contingency Reserve requirements in NERC standard BAL-002 whose purpose is "to ensure the Balancing Authority is able to utilize its Contingency Reserve to balance resources and demand and return Interconnection frequency within defined limits following a Reportable Disturbance." In particular, it requires that "as a minimum, the Balancing Authority or Reserve Sharing Group shall carry at least enough Contingency Reserve to cover the most severe single contingency." The drafting team used 1500 MW as a number derived from the most significant Contingency Reserves operated in various BAs in all regions. In the use of net Real Power capability, the drafting team sought to use a value that could be verified through existing requirements: NERC standard MOD-024 was sourced for that. The drafting team specified a single Interconnection because it is more likely that the span of control of the

generation control center may cross multiple BA or RSG areas or even regions and Interconnections, and that BES impact will more likely be restricted within an Interconnection.

Criterion 1.15: Record Evidence

Exhibit G, Meeting Minutes:

December 15-16, 2009 SDT Meeting Summary at p. 6, 22, 23

July 13-16, 2010 SDT Meeting Summary at p. 66

September 8-10, 2010 at p. 11, 12, 23, 42

October 12-14, 2010 SDT Meeting summary at p. 33, 34, 35, 36, 37, 49

November 16-18, 2010 SDT Meeting Summary at p. 7, 13, 15, 23

December 29, 2009 to February 12, 2010 Consideration of Comments:
pp. 206, 221, 243, 299, 314, 315, 319, 325, 432

May 3, 2010 Consideration of Comments Report:
pp. 204, 219, 241, 299, 314, 319, 325, 434

September 20, 2010 Consideration of Comments Document:
none

Rational and Implementation Reference Document – September 2010
pp. 9, 11, 15

November 30, 2010 Consideration of Comments Document:
pp. 17, 34, 40, 44, 45, 46, 51, 53, 62, 63, 65, 67, 68, 70, 71, 75, 76, 78, 79, 80, 82, 83, 84, 87, 94, 114, 115, 116, 118, 120, 122, 123, 125, 127, 129, 131, 132, 134, 136, 138, 139, 142, 150, 152, 154, 156, 159, 162, 170

Summary of Comments: November 30, 2010 – Standard Drafting Team Document:
pp. 5, 9, 10, 15, 16, 18, 19, 28, 33, 45, 48, 49, 53, 54, 59, 60, 61, 65, 66, 74, 76, 78, 75, 89, 90, 92, 96, 97, 99, 100, 105, 109, 120, 123, 126, 127, 139, 131, 134, 137, 142, 145, 148

Rational and Implementation Reference Document – November 2010:
pp. 8, 10, 15

December 20, 2010 Consideration of Comments Document:
pp. 10, 12, 13, 25, 16, 17, 33, 39, 40, 41, 43, 44

Consideration of Comments for Successive Ballots for CIP-706 Document:
pp. 5, 9, 10, 28, 30, 45, 46, 47, 49, 50, 53, 56, 57, 60, 73, 74, 76, 78, 80, 82, 83, 84, 85, 86, 88, 89, 90, 92, 93, 94, 96, 98, 10

Rational and Implementation Reference Document – December 2010:
pp. 8, 11, 16

i. Criterion 1.16

1.16. Each control center or backup control center used to perform the functional obligations of the Transmission Operator that includes control of at least one asset identified in criteria 1.2, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10, 1.11 or 1.12.

NERC Data Request (summary results in parenthesis):

1.18. Any primary or backup control center performing Transmission Operator functions performed by primary or backup control centers that remotely control two or more Transmission substations or switching stations operated at 300 kV or above in the Eastern Interconnection or the Western Interconnection or 200kV or above in the Texas Interconnection or the Quebec Interconnection, or functionality that remotely controls a Critical Cyber Asset with a High Impact Rating. (195 using CIP-002-3, 221 using this criterion)

As stated on page 28 and 29 of the Petition:

"Criterion 1.16 specifies that all control centers or backup control centers that perform the functional obligations of the Transmission Operator that includes control of at least one asset identified in 1.2, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10, 1.11 or 1.12 is to be designated as a Critical Asset due to their direct impact on the operation of identified Critical Assets. In many cases, some Transmission Operator functions are delegated to Transmission Owner control centers. In such cases, these must also be designated as Critical Assets. The drafting team intended for the word "control" to have the same meaning as that found in "Frequently Asked Questions Cyber Security Standards CIP-002-1 through CIP-009-1" document, which indicates that controls may be "performed automatically, remotely, manually, or by voice instruction." The standard drafting team believes that most, if not all, of the control centers reported in the NERC Data Survey will still qualify under the approved criterion."

Criterion 1.16: Record Evidence

Exhibit G, Meeting Minutes:

July 13-16, 2010 at p. 6, 36, 52, 53

August 10-13, 2010 SDT Meeting Draft Summary at p. 18, 36

September 8-10, 2010 SDT Meeting Summary at p. 10, 11, 23, 42

November 16-18, 2010 SDT Meeting Summary at p. 7, 13, 23

December 29, 2009 to February 12, 2010 Consideration of Comments:

pp. (12 of 16), 206, 221, 243, 299, 301, 302, 309, 311, 312, 314, 315, 317, 318, 319, 321, 325, 327, 384, 398, 432

May 3, 2010 Consideration of Comments Report:

pp. 204, 219, 241, 299, 300, 302, 309, 310, 312, 314, 317, 318, 319, 321, 325, 327, 384, 399, 434

September 20, 2010 Consideration of Comments Document:

None

Rational and Implementation Reference Document – September 2010

None

November 30, 2010 Consideration of Comments Document:

pp. 39, 40, 51, 52, 53, 59, 60, 66, 67, 69, 70, 72, 80, 83, 91, 93, 111, 114, 117, 120, 122, 124, 126, 127, 129, 130, 131, 132, 136, 138, 139, 140, 142, 150, 152, 154, 155, 156, 159, 161, 163, 216

Summary of Comments: November 30, 2010 – Standard Drafting Team Document:

pp. 5, 6, 9, 11, 12, 14, 17, 18, 19, 22, 24, 35, 36, 40, 46, 47, 50, 54, 56, 62, 66, 68, 70, 77, 86, 88, 90, 92, 97, 107, 110, 116, 121, 123, 125, 127, 130, 132, 135, 138, 140, 142, 146, 148, 149

Rational and Implementation Reference Document – November 2010:

p. 15

December 20, 2010 Consideration of Comments Document:

pp. 10, 13, 14, 27, 33, 39, 40

Consideration of Comments for Successive Ballots for CIP-706 Document:

pp. 2, 5, 10, 11, 25, 60, 73, 76, 78, 80, 82, 83, 85, 88, 90, 92, 93, 96, 98, 100

Rational and Implementation Reference Document – December 2010:

pp. 16

j. Criterion 1.17

1.17. Each control center or backup control center used to perform the functional obligations of the Balancing Authority that includes at least one asset identified in criteria 1.1, 1.3, 1.4, or 1.13. Each control center or backup control center used to perform the functional obligations of the Balancing Authority for generation equal to or greater than an aggregate of 1500 MW in a single Interconnection.

NERC Data Request (summary results in parenthesis):

1.17. Any primary or backup control center performing Balancing Authority functions performed by primary or backup control centers, of Transmission Facilities or generation Facilities, singularly or in combination, of 4,000 MW or more in the Eastern Interconnection or the Western Interconnections or 2,000 MW or more in the Texas Interconnection or the Quebec Interconnection. (105 using CIP-002-3, 113 using this criterion)

As stated on page 29 of the Petition:

"The analysis used to develop criterion 1.17 is similar to the development of criterion 1.1. In addition, the standard drafting team believes that any generation Balancing Authority control center that controls generation that is designated a Critical Asset must also be classified as a Critical Asset. For this reason, criteria 1.3, 1.4, and 1.13 were added to Criterion 1.17. The standard drafting team believes that adding the additional criteria and lowering the MW threshold to 1500 MW will increase the number of systems classified as Critical Assets above the number reported in response to the NERC Data Request".

This criterion lowers the MW threshold from 4000/2000 in the NERC Data Request to 1500 MW. In addition, it also includes all control centers that perform the functional obligations of a Balancing Authority that includes an asset in criteria 1.1, 1.3, 1.4, or 1.13. It is unclear how the combination of lowering the threshold and including more assets could decrease the number of control centers included in the criterion.

Criterion 1.17: Record Evidence

Exhibit G, Meeting Minutes:

July 13-16, 2010 SDT Meeting Summary at p. 39, 42, 50, 54

August 10-13, 2010 SDT Meeting Draft summary at p. 36

September 8-10, 2010 SDT Meeting Summary at p. 11, 24

November 16-18, 2010 SDT Meeting Summary at p. 7, 14, 15, 23

December 29, 2009 to February 12, 2010 Consideration of Comments:

None

May 3, 2010 Consideration of Comments Report:
None

September 20, 2010 Consideration of Comments Document:
None

Rational and Implementation Reference Document – September 2010
None

November 30, 2010 Consideration of Comments Document:
pp. 39, 53, 59, 67, 69, 70, 72, 83, 91, 93, 111, 114, 117, 122, 124, 126, 127, 138, 140, 155, 161, 163

Summary of Comments: November 30, 2010 – Standard Drafting Team Document:
pp. 5, 14, 19, 22, 24, 46, 47, 50, 56, 62, 68, 77, 88, 97, 107, 110, 116, 121, 123, 125, 127, 130, 132, 135, 138, 140, 142, 146, 149

Rational and Implementation Reference Document – November 2010:
p. 14, 15

December 20, 2010 Consideration of Comments Document:
pp. 10, 13, 15, 27, 33, 39, 40

Consideration of Comments for Successive Ballots for CIP-706 Document:
pp. 5, 10, 11, 30, 49, 50, 73, 74, 76, 78, 80, 82, 83, 84, 85, 86, 88, 89, 90, 92, 93, 94, 96, 97, 98, 100

Rational and Implementation Reference Document – December 2010:
pp. 15, 16

QUESTION 10:

With regard to Criterion 1.12, the Transmittal Letter states at page 24 that the 2010 NERC survey asked entities to identify Special Protection Systems (SPS), Remedial Action Schemes (RAS), or automated switching systems installed to ensure the reliability of Bulk Electric System operation elements that have an impact beyond the "local area." Criterion 1.12 provides that SPS, RAS and automated switching systems that, if rendered inoperable, would cause one or more "IROL Violations" are considered Critical Assets. Please explain (a) the basis for adopting the "IROL violations" language and (b) the resulting change to the survey estimates. Identify by Exhibit and page number any relevant discussion in the record.

NERC Response:

Criterion 1.12

1.12. Each Special Protection System (SPS), Remedial Action Scheme (RAS) or automated switching system that operates BES Elements that, if destroyed, degraded, misused or otherwise rendered unavailable, would cause one or more Interconnection Reliability Operating Limits (IROLs) violations for failure to operate as designed.

NERC Data Request (summary results in parenthesis):

1.14. Special Protection Systems (SPS), Remedial Action Schemes (RAS) or automated switching systems that operate BES Elements and that have impact beyond the local area. (105 using CIP-002-3, 158 using this criterion)

As stated on page 24 and 25 of the Petition:

"Commenters expressed concern that the phrase "impact beyond the local area" might be interpreted many different ways. After careful consideration, the standard drafting team chose to designate as Critical Assets those Special Protection Systems (SPS), Remedial Action Schemes (RAS), or automated switching systems installed to ensure Bulk Electric System operation within IROLs. The degradation, compromise or unavailability of these Critical Assets would result in exceeding IROLs if they fail to operate as designed because IROL is defined as "A System Operating Limit that, if violated, could lead to instability, uncontrolled separation, or Cascading Outages that adversely impact the reliability of the Bulk Electric System." By using the definition of IROL, the loss or compromise of any of these Critical Assets would have Wide Area impacts, meeting the original intent of the NERC Data Request. While it cannot be determined with certainty how the change will affect the final numbers, the standard drafting team believes that, at a minimum, currently declared Critical Assets using existing risk based methodology will remain on future Critical Asset lists."

A Special Protection System is defined as "An automatic protection system designed to detect abnormal or predetermined system conditions, and take corrective actions other than and/or in

addition to the isolation of faulted components to maintain system reliability. Such action may include changes in demand, generation (MW and Mvar), or system configuration to maintain system stability, acceptable voltage, or power flows. An SPS does not include (a) underfrequency or undervoltage load shedding or (b) fault conditions that must be isolated or (c) out-of-step relaying (not designed as an integral part of an SPS). Also called Remedial Action Scheme."

Criterion 1.12: Record Evidence

Exhibit G, Meeting Minutes:

August 10-13, 2010 SDT Meeting Draft Summary at p. 36, 44,

September 8-10, 2010 SDT Meeting Summary at p. 11, 20, 21, 42

October 12-14, 2010 SDT Meeting Summary at p. 57

November 16-18, 2010 SDT Meeting Summary at p. 6, 7, 12, 13, 22

December 29, 2009 to February 12, 2010 Consideration of Comments:
pp. 179, 199, 206, 221, 242, 243, 299, 300, 301, 304, 309, 311, 313, 314, 317, 318, 319, 320, 321, 325, 326, 328, 330, 332, 379, 432

May 3, 2010 Consideration of Comments Report:
pp. 177, 197, 204, 219, 241, 298, 299, 300, 303, 304, 309, 311, 313, 314, 317, 318, 319, 321, 325, 326, 328, 330, 332, 379, 434

September 20, 2010 Consideration of Comments Document:
none

Rational and Implementation Reference Document – September 2010
pp. 7, 9, 11, 13

November 30, 2010 Consideration of Comments Document:
pp. 30, 38, 39, 50, 52, 53, 58, 59, 65, 67, 69, 70, 71, 72, 73, 74, 79, 82, 83, 84, 88, 90, 91, 93, 111, 112, 113, 114, 117, 119, 121, 122, 124, 126, 127, 129, 130, 131, 132, 133, 135, 138, 139, 140, 142, 155, 156, 157, 159, 161, 163

Summary of Comments: November 30, 2010 – Standard Drafting Team Document:
pp. 4, 5, 9, 14, 16, 18, 19, 22, 24, 31, 37, 38, 46, 47, 50, 54, 56, 62, 66, 68, 75, 77, 85, 88, 90, 95, 97, 107, 110, 116, 119, 121, 123, 125, 127, 130, 132, 135, 136, 138, 139, 140, 142, 146, 148, 149

Rational and Implementation Reference Document – November 2010:
pp. 7, 8, 10, 14, 15

December 20, 2010 Consideration of Comments Document:
pp. 15, 33, 34, 55, 57

Consideration of Comments for Successive Ballots for CIP-706 Document:
pp. 8, 11, 39, 41, 54, 64, 72

Rational and Implementation Reference Document – December 2010:
pp. 7, 8, 10, 14, 16

QUESTION 11:

With regard to Criterion 1.15, which pertains to control centers and backup control centers, please clarify and discuss whether Criterion 1.15 requires each "plant location" (of the "multiple plant locations") to be a Facility or group of generation Facilities indentified in Criteria 1.1, 1.3, or 1.4 in order to qualify. Please clarify and discuss whether a control center or backup control center must satisfy both sentences of Criterion 1.15 to qualify or whether a control center or backup center satisfying the first or second sentence qualifies.

NERC Response:

Criterion 1.15 states "Each control center or backup control center used to control generation at multiple plant locations, for any generation Facility or group of generation Facilities identified in criteria 1.1, 1.3, or 1.4. Each control center or backup control center used to control generation equal to or exceeding 1500 MW in a single Interconnection." If a control center controls generation at multiple plant locations and any individual plant location is a generation Facility or group of generation Facilities identified in criteria 1.1, 1.3, or 1.4, the control center meets this criterion. The criterion does not require that all plant locations that have generation that is controlled by the control center be identified in criteria 1.1, 1.3, or 1.4.

If a control center or backup control center satisfies either the first or second sentence of criterion 1.15, it must be classified as a Critical Asset.

QUESTION 12:

Requirement R2 of CIP-002-4 provides in relevant part that, "For each group of generating units (including nuclear generation) at a single plant location identified in Attachment 1, criterion 1.1, the only Cyber Assets that must be considered are those shared Cyber Assets that could, within 15 minutes, adversely impact the reliable operation of any combination of units that in aggregate equal or exceed Attachment 1, criterion 1.1." Please explain the basis for the "15 minute" qualification and identify by Exhibit and page number, including in any materials submitted in response to this data request, discussions in the record regarding its development.

NERC Response:

As stated on page 11 and 12 of the Petition:

"Requirement R3 of the existing CIP-002-3 standard was modified to provide direction on how to identify shared Cyber Assets at generation plant sites. This requirement now becomes Requirement R2 of CIP-002-4.

"Criterion 1.1 of Attachment 1 exists to ensure that generation Facilities with common mode vulnerabilities that could result in the loss of generation capability higher than 1500 MW are adequately protected. Requirement R2 of the proposed CIP-002-4 standard further stipulates that, for Generation Facilities, only those Cyber Assets that are shared by any combination in a group of units that would exceed this value are candidates for further qualification as Critical Cyber Assets (i.e., the Critical Asset is the group of units that exceeds the specified value). In considering common mode vulnerabilities, the Responsible Entity should include all Facilities and systems up to the point where the Generation is attached to the transmission system. In specifying a 15-minute qualification, Requirement R2 includes only those Cyber Assets that would have a real-time impact on the reliable operation of the Bulk Electric System.

"In a generation facility context, there may be Facilities which, while essential to the reliability and operability of the generation facility, may not have real-time operational impact within the specified real-time operations impact window of 15 minutes. This is illustrated in the case of cyber assets controlling the supply of coal fuel in a coal burning facility. In this case, the compromise of the cyber asset may result in an inability of the supply system to bring the fuel for generation. However, because of the way these systems are used, there may be a significant amount of time before this affects real-time operation—time during which detection and remediation may be able to be effected."

Criterion 1.1: Record Evidence

Exhibit G, Meeting Minutes: March 9-12, 2010: pp: 19, 20, 29
April 13-16, 2010: pp: 16, 17, 18, 19, 20
June 8-11, 2010: p. 80
July 13-16, 2010: p. 6, 19, 36, 38, 87

August 10-13, 2010 SDT Meeting Draft Summary at pp. 16, 17, 36, 39, 41, 44, 45, 46, 47, 48, 49, 50,
September 8-10, 2010 SDT Meeting Summary at pp. 11, 12, 13, 14, 16, 23, 24, 25, 27, 39, 41, 43, 51.
September 15, 2010 Conference Call Summary: 1-2
October 12-14, 2010 SDT Meeting Summary at pp. 29, 30, 31, 32, 33, 36, 40, 46, 50, 52, 56
November 16-18, 2010 SDT Meeting Summary at pp. 5, 6, 7, 11, 15

December 29, 2009 to February 12, 2010 Consideration of Comments: (starts page 241)
pp. 179, 196, 199, 205, 206, 212, 214, 215, 216, 217, 218, 220, 21, 22, 224, 226, 233, 241, 242, 243, 244, 246, 257, 279, 297, 298, 301, 304, 306, 311, 312, 315, 317, 321, 324, 325, 327, 382, 383, 396, 397, 398, 406, 408, 424, 430, 431

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EXHIBIT A

NERC August 6, 2010 CIP-002 Critical Asset Methodology Data Request With Results

NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Request for Data or Information

CIP-002 Critical Asset Methodology Data Request

to ensure the reliability of the bulk power system

August 6, 2010

116-390 Village Blvd., Princeton, NJ 08540
609.452.8060 | 609.452.9550 fax
www.nerc.com

Introduction and Data Request Scope

In accordance with Section 1600 of the NERC Rules of Procedure,[1] NERC may request data or information that is deemed necessary to meet its obligations under Section 215 of the Federal Power Act, as authorized by Section 39.2(d) of the Federal Energy Regulatory Commission's ("FERC") regulations. This is such a request. Section 1606 of the NERC Rules of Procedure allows for a shortened time period for posting a request for data or information if the data or information must be obtained in order to evaluate a threat to the reliability or security of the bulk power system or in order to comply with a directive in an order issued by FERC or another governmental authority.

NERC's Cyber Security Order 706 (CSO706) standard drafting team is tasked with improving the current versions of CIP-002 through CIP-009 reliability standards by addressing numerous issues identified in Order No. 706. The team is continuing to develop revised standards to accomplish this objective that are expected to be completed in 2011. In the interim and in the interest of adding more structure to the critical asset identification process, the team is proposing to revise the existing CIP-002-3 standard by adding specific criteria to be used for identifying critical assets. The team is uncertain of the impact the application of the proposed criteria will have regarding the identification of critical assets. Therefore, NERC is issuing this data request to gather empirical data that will be used to guide the determination of the final criteria to be used in CIP-002. NERC is expecting to obtain a reasonable estimate of the impact of applying the proposed CIP-002-4 criteria and not an exhaustive detailed analysis in response.

The team target for completion of a revised CIP-002-4 is by year-end 2010, thus creating the need to complete the data request process expeditiously. Accordingly, NERC is issuing this request for data or information in accordance with the timing requirements of Section 1606 of the NERC Rules of Procedure. NERC provided this data request to FERC for information on July 2, 2010. On July 6, 2010, the NERC Board of Trustees authorized the shortened comment period. NERC posted this data request for public comment for a nineteen (19) day comment period from July 7—July 26, 2010. The NERC Board of Trustees approved the formal issuance of this data request on August 5, 2010. Accordingly, in accordance with Section 1600 of the NERC Rules of Procedure, this data request is mandatory for U.S. entities and for Canadian entities that are members of NERC.

[1] NERC's Rules of Procedure are available at: http://www.nerc.com/files/NERC_Rules_of_Procedure_EFFECTIVE_20100610.pdf.

Due Date and NERC Contact Information

The completion of this data request and submission to NERC is due within thirty days after receipt of the data request.

Please complete the data request using the following website:
https://www.nerc.net/nercsurvey/Survey.aspx?s=13b2fab74ab34943add9ff0885a56884

Any other questions may be directed to Howard Gugel at: howard.gugel@nerc.net or by telephone at 609.651.2269.

Authority

Under Section 215 of the Federal Power Act (16 U.S.C. § 824o), Congress entrusted FERC with the duties of approving and enforcing rules to ensure the reliability of the Nation's bulk power system, and with the duties of certifying an Electric Reliability Organization ("ERO") that would be charged with developing and enforcing mandatory Reliability Standards, subject to FERC approval. NERC was certified as the ERO on July 20, 2006. NERC's authority for issuing this data request is derived from Section 215 of the Federal Power Act, and from the following sources:

NERC is requesting this information in accordance with its authority provided in 18 C.F.R. §39.2(d), which provides:

> *Each user, owner or operator of the Bulk-Power System within the United States (other than Alaska and Hawaii) shall provide the Commission, the Electric Reliability Organization and the applicable Regional Entity such information as is necessary to implement section 215 of the Federal Power Act as determined by the Commission and set out in the Rules of the Electric Reliability Organization and each applicable Regional Entity. The Electric Reliability Organization and each Regional Entity shall provide the Commission such information as is necessary to implement section 215 of the Federal Power Act.*

Additionally, NERC Rules of Procedure Section 1600 provides:

> ***1601. Scope of a NERC or Regional Entity Request for Data or Information***
> *Within the United States, NERC and regional entities may request data or information that is necessary to meet their obligations under Section 215 of the Federal Power Act, as authorized by Section 39.2(d) of the Commission's regulations, 18 C.F.R. § 39.2(d). In other jurisdictions NERC and regional entities may request comparable data or information, using such authority as may exist pursuant to these rules and as may be granted by ERO governmental authorities in those other jurisdictions. The provisions of Section 1600 shall not apply to requirements contained in any Reliability Standard to provide data or information; the requirements in the Reliability Standards govern. The provisions of Section 1600 shall also not apply to data or information requested in connection with a compliance or enforcement action under Section 215 of the Federal Power Act, Section 400 of these Rules of Procedure, or any procedures adopted pursuant to those authorities, in which case the Rules of Procedure applicable to the production of data or information for compliance and enforcement actions shall apply.*
>
> ***1606. Expedited Procedures for Requesting Time-Sensitive Data or Information***
> *1. In the event NERC or a regional entity must obtain data or information by a date or within a time period that does not permit adherence to the time periods specified in Section 1602, the procedures specified in Section 1606 may be used to obtain the data or information. Without limiting the circumstances in which the procedures in Section 1606 may be used, such circumstances include situations in which it is necessary to obtain the data or information (in order to evaluate a threat to the reliability or security of the bulk-power system, or to comply with a directive in an order issued by the Commission or by*

another ERO governmental authority) within a shorter time period than possible under Section 1602. The procedures specified in Section 1606 may only be used if authorized by the NERC Board of Trustees prior to activation of such procedures.

2. Prior to posting a proposed request for data or information, or a modification to a previously-authorized request, for public comment under Section 1606, NERC shall provide the proposed request or modification, including the information specified in paragraph 1602.2.1 or 1602.2.2 as applicable, to the Commission's Office of Electric Reliability. The submission to the Commission's Office of Electric Reliability shall also include an explanation of why it is necessary to use the expedited procedures of Section 1606 to obtain the data or information. The submission shall be made to the Commission's Office of Electric Reliability as far in advance, up to twenty-one (21) days, of the posting of the proposed request or modification for public comments as is reasonably possible under the circumstances, but in no event less than two (2) days in advance of the public posting of the proposed request or modification.

3. NERC shall post the proposed request for data or information or proposed modification to a previously-authorized request for data or information for a public comment period that is reasonable in duration given the circumstances, but in no event shorter than five (5) days. The proposed request for data or information or proposed modification to a previously-authorized request for data or information shall include the information specified in paragraph 1602.2.1 or 1602.2.2, as applicable, and shall also include an explanation of why it is necessary to use the expedited procedures of Section 1606 to obtain the data or information.

4. The provisions of paragraphs 1602.3, 1602.4. 1602.5 and 1602.6 shall be applicable to a request for data or information or modification to a previously-authorized request for data or information developed and issued pursuant to Section 1606, except that (a) if NERC makes minor changes to an authorized request for data or information without board approval, such changes shall require board approval if a reporting entity objects to NERC in writing to such changes within five (5) days of issuance of the modified request; and (b) authorization of the request for data or information shall be final unless an affected party appeals the authorization of the request by the Board of Trustees to the ERO governmental authority within five (5) days following the decision of the Board of Trustees authorizing the request, which decision shall be promptly posted on NERC's web site.

How the Data Will Be Used
The data will be used by the CSO706 standard drafting team to validate and/or refine the criteria developed to identify critical assets as required in CIP-002. The team is attempting to gain a reasonable estimate of the impact of implementing the criteria as presented.

This data will not be used as a basis for determining compliance with the currently enforceable CIP-002 through CIP-009 reliability standards.

NERC will publish a summary assessment of results of this data request. Individual registered entity responses will not be published.

How the availability of the data or information is necessary for NERC to meet its obligations under applicable laws and agreements;
The Energy Policy Act of 2005 mandates the development of reliability standards that provide for the reliable operation of the bulk power system, including cyber security protection. FERC approved a suite of Critical Infrastructure Protection standards in Order 706 but directed that NERC improve and strengthen them. NERC through its Standards Committee assigned this responsibility to the CSO706 drafting team. This data request is being developed to support the standards drafting effort, and therefore, directly supports the statutory responsibility from the Energy Policy Act to ensure the reliable operation of the bulk power system, including cyber security protection.

How the Data Will Be Collected and Validated
NERC will identify the registered entities held to comply with the current CIP-002-3 reliability standard. NERC will use its Checkbox survey tool to prepare the survey and provide instruction to the registered entities to submit the data. NERC will compare the list of registered entities with the data request respondents to ensure that responses are received as requested.

Reporting Entities
Reliability Coordinators
Balancing Authorities
Interchange Authorities
Transmission Service Providers
Transmission Owners
Transmission Operators
Generator Owners
Generator Operators
Load Serving Entities
NERC
Regional Entity

Due Date for the Information
Reporting entities are expected to respond to the data request within 30 days of its issuance.

Restrictions on Disseminating Data (Confidential/CEII)
NERC is not requesting specific information relative to critical assets that would create the need to invoke critical energy infrastructure confidentiality provisions. Additionally, NERC does not

intend to publish entity specific information collected through this data request. Only data in summary fashion will be made publicly available.

Estimate on Burden Imposed to Collect Data

This is a one-time data request using in part the results of an assessment required under current CIP-002. The incremental burden for this one-time data collection will be the effort required to categorize the aforementioned assets using the proposed criteria, and an estimate of the additional assets not currently included in the current required assessment. For small entities, the burden would expected to be minimal whereas for larger entities, the estimated time to complete the data request is estimated at less than 100 hours total per entity.

CIP-002 Critical Asset Methodology Data Request (Note: this information will be converted to the electronic survey tool to be implemented upon approval of this Data Request)

Instructions:

In an effort to ensure that Critical Assets are not counted multiple times, the following should be used in completing this Data Request. NERC registered entities should coordinate reporting this data on an enterprise-wide basis. Entities that have jointly-owned facilities should coordinate their responses for such facilities. For jointly-owned facilities, NERC recommends that the operator of the facility be designated as the responder for such facility.

In order for an entity to be compliant with CIP-002-2, they are required in R2 to "develop a list of its identified Critical Assets determined through an annual application of the risk-based assessment methodology required in R1. The Responsible Entity shall review this list at least annually, and update it as necessary." This list is referred to in this request as the "Existing Critical Asset List."

For question 1, the Existing Critical Asset List that was most recently used for determination of compliance with CIP-002-2 R2 should be used. The answer for question 1 is the number of elements in the Existing Critical Asset List.

For question 2, the same Existing Critical Asset List that was used for question 1 should be used. For each element in the list, use the criteria in the enclosed Attachment 1 to determine how it would be categorized. Each element on the list must be counted only one time. If a particular element could be qualified as multiple criteria, please choose the one that applies most to the element. The sum of the elements included in the answers to question 2 should equal the number of elements provided in the answer in question 1.

For question 3, use the criteria in Attachment 1 to estimate the Critical Assets and each Critical Assets' impact level that your Registered Entity would report for its share of the Bulk Electric System. Please count each Critical Asset only once. If a particular Critical Asset could be qualified as multiple criteria, please choose the one that applies most to the Critical Asset. It is understood that, given the time frame, this is a rough estimate and is not necessarily the exact number that you would report given enough time to perform a detailed analysis of your system.

For question 4, enter all of the NERC Compliance Registry (NCR) numbers that you are reporting on an enterprise-wide basis for.

Data Request: (Summary results are presented)

1. **What is the number of Critical Assets currently identified for your entity in compliance with CIP-002-2 R2 (Existing Critical Asset List)?** 3657.

2. **Using your Existing Critical Asset List, determine the number of assets identified for each entry in Attachment 1:**

   a. **Number of high impact assets that were previously identified as Critical Assets**

Impact Categorization of Critical Assets (See Attachment 1)	Number of Assets	Impact Categorization of Critical Assets (See Attachment 1)	Number of Assets
1.1	17	1.11	0
1.2	59	1.12	39
1.3	9	1.13	46
1.4	14	1.14	105
1.5	337	1.15	12
1.6	270	1.16	44
1.7	141	1.17	105
1.8	48	1.18	195
1.9	980	1.19	81
1.10	115	1.20	328

b. Number of medium impact assets that were previously identified as Critical Assets

Impact Categorization of Critical Assets (See Attachment 1)	Number of Assets	Impact Categorization of Critical Assets (See Attachment 1)	Number of Assets
2.1	17	2.5	20
2.2	2	2.6	98
2.3	83	2.7	43
2.4	27	2.8	8

c. **Number of low impact assets that were previously identified as Critical Assets**

532.

3. Estimated total number of assets identified using Attachment 1 in place of your risk-based methodology:

a. Number of high impact Critical Assets

Impact Categorization of Critical Assets (See Attachment 1)	Number of Assets	Impact Categorization of Critical Assets (See Attachment 1)	Number of Assets
1.1	88	1.11	0
1.2	229	1.12	82
1.3	22	1.13	123
1.4	44	1.14	158
1.5	540	1.15	13
1.6	436	1.16	38
1.7	224	1.17	113

1.8	115	1.18	221
1.9	1597	1.19	122
1.10	151	1.20	307

b. Number of medium impact Critical Assets

Impact Categorization of Critical Assets (See Attachment 1)	Number of Assets	Impact Categorization of Critical Assets (See Attachment 1)	Number of Assets
2.1	144	2.5	56
2.2	3	2.6	415
2.3	501	2.7	55
2.4	249	2.8	13

4. What are the NERC Compliance Registry (NCR) numbers that you are reporting this Data Request for?

Attachment 1

Impact Categorization of Critical Assets

1. High Impact Rating (H)

The following is proposed as bright line criteria for determining high impact Critical Assets:

1.1. Nuclear generation Facilities.

1.2. A generating unit or a group of generating units at a single plant location with an aggregate highest rated net Real Power capability in the preceding 12 months exceeding:

a. the Contingency Reserve requirement of the Reserve Sharing Group or of the Balancing Authority if it is not a member of a Reserve Sharing Group, at the time the CIP-002 is reviewed. or

b. the lowest value of the Contingency Reserve requirement of the associated Balancing Authority, for the 12 months preceding the identification or reassessment of the group of generating units, or

c. 2000 MW.

1.3. Any reactive resource, including synchronous condensers and static VAR compensators not associated with Generation Facilities, sharing a common Cyber Asset or common Cyber Assets, excluding control centers, that would have an impact on the reliable operation of the group of Facilities within 15 minutes, singularly or in combination, with aggregate rated net Reactive Power capability of 1,000 MVAR or more.

1.4. Any generation Facility that the Planning Coordinator identifies as Reliability "must run" assigned units.

1.5. Any Blackstart Resource contained in the Transmission Operator's restoration plan.

1.6. Transmission Facilities operated at 500kV or higher.

1.7. Transmission Facilities with four or more Transmission lines operated at 300 kV or higher in the Eastern Interconnection or the Western Interconnection.

1.8. Transmission Facilities with four or more Transmission lines operated at 200 kV or higher in the Texas Interconnection or the Quebec Interconnection.

1.9. The Facilities comprising Cranking Paths contained in a Transmission Operator's restoration plan.

1.10. Transmission Facilities that, if destroyed, degraded, misused or otherwise rendered unavailable, violate one or more Interconnection Reliability Operating Limits (IROLs).

1.11. Flexible AC Transmission Systems (FACTS), that, if destroyed, degraded, misused or otherwise rendered unavailable, would violate one or more Interconnection Reliability Operating Limits (IROLs).

1.12. Transmission Facilities providing the generation interconnection that if destroyed, degraded, misused, or otherwise rendered unavailable, would result in the loss of the assets identified in Attachment 1, criterion 1.2.

1.13. Transmission Facilities identified as essential to meeting Nuclear Plant Interface Requirements established in accordance with reliability standard NUC-001 for Nuclear facilities

1.14. Special Protection Systems (SPS), Remedial Action Schemes (RAS) or automated switching systems that operate BES Elements and that have impact beyond the local area.

1.15. Common control system(s) critical to automatic load shedding that are capable of shedding 300 MW or more.

1.16. Any primary control center or any backup control center used to perform Reliability Coordinator functions.

1.17. Any primary or backup control center performing Balancing Authority functions performed by primary or backup control centers , of Transmission Facilities or generation Facilities, singularly or in combination, of 4,000 MW or more in the Eastern Interconnection or the Western Interconnections or 2,000 MW or more in the Texas Interconnection or the Quebec Interconnection.

1.18. Any primary or backup control center performing Transmission Operator functions performed by primary or backup control centers that remotely control two or more Transmission substations or switching stations operated at 300 kV or above in the Eastern Interconnection or the Western Interconnection or 200kV or above in the Texas Interconnection or the Quebec Interconnection, or functionality that remotely controls a Critical Cyber Asset with a High Impact Rating..

1.19. Any control center or systems or any backup control center or systems used to perform Generator Operator functions for generation that has an aggregate highest rated net Real Power capability in the preceding 12 months exceeding:

a. the lowest value of the Contingency Reserve requirement of the associated Balancing Authority, for the 12 months preceding the identification or reassessment of the generating unit, or
b. 2000 MW, if no Contingency Reserve or total of reserve sharing obligations for the Reserve Sharing Group is established.

1.20. Any additional assets that support the reliable operation of the Bulk Electric System that the Responsible Entity deems appropriate to include.

2. Medium Impact Rating (M)

The following is proposed as bright line criteria for determining medium impact Critical Assets:

2.1. A generating unit or a group of generating units at a single plan location that would have an impact on the reliable operation of the group of units within 15 minutes,,

with aggregate higher of the most current and prior to most current rated net Real Power capability of 1000 MW or more, not included in Section 1.

2.2. Any reactive resource, including synchronous condensers and static VAR compensators not associated with Generation Facilities, sharing a common Cyber Asset or common Cyber Assets, excluding control centers, that would have an impact on the reliable operation of the group of Facilities within 15 minutes, singularly or in combination), with aggregate rated net Reactive Power capability of 500 MVAR or more, not included in Section 1.

2.3. Transmission Facilities with four or more transmission lines operated at 200 kV or above in the Eastern Interconnection or the Western Interconnection not included in Section 1.

2.4. Transmission Facilities with four or more transmission lines operated at 100 kV or above in the Texas Interconnection or the Quebec Interconnection not included in Section 1.

2.5. Transmission Facilities that if destroyed, degraded, misused or otherwise rendered unavailable, would result in the loss of generation Facilities, singularly or in combination, with aggregate rated capabilities described in Part 2.1 above, not included in Section 1.

2.6. Transmission Facilities operated at 300 kV or higher in the Eastern Interconnection or the Western Interconnection or operated at 200 kV or higher in Texas Interconnection or the Quebec Interconnection, not included in Section 1.

2.7. Any primary or backup control center performing Transmission Operator functions that remotely control two or more Transmission substations or switching stations operated at 200 kV or above in the Eastern Interconnection or the Western Interconnection or 100kV or above in the Texas Interconnection or the Quebec Interconnection, or functionality that remotely controls a Critical Asset with a Medium Impact Rating, not included in Section 1.

2.8. Any primary or backup control center performing Balancing Authority functions of Transmission Facilities or generation Facilities, singularly or in combination, of 2,000 MW or more in the Eastern Interconnection or the Western Interconnection or 1,000 MW or more in the Texas Interconnection or the Quebec Interconnection, not included in Section 1.

3. Low Impact Rating (L)

All other BES Elements that can affect operations and are not categorized in Section 1 as having a High Impact Rating or in Section 2 as having a Medium Impact Rating.

EXHIBIT B

CIP-002-4 – Cyber Security – Critical Cyber Asset Identification Rationale and Implementation Reference Document, December 2010

CIP-002-4 – Cyber Security – Critical Cyber Asset Identification

Rationale and Implementation Reference Document

NERC Cyber Security Standards Drafting Team for Order 706
December 2010

This document provides guidance for Responsible Entities in the application of the criteria in CIP-002-4, Attachment 1. It provides clarifying notes on the intent and rationale of the Standards Drafting Team. It is not meant to augment, modify, or nullify any compliance requirements in the standard.

TABLE OF CONTENTS

CIP-002-4 – CYBER SECURITY - CRITICAL CYBER ASSET IDENTIFICATION

RATIONALE AND IMPLEMENTATION REFERENCE DOCUMENT

This document serves as a reference and provides guidance for Responsible Entities in the application of the criteria in CIP-002-4, Attachment 1. It provides clarifying notes on the intent and rationale of the Standards Drafting Team. It is not meant to augment, modify, or nullify any compliance requirements in the standard.

EXECUTIVE SUMMARY

The North American Electric Reliability Corporation (NERC) Reliability Standards are a set of standards that preserve and enhance the reliability of the Bulk Electric System (BES). The objective of the CIP standards is to protect the critical infrastructure elements necessary for the reliable operation of this system. CIP-002-4 – Cyber Security – Critical Cyber Asset Identification requires "the identification and documentation of the Critical Cyber Assets associated with the Critical Assets that support the reliable operation of the Bulk Electric System."

In drafting CIP-002-4, the drafting team used an approach that leveraged work that that it had already performed towards categorization of BES cyber systems. The drafting team also worked within a narrowly defined scope that includes addressing the following:

- Non-uniform application of methodologies for identifying Critical Assets resulting in wide variation in the types and number of critical assets across regions. The approach taken to mitigate this issue was to replace the Entity-defined Risk-Based Methodology requirement with a bright-line based criteria requirement for identifying Critical Assets.
- FERC Order 706 comments and directives regarding oversight of the lists of identified Critical Assets in CIP-002. (Para. 329). By using bright-line criteria, the requirement for oversight is significantly mitigated.
- External perceptions of insufficiency of the Entity-defined methodologies in identification of Critical Assets.

To accomplish these objectives, the drafting team adapted the approach originally used in the on-going development of cyber security standards and the categorization of BES Cyber Systems based on their impact on the BES functions performed by BES assets. For CIP-002-4, the drafting team primarily used those criteria defined for the High Impact category to identify Critical

Assets as a step towards identifying Critical Cyber Assets. These criteria were developed for the three major classes of assets used in the reliable operation of the BES: generation, transmission, and control centers. Because substantial work has already been completed for the planning and operation of these assets by existing and evolving NERC reliability standards, these standards were a natural source which the drafting team used to define the areas from which bright-line criteria would be derived and developed. Additionally, the drafting team drew on other published documents in this area.

INTRODUCTION

The North American Electric Reliability Corporation (NERC) Reliability Standards are a set of standards developed to preserve and enhance the reliability of the Bulk Electric System (BES). The objective of the CIP series of these standards is to protect the critical infrastructure elements necessary for the **reliability and operability** of this system. The overarching mission is preserving and enhancing the reliability of the BES, which consists of assets engineered to perform functions to achieve this objective. The CIP Cyber Security Standards define cyber security requirements to protect cyber systems used in support of these functions and the reliability or operability of these assets.

CIP-002-4 – Cyber Security – Critical Cyber Asset Identification requires "the identification and documentation of the Critical Cyber Assets associated with the Critical Assets that support the reliable operation of the Bulk Electric System."

In drafting CIP-002-4, the drafting team used an approach that leveraged work that it had already performed towards categorization of BES cyber systems. The drafting team also worked within a narrowly defined scope that included addressing the following:

- Non-uniform application of methodologies for identifying Critical Assets resulting in wide variation in the types and number of critical assets across regions. The approach taken to mitigate this issue was to replace the Entity-defined Risk-Based Methodology requirement with a bright-line based criteria requirement for identifying Critical Assets.
- FERC Order 706 comments and directives regarding oversight of the lists of identified Critical Assets in CIP-002. (Para. 329). By using bright-line criteria, the requirement for oversight is significantly mitigated.
- External perceptions of insufficiency of the Entity-defined methodologies in identification of Critical Assets.

To accomplish these objectives, the drafting team adapted the approach originally used in the on-going development of cyber security standards that addressed the categorization of BES Cyber Systems based on their impact on the BES functions performed by BES assets. For CIP-002-4, the drafting team primarily used those criteria defined for the High Impact category to identify Critical Assets as a step towards identifying Critical Cyber Assets. The original categorization criteria were developed over the course of approximately one year with assistance from many participants in the operating and planning areas. These criteria had

already been posted through informal industry comment. In the context of CIP-002-4, the criteria in Attachment 1 form the backbone of the changes introduced in this version.

These criteria were developed for the three major classes of assets used in the reliable operation of the BES: generation, transmission, and control centers. Because substantial work has already been completed for the planning and operation of these assets by existing and evolving NERC reliability standards, these standards were a natural source which the drafting team used to define the areas from which bright-line criteria would be derived and developed. Additionally, the drafting team drew on several published documents referenced later in this document.

This document provides guidance and clarification on intent and context of the criteria in Attachment 1 to assist Entities in their application.

The scope of the CIP Cyber Security standards excludes the elements associated with the market functions UNLESS they also affect the reliable operation of the BES. In addition, these standards explicitly exclude facilities, equipment, and systems regulated by US and Canadian nuclear regulatory bodies since they are regulated outside of NERC jurisdiction. There may be facilities, equipment, or systems which may be in a nuclear facility associated with the BES which are outside of the regulatory realm of these nuclear organizations. These would therefore be regulated under these NERC CIP standards, as directed by FERC Order 706B, in the United States. Also, the CIP Cyber Security Standards do not include those assets associated with BES planning activities UNLESS they also have a direct effect on the reliable operation of the BES. There will, however, be cases where these types of BES planning and market function systems may be required to be protected under the CIP standards (e.g., they are in the same Electronic Security Perimeter) and must meet the protection requirements of the Cyber Security Standards.

OVERALL APPLICATION OF ATTACHMENT 1

Attachment 1 is a list of criteria that determines which BES assets are to be identified as Critical Assets under CIP-002-4, requirement R1. The following provides guidance and clarification that pertains to Attachment 1 as a whole.

- When the drafting team uses the term "Facilities", it leaves some latitude to Responsible Entities to determine included Facilities. The term Facility is defined in the NERC Glossary of Terms as "A set of electrical equipment that operates as a single Bulk Electric System Element (e.g., a line, a generator, a shunt compensator, transformer, etc.)." In most cases the criteria refer to a group of Facilities in a given location that support the reliable operation of the BES. For example, for Transmission assets, the substation may be designated as the group of Facilities. However, in a substation that includes equipment that supports BES operations along with equipment that only supports Distribution operations, the Responsible Entity may be better served to designate only the group of Facilities that supports BES operation. In that case, the Responsible Entity may designate the group of Facilities by location, with qualifications on the group of Facilities that support reliable operation of the BES, as the Critical Asset. Generation Facilities are separately discussed in the Generation section below.

- In certain cases, a single Facility or group of Facilities may qualify as a Critical Asset by meeting multiple criteria. In such cases, the Responsible Entity may choose to document all criteria that qualify this asset as a Critical Asset. This will avoid inadvertent dropping of a particular Critical Asset when it no longer meets one of the criteria, but still meets another.

- The bright-line criteria in Parts 1.5 and 1.12 are included in both the generation and Transmission sections below because there may be generation or Transmission Facilities that meet these criteria. Although this document separately discusses the bright-line criteria in sections focused on generation, Transmission, and control centers, the criteria in Parts 1.5 and 1.12 were replicated to provide clarity to the reader. All Entities should understand that regardless of registration, they must review and apply all criteria against their list of assets in order to properly identify those assets which should be declared Critical Assets.

- A Critical Asset should be listed by only one Responsible Entity. Where there is joint ownership, it is advisable that the owning Responsible Entities should formally agree on the designated Responsible Entity responsible for compliance with the standards.

GENERATION

The criteria in Attachment 1 that generally apply to Generation Owner and Operator (GO/GOP) Registered Entities are parts 1.1, 1.3, 1.4, 1.5, 1.12 and 1.15.

- Part 1.1 designates as Critical Assets any group of generation units in a single plant location, whose net Real Power capability exceeds 1500 MW. Single plant location refers to a group of generating units occupying a defined physical footprint, often but not always, these units are surrounded by a common fence, have a common entry point, share common facilities such as warehouses, water plants and cooling sources, follow a similar naming convention (plant name - unit number) and fall under a common management organization. The 1500 MW criterion is sourced partly from the Contingency Reserve requirements in NERC standard BAL-002 whose purpose is "to ensure the Balancing Authority is able to utilize its Contingency Reserve to balance resources and demand and return Interconnection frequency within defined limits following a Reportable Disturbance". In particular, it requires that "as a minimum, the Balancing Authority or Reserve Sharing Group shall carry at least enough Contingency Reserve to cover the most severe single contingency." The drafting team used 1500 MW as a number derived from the most significant Contingency Reserves operated in various BAs in all regions.

  In the use of net Real Power capability, the drafting team sought to use a value that could be verified through existing requirements: NERC standard MOD-024 was sourced for that.

- By using 1500 MW as a bright-line, the intent of the drafting team was to ensure that generation Facilities with common mode vulnerabilities that could result in the loss of generation capability higher than 1500 MW are adequately protected. Requirement R2 in CIP-002-4 further stipulates that, for Generation Facilities, only those Cyber Assets that are shared by any combination in a group of units that would exceed this value are candidates for further qualification as Critical Cyber Assets (i.e. the Critical Asset is the group of units). In considering common mode vulnerabilities, the Responsible Entity should include all Facilities and systems up to the point where the Generation is attached to the Transmission system.

  In specifying a 15 minute qualification, the drafting team sought to include those Cyber Assets which would have a real-time impact on the reliable operation of the BES. In a

generation facility context, there may be Facilities which, while essential to the reliability and operability of the generation facility, may not have real-time operational impact within the specified real-time operations impact window of 15 minutes. This may be illustrated in the case of cyber assets controlling the supply of coal fuel in a coal burning facility: in this case, the compromise of the cyber asset may result in an inability of the supply system to bring the fuel for generation. However, because of the way these systems are used, there may be a significant time before this affects real-time operation, time during which detection and remediation may be able to be effected.

The drafting team also used additional time and value parameters to ensure the bright-lines and the values used to measure against them were relatively stable over the review period. Hence, where multiple values of net Real Power capability could be used for the Facilities' qualification against these bright-lines, the highest value was used.

- In part 1.3, the drafting team sought to ensure that those generation Facilities that have been designated by the Planning Coordinator as necessary to avoid BES Adverse Reliability Impacts in the long term planning horizon are designated as Critical Assets. These Facilities may be designated as "Reliability Must Run" and this designation is distinct from those generation Facilities designated as "must run" for market stabilization purposes. Because the use of the term "must run" creates some confusion in many areas, the drafting team chose to avoid using this term and instead drafted the requirement in more generic reliability language. In particular, the focus on preventing an Adverse Reliability Impact dictates that these units are designated as must run for reliability purposes beyond the local area. Those units designated as must run for voltage support in the local area would not generally be given this designation. In cases where there is no designated Planning Coordinator, the Transmission Planner is included as the Registered Entity that performs this designation.

  In the specification of the "long-term planning horizon" in this criterion, the drafting team sought to ensure that such Critical Assets would be designated in the time horizon described in the NERC document "Time Horizons", which defines long-term planning horizon as "a planning horizon of one year or longer".

If it is determined through system studies that a unit must run in order to preserve the reliability of the BES, such as due to a category C3 contingency as defined in TPL-003 or a category D contingency as defined in TPL-004, then that unit must be classified as a Critical Asset.

- In part 1.4, generation resources that have been designated as Blackstart Resources in the Transmission Operator's restoration plan are designated as Critical Assets. NERC standard EOP-005-2 requires the Transmission Operator to have a Restoration Plan and to list its Blackstart Resources in its plan as well as requirements to test these Resources. This criterion designates only those generation Blackstart Resources that have been designated as such in the Transmission Operator's restoration plan. The glossary term Blackstart Capability Plan has been retired. While the definition of Blackstart Resource includes the fact that it is in a Transmission Operator's Restoration Plan, the drafting team included the term in the criterion for clarity.

  Regarding concerns of communication to BES Asset Owners and Operators of their role in the Restoration Plan, Transmission Operators are required in NERC standard EOP-005-2 to "provide the entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan."

- Part 1.5 designates Facilities comprising the Cranking Paths and meeting the initial switching requirements from the Blackstart Resource to the first interconnection point of the generation unit(s) to be started, as identified in the Transmission Operator's restoration plan, up to the point on the Cranking Path where two or more path options exist as Critical Assets. This criterion is sourced from requirements in NERC standard EOP-005-2, which requires the Transmission Operator to include in its Restoration Plan the Cranking Paths and initial switching requirements from the Blackstart Resource and the unit(s) to be started. The drafting team further qualified the Facilities to be designated as Critical Assets as only those in the Cranking Path up to the point where two or more paths exist to the units to be started.

- Part 1.12 designates Special Protection Systems and Remedial Action Schemes as Critical Assets. Special Protection Systems and Remedial Action Schemes may be implemented

to prevent disturbances that would result in exceeding IROLs if they do not provide the function required at the time it is required or if it operates outside of the parameters it was designed for. Generation Owners and Operators which own such systems and schemes must designate them as Critical Assets.

- Part 1.15 designates generation control centers that control generation Facilities designated as Critical Assets, or used to control generation greater than an aggregate of 1500 MW in a single Interconnection, as Critical Assets. In the development of this criterion, the drafting team used 1500 MW as a bright line for aggregate generation controlled based on the bright-line used in Part 1.1. The drafting team specified a single Interconnection because it is more likely that the span of control of the generation control center may cross multiple BA or RSG areas or even regions and Interconnections, and that BES impact will more likely be restricted within an Interconnection.

  This criterion uses the phrase "control generation." Entities should consider the discussion of "control" for generation as discussed in the Frequently Asked Questions (FAQ) document for CIP 002-1, Question 9:

  > **"Question:** *Are Cyber Assets for a control center or generation control center with monitoring only and no direct remote control required to be protected and secured under the Cyber Cyber Security Standards?*
  > **Answer:** A control center or generation control center that provides critical operating functions and tasks as identified in CIP–002 must be protected per the requirements of the Cyber Security Standard. The monitoring and operating control function includes controls performed automatically, remotely, manually, or by voice instruction.
  > An example of monitoring without direct control that is subject to the Cyber Security Standards is a Reliability Authority that receives data from Critical Cyber Assets to a state estimator. "

It must be noted that this part does not apply to those systems that would be included in the evaluation of Cyber Assets that are only associated with Facilities in a single plant location as specified in part 1.1. These would include Cyber Assets in control rooms in these generation plants. An excellent discussion of control centers and control rooms can be found in the NERC document "Security Guideline for the Electric Sector: Identifying Critical Assets".

TRANSMISSION

Parts 1.2, 1.5-1.13 in Attachment 1 are the criteria that are applicable to Transmission Owners and Operators. The general approach to the criteria is that these should cover those transmission Facilities generally designated as Extra High Voltage (EHV)[1,2] which form the backbone of the BES. At the lower end of the EHV range, additional qualifications have been defined to ensure appropriate impact for Critical Assets. In many of the criteria, the impact threshold is defined as the capability of the failure or compromise of a Critical Asset to result in exceeding one or more Interconnection Reliability Operating Limits (IROLs).

- Part 1.2 includes those Facilities in Transmission systems that provide reactive resources to enhance and preserve the reliability of the BES. The nameplate value is used here because there is no NERC requirement to verify actual capability of these Facilities. The value of 1000 MVARs used in this criterion is a value deemed reasonable for the purpose of determining criticality.

- In Part 1.5, the intent is to ensure that the Cranking Paths and other BES Transmission Facilities required to support the Transmission Operator's restoration plan required by EOP-005-2 receive consideration for protection from cyber threats. Transmission Owners and Operators own and operate a large number of these Facilities. EOP-005-2 specifies Facilities that comprise the "Cranking Paths and initial switching requirements between each Blackstart Resource and the unit(s) to be started". Part 1.5 specifies that the Facilities meeting these requirements or comprising the Cranking Paths be identified as Critical Assets.

[1] REA BULLETIN 1724E-202. An Overview of Transmission System Studies,Page 12:6.1.3 System Voltage : Transmission system voltages below the extra-high-voltage (EHV) level are between 34.5 and 230 kilovolts(kV). The nominal EHV levels in the United States are 345, 500 and 765 kV. (http://www.usda.gov/rus/electric/pubs/a/1724e202.pdf)

[2] Webster on-line Dictionary: Voltage levels higher than those normally used on transmission lines. Generally EHV is considered to be 345,000 volts or higher. (EHV).

Regarding concerns of communication to BES Asset Owners and Operators of their role in the Restoration Plan, Transmission Operators are required in EOP-005-2 to "provide the entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan."

- Part 1.6 includes any Transmission Facility at a substation operated at 500 kV or higher. While the drafting team felt that Facilities operated at 500 kV or higher did not require any further qualification for their role as components of the backbone on the Interconnected BES, Facilities in the lower EHV range should have additional qualifying criteria for inclusion as a Critical Asset.

  It must be noted that if the collector bus for a non-Critical Asset generation plant (i.e. the plant is smaller in aggregate than the threshold set for generation plants in Part 1.1) is operated at 500kV, the collector bus should be considered a Generation Interconnection Facility and not a Transmission Facility, according to the "Final Report from the Ad Hoc Group for Generation Requirements at the Transmission Interface". This collector bus would not be a Critical Asset because it doesn't significantly affect the 500kV Transmission grid; it only affects a plant which is below the Critical Asset threshold.

- Part 1.7 includes the lower end of the EHV range between 300kV and 500 kV, (primarily Facilities operated at 345kV) with qualifications for inclusion as Critical Assets if they are deemed highly likely to have significant impact on the BES. While the criterion has been specified as part of the rationale for requiring protection for EHV Transmission Facilities, the drafting team included, in this criterion, additional qualifications that would ensure the required level of impact to the BES: at this lower end of the EHV spectrum, the drafting team:
  - Excluded radial facilities that would only provide support for single generation facilities.
  - Specified interconnection to at least 3 transmission stations or substations to ensure that the level of impact would be appropriate.

- Parts 1.8 and 1.9 include those Transmission Facilities that have been identified as critical to the derivation of IROLs and their associated contingencies, as specified by FAC-014-2, **Establish and Communicate System Operating Limits,** R5.1.1 and R5.1.3.

- Part 1.10 designates those Transmission Facilities as Critical Assets that provide the generation interconnection for Generation Facilities identified as Critical Assets to the Transmission system. The intent is to ensure the availability of Facilities necessary to support those generation Critical Assets.

- Part 1.11 is sourced from the NUC-001 NERC standard for the support of Nuclear Facilities. NUC-001 ensures that reliability of NPIR's are ensured through adequate coordination between the Nuclear Generator Owner/Operator and its Transmission provider "for the purpose of ensuring nuclear plant safe operation and shutdown". In particular, there are specific requirements to coordinate physical and cyber security protection of these interfaces.

- Part 1.12 designates as Critical Assets those Special Protection Systems (SPS), Remedial Action Schemes (RAS), or automated switching systems installed to ensure BES operation within IROLs. The degradation, compromise or unavailability of these Critical Assets would result in exceeding IROLs if they fail to operate as designed. By the definition of IROL, the loss or compromise of any of these have Wide Area impacts.

- Part 1.13 designates as Critical Assets those systems or Facilities that are capable of performing automatic load shedding, without human operator initiation, of 300 MW or more. The SDT spent considerable time discussing the wording of criterion 1.13, and chose the term "Each" to represent that the criterion applied to a discrete system or Facility. In the drafting of this criterion, the drafting team sought to include only those systems that did not require human operator initiation, and targeted in particular those Under Frequency Load Shedding (UFLS) facilities and systems and Under Voltage Load Shedding (UVLS) facilities and systems that would be implemented as part of a regional load shedding requirement to prevent Adverse Reliability Impact. These include automated Under Frequency Load Shedding systems or Under Voltage Load Shedding Systems that are capable of load shedding 300 MW or more. It should be noted that those qualifying systems which require a human operator to arm the system, but once armed, trigger automatically, are still to be considered as not requiring human operator initiation and should be designated as Critical Assets.

Within an operational environment the drafting team understands that the real-time impact to the Bulk Electric System of a loss of load, or the equivalent amount of generation, will be similar, with loss of load resulting in a frequency high condition and a loss of generation resulting in a frequency low condition. This particular threshold (300 MW) was provided in CIP version 1. The SDT believes that the threshold should be lower than the 1500MW generation requirement since it is specifically addressing UVLS and UFLS, which are last ditch efforts to save the Bulk Electric System and hence requires a lower threshold for inclusion as Critical Assets.

In ERCOT, the Load acting as a Resource ("LaaR") Demand Response Program is not part of the regional load shedding program, but an ancillary services market.

CONTROL CENTERS

Parts 1.14 through 1.17 apply to BES control centers. Control centers generally perform control center functions for multiple BES assets. These Facilities are evaluated as a control center. Facilities that perform control center functions for only a single BES asset should be evaluated as part of the BES asset (e.g., control room for a single generation plant or transmission substation). While it is clear that the primary and all backup control centers operated by RCs, BAs, or TOPs **that meet the criteria** must be designated as Critical Assets, control centers at other applicable Responsible Entities that are used, by delegation, to perform the functional obligations of the RCs, BAs, or TOPs must also be designated as Critical Assets. These include Transmission Owners' control centers and backup control centers, for example, which have been formally delegated to perform some of these functions. It should be noted that Cyber Assets essential to the operation of a control center may be located at a data center that is not co-located with the control center itself.

- Part 1.14 designates all control centers used to perform the functional obligations of the Reliability Coordinator (RC) as Critical Assets. Each Reliability Coordinator control center and backup control center was included as a Critical Asset due to their key role in maintaining reliability for the Interconnection as a whole in concert with other Reliability Coordinators.

- For part 1.15, please refer to the discussion of generation control centers in the Generation section of this document.

- Part 1.16 specifies that all control centers or backup control centers that perform the functional obligations of the Transmission Operator that includes control of at least one asset identified in 1.2, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10, 1.11 or 1.12. Due to the direct impact on the operation of identified Critical Assets, these Transmission control centers must be designated as Critical Assets. It must be noted that in many cases, some Transmission Operator functions are delegated to Transmission Owner control centers: in such cases, these must also be designated as Critical Assets. As with the discussion of part 1.15, the drafting team intended for the word control to have the same meaning as that found in *Frequently Asked Questions Cyber Security Standards CIP-002-1 through CIP-009-1* which indicates that controls may be "performed automatically, remotely, manually, or by voice instruction."

- Part 1.17 specifies that all control centers that perform the functional obligations of the a Balancing Authority (BA) that include at least one asset identified in criteria 1.1, 1.3, 1.4, or 1.13 must be declared as Critical Assets. In addition, this criterion designates as a Critical Asset any BA control center that, in aggregate, performs the functional obligations of a BA for 1500 MWs or more in a single Interconnection. The threshold, controls generation of 1500 MW was chosen to maintain consistency with the threshold in part 1.1.

GUIDANCE ON THE IMPLEMENTATION PLAN

There are two implementation plans associated with CIP-002-4 through CIP-009-4: the *Implementation Plan for Version 4 of Cyber Security Standards CIP-002-4 through CIP-009-4* and the *Implementation Plan for Newly Identified Critical Cyber Assets and Newly Registered Entities.* These plans are intended to work together as a set. In order to determine when an Entity must be compliant with CIP-002-4 through CIP-009-4, they should refer first to the *Implementation Plan for Version 4 of Cyber Security Standards CIP-002-4 through CIP-009-4*. This implementation plan describes the schedule by which an Entity must become compliant with the Version 4 CIP Standards. Once this initial compliance milestone is reached, this implementation plan is effectively retired. For an Entity who registers after the Version 4 CIP

Standards are effective or for those Critical Cyber Assets that are newly identify after the Version 4 CIP Standards are effective, Responsible Entities should refer to the *Implementation Plan for Newly Identified Critical Cyber Assets and Newly Registered Entities.* The *Implementation Plan for Newly Identified Critical Cyber Assets and Newly Registered Entities* remains in use throughout the entire time that the Version 4 CIP Standards remain in effect.

Responsible Entities shall be compliant with the requirements of CIP-002-4 through CIP-009-4 on the later of (i) the Effective Date[3] specified in the Standard or (ii) the compliance milestones in the version 3 Implementation Plan for Newly Identified Critical Cyber Assets and Newly Registered Entities. This allows essentially a two year implementation period following FERC approval to become compliant with the Version 4 CIP Standards. Special consideration was given to maintain the compliance milestone date for those Critical Cyber Assets and Newly Registered Entities that are in the middle of their implementation period for the Version 3 Standards on the Effective Date of the Version 4 Standards.

The drafting team considered that Responsible Entities may not have been able to anticipate the addition of Critical Assets to the Critical Asset list since the criteria included in Attachment 1 of CIP-002-4 may significantly differ from an Entity's existing risk-based assessment methodology. As such, the drafting team determined that a one-time implementation window was needed to bring the Critical Cyber Assets at the newly identified Critical Assets into compliance with CIP-002-4 through CIP-009-4.

Both the *Implementation Plan for Version 4 of Cyber Security Standards CIP-002-4 through CIP-009-4* and the *Implementation Plan for Newly Identified Critical Cyber Assets and Newly Registered Entities* contain certain exceptions for U.S. Nuclear Power Plant Facilities in recognition of the special circumstances of this operating environment. The modifications used for the U.S. Nuclear Power Plant Facilities are consistent with those included in the Revised Implementation Plan for Version 3 of Cyber Security Standards CIP-002-3 through CIP-009-3.

[3] "The first day of the eighth calendar quarter after applicable regulatory approvals have been received (or the Reliability Standard otherwise becomes effective the first day of the ninth calendar quarter after BOT adoption in those jurisdictions where regulatory approval is not required)."

CONCLUSION

In formulating this document, the drafting team hopes to have clarified the thinking and intent behind the criteria in Attachment 1. The drafting team hopes that this document will also provide Responsible Entities with additional guidance in the implementation of CIP-002-4. The drafting team reiterates that this document is not intended to augment, modify, or nullify any of the requirements and criteria in the standard. The language of requirements in the standard remains the only authority for the purpose of evaluating compliance.