NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

September 10, 2009

VIA ELECTRONIC FILING

Kirsten Walli, Board Secretary
Ontario Energy Board
P.O Box 2319
2300 Yonge Street
Toronto, Ontario, Canada
M4P 1E4

Re: *North American Electric Reliability Corporation*

Dear Ms. Walli:

The North American Electric Reliability Corporation ("NERC") hereby submits this petition seeking approval of proposed reliability standard NUC-001-2 — Nuclear Plant Interface Coordination, as set forth in **Exhibit A** to this petition. This filing is made to comply with FERC's directive in paragraphs 73 and 107 of Order No. 716[1] to reduce ambiguity in Requirement 9.3.5 of the currently approved Nuclear Plant Interface Coordination Reliability Standard (NUC-001-1). Nuclear Plant Interface Coordination requires coordination between Nuclear Plant Generator Operators and Transmission Entities for the purpose of ensuring nuclear plant safety operation and shutdown.

The proposed reliability standard was approved by the NERC Board of Trustees on August 5, 2009. NERC requests an effective date of the later of either April 1, 2010 or the first day of the first calendar quarter after FERC approval. NERC filed this revised

[1] *Mandatory Reliability Standard for Nuclear Plant Interface Coordination*, 125 FERC ¶ 61,065, (2008) (Order No. 716).

standard with the Federal Energy Regulatory Commission ("FERC"), and also is filing this revised reliability standard with the other applicable governmental authorities in Canada.

This petition consists of the following:

- this transmittal letter;
- a table of contents for the entire petition;
- a narrative description explaining the basis for revising the current reliability standard;
- Reliability Standard, NUC-001-2 — Nuclear Plant Interface Coordination submitted for approval (**Exhibit A**);
- the complete development record of the proposed reliability standard, NUC-001-2 — Nuclear Plant Interface Coordination (**Exhibit B**); and
- the Standard Drafting Team roster (**Exhibit C**).

Please contact the undersigned if you have any questions.

Respectfully submitted,

/s/ Rebecca J. Michael
Rebecca J. Michael
Attorney for North American Electric Reliability Corporation

BEFORE THE
ONTARIO ENERGY BOARD
OF THE PROVINCE OF ONTARIO

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION)
)

PETITION FOR APPROVAL OF PROPOSED RELIABILITY STANDARD NUC-001-2 – NUCLEAR PLANT INTERFACE COORDINATION

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September 10, 2009

TABLE OF CONTENTS

I. INTRODUCTION

The North American Electric Reliability Corporation ("NERC") hereby requests approval of reliability standard NUC-001-2 — Nuclear Plant Interface Coordination, included in **Exhibit A** of this petition.

The reliability standard proposed will be in effect within North America. This petition seeks approval of revisions to an existing standard, NUC-001-1, which has been revised in response to FERC's directive in Order No. 716[2] issued on October 16, 2008 ("Order No. 716"). NERC also seeks approval to retire reliability standard NUC-001-1 upon the effective date of NUC-001-2. In Order No. 716, FERC expressed concern that Requirement R9.3.5 of reliability standard NUC-001-1 was ambiguous in describing coping times for station blackouts and restoration of off-site power, and directed NERC to modify the requirement to clarify references to coping times and off-site power restoration.[3]

Specifically, the revisions proposed would modify Requirement 9.3.5 of the approved reliability standard NUC-001-1, as follows:

> **R9.3.5.** Provision for considering, within the restoration process, the requirements and urgency of a nuclear plant that has lost all off-site and on-site AC power. ~~to consider nuclear plant coping times required by the NPLRs and their relation to the coordination of grid and nuclear plant restoration following a nuclear plant loss of Off-site Power.~~

On August 5, 2009, the NERC Board of Trustees approved the NUC-001-2 — Nuclear Plant Interface Coordination Standard. NERC requests approval of this reliability standard, to be made effective the later of April 1, 2010 or the first day of the first calendar quarter after approval. NERC also requests that NUC-001-1 be retired

[2] *Mandatory Reliability Standard for Nuclear Plant Interface Coordination,* 125 FERC ¶ 61,065 (2008).
[3] *Id.* at P 73.

when NUC-001-2 becomes effective. NERC filed this revised reliability standard with the Federal Energy Regulatory Commission ("FERC"), and is filing this revised reliability standard with the other applicable governmental authorities in Canada. **Exhibit A** to this filing sets forth the proposed reliability standard. **Exhibit B** contains the complete record of development for the proposed reliability standard. **Exhibit C** includes the standard drafting team roster.

II. NOTICES AND COMMUNICATIONS

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

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III. BACKGROUND

a. Reliability Standards Development Procedure

NERC develops reliability standards in accordance with Section 300 (Reliability Standards Development) of its Rules of Procedure and the NERC *Reliability Standards Development Procedure*, which is incorporated into the Rules of Procedure as Appendix 3A. Such proposed rules provide for reasonable notice and opportunity for public

comment, due process, openness, and a balance of interests in developing reliability standards. The development process is open to any person or entity with a legitimate interest in the reliability of the bulk power system. NERC considers the comments of all stakeholders, and a vote of stakeholders and the NERC Board of Trustees is required to approve a reliability standard for submission to FERC.

The proposed revised reliability standard set out in **Exhibit A** has been developed and approved by industry stakeholders using NERC's *Reliability Standards Development Procedure*, and it was approved by the NERC Board of Trustees on August 5, 2009 for filing with FERC and applicable governmental authorities in Canada.

b. Summary of Proposed Reliability Standard NUC-001-2

The revised reliability standard proposed for approval is responsive to FERC's directive in Order No. 716. Nuclear power plants represent an important power resource and provide reliability support throughout the bulk power system. Unlike other large units, nuclear power plants are subject to separate regulatory oversight that mandates stringent operating and auxiliary power requirements, which, if not met, require the plant to separate from the grid. In Order No. 716, FERC approved reliability standard NUC-001-1 as mandatory and enforceable. Additionally, FERC found that coordination of nuclear licensing requirements and grid operating limits through auditable interface agreements will ensure that an important resource is operated safely and reliably, while minimizing grid disturbances from separation of nuclear power plants from the grid, due to the loss or degradation of auxiliary power supply.[4] FERC further found that NUC-001-1 was an appropriate means to ensure that the particular requirements faced by

[4] Order No. 716 at P 17.

nuclear power plants are met, maximizing the reliability support to be provided while minimizing the potential for grid disruption caused by separation.[5]

However, FERC also determined that Requirement R9.3.5 of reliability standard NUC-001-1 was ambiguous in describing coping times for station blackouts and restoration of off-site power.[6] As a result, FERC directed NERC to modify Requirement 9.3.5 to clarify references to coping times and off-site power restoration to address the concerns raised in the comments through its reliability standards development process.[7] By this filing, NERC hereby requests approval of the proposed reliability standard.

IV. JUSTIFICATION FOR APPROVAL OF PROPOSED RELIABILITY STANDARD

This section summarizes the development of the proposed reliability standard NUC-001-2 — Nuclear Plant Interface Coordination, and explains the development history of the revision to reliability standard NUC-001-1 to meet Order No. 716 directives.

The complete development record for the proposed reliability standard is provided in **Exhibit B** and includes the development and approval process, comments received during the industry-wide comment period NERC conducted on the proposed standard, responses to those comments, ballot information and NERC's evaluation of the proposed standard.

[5] *Id.*
[6] *Id.* at P 107.
[7] *Id.*

a. Basis and Purpose of Standard NUC-001-2 — Nuclear Plant Interface Coordination

The core purpose of this reliability standard is to require coordination between nuclear plant Generator Operators (which may be Generator Owners or Generator Operators) and Transmission Entities for the purpose of ensuring nuclear plant safe operation and shutdown. This reliability standard is intended to address the coordination of interface requirements for two domains: (i) bulk power system planning and operations; and (ii) nuclear power plant licensing requirements for off-site power necessary to enable safe nuclear plant shutdown. The proposed reliability standard requires a nuclear plant Generator Operator to coordinate operations and planning with its Transmission Entities by developing procedures that reflect nuclear plant licensing requirements and System Operating Limits ("SOLs"), including Interconnection Reliability Operating Limits ("IROLs"), affecting nuclear plant operations. The proposed reliability standard also requires nuclear plant Generator Operators and Transmission Entities to develop expectations and procedures for coordinating operations to meet nuclear plant licensing requirements, as well as SOLs and IROLs, and to develop agreements or arrangements, which may include mutually agreed upon procedures or protocols, reflecting those expectations and procedures. These agreements or arrangements are known as interface agreements. The resulting operations and planning requirements developed in the agreements to address the nuclear plant licensing requirements, SOLs and IROLs, are called nuclear plant interface requirements or NPIRs.

The proposed reliability standard NUC-001-2 was developed to implement the Order No. 716 directive to provide clarity to NUC-001-1 Requirement R9.3.5 while

enforcing the standard to require that an integrated entity provide documentation of its arrangements for mutual agreement on NPIRs.

V. SUMMARY OF THE RELIABILITY STANDARD DEVELOPMENT PROCEEDINGS

a. Development History

The Standard Authorization Request ("SAR") and the proposed NUC-001-2 standard, sponsored by the NUC-001-1 Standard Drafting Team ("SDT"), were posted for a 45-day comment period from February 2, 2009 through March 18, 2009. There were 13 sets of comments, including comments from more than 75 people from approximately 45 companies representing eight of the ten industry segments.[8] The majority of the stakeholders indicated that the modifications to Requirement R9.3.5 were an improvement but felt that the term "coping time" still created confusion. The SDT removed the term and replaced the intent of the term with clarifying language.

The team finalized the proposed reliability standard, and presented it for Standards Committee approval for balloting. In accordance with the *Reliability Standard Development Procedure*, NERC posted the proposed reliability standard for a 30-day pre-ballot review starting on May 12, 2009. The first ballot took place June 12, 2009 through June 22, 2009. During the first ballot, 81.72 percent of those registered for the ballot pool voted, which exceeded the minimum 75 percent quorum required to be considered a valid vote. The proposed reliability standard received a weighted segment approval of 94.09 percent. However, there were negative ballots submitted with a comment, triggering the need for a recirculation ballot. The majority of the negative voters expressed concern with the intent of Requirement R9.3.5 and the proposed wording. The

[8] Note that Exhibit B at record item #8 incorrectly states there were 14 sets of comments received. This was misstated. There were actually only 13 sets of comments received.

SDT explained that Requirement R9.3.5 is intended to cover the unique situation of losing both off-site and on-site AC power. The SDT further explained that "provisions for considering" could include restoration steps taken by either the Nuclear Plant Generator Operator or Transmission Entities. The SDT also explained that the term "requirements" used in this context referred to situationally specific terms between the plant and Transmission Entities to be negotiated within the agreements.

Another concern expressed by those who cast negative votes dealt with the removal of the term "coping time." The SDT explained that it removed the term "coping time" due to an overwhelming objection to include the term raised by the industry. The majority of the industry felt the term was confusing and ambiguous. The SDT further explained that the present wording allowed for situational determination of restoration priorities and that removal of this term did not relieve or prevent a Nuclear Plant from meeting NPIRs.

After the SDT responded to the comments, the proposed reliability standard proceeded to a recirculation ballot that was conducted from July 10, 2009 through July 20, 2009. The proposed reliability standard passed with a final quorum of 87.10 percent and a weighted segment approval of 96.94 percent. A two-thirds weighted segment approval is required for passage. On August 5, 2009, the NERC Board of Trustees approved the proposed reliability standard.

b. Key Issues

FERC Directives

The following discussion describes how the proposed reliability standards address the directives contained in Paragraphs 73 and 107 of Order No. 716.

i. FERC's directive that NERC, in enforcing NUC-001-1, require an integrated entity to provide documentation of its arrangements, including appropriate procedures and protocols, ensuring that its business units perform the functions under NUC-001-1 that would otherwise be met by separate entities.

The NUC-001-2 SDT understood that this directive did not require a modification to standard NUC-001-1 but instead could be addressed during each individual compliance audit. However, the SDT believed that modifying the Footnote 1 within the standard was a better method of achieving the intent of the directive.

> Agreements may include mutually agreed upon procedures or protocols ~~for both a single integrated system and~~in effect between entities or between departments of a vertically integrated system.

Specifically, this modification clarifies for the responsible entity, before performance is assessed by the Compliance Enforcement Authority, that even in a vertically integrated system, there is a need to have some type of agreement.

ii. FERC's Directive to NERC to modify Requirement R9.3.5 to clarify references to coping times and off-site power restoration through its Reliability Standards development process.

The NUC-001-2 SDT removed the term "coping time" from the requirement due to an overwhelming response from the industry. The SDT further provided additional language to clarify the intent of the term. The requirement now reads "Provision for considering, within the restoration process, the requirements and urgency of a nuclear plant that has lost all off-site and on-site AC power."

Accordingly, NERC's believes the modifications to the proposed reliability standard address FERC's directives.

Key Issues during Standard Development

While most stakeholders that participated in the comment period indicated that the proposed modifications were in alignment with Order No. 716, some stakeholders indicated either that they did not believe that the proposed modifications were needed for reliability, or that the standard did not have a reliability-related purpose. The SDT explained that, when the Notice of Proposed Rulemaking ("NOPR") for NUC-001-1 was posted, stakeholder comments indicated that there were different interpretations of the term "coping time" and the different interpretations, if not corrected, could have led to different practices with respect to providing off-site power to nuclear plants. The SDT also explained that the purpose of the standard is to ensure "safe operation and shutdown" which is not the same as ensuring "safety." The SDT further explained that safe operation and shutdown of a nuclear facility is needed to protect the facility's integrity and that protecting the facility's integrity has a direct impact on reliability of the bulk power system since nuclear facilities make up a significant percentage of generation resources.

Violation Severity Levels and Violation Risk Factors

This petition does not propose modification of Violation Severity Levels ("VSLs") or Violation Risk Factors ("VRFs") assigned to NUC-001-1 and requests that they be applied to NUC-001-2. The revision of NUC-001-1 Requirement R9.3.5 does not affect those assignments.

VI. CONCLUSION

For the reasons stated above, NERC requests approval of the proposed reliability standard NUC-001-2 — Nuclear Plant Interface Coordination. Additionally, NERC

requests that NUC-001-1 be retired when NUC-001-2 takes effect. The proposed reliability standard NUC-001-2 will add clarity to the previously submitted standard.

Respectfully submitted,

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Exhibit A

Reliability Standard Proposed

A. Introduction

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

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

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

4. **Applicability:**

   4.1. Nuclear Plant Generator Operator.

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

   4.2.1 Transmission Operators.

   4.2.2 Transmission Owners.

   4.2.3 Transmission Planners.

   4.2.4 Transmission Service Providers.

   4.2.5 Balancing Authorities.

   4.2.6 Reliability Coordinators.

   4.2.7 Planning Coordinators.

   4.2.8 Distribution Providers.

   4.2.9 Load-serving Entities.

   4.2.10 Generator Owners.

   4.2.11 Generator Operators.

5. **Effective Date:** This standard shall become effective the later of either April 1, 2010 or the first day of the first calendar quarter after applicable regulatory approval; or in those jurisdictions where no regulatory approval is required, the later of either April 1, 2010 or the first day of the first calendar quarter after Board of Trustees adoption.

B. Requirements

R1. The Nuclear Plant Generator Operator shall provide the proposed NPIRs in writing to the applicable Transmission Entities and shall verify receipt [*Risk Factor: Lower*]

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

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

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

R4. Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall: [*Risk Factor: High*]

R4.1. Incorporate the NPIRs into their operating analyses of the electric system.

R4.2. Operate the electric system to meet the NPIRs.

R4.3. Inform the Nuclear Plant Generator Operator when the ability to assess the operation of the electric system affecting NPIRs is lost.

R5. The Nuclear Plant Generator Operator shall operate per the Agreements developed in accordance with this standard. [*Risk Factor: High*]

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

R7. Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall inform the applicable Transmission Entities of actual or proposed changes to nuclear plant design, configuration, operations, limits, protection systems, or capabilities that may impact the ability of the electric system to meet the NPIRs. [*Risk Factor: High*]

R8. Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall inform the Nuclear Plant Generator Operator of actual or proposed changes to electric system design, configuration, operations, limits, protection systems, or capabilities that may impact the ability of the electric system to meet the NPIRs. [*Risk Factor: High*]

R9. The Nuclear Plant Generator Operator and the applicable Transmission Entities shall include, as a minimum, the following elements within the agreement(s) identified in R2: [*Risk Factor: Medium*]

R9.1. Administrative elements:

R9.1.1. Definitions of key terms used in the agreement.

R9.1.2. Names of the responsible entities, organizational relationships, and responsibilities related to the NPIRs.

R9.1.3. A requirement to review the agreement(s) at least every three years.

R9.1.4. A dispute resolution mechanism.

R9.2. Technical requirements and analysis:

R9.2.1. Identification of parameters, limits, configurations, and operating scenarios included in the NPIRs and, as applicable, procedures for providing any specific data not provided within the agreement.

R9.2.2. Identification of facilities, components, and configuration restrictions that are essential for meeting the NPIRs.

R9.2.3. Types of planning and operational analyses performed specifically to support the NPIRs, including the frequency of studies and types of Contingencies and scenarios required.

R9.3. Operations and maintenance coordination:

R9.3.1. Designation of ownership of electrical facilities at the interface between the electric system and the nuclear plant and responsibilities for operational control coordination and maintenance of these facilities.

R9.3.2. Identification of any maintenance requirements for equipment not owned or controlled by the Nuclear Plant Generator Operator that are necessary to meet the NPIRs.

R9.3.3. Coordination of testing, calibration and maintenance of on-site and off-site power supply systems and related components.

R9.3.4. Provisions to address mitigating actions needed to avoid violating NPIRs and to address periods when responsible Transmission Entity loses the ability to assess the capability of the electric system to meet the NPIRs. These provisions shall include responsibility to notify the Nuclear Plant Generator Operator within a specified time frame.

R9.3.5. Provision for considering, within the restoration process, the requirements and urgency of a nuclear plant that has lost all off-site and on-site AC power. .

R9.3.6. Coordination of physical and cyber security protection of the Bulk Electric System at the nuclear plant interface to ensure each asset is covered under at least one entity's plan.

R9.3.7. Coordination of the NPIRs with transmission system Special Protection Systems and underfrequency and undervoltage load shedding programs.

R9.4. Communications and training:

R9.4.1. Provisions for communications between the Nuclear Plant Generator Operator and Transmission Entities, including communications protocols, notification time requirements, and definitions of terms.

R9.4.2. Provisions for coordination during an off-normal or emergency event affecting the NPIRs, including the need to provide timely information explaining the event, an estimate of when the system will be returned to a normal state, and the actual time the system is returned to normal.

R9.4.3. Provisions for coordinating investigations of causes of unplanned events affecting the NPIRs and developing solutions to minimize future risk of such events.

R9.4.4. Provisions for supplying information necessary to report to government agencies, as related to NPIRs.

R9.4.5. Provisions for personnel training, as related to NPIRs.

C. Measures

M1. The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, provide a copy of the transmittal and receipt of transmittal of the proposed NPIRs to the responsible Transmission Entities. (Requirement 1)

M2. The Nuclear Plant Generator Operator and each Transmission Entity shall each have a copy of the Agreement(s) addressing the elements in Requirement 9 available for inspection upon request of the Compliance Enforcement Authority. (Requirement 2 and 9)

M3. Each Transmission Entity responsible for planning analyses in accordance with the Agreement shall, upon request of the Compliance Enforcement Authority, provide a copy of the planning analyses results transmitted to the Nuclear Plant Generator Operator, showing incorporation of the NPIRs. The Compliance Enforcement Authority shall refer to the Agreements developed in accordance with this standard for specific requirements. (Requirement 3)

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

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

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

M4.3 The Transmission Entity informed the Nuclear Plant Generator Operator when it became aware it lost the capability to assess the operation of the electric system affecting the NPIRs. (Requirement 4.3)

M5. The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, demonstrate or provide evidence that the Nuclear Power Plant is being operated consistent with the Agreements developed in accordance with this standard. (Requirement 5)

M6. The Transmission Entities and Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, provide evidence of the coordination between the Transmission Entities and the Nuclear Plant Generator Operator regarding outages and maintenance activities which affect the NPIRs. (Requirement 6)

M7. The Nuclear Plant Generator Operator shall provide evidence that it informed the applicable Transmission Entities of changes to nuclear plant design, configuration, operations, limits, protection systems, or capabilities that would impact the ability of the Transmission Entities to meet the NPIRs. (Requirement 7)

M8. The Transmission Entities shall each provide evidence that it informed the Nuclear Plant Generator Operator of changes to electric system design, configuration, operations, limits, protection systems, or capabilities that would impact the ability of the Nuclear Plant Generator Operator to meet the NPIRs. (Requirement 8)

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Regional Entity.

1.2. Compliance Monitoring Period and Reset Time Frame

Not applicable.

1.3. Compliance Monitoring and Enforcement Processes:

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints

1.4. Data Retention

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

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

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

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

1.5. Additional Compliance Information

None.

2. Violation Severity Levels

2.1. Lower: Agreement(s) exist per this standard and NPIRs were identified and implemented, but documentation described in M1-M8 was not provided.

2.2. Moderate: Agreement(s) exist per R2 and NPIRs were identified and implemented, but one or more elements of the Agreement in R9 were not met.

2.3. High: One or more requirements of R3 through R8 were not met.

2.4. Severe: No proposed NPIRs were submitted per R1, no Agreement exists per this standard, or the Agreements were not implemented.

E. Regional Differences

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

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

F. Associated Documents

Version History

Version	Date	Action	Change Tracking
1	May 2, 2007	Approved by Board of Trustees	New
2	To be determined	Modifications for Order 716 to Requirement R9.3.5 and footnote 1; modifications to bring compliance elements into conformance with the latest version of the ERO Rules of Procedure.	Revision

Exhibit B

Record of Development of Proposed NUC-001-2 — Nuclear Plant Interface Coordination Reliability Standard

Project 2009-08

Nuclear Plant Interface Coordination
Registered Ballot Body | Drafting Team Rosters

Status

The Nuclear Plant Interface Coordination Standard Drafting Team posted the NUC-001-2 — Nuclear Plant Interface Coordination standard for a 10-day recirculation ballot that ended on July 20, 2009. The ballot pool approved the standard. The revised standard will be named NUC-001-2 — Nuclear Plant Interface Coordination. The standard will be submitted to the NERC Board of Trustees for adoption.

Purpose/Industry Need

The proposed revision to the NUC-001 standard will clarify that subrequirement R9.3.5 requires the Nuclear Plant Generator Operator and the applicable Transmission Entity to have an Agreement with a provision to consider a nuclear plant's coping time (the period of time a nuclear plant can function without an AC power source) required by Nuclear Plant Licensing Requirements during the restoration of Off-site Power following a loss of all Off-site and On-site AC Power Sources.

Proposed Standard	Supporting Documents	Comment Period	Comments Received	Response to Comments
Announcement (18) NUC-001-2 Posted for 10-day Recirculation Ballot Window NUC-001-2 Clean (19) | Redline to Last Posting (20) NUC-001-2 Redline to Last Approval (21)	Implementation Plan (22)	07/10/09 - 07/20/09 (closed) Recirculation Ballot		Announcement (23) Ballot Results (24)
Announcement (14) NUC-001-2 Posted for 10-day Ballot Window NUC-001-2 (same as 10 and 11) Clean | Redline to Last Posting NUC-001-2 (same as 12) Redline to Last Approval	Implementation Plan (same as 13)	06/12/09 - 06/22/09 (closed) Ballot		Announcement (15) Ballot Results (16) Consideration of Comments (17)
Announcement (9) NUC-001-2 Posted for 30-day Pre-ballot Review NUC-001-2 Clean (10) | Redline to Last Posting (11)	Implementation Plan (13)	05/12/09 - 06/12/09 (closed) Join Ballot Pool		

NUC-001-2 Redline to Last Approval (12)				
Announcement (1) Draft SAR Version 1 (2) NUC-001-2 Clean (3) | Redline (4)	Implementation Plan (5)	02/02/09 - 3/18/09 (closed) Electronic Comment Form (same as 6) Unofficial Version (Word) (6)	Comments Received (7)	Consideration of Comments (8)

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Standards Announcement

Three Comment Periods Open

Now available at:
http://www.nerc.com/filez/standards/Reliability_Standards_Under_Development.html

Errata for Four Reliability Standards

Errata for four Reliability Standards are posted for a 30-day comment period. The comment period is now **open until 8 p.m. EST on March 2, 2009**.

Please use this electronic form to submit comments. If you experience any difficulties in using the electronic form, please contact Lauren Koller at 609-524-7047. An off-line, unofficial copy of the comment form is posted on the project page:
http://www.nerc.com/filez/standards/Standards_Errata.html

Background

Clean and redline versions of the following standards are posted on the project page:

1. IRO-006-4 — Reliability Coordination — Transmission Loading Relief
2. MOD-021-0 — Documentation of the Accounting Methodology for the Effects of Controllable Demand-Side Management in Demand and Energy Forecasts
3. PER-001-0 — Operating Personnel Responsibility and Authority
4. TPL-006-0 — Data From the Regional Reliability Organization Needed to Assess Reliability

Errata Process

In accordance with the Standards Committee's procedure for Approving Errata in an Approved Reliability Standard, if the proposed revisions are supported by stakeholders and approved by the NERC Board of Trustees, the associated standards will be corrected and posted with a new version number and submitted to governmental authorities for their approval. To reflect that there is a minor change to correct errata, the version numbers will be updated by adding a decimal point and the numeral "1" after the decimal point. For example, IRO-006-4 will be changed to IRO-006-4.1.

Proposed Standard PRC-002-2 — Disturbance Monitoring and Reporting Requirements (Project 2007-11)

The Disturbance Monitoring Standard Drafting Team (Project 2007-11) has posted its first draft of standard PRC-002-2 — Disturbance Monitoring and Reporting Requirements, a mapping

document, and an implementation plan for a 45-day comment period. The comment period is now **open until 8 p.m. EDT on March 18, 2009**.

Please use this electronic form to submit comments. If you experience any difficulties in using the electronic form, please contact Lauren Koller at 609-524-7047. An off-line, unofficial copy of the comment form is posted on the project page: http://www.nerc.com/filez/standards/Disturbance_Monitoring_Project_2007-11.html

Background

The purpose of this standard is to establish requirements for recording and reporting sequence of events data, fault recording data, and dynamic disturbance recording data to facilitate analysis of Disturbances. The project involves replacing "fill-in-the-blank" requirements currently assigned to the Regional Reliability Organization with continent-wide requirements that are applicable to other functional entities. This standard will replace PRC-002-1 — Define and Document Disturbance Monitoring and Equipment Requirements and PRC-018-1 — Disturbance Monitoring Equipment Installation and Data. The project also involves bringing the standards into conformance with the latest version of the Reliability Standards Development Procedure and the ERO Rules of Procedure.

Revisions to Standard NUC-001-1 — Nuclear Plant Interface Coordination for Order 716 (Project 2009-08)

The Nuclear Plant Interface Coordination Standard Drafting Team (Project 2009-08) has posted its first draft of standard NUC-001-2 — Nuclear Plant Interface Coordination, an implementation plan, and a Standards Authorization Request (SAR) for a 45-day comment period. The comment period is now **open until 8 p.m. EDT on March 18, 2009**.

Please use this electronic form to submit comments. If you experience any difficulties in using the electronic form, please contact Lauren Koller at 609-524-7047. An off-line, unofficial copy of the questions listed in the comment form is posted on the project page: http://www.nerc.com/filez/standards/Project2009-08_Nuclear_Plant_Interface_Coordination.html

Background

The Nuclear Plant Interface Coordination standard requires coordination between Nuclear Plant Generator Operators and Transmission Entities for the purpose of ensuring safe nuclear plant operation and shutdown. The proposed revisions address two directives in Federal Energy Regulatory Commission (FERC) Order 716 aimed at addressing stakeholder concerns for improved clarity. Additional revisions were made to change the term “Planning Authority” to “Planning Coordinator” (to match the terminology in the latest version of the Functional Model) and to bring the compliance elements of the standard into conformance with the latest version of the ERO Rules of Procedure.

Standards Development Process

The Reliability Standards Development Procedure contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate.

For more information or assistance,
please contact Shaun Streeter at shaun.streeter@nerc.net or at 609.452.8060.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Standard Authorization Request Form

Title of Proposed Standard	**NUC-001-2 Nuclear Plant Interface Coordination**
Request Date	**January 28, 2009**
Approved by Standards Committee	**January 30, 2009**

SAR Requester Information		**SAR Type (*Check a box for each one that applies.*)**	
Name	**Nuclear Plant Offsite Electricity Supply Reliability Drafting Team**	☐	**New Standard**
Primary Contact	**Terry Crawley** **Southern Companies**	☒	**Revision to existing Standard**
Telephone **Fax**	**2059926037** **2059925103**	☐	**Withdrawal of existing Standard**
E-mail	**tlcrawle@southernco.com**	☐	**Urgent Action**

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

In the event of the loss of alternating current (AC) power source to a nuclear plant, the nuclear plant generator operator has the responsibility to restore the emergency AC power sources within a demonstrated coping time. The term "coping time" used in NUC-001-1 Requirement R9.3.5 has multiple meanings within the nuclear industry. The term needs further clarification to ensure the proper actions are undertaken. This is in accordance with FERC Order 716 Paragraph 107. In addition, this standard action will provide clarification that the "Agreements" referenced in Requirement R2 may include procedures or protocols within a Vertically Integrated Entity or between entities. Additional modifications to the compliance section and some of the terminology will provide consistency with the ERO Rules of Procedure and the latest version of the Functional Model (changing "Planning Authority" to "Planning Coordinator.") FERC further ordered NERC in Order 716 Paragraph 143 through Paragraph 187 to modify certain Violation Risk Factors (VRFs). The directive to modify VRFs will be handled outside of this SAR.

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

NUC-001-1 Requirement R9.3.5 mixes two separate events incorporated in nuclear plant design and license requirements and must be clarified. The first event is the coping time for station blackouts and the second event is restoration of off-site power. Station blackouts include a loss of off-site power and select emergency alternating current (AC) power sources. The restoration of AC power is necessary to ensure a reliable power supply to all nuclear plant safety loads and other related equipment.

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

The proposed revision to the standard will clarify that subrequirement R9.3.5 requires the Nuclear Plant Generator Operator and the applicable Transmission Entity to have an Agreement with a provision to consider a nuclear plant's coping time (the period of time a nuclear plant can function without an AC power source) required by Nuclear Plant Licensing Requirements during the restoration of Off-site Power following a loss of all Off-site and On-site AC Power Sources.

Footnote 1 for Requirement R2 will be modified to clarify that there can be agreements within vertically integrated to address the following directive in Order 716 Paragraph 73:

> The Commission directs the ERO, in enforcing NUC-001-1, to require that an integrated entity provides documentation of its arrangements, including appropriate procedures and protocols, ensuring that its business units perform the functions under NUC-001-1 that would otherwise be met by separate entities.

Other changes will bring the standard into compliance with the latest version of the ERO Rules of Procedure and Version 4 of the Functional Model.

Detailed Description (Provide a description of the proposed project with sufficient details for the standard drafting team to execute the SAR.)
As stated in FERC Order 716 Paragraph 107 the references to the term "coping time" for station blackouts and restoration of off-site power are ambiguous. The relationship between the two issues is not clear. NUC-001-1 Requirement R9.3.5 needs clarification regarding the references to coping time and off-site power restoration.

In addition, this standard action will provide clarification that the "Agreements" referenced in Requirement R2 may include procedures or protocols within a Vertically Integrated Entity

or between entities. Additional modifications to the compliance section and some of the terminology will provide consistency with the ERO Rules of Procedure and the latest version of the Functional Model by changing the term, "Planning Authority" to "Planning Coordinator."

Reliability Functions

The Standard will Apply to the Following Functions, <u>if they interface with or provide applicable services to Nuclear Power Plants</u>. *(Check box for each one that applies.)*		
☐	**Regional Reliability Organization**	**Conducts the regional activities related to planning and operations, and coordinates activities of Responsible Entities to secure the reliability of the Bulk Electric System within the region and adjacent regions.**
☒	**Reliability Coordinator**	**Responsible for the real-time operating reliability of its Reliability Coordinator Area in coordination with its neighboring Reliability Coordinator's wide area view.**
☒	**Balancing Authority**	**Integrates resource plans ahead of time, and maintains load-interchange-resource balance within a Balancing Authority Area and supports Interconnection frequency in real time.**
☐	**Interchange Authority**	**Ensures communication of interchange transactions for reliability evaluation purposes and coordinates implementation of valid and balanced interchange schedules between Balancing Authority Areas.**
☒	**Planning Coordinator**	**Assesses the longer-term reliability of its Planning Coordinator Area.**
☐	**Resource Planner**	**Develops a >one year plan for the resource adequacy of its specific loads within a Planning Coordinator area.**
☒	**Transmission Planner**	**Develops a >one year plan for the reliability of the interconnected Bulk Electric System within its portion of the Planning Coordinator area.**
☒	**Transmission Service Provider**	**Administers the transmission tariff and provides transmission services under applicable transmission service agreements (e.g., the pro forma tariff).**
☒	**Transmission Owner**	**Owns and maintains transmission facilities.**
☒	**Transmission Operator**	**Ensures the real-time operating reliability of the transmission assets within a Transmission Operator Area.**
☒	**Distribution Provider**	**Delivers electrical energy to the End-use customer.**
☒	**Generator Owner**	**Owns and maintains generation facilities.**
☒	**Generator Operator**	**Operates generation unit(s) to provide real and reactive power.**
☐	**Purchasing-**	**Purchases or sells energy, capacity, and necessary reliability-**

	Selling Entity	**related services as required.**
☐	**Market Operator**	**Interface point for reliability functions with commercial functions.**
☒	**Load-Serving Entity**	**Secures energy and transmission service (and reliability-related services) to serve the End-use Customer.**

Reliability and Market Interface Principles

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

Related Standards

Standard No.	Explanation

Related SARs

SAR ID	Explanation

Regional Variances

Region	Explanation
ERCOT	
FRCC	
MRO	
NPCC	
SERC	
RFC	
SPP	
WECC	

Standard Development Roadmap

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

Development Steps Completed:

1. SAR and standard submitted to Standards Committee for authorization to post on January 30, 2009.

Proposed Action Plan and Description of Current Draft:

This is the first version of the proposed revised standard to be posted for a 45-day comment period with its SAR and its associated implementation plan.

Future Development Plan:

Anticipated Actions	Anticipated Date
1. Respond to comments on the first posting of the SAR and standard.	April 15, 2009
2. Obtain the Standards Committee's approval to move the standard forward to balloting.	April 15, 2009
3. Post the standard and implementation plan for a 30-day pre-ballot review.	April 16, 2009
4. Conduct an initial ballot for ten days.	May 18, 2009
5. Respond to comments submitted with the initial ballot.	June 19, 2009
6. Conduct a recirculation ballot for ten days.	June 22, 2009
7. BOT adoption.	July 2009

A. Introduction

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

2. Number: NUC-001-2

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

4. Applicability:

4.1. Nuclear Plant Generator Operator.

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

4.2.1 Transmission Operators.

4.2.2 Transmission Owners.

4.2.3 Transmission Planners.

4.2.4 Transmission Service Providers.

4.2.5 Balancing Authorities.

4.2.6 Reliability Coordinators.

4.2.7 Planning Coordinators.

4.2.8 Distribution Providers.

4.2.9 Load-serving Entities.

4.2.10 Generator Owners.

4.2.11 Generator Operators.

5. Effective Date: The later of either April 1, 2010 or the first day of the first calendar quarter after applicable regulatory approval; or in those jurisdictions where no regulatory approval is required, the later of either April 1, 2010 or the first day of the first calendar quarter after Board of Trustees adoption.

B. Requirements

R1. The Nuclear Plant Generator Operator shall provide the proposed NPIRs in writing to the applicable Transmission Entities and shall verify receipt [*Violation Risk Factor: Lower*]

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

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

R4. Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall: [*Violation Risk Factor: High*]

R4.1. Incorporate the NPIRs into their operating analyses of the electric system.

R4.2. Operate the electric system to meet the NPIRs.

R4.3. Inform the Nuclear Plant Generator Operator when the ability to assess the operation of the electric system affecting NPIRs is lost.

R5. The Nuclear Plant Generator Operator shall operate per the Agreements developed in accordance with this standard. [*Violation Risk Factor: High*]

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

R7. Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall inform the applicable Transmission Entities of actual or proposed changes to nuclear plant design, configuration, operations, limits, protection systems, or capabilities that may impact the ability of the electric system to meet the NPIRs. [*Violation Risk Factor: High*]

R8. Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall inform the Nuclear Plant Generator Operator of actual or proposed changes to electric system design, configuration, operations, limits, protection systems, or capabilities that may impact the ability of the electric system to meet the NPIRs. [*Violation Risk Factor: High*]

R9. The Nuclear Plant Generator Operator and the applicable Transmission Entities shall include, as a minimum, the following elements within the agreement(s) identified in R2: [*Violation Risk Factor: Medium*]

R9.1. Administrative elements:

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1. Agreements may include mutually agreed upon procedures or protocols executed between entities or between departments of a vertically integrated system.

R9.1.1. Definitions of key terms used in the agreement.

R9.1.2. Names of the responsible entities, organizational relationships, and responsibilities related to the NPIRs.

R9.1.3. A requirement to review the agreement(s) at least every three years.

R9.1.4. A dispute resolution mechanism.

R9.2. Technical requirements and analysis:

R9.2.1. Identification of parameters, limits, configurations, and operating scenarios included in the NPIRs and, as applicable, procedures for providing any specific data not provided within the agreement.

R9.2.2. Identification of facilities, components, and configuration restrictions that are essential for meeting the NPIRs.

R9.2.3. Types of planning and operational analyses performed specifically to support the NPIRs, including the frequency of studies and types of Contingencies and scenarios required.

R9.3. Operations and maintenance coordination:

R9.3.1. Designation of ownership of electrical facilities at the interface between the electric system and the nuclear plant and responsibilities for operational control coordination and maintenance of these facilities.

R9.3.2. Identification of any maintenance requirements for equipment not owned or controlled by the Nuclear Plant Generator Operator that are necessary to meet the NPIRs.

R9.3.3. Coordination of testing, calibration and maintenance of on-site and off-site power supply systems and related components.

R9.3.4. Provisions to address mitigating actions needed to avoid violating NPIRs and to address periods when responsible Transmission Entity loses the ability to assess the capability of the electric system to meet the NPIRs. These provisions shall include responsibility to notify the Nuclear Plant Generator Operator within a specified time frame.

R9.3.5. Provision to consider a nuclear plant's coping time (the period of time a nuclear plant can function without an AC power source) required by the NPLRs during the restoration of Off-site Power following a loss of all Off-site and On-site AC Power Sources.

R9.3.6. Coordination of physical and cyber security protection of the Bulk Electric System at the nuclear plant interface to ensure each asset is covered under at least one entity's plan.

R9.3.7. Coordination of the NPIRs with transmission system Special Protection Systems and underfrequency and undervoltage load shedding programs.

R9.4. Communications and training:

R9.4.1. Provisions for communications between the Nuclear Plant Generator Operator and Transmission Entities, including communications protocols, notification time requirements, and definitions of terms.

R9.4.2. Provisions for coordination during an off-normal or emergency event affecting the NPIRs, including the need to provide timely information explaining the event, an estimate of when the system will be returned to a normal state, and the actual time the system is returned to normal.

R9.4.3. Provisions for coordinating investigations of causes of unplanned events affecting the NPIRs and developing solutions to minimize future risk of such events.

R9.4.4. Provisions for supplying information necessary to report to government agencies, as related to NPIRs.

R9.4.5. Provisions for personnel training, as related to NPIRs.

C. Measures

M1. The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, provide a copy of the transmittal and receipt of transmittal of the proposed NPIRs to the responsible Transmission Entities. (Requirement 1)

M2. The Nuclear Plant Generator Operator and each Transmission Entity shall each have a copy of the Agreement(s) addressing the elements in Requirement 9 available for inspection upon request of the Compliance Enforcement Authority. (Requirement 2 and 9)

M3. Each Transmission Entity responsible for planning analyses in accordance with the Agreement shall, upon request of the Compliance Enforcement Authority, provide a copy of the planning analyses results transmitted to the Nuclear Plant Generator Operator, showing incorporation of the NPIRs. The Compliance Enforcement Authority shall refer to the Agreements developed in accordance with this standard for specific requirements. (Requirement 3)

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

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

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

M4.3 The Transmission Entity informed the Nuclear Plant Generator Operator when it became aware it lost the capability to assess the operation of the electric system affecting the NPIRs. (Requirement 4.3)

M5. The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, demonstrate or provide evidence that the Nuclear Power Plant is being operated consistent with the Agreements developed in accordance with this standard. (Requirement 5)

M6. The Transmission Entities and Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, provide evidence of the coordination between the Transmission Entities and the Nuclear Plant Generator Operator regarding outages and maintenance activities which affect the NPIRs. (Requirement 6)

M7. The Nuclear Plant Generator Operator shall provide evidence that it informed the applicable Transmission Entities of changes to nuclear plant design, configuration, operations, limits, protection systems, or capabilities that would impact the ability of the Transmission Entities to meet the NPIRs. (Requirement 7)

M8. The Transmission Entities shall each provide evidence that it informed the Nuclear Plant Generator Operator of changes to electric system design, configuration, operations, limits, protection systems, or capabilities that would impact the ability of the Nuclear Plant Generator Operator to meet the NPIRs. (Requirement 8)

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Regional Entity.

1.2. Compliance Monitoring Period and Reset Time Frame

Not applicable.

1.3. Compliance Monitoring and Enforcement Processes:

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints

1.4. Data Retention

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

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

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

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

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

1.5. Additional Compliance Information

None.

2. Violation Severity Levels

2.1. Lower: Agreement(s) exist per this standard and NPIRs were identified and implemented, but documentation described in M1-M8 was not provided.

2.2. Moderate: Agreement(s) exist per R2 and NPIRs were identified and implemented, but one or more elements of the Agreement in R9 were not met.

2.3. High: One or more requirements of R3 through R8 were not met.

2.4. Severe: No proposed NPIRs were submitted per R1, no Agreement exists per this standard, or the Agreements were not implemented.

E. Regional Variances

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

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

F. Associated Documents

Version History

Version	Date	Action	Change Tracking
1	May 2, 2007	Approved by Board of Trustees	New
2	To be determined	Modifications for Order 716 to Requirement R9.3.5 and footnote 1; modifications to bring compliance elements into conformance with the latest	Revision

		version of the ERO Rules of Procedure.	

Standard Development Roadmap

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

Development Steps Completed:

1. SAR and standard submitted to Standards Committee for authorization to post on January 30, 2009.

Proposed Action Plan and Description of Current Draft:

This is the first version of the proposed revised standard to be posted for a 45-day comment period with its SAR and its associated implementation plan.

Future Development Plan:

Anticipated Actions	Anticipated Date
1. Respond to comments on the first posting of the SAR and standard.	April 15, 2009
2. Obtain the Standards Committee's approval to move the standard forward to balloting.	April 15, 2009
3. Post the standard and implementation plan for a 30-day pre-ballot review.	April 16
4. Conduct an initial ballot for ten days.	May 18, 2009
5. Respond to comments submitted with the initial ballot.	June 19, 2009
6. Conduct a recirculation ballot for ten days.	June 22, 2009
7. BOT adoption.	July 2009

A. Introduction

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

2. **Number:** NUC-001-21

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

4. **Applicability:**

   4.1. Nuclear Plant Generator Operator.

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

   4.2.1 Transmission Operators.

   4.2.2 Transmission Owners.

   4.2.3 Transmission Planners.

   4.2.4 Transmission Service Providers.

   4.2.5 Balancing Authorities.

   4.2.6 Reliability Coordinators.

   4.2.7 Planning ~~Authorities~~Coordinators.

   4.2.8 Distribution Providers.

   4.2.9 Load-serving Entities.

   4.2.10 Generator Owners.

   4.2.11 Generator Operators.

5. **Effective Date:** The later of either April 1, 2010 or the first day of the first calendar quarter after applicable regulatory approval; or in those jurisdictions where no regulatory approval is required, the later of either April 1, 2010 or the first day of the first calendar quarter after Board of Trustees adoption.~~This standard shall become effective April 1, 2010.~~

B. Requirements

R1. The Nuclear Plant Generator Operator shall provide the proposed NPIRs in writing to the applicable Transmission Entities and shall verify receipt [*Violation Risk Factor: Lower*]

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

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

R4. Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall: [*Violation Risk Factor: High*]

R4.1. Incorporate the NPIRs into their operating analyses of the electric system.

R4.2. Operate the electric system to meet the NPIRs.

R4.3. Inform the Nuclear Plant Generator Operator when the ability to assess the operation of the electric system affecting NPIRs is lost.

R5. The Nuclear Plant Generator Operator shall operate per the Agreements developed in accordance with this standard. [*Violation Risk Factor: High*]

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

R7. Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall inform the applicable Transmission Entities of actual or proposed changes to nuclear plant design, configuration, operations, limits, protection systems, or capabilities that may impact the ability of the electric system to meet the NPIRs. [*Violation Risk Factor: High*]

R8. Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall inform the Nuclear Plant Generator Operator of actual or proposed changes to electric system design, configuration, operations, limits, protection systems, or capabilities that may impact the ability of the electric system to meet the NPIRs. [*Violation Risk Factor: High*]

R9. The Nuclear Plant Generator Operator and the applicable Transmission Entities shall include, as a minimum, the following elements within the agreement(s) identified in R2: [*Violation Risk Factor: Medium*]

R9.1. Administrative elements:

1. Agreements may include mutually agreed upon procedures or protocols ~~for both a single integrated system and~~ executed between entities or between departments of a vertically integrated system.

R9.1.1. Definitions of key terms used in the agreement.

R9.1.2. Names of the responsible entities, organizational relationships, and responsibilities related to the NPIRs.

R9.1.3. A requirement to review the agreement(s) at least every three years.

R9.1.4. A dispute resolution mechanism.

R9.2. Technical requirements and analysis:

R9.2.1. Identification of parameters, limits, configurations, and operating scenarios included in the NPIRs and, as applicable, procedures for providing any specific data not provided within the agreement.

R9.2.2. Identification of facilities, components, and configuration restrictions that are essential for meeting the NPIRs.

R9.2.3. Types of planning and operational analyses performed specifically to support the NPIRs, including the frequency of studies and types of Contingencies and scenarios required.

R9.3. Operations and maintenance coordination:

R9.3.1. Designation of ownership of electrical facilities at the interface between the electric system and the nuclear plant and responsibilities for operational control coordination and maintenance of these facilities.

R9.3.2. Identification of any maintenance requirements for equipment not owned or controlled by the Nuclear Plant Generator Operator that are necessary to meet the NPIRs.

R9.3.3. Coordination of testing, calibration and maintenance of on-site and off-site power supply systems and related components.

R9.3.4. Provisions to address mitigating actions needed to avoid violating NPIRs and to address periods when responsible Transmission Entity loses the ability to assess the capability of the electric system to meet the NPIRs. These provisions shall include responsibility to notify the Nuclear Plant Generator Operator within a specified time frame.

R9.3.5. Provision to consider a nuclear plant's coping time (the period of time a nuclear plant can function without an AC power source) required by the NPLRs during the restoration of Off-site Power ~~and their relation to the coordination of grid and nuclear plant restoration~~ following a loss of all ~~nuclear plant loss of~~ Off-site and On-site AC Power Sources.

R9.3.6. Coordination of physical and cyber security protection of the Bulk Electric System at the nuclear plant interface to ensure each asset is covered under at least one entity's plan.

R9.3.7. Coordination of the NPIRs with transmission system Special Protection Systems and underfrequency and undervoltage load shedding programs.

R9.4. Communications and training:

R9.4.1. Provisions for communications between the Nuclear Plant Generator Operator and Transmission Entities, including communications protocols, notification time requirements, and definitions of terms.

R9.4.2. Provisions for coordination during an off-normal or emergency event affecting the NPIRs, including the need to provide timely information explaining the event, an estimate of when the system will be returned to a normal state, and the actual time the system is returned to normal.

R9.4.3. Provisions for coordinating investigations of causes of unplanned events affecting the NPIRs and developing solutions to minimize future risk of such events.

R9.4.4. Provisions for supplying information necessary to report to government agencies, as related to NPIRs.

R9.4.5. Provisions for personnel training, as related to NPIRs.

C. Measures

M1. The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority~~Monitor~~, provide a copy of the transmittal and receipt of transmittal of the proposed NPIRs to the responsible Transmission Entities. (Requirement 1)

M2. The Nuclear Plant Generator Operator and each Transmission Entity shall each have a copy of the Agreement(s) addressing the elements in Requirement 9 available for inspection upon request of the Compliance Enforcement Authority~~Monitor~~. (Requirement 2 and 9)

M3. Each Transmission Entity responsible for planning analyses in accordance with the Agreement shall, upon request of the Compliance Enforcement Authority~~Monitor~~, provide a copy of the planning analyses results transmitted to the Nuclear Plant Generator Operator, showing incorporation of the NPIRs. The Compliance Enforcement Authority~~Monitor~~ shall refer to the Agreements developed in accordance with this standard for specific requirements. (Requirement 3)

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

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

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

M4.3 The Transmission Entity informed the Nuclear Plant Generator Operator when it became aware it lost the capability to assess the operation of the electric system affecting the NPIRs. (Requirement 4.3)

M5. The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority~~Monitor~~, demonstrate or provide evidence that the Nuclear Power Plant is being operated consistent with the Agreements developed in accordance with this standard. (Requirement 5)

M6. The Transmission Entities and Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority~~Monitor~~, provide evidence of the coordination between the Transmission Entities and the Nuclear Plant Generator Operator regarding outages and maintenance activities which affect the NPIRs. (Requirement 6)

M7. The Nuclear Plant Generator Operator shall provide evidence that it informed the applicable Transmission Entities of changes to nuclear plant design, configuration, operations, limits, protection systems, or capabilities that would impact the ability of the Transmission Entities to meet the NPIRs. (Requirement 7)

M8. The Transmission Entities shall each provide evidence that it informed the Nuclear Plant Generator Operator of changes to electric system design, configuration, operations, limits, protection systems, or capabilities that would impact the ability of the Nuclear Plant Generator Operator to meet the NPIRs. (Requirement 8)

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority~~Monitoring Responsibility~~

Regional ~~Reliability Organization~~Entity.

1.2. Compliance Monitoring Period and Reset Time Frame

~~One calendar year~~Not applicable.

1.3. Compliance Monitoring and Enforcement Processes:

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints

~~1.3.~~1.4. Data Retention

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

- For Measure 1, the Nuclear Plant Generator Operator shall keep its latest transmittals and receipts.

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

If a Responsible ~~n e~~Entity is found non-compliant ~~the entity~~it shall keep information related to the noncompliance until found compliant. ~~or for two years plus the current year, whichever is longer.~~

~~Evidence used as part of a triggered investigation shall be retained by the entity being investigated for one year from the date that the investigation is closed, as determined by the Compliance Enforcement AuthorityMonitor.~~

The Compliance Enforcement Authority~~Monitor~~ shall keep the last ~~periodic~~ audit ~~report~~ records and all requested and submitted subsequent ~~compliance~~ audit records.

~~1.4.~~1.5. Additional Compliance Information

~~The Nuclear Plant Generator Operator and Transmission Entities shall each demonstrate compliance through self-certification or audit (periodic, as part of targeted monitoring or initiated by complaint or event), as determined by the Compliance Enforcement authorityMonitor.~~None.

2. Violation Severity Levels

2.1. Lower: Agreement(s) exist per this standard and NPIRs were identified and implemented, but documentation described in M1-M8 was not provided.

2.2. Moderate: Agreement(s) exist per R2 and NPIRs were identified and implemented, but one or more elements of the Agreement in R9 were not met.

2.3. High: One or more requirements of R3 through R8 were not met.

2.4. Severe: No proposed NPIRs were submitted per R1, no Agreement exists per this standard, or the Agreements were not implemented.

E. Regional Variances

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

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

F. Associated Documents

Version History

Version	Date	Action	Change Tracking
1	May 2, 2007	Approved by Board of Trustees	New
2	To be determined	Modifications for Order 716 to Requirement R9.3.5 and footnote 1; modifications to bring compliance elements into conformance with the latest version of the ERO Rules of Procedure.	Revision

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Implementation Plan for NUC-001-2 — Nuclear Plant Interface Coordination

Prerequisite Approvals

There are no other reliability standards or Standard Authorization Requests (SARs), in progress or approved, that must be implemented before this standard can be implemented.

Modified Standards

NUC-001-1 should be retired when NUC-001-2 becomes effective.

Compliance with Standards

Once this standard becomes effective, the responsible entities identified in the applicability section of the standard must comply with the requirements. These include:

- Transmission Operators
- Transmission Owners
- Transmission Planners
- Transmission Service Providers
- Balancing Authorities
- Reliability Coordinators
- Planning Coordinators
- Distribution Providers
- Load-serving Entities
- Generator Owners
- Generator Operators

Proposed Effective Date

The later of either April 1, 2010 or the first day of the first calendar quarter after applicable regulatory approval; or in those jurisdictions where no regulatory approval is required, the later of either April 1, 2010 or the first day of the first calendar quarter after Board of Trustees adoption.

116-390 Village Boulevard, Princeton, New Jersey 08540-5721

Phone: 609.452.8060 ▪ Fax: 609.452.9550 ▪ www.nerc.com

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NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Unofficial Comment Form for Nuclear Plant Interface Coordination SAR and Standard — Project 2009-08

Please DO NOT use this comment form. **Please use the electronic comment form located at the link below to submit comments on the SAR and proposed revisions to NUC-001-1. Comments must be submitted by March 18, 2009. If you have questions please contact Darrel Richardson at Darrel.Richardson@nerc.net or by telephone at 609-613-1848.**

http://www.nerc.com/filez/standards/Project2009-08_Nuclear_Plant_Interface_Coordination.html

Background Information:

The Nuclear Plant Interface Coordination standard is designed to require coordination between Nuclear Plant Generator Operators and Transmission Entities for the purpose of ensuring nuclear plant safe operation and shutdown. The proposed revisions will address two directives in Order 716 that are aimed at addressing stakeholder concerns for improved clarity. Additional revisions were made to change the term, "Planning Authority" to "Planning Coordinator" (to match the terminology in the latest version of the Functional Model) and to bring the compliance elements of the standard into conformance with the latest version of the ERO Rules of Procedure.

1. **Do you agree that there is a reliability related reason for the proposed SAR? If not, please explain in the comment area.**

   ☐ **Yes**

   ☐ **No**

   Comments:

2. **In Order 716, the Commission indicated that the references in Requirement R9.3.5 to coping times for station blackouts and restoration of off-site power were ambiguous as the relationship between the two issues was unclear. Do you agree that the revisions made to R9.3.5 clarify and distinguish the two issues? If not, please explain in the comment area.**

   Original: R9.3.5. Provision to consider nuclear plant coping times required by the NPLRs and their relation to the coordination of grid and nuclear plant restoration following a nuclear plant loss of Off-site Power.

   Proposed Revision: R9.3.5. Provision to consider a nuclear plant's coping time (the period of time a nuclear plant can function without an AC power source) required by the NPLRs during the restoration of Off-site Power following a loss of all Off-site and On-site AC Power Sources.

   ☐ **Yes**

   ☐ **No**

   Comments:

3. In Order 716, the Commission wrote:

The Commission directs the ERO, in enforcing NUC-001-1, to require that an integrated entity provides documentation of its arrangements, including appropriate procedures and protocols, ensuring that its business units perform the functions under NUC-001-1 that would otherwise be met by separate entities.

To meet the intent of this directive, the drafting team proposed the following modification to Footnote 1 for Requirement R2:

Original footnote: 1. Agreements may include mutually agreed upon procedures or protocols

Proposed revision: 1. Agreements may include mutually agreed upon procedures or protocols executed between entities or between departments of a vertically integrated system.

Do you agree that the proposed modification meets the intent of the directive? If not, please explain in the comment area.

☐ **Yes**

☐ **No**

Comments:

4. Please provide any other comments on the SAR or proposed revisions to NUC-001-1 that you have not already provided in response to the questions above.

Comments:

Individual or group. (13 Responses)
Name (6 Responses)
Organization (6 Responses)
Group Name (7 Responses)
Lead Contact (7 Responses)
Contact Organization (7 Responses)
Question 1 (13 Responses)
Question 1 Comments (13 Responses)
Question 2 (13 Responses)
Question 2 Comments (13 Responses)
Question 3 (13 Responses)
Question 3 Comments (13 Responses)
Question 4 (0 Responses)
Question 4 Comments (13 Responses)

Individual
James H. Sorrels, Jr.
American Electric Power
Yes
Yes
Yes
Group
NPCC
Guy Zito
NPCC
No
Change appears to be for clarification purposes regarding the use of the term "coping". "Coping" should be made a defined term.
Yes
Yes
Individual
Greg Rowland
Duke Energy Corporation
Yes
No
The reference to coping time should not be included in Requirement R9.3.5 because it creates confusion. Coping time is the amount of time a nuclear plant can function without any AC power source. However to meet its license requirements, a nuclear plant will have provisions for emergency AC power that could come from on-site or off-site sources. Requirement R9.3.5 should only state: "Provision to consider the amount of time a nuclear plant can function without an off-site AC power source."

Yes
Individual
Darryl Curtis
Oncor Electric Delivery
Yes
Yes
Yes
Group
SERC Engineering Committee Planning Standards Subcommittee
Phillip R. Kleckley
South Carolina Electric & Gas
Yes
Yes
Yes
Individual
Kirit Shah
Ameren
No
As stated above in the background information, the purpose of this standard is nuclear safety and not BES reliability. This is certainly a necessary and laudable purpose but these particular changes are not needed for BES reliability.
No
We agree that the revisions distiguish the two issues. However (1) From the auditable compliance perspective, it does not provide any substantive clarification. The revisions are still ambiguous and additional clarification is needed regarding the "provision to consider". Does this mean that that the Operations and Maintenace section of the agreement between the Nuclear Plant Operator and Transmission Entity must ensure that the coping time is not violated? Does it mean that Transmission Entity has to include that value in some analysis? If this is the intent, the language does not reflect this clearly. (2) The original requirement applied to the loss of Off-site Power and the new requirement expands applicability to the loss of On-Site AC Power Sources as well.
Yes
The word execute typically applies to contracts between two legal entities so we think this word should not be used. We suggest the following wording will meet the intent. "1. Agreements may include mutually agreed upon procedures or protocols in effect between entities or between departments of a vertically integrated system."
The effective date in the footer of the standard does not match the effective date in section 5 of the standard.
Individual
Dan Rochester
Ontario IESO
No
This SAR does not emerge from reliability needs. However, the proposed changes are useful, as they enhance understanding of the requirements in the standard and bring consistency with other governing documents.
Yes
Yes

Group
IRC Standards Review Committee
Ben Li
IESO
No
As stated in the background information above, the purpose of this standard is nuclear safety and not BES reliability. These particular changes are not needed for reliability nor is the standard in general needed for reliability. This is certainly a necessary and laudable purpose but simply does not meet the requirements for a NERC enforceable reliability standard.
Yes
We agree that the revisions significantly improve clarification and distinguish the two issues.
Yes
The word execute typically applies to contracts between two legal entities so we think this word should not be used. We suggest the following wording will meet the intent. "1. Agreements may include mutually agreed upon procedures or protocols in effect between entities or between departments of a vertically integrated system."
The effective date in the footer of the standard does not match the effective date in section 5 of the standard. While we agreed in question 2 that the revisions significantly improve clarification and distinguish the two issues, we believe the modifications appear to take the directive of the Commission a step farther. The original requirement applied to the loss of Off-site Power and the new requirement expands applicability to the loss of On-Site AC Power Sources as well.
Group
Midwest ISO Standards Collaborators
Jason Marshall
Midwest ISO
No
As stated in the background information above, the purpose of this standard is nuclear safety and not BES reliability. These particular changes are not needed for reliability nor is the standard in general needed for reliability. This is certainly a necessary and laudable purpose but simply does not meet the requirements for a NERC enforceable reliability standard.
Yes
We agree that the revisions signficantly improve clarification and distiguish the two issues. Additional clarification is needed regarding the "provision to consider". Does this mean that that the Operations and Maintenace section of the agreement between the Nuclear Plant Operator and Transmission Entity must ensure that the coping time is not violated? We assume this is what is intended; however, the language is not this strong and does not reflect this.
Yes
The word execute typically applies to contracts between two legal entities so we think this word should not be used. We suggest the following wording will meet the intent. "1. Agreements may include mutually agreed upon procedures or protocols in effect between entities or between departments of a vertically integrated system."
The effective date in the footer of the standard does not match the effective date in section 5 of the standard. While we agreed in question 2 that the revisions signficantly improve clarification and distiguish the two issues, we believe the modifications appear to take the directive of the Commission a step farther. The original requirement applied to the loss of Off-site Power and the new requirement expands applicability to the loss of On-Site AC Power Sources as well.
Group
FirstEnergy
Sam Ciccone
FirstEnergy Corp.
No
1. Changes made to R9.3.5 have added clarity to the requirement but do not appear to have made a significant reliability-related improvement. 2. Although the change in term from Planning Authority to Planning Coordinator is consistent with the NERC Functional Model, this change does not improve reliability. One thing to note, however, is that the use of Planning Coordinator in the standards does not yet match the NERC Compliance Registry and the NERC Rules of Procedure where these entities are still registered as and referred to as Planning Authorities. If NERC wishes to move in the direction of "PC", then all NERC documents, rules, registries and standards should consistently use this term. 3. Although it adds clarity, the change to include a vertically integrated entity requirement to document interdepartmental procedures and method of executing agreements does not impact reliability. This is an open access issue. 4. The changes to the compliance measures are administrative and do not impact reliability.
Yes

Yes

Individual

Jason Shaver

American Transmission Company

No

ATC agrees that NERC has been directed to address the following issue: "clarify the references to coping times and off-site power restoration to address the concerns raised in the comments through its Reliability Standards development process." (FERC Order 716 Paragraph 107) ATC also agrees that the modification to Footnote 1 provides additional clarity but disagrees that NERC was directed to make this change. FERC directed the ERO "to require that an integrated entity provides documentation of its arrangements, including appropriate procedures and protocols, ensuring that its business units perform the functions under NUC-001-1 that would otherwise be met by separate entities." (Paragraph 73) ATC disagrees with the replacement of the term "Planning Authority" with the term "Planning Coordinator". Issues with this change: - The Planning Coordinator designation is not in NERC's Rules of Procedure - There are no entities currently registered as Planning Coordinators - NERC currently does not have any criteria for registering entities as Planning Coordinators - The Functional Model Document is a reference document and not part of NERC's Rules of Procedure

No

The concept of "coping time" originated in the Nuclear Regulatory Commission's Station Blackout (SBO) Rule (10 CFR 50.63). The term "station blackout" refers to the complete loss of alternating current electric power to the essential and non-essential switchgear buses in a nuclear plant. Station blackout therefore involves the loss of offsite power concurrent with a turbine trip and the failure of the on-site emergency alternating current power systems (i.e.; emergency diesel generators) Under the SBO Rule, nuclear plants are required to be able to “cope” with or withstand a station blackout for a specific period of time. Specifically, during a station blackout, nuclear plants must be able to maintain reactor core cooling and containment heat removal capabilities. In the event of a station blackout, most plants utilize emergency station batteries to power essential safety related systems to meet these cooling and heat removal requirements. Essentially, the coping time is the period of time during which the plant has demonstrated it has the capability to ensure that the core is cooled and containment integrity maintained during station blackout conditions. The SBO Rule, and the plant’s licensing requirements, requires the nuclear plants to be able to restore their on-site emergency alternating current (AC) power supplies (i.e. emergency diesel generators) within their coping time. There are no NRC rules or regulations which require that the off-site power be restored within the coping time. The draft language misrepresents the concept of coping time by linking it to the restoration of off-site AC power. As required by licensing requirements, the nuclear plant operator has responsibility to restore the on-site emergency AC power sources within the demonstrated coping time. We suggest the following language: Provision to consider a nuclear plant's coping time for coordinating the required restoration of on-site emergency AC power and the prioritization of the restoration of off-site power following a station blackout event We believe that our draft language is consistent with the philosophy advocated by the Nuclear Energy Institute (NEI) comments contained in paragraph 105 of Order 716.

No

The modification provides additional clarity but we disagree with the statement that this change was directed by the Commission. The Commission directed the ERO to require that integrated entities provide appropriate procedures and/or protocols ("Agreements") to demonstrate compliance. The Commission did not direct changes to the footnote. Does the SDT believe that vertically integrated companies are currently exempt from NUC-001?

Group

MRO NERC Standards Review Subcommittee

Michael Brytowski

MRO

No

This is a safety issue that should be addressed by the Nuclear industry and not a BES issue. Every Nuclear facility is already required to have a 7 day (off-site AC) independent redundant supply of electricity. For example, the Turkey point nuclear facility was able to withstand hurricane Andrew in 1992 and it lost off-site power for 5 days. The NERC reliability standards are for the protection of the BES. The reliability need should be independent of the generator heat source which drives the prime mover.

No

MRO NSRS believes this revision does clarify and distinguish between the two coping time issues. However, the concept of "coping time" originated in the Nuclear Regulatory Commission's Station Blackout (SBO) Rule (10 CFR 50.63). The term "station blackout" refers to the complete loss of alternating current electric power to the essential and non-essential switchgear buses in a nuclear plant. Station blackout therefore involves the loss of offsite power concurrent with a turbine trip and the failure of the on-site emergency alternating current power systems (i.e.; emergency diesel generators) Under the SBO Rule, nuclear plants are required to be able to “cope” with or withstand a station blackout for a specific period of time. Specifically, during a station blackout, nuclear plants must be able to maintain reactor core cooling and containment heat removal capabilities. In the event of a station blackout, most plants utilize emergency station batteries to power essential safety related systems to meet these cooling and heat removal requirements. Essentially, the coping time is the period of time during which the plant has demonstrated it has the capability to ensure that the core is cooled and containment integrity maintained during station blackout conditions. The SBO Rule, and the plant’s licensing requirements, requires the nuclear plants to be able to restore their on-site emergency alternating current (AC) power supplies (i.e. emergency diesel generators) within their coping time. There are no NRC rules and regulations which require that the off-site power be restored within the coping time. The draft language misrepresents the concept of coping time by linking it to the restoration of off-site AC power. As required by licensing requirements, the nuclear plant operator has responsibility to restore the on-site emergency AC power sources within the demonstrated coping time. MRO NSRS suggests the following language: Provision to consider a nuclear plant's coping time for coordinating the required restoration of on-site emergency AC power and the prioritization of the restoration of off-site power following a station blackout event MRO NSRS believes that our draft language is consistent with the philosophy advocated by the Nuclear Energy Institute (NEI) comments contained in paragraph 105 of Order 716.
Yes
NERC should reconsider the primary objective of this standard and determine whether the scope of this SAR should be modified to delete any requirement that doesn't address a grid reliability need. The MRO NSRS questions whether the VRF values for six requirements should be increased (R2 - Lower to Medium, R4 - Medium to High, R5 - Medium to High, R7 - Medium to High, R8 - Medium to High, R9 - Lower to Medium) without explanation or justification. For example in R2, having an agreement does not have a direct material effect on the BES.
Group
Bonneville Power Administration
Denise Koehn
Transmission Reliability Program
Yes
Yes
"Off-site" and "On-site" should either not be capitalized or need to be defined under the NERC Glossary of Terms.
Yes
NERC Glossary of Terms needs to be updated with definition of Planning Coordinator, now that it has been changed from Planning Authorities. Also needs to be updated with definition of Compliance Enforcement Authority, now that it has been changed from Compliance Monitor. In Section 4.2 "Generator Owners" and "Generator Operators" are not normally considered Transmission Entities but are identified as one in section 4.2.

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Consideration of Comments on Nuclear Plant Interface Coordination SAR and Standard — Project 2009-08

The Nuclear Plant Interface Coordination Drafting Team (NPIC DT) thanks all commenters who submitted comments on the SAR, the proposed revisions (clean and redline) to the NUC-001-2 — Nuclear Plant Interface Coordination standard, and the implementation plan. These documents were posted for a 45-day public comment period from February 2, 2009 through March 18, 2009. The stakeholders were asked to provide feedback on the documents through a special Electronic Comment Form. There were 14 sets of comments, including comments from more than 75 different people from approximately 45 companies representing 8 of the 10 Industry Segments as shown in the table on the following pages.

In this document, the NPIC DT's consideration of comments is provided in blue text immediately following each comment submitted for each question. A summary response to each question is highlighted following each question. Based on the comments received, the following conforming modifications were made to the standard:

- **Modified Requirement R9.3.5 to remove the term "coping time" and provide further clarity.**
- **Modified the footnote to Requirement R2 to provide further clarity.**

In this "Consideration of Comments" document stakeholder comments have been arranged so that it is easier to see the responses associated with each question. All comments received on the standard can be viewed in their original format at:

http://www.nerc.com/filez/standards/Project2009-08_Nuclear_Plant_Interface_Coordination.html

If you feel that your comment has been overlooked, please let us know immediately. Our goal is to give every comment serious consideration in this process! If you feel there has been an error or omission, you can contact the Vice President and Director of Standards, Gerry Adamski, at 609-452-8060 or at gerry.adamski@nerc.net. In addition, there is a NERC Reliability Standards Appeals Process.[1]

[1] The appeals process is in the Reliability Standards Development Procedures: http://www.nerc.com/standards/newstandardsprocess.html.

Index to Questions, Comments, and Responses

Consideration of Comments on SAR and draft of NUC-001-2 — Project 2009-08

The Industry Segments are:

1 — Transmission Owners
2 — RTOs, ISOs
3 — Load-serving Entities
4 — Transmission-dependent Utilities
5 — Electric Generators
6 — Electricity Brokers, Aggregators, and Marketers
7 — Large Electricity End Users
8 — Small Electricity End Users
9 — Federal, State, Provincial Regulatory or other Government Entities
10 — Regional Reliability Organizations, Regional Entities

		Commenter	Organization	Industry Segment									
				1	2	3	4	5	6	7	8	9	10
1.	Group	Guy Zito	NPCC										X

	Additional Member	Additional Organization	Region	Segment Selection
1.	Ralph Rufrano	New York Power Authority	NPCC	5
2.	Chris de Graffenried	Consolidated Edison Co. of New York, Inc.	NPCC	1
3.	Brian Evans-Mongeon	Utility Services	NPCC	6
4.	Michael Garton	Dominion Resources Services, Inc.	NPCC	5
5.	Michael Gildea	Constellation Energy	NPCC	6
6.	David Kiguel	Hydro One Networks Inc.	NPCC	1
7.	Roger Champagne	Hydro-Quebec TransEnergie	NPCC	2
8.	Sylvain Clermont	Hydro-Quebec TransEnergie	NPCC	1
9.	Rick White	Northeast Utilities	NPCC	1
10.	Gregory Campoli	New York Independent System Operator	NPCC	2
11.	Kathleen Goodman	ISO - New England	NPCC	2
12.	Brian Gooder	Ontario Power Generation Inc.	NPCC	5
13.	Bruce Metruck	New York Power Authority	NPCC	6
14.	Randy MacDonald	New Brunswick System Operator	NPCC	2
15.	Gerry Dunbar	NPCC	NPCC	10

	Commenter	Organization	Industry Segment									
			1	2	3	4	5	6	7	8	9	10
	16. Lee Pedowicz	NPCC	NPCC	10								
	17. Chris Orzel	FPL Energy	NPCC	1								
	18. Kurtis Chong	Independent Electricity System Operator	NPCC	2								
	19. Michael Schiavone	National Grid	NPCC	1								
2.	Group	Phillip R. Kleckley	SERC Engineering Committee Planning Standards Subcommittee			X							
	Additional Member	**Additional Organization**	**Region**	**Segment Selection**								
	1. John Sullivan	Ameren	SERC	1								
	2. Charles Long	Entergy	SERC	1								
	3. Scott Goodwin	Midwest ISO	SERC	2								
	4. Carter Edge	SERC Reliability Corp	SERC	10								
	5. Pat Huntley	SERC Reliability Corp	SERC	10								
	6. Bob Jones	Southern Co. Services	SERC	1								
	7. David Marler	TVA	SERC	1								
3.	Group	Ben Li	IRC Standards Review Committee		X							
	Additional Member	**Additional Organization**	**Region**	**Segment Selection**								
	1. Anita Lee	AESO	WECC	2								
	2. Lourdes Estrada-Salinero	CAISO	WECC	2								
	3. Patrick Brown	PJM	RFC	2								
	4. Steve Myers	ERCOT	ERCOT	2								
	5. Charles Yeung	SPP	SPP	2								
	6. Matt Goldberg	ISO-NE	NPCC	2								
	7. James Castle	NYISO	NPCC	2								
	8. Bill Phillips	MISO	MRO	2								
4.	Group	Jason Marshall	Midwest ISO Standards Collaborators		X							
	Additional Member	**Additional Organization**	**Region**	**Segment Selection**								
	1. Barb Kedrowski	We Energies	RFC	3, 4, 5								
	2. Jim Cyrulewski	JDRJC Associates	RFC	8								

	Commenter	Organization	Industry Segment									
			1	2	3	4	5	6	7	8	9	10
3. Kirit Shah	Ameren	SERC	1									
4. James B. Lewis	Consumers Energy	RFC	3, 4, 5									
5. Group	Sam Ciccone	FirstEnergy	X		X	X	X	X				

Additional Member	Additional Organization	Region	Segment Selection
1. Doug Hohlbaugh	FE	RFC	1, 3, 4, 5, 6
2. Dave Folk	FE	RFC	1, 3, 4, 5, 6
3. John Reed	FE	RFC	1
4. Brian Grill	FE	RFC	1
5. Bill Duge	FE	RFC	5

6. Group	Michael Brytowski	MRO NERC Standards Review Subcommittee										X

Additional Member	Additional Organization	Region	Segment Selection
1. Carol Gerou	MP	MRO	1, 3, 5, 6
2. Neal Balu	WPS	MRO	3, 4, 5, 6
3. Terry Bilke	MISO	MRO	2
4. Joe DePoorter	MGE	MRO	3, 4, 5, 6
5. Ken Goldsmith	ALTW	MRO	4
6. Jim Haigh	WAPA	MRO	1, 6
7. Terry Harbour	MEC	MRO	1, 3, 5, 6
8. Joseph Knight	GRE	MRO	1, 3, 5, 6
9. Scott Nickels	RPU	MRO	3, 4, 5, 6
10. Dave Rudolph	BEPC	MRO	1, 3, 5, 6
11. Eric Ruskamp	LES	MRO	1, 3, 5, 6
12. Pam Sordet	XCEL	MRO	1, 3, 5, 6

7. Group	Denise Koehn	Bonneville Power Administration	X		X		X	X				

Additional Member	Additional Organization	Region	Segment Selection
1. Mike Viles	Tx Technical Operations	WECC	1
2. Charles Sweeney	Transmission Sales	WECC	1
3. Greg Olesen	Tx District Operations	WECC	1

	Commenter	Organization	Industry Segment									
			1	2	3	4	5	6	7	8	9	10
	4. Ted Snodgrass	Tx Monroe Control Center	WECC	1								
	5. Sally Long	Tx Technical Operations	WECC	1								
	6. Bob Sherman	Contract Generating Resources	WECC	3, 5, 6								
8.	Individual	James H. Sorrels, Jr.	American Electric Power	X		X		X	X				
9.	Individual	Greg Rowland	Duke Energy Corporation	X		X		X	X				
10.	Individual	Darryl Curtis	Oncor Electric Delivery	X									
11.	Individual	Kirit Shah	Ameren	X		X		X	X				
12.	Individual	Dan Rochester	Ontario IESO		X								
13.	Individual	Jason Shaver	American Transmission Company	X									
14.	Group	Raymond Vice	Southern Company Transmission Standards Review Team	X									

Additional Member	Additional Organization	Region	Segment Selection
1. Marc Butts	Southern Co.		1
2. Hugh Francis	Southern Co.		1
3. Andrew Neal	Southern Nuclear Co.		
4. Tom Sims	Southern Co. Transmission		
5. Chris Wilson	Southern Co. Transmission		

1. Do you agree that there is a reliability related reason for the proposed SAR? If not, please explain in the comment area.

Summary Consideration:

There were three main themes associated with the comments received; 1) the modifications to the standard are not based on reliability, 2) the modification to the footnote was not directed by FERC, and 3) the changing of the term Planning Authority to Planning Coordinator.

The SDT explained that although the modifications to Requirement R9.3.5 are being made based on directives from FERC Order 716, nuclear power plants provide significant support to the operation of the Bulk Electric System, and preserving the integrity of nuclear units (through safe operation and shut-down) is a reliability-related issue. The SDT also agrees that the modifications to the footnote were not directed by FERC. This modification was identified in the SAR and was made to assist in clarifying that all entities need to comply with the requirement(s), however the agreement does not need to be as formal as was implied with the use of the word, "executed" in the original footnote. Lastly, the SDT explained that the change from "Planning Authority" to "Planning Coordinator" was being made to provide uniformity in this standard and with other standards under development. The Standards Committee has directed drafting teams to adopt the terms in Version 4 of the Functional Model – and Version 4 replaced the term, "Planning Authority" with "Planning Coordinator." Note that FERC has been notified of this change, and has indicated that it accepts the replacement of "Planning Authority" with "Planning Coordinator."

Organization	Yes or No	Question 1 Comment
NPCC	No	Change appears to be for clarification purposes regarding the use of the term "coping". "Coping" should be made a defined term.
Response: Based on comments received from the industry the SDT has modified Requirement R9.3.5 to provide clarity. Rather than define the term "coping" the team rephrased the subrequirement so that the term is not used. The Requirement R9.3.5 now reads "Provision for considering within the restoration process the requirements and urgency of a nuclear plant that has lost all off-site and on-site AC power".		
IRC Standards Review Committee	No	As stated in the background information above, the purpose of this standard is nuclear safety and not BES reliability. These particular changes are not needed for reliability nor is the standard in general needed for reliability. This is certainly a necessary and laudable purpose but simply does not meet the requirements for a NERC enforceable reliability standard.
Response: The purpose of the standard has already been established through the SAR process and Standard Development process for NUC-001-1. The purpose of the standard is to ensure "safe operation and shutdown" which is not the same as ensuring "safety."		

Organization	Yes or No	Question 1 Comment
Safe operation and shutdown of a nuclear facility is needed to protect the facility's integrity – and protecting the facility's integrity has a direct impact on reliability of the Bulk Electric System since nuclear facilities make up a significant percentage of generation resources. This SAR was established to modify Standard NUC-001-1 in response to FERC directives from Order 716.		
Midwest ISO Standards Collaborators	No	As stated in the background information above, the purpose of this standard is nuclear safety and not BES reliability. These particular changes are not needed for reliability nor is the standard in general needed for reliability. This is certainly a necessary and laudable purpose but simply does not meet the requirements for a NERC enforceable reliability standard.
Response: The purpose of the standard has already been established through the SAR process and Standard Development process for NUC-001-1. The purpose of the standard is to ensure "safe operation and shutdown" which is not the same as ensuring "safety." Safe operation and shutdown of a nuclear facility is needed to protect the facility's integrity – and protecting the facility's integrity has a direct impact on reliability of the Bulk Electric System since nuclear facilities make up a significant percentage of generation resources. This SAR was established to modify Standard NUC-001-1 in response to FERC directives from Order 716.		
Ameren	No	As stated above in the background information, the purpose of this standard is nuclear safety and not BES reliability. This is certainly a necessary and laudable purpose but these particular changes are not needed for BES reliability.
Response: The purpose of the standard has already been established through the SAR process and Standard Development process for NUC-001-1. The purpose of the standard is to ensure "safe operation and shutdown" which is not the same as ensuring "safety." Safe operation and shutdown of a nuclear facility is needed to protect the facility's integrity – and protecting the facility's integrity has a direct impact on reliability of the Bulk Electric System since nuclear facilities make up a significant percentage of generation resources. This SAR was established to modify Standard NUC-001-1 in response to FERC directives from Order 716.		
FirstEnergy	No	1. Changes made to R9.3.5 have added clarity to the requirement but do not appear to have made a significant reliability-related improvement. 2. Although the change in term from Planning Authority to Planning Coordinator is consistent with the NERC Functional Model, this change does not improve reliability. One thing to note, however, is that the use of Planning Coordinator in the standards does not yet match the NERC Compliance Registry and the NERC Rules of Procedure where these entities are still registered as and referred to as Planning Authorities. If NERC wishes to move in the direction of "PC", then all NERC documents, rules, registries and standards should consistently use this term. 3. Although it adds clarity, the change to include a vertically integrated entity requirement to document interdepartmental procedures and method of executing agreements does not impact reliability. This is an

Organization	Yes or No	Question 1 Comment
		open access issue. 4. The changes to the compliance measures are administrative and do not impact reliability.
Response: The changes to Requirement R9.3.5 and the footnote were made to provide clarity. The change to requirement R9.3.5 is the result of a FERC directive from Order 716. **In Order 716 FERC directed the ERO, in enforcing NUC-001-1, to require that an integrated entity provide documentation of its arrangements, including appropriate procedures and protocols, ensuring that its business units perform the functions under NUC-001-1 that would otherwise be met by separate entities. The change to the footnote was made to assist in clarifying all entities that need to comply with the requirement(s).** **The SDT agrees that the changes in the compliance measures and Planning Authority to Planning Coordinator are administrative in nature and do not impact reliability. The changes are being made to provide uniformity within this standard and other standards under development.**		
MRO NERC Standards Review Subcommittee	No	This is a safety issue that should be addressed by the Nuclear industry and not a BES issue. Every Nuclear facility is already required to have a 7 day (off-site AC) independent redundant supply of electricity. For example, the Turkey point nuclear facility was able to withstand hurricane Andrew in 1992 and it lost off-site power for 5 days. The NERC reliability standards are for the protection of the BES. The reliability need should be independent of the generator heat source which drives the prime mover.
Response: The purpose of the standard has already been established through the SAR process and Standard Development process for NUC-001-1. The purpose of the standard is to ensure "safe operation and shutdown" which is not the same as ensuring "safety." Safe operation and shutdown of a nuclear facility is needed to protect the facility's integrity – and protecting the facility's integrity has a direct impact on reliability of the Bulk Electric System since nuclear facilities make up a significant percentage of generation resources. This SAR was established to modify Standard NUC-001-1 in response to FERC directives from Order 716.		
Ontario IESO	No	This SAR does not emerge from reliability needs. However, the proposed changes are useful, as they enhance understanding of the requirements in the standard and bring consistency with other governing documents.
Response: This SAR was established to modify Standard NUC-001-1 in response to FERC directives from Order 716.		
American Transmission Company	No	ATC agrees that NERC has been directed to address the following issue: "clarify the references to coping times and off-site power restoration to address the concerns raised in the comments through its

Organization	Yes or No	Question 1 Comment
		Reliability Standards development process." (FERC Order 716 Paragraph 107) ATC also agrees that the modification to Footnote 1 provides additional clarity but disagrees that NERC was directed to make this change. FERC directed the ERO "to require that an integrated entity provides documentation of its arrangements, including appropriate procedures and protocols, ensuring that its business units perform the functions under NUC-001-1 that would otherwise be met by separate entities." (Paragraph 73) ATC disagrees with the replacement of the term "Planning Authority" with the term "Planning Coordinator". Issues with this change: - The Planning Coordinator designation is not in NERC's Rules of Procedure- There are no entities currently registered as Planning Coordinators- NERC currently does not have any criteria for registering entities as Planning Coordinators- The Functional Model Document is a reference document and not part of NERC's Rules of Procedure
Response: The SDT thanks you for your agreement that the modifications made do provide clarity. The SDT has further modified Requirement R9.3.5 to provide additional clarity. The Requirement R9.3.5 now reads "Provision for considering within the restoration process the requirements and urgency of a nuclear power plant that has lost all off-site and on-site AC power". **In Order 716 FERC directed the ERO, in enforcing NUC-001-1, to require that an integrated entity provide documentation of its arrangements, including appropriate procedures and protocols, ensuring that its business units perform the functions under NUC-001-1 that would otherwise be met by separate entities. The change to the footnote was made to assist in clarifying all entities that need to comply with the requirement(s). The directive was aimed at the ERO – modifying the standard is one way of addressing the directive.** **The SDT agrees that the changes in terminology from Planning Authority to Planning Coordinator are administrative in nature and do not impact reliability. The changes are being made to provide uniformity within this standard and other standards under development. The Standards Committee has directed drafting teams to adopt the terms in Version 4 of the Functional Model – and Version 4 replaced the term, "Planning Authority" with "Planning Coordinator." Note that FERC has been notified of this change, and has indicated that it accepts the replacement of "Planning Authority" with "Planning Coordinator."**		
Bonneville Power Administration	Yes	
American Electric Power	Yes	
Duke Energy	Yes	

Organization	Yes or No	Question 1 Comment
Corporation		
Oncor Electric Delivery	Yes	
SERC Engineering Committee Planning Standards Subcommittee	Yes	
Southern Company Transmission Standards Review Team	Yes	

2. In Order 716, the Commission indicated that the references in Requirement R9.3.5 to coping times for station blackouts and restoration of off-site power were ambiguous as the relationship between the two issues was unclear. Do you agree that the revisions made to R9.3.5 clarify and distinguish the two issues? If not, please explain in the comment area.

Original: R9.3.5. Provision to consider nuclear plant coping times required by the NPLRs and their relation to the coordination of grid and nuclear plant restoration following a nuclear plant loss of Off-site Power.

Proposed Revision from Draft 1 of NUC-001-2: R9.3.5. Provision to consider a nuclear plant's coping time (the period of time a nuclear plant can function without an AC power source) required by the NPLRs during the restoration of Off-site Power following a loss of all Off-site and On-site AC Power Sources.

Summary Consideration:

All of the comments received, both affirmative and negative, stated that the requirement needed further clarification primarily with the use of the term "coping time". The DT modified the requirement and removed the term "coping time". The requirement now reads as follows: "Provision for considering, within the restoration process, the requirements and urgency of a nuclear power plant that has lost all off-site and on-site AC power sources".

Organization	Yes or No	Question 2 Comment
MRO NERC Standards Review Subcommittee	No	MRO NSRS believes this revision does clarify and distinguish between the two coping time issues.However, the concept of "coping time" originated in the Nuclear Regulatory Commission's Station Blackout (SBO) Rule (10 CFR 50.63). The term "station blackout" refers to the complete loss of alternating current electric power to the essential and non-essential switchgear buses in a nuclear plant. Station blackout therefore involves the loss of offsite power concurrent with a turbine trip and the failure of the on-site emergency alternating current power systems (i.e.; emergency diesel generators)Under the SBO Rule, nuclear plants are required to be able to ?cope? with or withstand a station blackout for a specific period of time. Specifically, during a station blackout, nuclear plants must be able to maintain reactor core cooling and containment heat removal capabilities. In the event of a station blackout, most plants utilize emergency station batteries to power essential safety related systems to meet these cooling and heat removal requirements. Essentially, the coping time is the period of time during which the plant has demonstrated it has the capability to ensure that the core is cooled and containment integrity maintained during station blackout conditions.The SBO Rule, and the plant?s licensing

Organization	Yes or No	Question 2 Comment
		requirements, requires the nuclear plants to be able to restore their on-site emergency alternating current (AC) power supplies (i.e. emergency diesel generators) within their coping time. There are no NRC rules and regulations which require that the off-site power be restored within the coping time.The draft language misrepresents the concept of coping time by linking it to the restoration of off-site AC power. As required by licensing requirements, the nuclear plant operator has responsibility to restore the on-site emergency AC power sources within the demonstrated coping time.MRO NSRS suggests the following language: Provision to consider a nuclear plant's coping time for coordinating the required restoration of on-site emergency AC power and the prioritization of the restoration of off-site power following a station blackout eventMRO NSRS believes that our draft language is consistent with the philosophy advocated by the Nuclear Energy Institute (NEI) comments contained in paragraph 105 of Order 716.
Response: Based on comments received from the industry the SDT has modified Requirement R9.3.5 to provide clarity. The Requirement R9.3.5 now reads "Provision for considering, within the restoration process, the requirements and urgency of a nuclear power plant that has lost all off-site and on-site AC power".		
Duke Energy Corporation	No	The reference to coping time should not be included in Requirement R9.3.5 because it creates confusion. Coping time is the amount of time a nuclear plant can function without any AC power source. However to meet its license requirements, a nuclear plant will have provisions for emergency AC power that could come from on-site or off-site sources. Requirement R9.3.5 should only state:"Provision to consider the amount of time a nuclear plant can function without an off-site AC power source."
Response: Based on comments received from the industry the SDT has modified Requirement R9.3.5 to provide clarity. The Requirement R9.3.5 now reads "Provision for considering, within the restoration process, the requirements and urgency of a nuclear power plant that has lost all off-site and on-site AC power".		
Ameren	No	We agree that the revisions distiguish the two issues. However (1) From the auditable compliance perspective, it does not provide any substantive clarification. The revisions are still ambiguous and additional clarification is needed regarding the "provision to consider". Does this mean that that the Operations and Maintenace section of the agreement between the Nuclear Plant Operator and Transmission Entity must ensure that the coping time is not violated? Does it mean that Transmission Entity has to include that value in some analysis? If this is the intent, the language does not reflect this clearly. (2) The original requirement applied to the loss of Off-site Power and the new requirement expands

Organization	Yes or No	Question 2 Comment
		applicability to the loss of On-Site AC Power Sources as well.
Response: The SDT is not mandating, in this requirement, that the NPIRs include a specific time that the restoration of off-site or on-site power is to be restored nor is this requirement mandating a transmission entity include this time in some analysis. Based on comments received from the industry the SDT has modified Requirement R9.3.5 to provide clarity. The Requirement R9.3.5 now reads "Provision for considering, within the restoration process, the requirements and urgency of a nuclear power plant that has lost all off-site and on-site AC power".		
American Transmission Company	No	The concept of "coping time" originated in the Nuclear Regulatory Commission's Station Blackout (SBO) Rule (10 CFR 50.63). The term "station blackout" refers to the complete loss of alternating current electric power to the essential and non-essential switchgear buses in a nuclear plant. Station blackout therefore involves the loss of offsite power concurrent with a turbine trip and the failure of the on-site emergency alternating current power systems (i.e.; emergency diesel generators)Under the SBO Rule, nuclear plants are required to be able to ?cope? with or withstand a station blackout for a specific period of time. Specifically, during a station blackout, nuclear plants must be able to maintain reactor core cooling and containment heat removal capabilities. In the event of a station blackout, most plants utilize emergency station batteries to power essential safety related systems to meet these cooling and heat removal requirements. Essentially, the coping time is the period of time during which the plant has demonstrated it has the capability to ensure that the core is cooled and containment integrity maintained during station blackout conditions.The SBO Rule, and the plant?s licensing requirements, requires the nuclear plants to be able to restore their on-site emergency alternating current (AC) power supplies (i.e. emergency diesel generators) within their coping time. There are no NRC rules or regulations which require that the off-site power be restored within the coping time.The draft language misrepresents the concept of coping time by linking it to the restoration of off-site AC power. As required by licensing requirements, the nuclear plant operator has responsibility to restore the on-site emergency AC power sources within the demonstrated coping time.We suggest the following language: Provision to consider a nuclear plant's coping time for coordinating the required restoration of on-site emergency AC power and the prioritization of the restoration of off-site power following a station blackout eventWe believe that our draft language is consistent with the philosophy advocated by the Nuclear Energy Institute (NEI) comments contained in paragraph 105 of Order 716.
Response: Based on comments received from the industry the SDT has modified Requirement R9.3.5 to provide clarity. The Requirement R9.3.5 now reads "Provision for considering, within the restoration process, the requirements and urgency of a nuclear power plant that has lost all off-site and on-site AC power".		

Organization	Yes or No	Question 2 Comment
IRC Standards Review Committee	Yes	We agree that the revisions significantly improve clarification and distinguish the two issues.
Response: The SDT thanks for your affirmative response and clarifying comment. Some commenters suggested that the use of the term, "coping time" had various meanings and the drafting team revised the requirement so the term is no longer used. Based on comments received from the industry the SDT has modified Requirement R9.3.5 to provide clarity. The Requirement R9.3.5 now reads "Provision for considering, within the restoration process, the requirements and urgency of a nuclear power plant that has lost all off-site and on-site AC power".		
Midwest ISO Standards Collaborators	Yes	We agree that the revisions signficantly improve clarification and distiguish the two issues. Additional clarification is needed regarding the "provision to consider". Does this mean that that the Operations and Maintenace section of the agreement between the Nuclear Plant Operator and Transmission Entity must ensure that the coping time is not violated? We assume this is what is intended; however, the language is not this strong and does not reflect this.
Response: The SDT thanks for your affirmative response and clarifying comment. The SDT is not mandating, in this requirement, that the NPIRs include a specific time that the restoration of off-site or on-site power is to be restored nor is this requirement mandating a transmission entity include this time in some analysis. Based on comments received from the industry the SDT has modified Requirement R9.3.5 to provide clarity. The Requirement R9.3.5 now reads "Provision for considering, within the restoration process, the requirements and urgency of a nuclear power plant that has lost all off-site and on-site AC power".		
Southern Company Transmission Standards Review Team	Yes	The revised requirement 9.3.5 is an improvement on the original language, but is not as brief and to the point as it could be. As stated in our original comments, the word "coping time" has various meanings and should not be used in this context. We don't think the way the requirement is currently written will prevent the industry from complying, but do believe that the requirement could have been written more succinctly if the word "coping time" was not used.
Response: The SDT thanks for your affirmative response and clarifying comment. Based on comments received from the industry the SDT has modified Requirement R9.3.5 to provide clarity. The revised requirement avoids use of the term, "coping time." The Requirement R9.3.5 now reads "Provision for considering, within the restoration process, the requirements and urgency of a nuclear power plant that has lost all off-site and on-site AC power".		
Bonneville Power Administration	Yes	"Off-site" and "On-site" should either not be capitalized or need to be defined under the NERC Glossary of Terms.

Organization	Yes or No	Question 2 Comment
Response: The SDT thanks for your affirmative response and clarifying comment. The terms are not defined and in the revised standard are not capitalized. Based on comments received from the industry the SDT has modified Requirement R9.3.5 to provide clarity. The Requirement R9.3.5 now reads "Provision for considering, within the restoration process, the requirements and urgency of a nuclear power plant that has lost all off-site and on-site AC power".		
American Electric Power	Yes	
NPCC	Yes	
FirstEnergy	Yes	
Oncor Electric Delivery	Yes	
Ontario IESO	Yes	
SERC Engineering Committee Planning Standards Subcommittee	Yes	

3. In Order 716, the Commission wrote:

The Commission directs the ERO, in enforcing NUC-001-1, to require that an integrated entity provides documentation of its arrangements, including appropriate procedures and protocols, ensuring that its business units perform the functions under NUC-001-1 that would otherwise be met by separate entities.

To meet the intent of this directive, the drafting team proposed the following modification to Footnote 1 for Requirement R2:

Original footnote: 1. Agreements may include mutually agreed upon procedures or protocols

Proposed revision: 1. Agreements may include mutually agreed upon procedures or protocols executed between entities or between departments of a vertically integrated system.

Do you agree that the proposed modification meets the intent of the directive? If not, please explain in the comment area.

Summary Consideration:

The main comment centered on the use of the word "executed" in the footnote. The SDT explained that they were in agreement and modified the footnote to use the suggested wording. The footnote now reads as follows:

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

Organization	Yes or No	Question 3 Comment
American Transmission Company	No	The modification provides additional clarity but we disagree with the statement that this change was directed by the Commission. The Commission directed the ERO to require that integrated entities provide appropriate procedures and/or protocols ("Agreements") to demonstrate compliance. The Commission did not direct changes to the footnote. Does the SDT believe that vertically integrated companies are currently exempt from NUC-001?
Response: The SDT agrees that this modification was not the result of a directive to change the standard, but it was the result of a directive aimed at the ERO – modifying the standard is one way of meeting the directive. The change to the footnote was made to		

Organization	Yes or No	Question 3 Comment
assist in clarifying all entities that need to comply with the requirement(s).		
IRC Standards Review Committee	Yes	The word execute typically applies to contracts between two legal entities so we think this word should not be used. We suggest the following wording will meet the intent."1. Agreements may include mutually agreed upon procedures or protocols in effect between entities or between departments of a vertically integrated system."
Response: The SDT agrees with your comment and has modified the standard to use your suggested wording.		
Midwest ISO Standards Collaborators	Yes	The word execute typically applies to contracts between two legal entities so we think this word should not be used. We suggest the following wording will meet the intent."1. Agreements may include mutually agreed upon procedures or protocols in effect between entities or between departments of a vertically integrated system."
Response: The SDT agrees with your comment and has modified the standard to use your suggested wording.		
Ameren	Yes	The word execute typically applies to contracts between two legal entities so we think this word should not be used. We suggest the following wording will meet the intent."1. Agreements may include mutually agreed upon procedures or protocols in effect between entities or between departments of a vertically integrated system."
Response: The SDT agrees with your comment and has modified the standard to use your suggested wording.		
NPCC	Yes	
SERC Engineering Committee Planning Standards Subcommittee	Yes	
FirstEnergy	Yes	
MRO NERC Standards Review Subcommittee	Yes	

Organization	Yes or No	Question 3 Comment
Bonneville Power Administration	Yes	
American Electric Power	Yes	
Duke Energy Corporation	Yes	
Oncor Electric Delivery	Yes	
Ontario IESO	Yes	
Southern Company Transmission Standards Review Team	Yes	

4. Please provide any other comments on the SAR or proposed revisions to NUC-001-1 that you have not already provided in response to the questions above.

Summary Consideration:

The majority of the comments surrounded the effective date and the addition of on-site AC power sources. The SDT explained that the oversight in the effective date has been corrected. With regards to the addition of on-site AC power sources, the SDT explained that the intent was to cover both off-site and on-site AC power sources. The addition of on-site AC power sources was made to provide additional clarity.

Organization	Yes or No	Question 4 Comment
IRC Standards Review Committee		The effective date in the footer of the standard does not match the effective date in section 5 of the standard. While we agreed in question 2 that the revisions significantly improve clarification and distinguish the two issues, we believe the modifications appear to take the directive of the Commission a step farther. The original requirement applied to the loss of Off-site Power and the new requirement expands applicability to the loss of On-Site AC Power Sources as well.
Response: The SDT thanks you for your comment concerning the effective date. This oversight has been corrected. **The original requirement was meant to cover the loss of both off-site and on-site AC power sources. The SDT modified the requirement to provide further clarity.**		
Midwest ISO Standards Collaborators		The effective date in the footer of the standard does not match the effective date in section 5 of the standard. While we agreed in question 2 that the revisions signficantly improve clarification and distiguish the two issues, we believe the modifications appear to take the directive of the Commission a step farther. The original requirement applied to the loss of Off-site Power and the new requirement expands applicability to the loss of On-Site AC Power Sources as well.
Response: The SDT thanks you for your comment concerning the effective date. This oversight has been corrected. **The original requirement was meant to cover the loss of both off-site and on-site AC power sources. The SDT modified the**		

Organization	Yes or No	Question 4 Comment
requirement to provide further clarity.		
Ameren		The effective date in the footer of the standard does not match the effective date in section 5 of the standard.
Response: The SDT thanks you for your comment concerning the effective date. This oversight has been corrected.		
MRO NERC Standards Review Subcommittee		NERC should reconsider the primary objective of this standard and determine whether the scope of this SAR should be modified to delete any requirement that doesn't address a grid reliability need.The MRO NSRS questions whether the VRF values for six requirements should be increased (R2 - Lower to Medium, R4 - Medium to High, R5 - Medium to High, R7 - Medium to High, R8 - Medium to High, R9 - Lower to Medium) without explanation or justification. For example in R2, having an agreement does not have a direct material effect on the BES.
Response: The purpose of the standard has already been established through the SAR process and Standard Development process for NUC-001-1. This SAR was established to modify Standard NUC-001-1 in response to FERC directives from Order 716. Nuclear power plants provide significant support to the operation of the Bulk Electric System, and preserving the integrity of nuclear units (through safe operation and shut-down) is a reliability-related issue. **The VRFs are a separate issue outside the scope of this project.**		
Bonneville Power Administration		NERC Glossary of Terms needs to be updated with definition of Planning Coordinator, now that it has been changed from Planning Authorities. Also needs to be updated with definition of Compliance Enforcement Authority, now that it has been changed from Compliance Monitor. In Section 4.2 "Generator Owners" and "Generator Operators" are not normally considered Transmission Entities but are identified as one in section 4.2.
Response: Another drafting team has already added the term, "Planning Coordinator" to the Glossary. The term, "Compliance Enforcement Authority" is used in the ERO's Rules of Procedure and has the same meaning in the standard as it does in the Rules of Procedure. **The SDT is stating that in this case a "Transmission Entity" could be considered a Generator Owner or Generator Operator due to the service(s) provided under the Nuclear Plant Interface Requirements (NPIRs).**		

NERC
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Standards Announcement

Ballot Pool and Pre-ballot Window
May 12–June 12, 2009

Now available at: https://standards.nerc.net/BallotPool.aspx

Revisions to Standard NUC-001-1 — Nuclear Plant Interface Coordination for Order 716 (Project 2009-08)

The Nuclear Plant Interface Coordination Standard Drafting Team has posted standard NUC-001-2 — Nuclear Plant Interface Coordination for a 30-day pre-ballot review. Registered Ballot Body members may join the ballot pool to be eligible to vote on this standard **until 8 a.m. EDT on June 12, 2009**. An implementation plan has been posted with the standard.

During the pre-ballot window, members of the ballot pool may communicate with one another by using their "ballot pool list server." (Once the balloting begins, ballot pool members are prohibited from using the ballot pool list servers.) The list server for this ballot pool is: bp-2009-08_NUC-001-1_in.

Project Background

The Nuclear Plant Interface Coordination standard requires coordination between Nuclear Plant Generator Operators and Transmission Entities for the purpose of ensuring safe nuclear plant operation and shutdown. The proposed revisions address two directives in Federal Energy Regulatory Commission (FERC) Order 716 aimed at addressing stakeholder concerns for improved clarity. Additional revisions were made to change the term "Planning Authority" to "Planning Coordinator" (to match the terminology in the latest version of the Functional Model) and to bring the compliance elements of the standard into conformance with the latest version of the ERO Rules of Procedure.

Project page: http://www.nerc.com/filez/standards/Project2009-08_Nuclear_Plant_Interface_Coordination.html

Applicability of Standards in Project

- Transmission Operators
- Transmission Owners
- Transmission Planners
- Transmission Service Providers
- Balancing Authorities
- Reliability Coordinators
- Planning Coordinators
- Distribution Providers
- Load-serving Entities
- Generator Owners
- Generator Operators

Standards Development Process

The Reliability Standards Development Procedure contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate.

For more information or assistance,
please contact Shaun Streeter at shaun.streeter@nerc.net or at 609.452.8060.

Standard Development Roadmap

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

Development Steps Completed:

1. SAR and standard submitted to Standards Committee for authorization to post on January 30, 2009.
2. The SAR and Standard Drafting Team posted the SAR and standard for comments on February 2, 2009.
3. The SAR and Standard Drafting Team responded to comments on May 8, 2009.

Proposed Action Plan and Description of Current Draft:

This is the second version of the proposed revised standard and includes minor modifications based on comments submitted by stakeholders during the initial 45-day comment period. The SDT will be requesting the Standards Committee to move the standard forward to ballot.

Future Development Plan:

Anticipated Actions	Anticipated Date
1. Obtain the Standards Committee's approval to move the standard forward to balloting.	May 7, 2009
2. Post the standard and implementation plan for a 30-day pre-ballot review.	May 11, 2009
3. Conduct an initial ballot for ten days.	June 10, 2009
4. Respond to comments submitted with the initial ballot.	July 10, 2009
5. Conduct a recirculation ballot for ten days.	July 13, 2009
6. BOT adoption.	August 2009

A. Introduction

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

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

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

4. **Applicability:**

   4.1. Nuclear Plant Generator Operator.

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

   4.2.1 Transmission Operators.

   4.2.2 Transmission Owners.

   4.2.3 Transmission Planners.

   4.2.4 Transmission Service Providers.

   4.2.5 Balancing Authorities.

   4.2.6 Reliability Coordinators.

   4.2.7 Planning Coordinators.

   4.2.8 Distribution Providers.

   4.2.9 Load-serving Entities.

   4.2.10 Generator Owners.

   4.2.11 Generator Operators.

5. **Effective Date:** This standard shall become effective the later of either April 1, 2010 or the first day of the first calendar quarter after applicable regulatory approval; or in those jurisdictions where no regulatory approval is required, the later of either April 1, 2010 or the first day of the first calendar quarter after Board of Trustees adoption.

B. Requirements

R1. The Nuclear Plant Generator Operator shall provide the proposed NPIRs in writing to the applicable Transmission Entities and shall verify receipt [*Risk Factor: Lower*]

R2. The Nuclear Plant Generator Operator and the applicable Transmission Entities shall have in effect one or more Agreements[1] that include mutually agreed to NPIRs and

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

document how the Nuclear Plant Generator Operator and the applicable Transmission Entities shall address and implement these NPIRs. [*Risk Factor: Medium*]

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

R4. Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall: [*Risk Factor: High*]

R4.1. Incorporate the NPIRs into their operating analyses of the electric system.

R4.2. Operate the electric system to meet the NPIRs.

R4.3. Inform the Nuclear Plant Generator Operator when the ability to assess the operation of the electric system affecting NPIRs is lost.

R5. The Nuclear Plant Generator Operator shall operate per the Agreements developed in accordance with this standard. [*Risk Factor: High*]

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

R7. Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall inform the applicable Transmission Entities of actual or proposed changes to nuclear plant design, configuration, operations, limits, protection systems, or capabilities that may impact the ability of the electric system to meet the NPIRs. [*Risk Factor: High*]

R8. Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall inform the Nuclear Plant Generator Operator of actual or proposed changes to electric system design, configuration, operations, limits, protection systems, or capabilities that may impact the ability of the electric system to meet the NPIRs. [*Risk Factor: High*]

R9. The Nuclear Plant Generator Operator and the applicable Transmission Entities shall include, as a minimum, the following elements within the agreement(s) identified in R2: [*Risk Factor: Medium*]

R9.1. Administrative elements:

R9.1.1. Definitions of key terms used in the agreement.

R9.1.2. Names of the responsible entities, organizational relationships, and responsibilities related to the NPIRs.

R9.1.3. A requirement to review the agreement(s) at least every three years.

R9.1.4. A dispute resolution mechanism.

R9.2. Technical requirements and analysis:

R9.2.1. Identification of parameters, limits, configurations, and operating scenarios included in the NPIRs and, as applicable, procedures for providing any specific data not provided within the agreement.

R9.2.2. Identification of facilities, components, and configuration restrictions that are essential for meeting the NPIRs.

R9.2.3. Types of planning and operational analyses performed specifically to support the NPIRs, including the frequency of studies and types of Contingencies and scenarios required.

R9.3. Operations and maintenance coordination:

R9.3.1. Designation of ownership of electrical facilities at the interface between the electric system and the nuclear plant and responsibilities for operational control coordination and maintenance of these facilities.

R9.3.2. Identification of any maintenance requirements for equipment not owned or controlled by the Nuclear Plant Generator Operator that are necessary to meet the NPIRs.

R9.3.3. Coordination of testing, calibration and maintenance of on-site and off-site power supply systems and related components.

R9.3.4. Provisions to address mitigating actions needed to avoid violating NPIRs and to address periods when responsible Transmission Entity loses the ability to assess the capability of the electric system to meet the NPIRs. These provisions shall include responsibility to notify the Nuclear Plant Generator Operator within a specified time frame.

R9.3.5. Provision for considering, within the restoration process, the requirements and urgency of a nuclear plant that has lost all off-site and on-site AC power. .

R9.3.6. Coordination of physical and cyber security protection of the Bulk Electric System at the nuclear plant interface to ensure each asset is covered under at least one entity's plan.

R9.3.7. Coordination of the NPIRs with transmission system Special Protection Systems and underfrequency and undervoltage load shedding programs.

R9.4. Communications and training:

R9.4.1. Provisions for communications between the Nuclear Plant Generator Operator and Transmission Entities, including communications protocols, notification time requirements, and definitions of terms.

R9.4.2. Provisions for coordination during an off-normal or emergency event affecting the NPIRs, including the need to provide timely information explaining the event, an estimate of when the system will be returned to a normal state, and the actual time the system is returned to normal.

R9.4.3. Provisions for coordinating investigations of causes of unplanned events affecting the NPIRs and developing solutions to minimize future risk of such events.

R9.4.4. Provisions for supplying information necessary to report to government agencies, as related to NPIRs.

R9.4.5. Provisions for personnel training, as related to NPIRs.

C. Measures

M1. The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, provide a copy of the transmittal and receipt of transmittal of the proposed NPIRs to the responsible Transmission Entities. (Requirement 1)

M2. The Nuclear Plant Generator Operator and each Transmission Entity shall each have a copy of the Agreement(s) addressing the elements in Requirement 9 available for inspection upon request of the Compliance Enforcement Authority. (Requirement 2 and 9)

M3. Each Transmission Entity responsible for planning analyses in accordance with the Agreement shall, upon request of the Compliance Enforcement Authority, provide a copy of the planning analyses results transmitted to the Nuclear Plant Generator Operator, showing incorporation of the NPIRs. The Compliance Enforcement Authority shall refer to the Agreements developed in accordance with this standard for specific requirements. (Requirement 3)

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

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

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

M4.3 The Transmission Entity informed the Nuclear Plant Generator Operator when it became aware it lost the capability to assess the operation of the electric system affecting the NPIRs. (Requirement 4.3)

M5. The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, demonstrate or provide evidence that the Nuclear Power Plant is being operated consistent with the Agreements developed in accordance with this standard. (Requirement 5)

M6. The Transmission Entities and Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, provide evidence of the coordination between the Transmission Entities and the Nuclear Plant Generator Operator regarding outages and maintenance activities which affect the NPIRs. (Requirement 6)

M7. The Nuclear Plant Generator Operator shall provide evidence that it informed the applicable Transmission Entities of changes to nuclear plant design, configuration,

operations, limits, protection systems, or capabilities that would impact the ability of the Transmission Entities to meet the NPIRs. (Requirement 7)

M8. The Transmission Entities shall each provide evidence that it informed the Nuclear Plant Generator Operator of changes to electric system design, configuration, operations, limits, protection systems, or capabilities that would impact the ability of the Nuclear Plant Generator Operator to meet the NPIRs. (Requirement 8)

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Regional Entity.

1.2. Compliance Monitoring Period and Reset Time Frame

Not applicable.

1.3. Compliance Monitoring and Enforcement Processes:

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints

1.4. Data Retention

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

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

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

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

1.5. Additional Compliance Information

None.

2. Violation Severity Levels

2.1. Lower: Agreement(s) exist per this standard and NPIRs were identified and implemented, but documentation described in M1-M8 was not provided.

2.2. Moderate: Agreement(s) exist per R2 and NPIRs were identified and implemented, but one or more elements of the Agreement in R9 were not met.

2.3. High: One or more requirements of R3 through R8 were not met.

2.4. Severe: No proposed NPIRs were submitted per R1, no Agreement exists per this standard, or the Agreements were not implemented.

E. Regional Differences

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

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

F. Associated Documents

Version History

Version	Date	Action	Change Tracking
1	May 2, 2007	Approved by Board of Trustees	New
2	To be determined	Modifications for Order 716 to Requirement R9.3.5 and footnote 1; modifications to bring compliance elements into conformance with the latest version of the ERO Rules of Procedure.	Revision

Standard Development Roadmap

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

Development Steps Completed:

1. SAR and standard submitted to Standards Committee for authorization to post on January 30, 2009.
2. The SAR and Standard Drafting Team posted the SAR and standard for comments on February 2, 2009.
3. The SAR and Standard Drafting Team responded to comments on May 8, 2009.

Proposed Action Plan and Description of Current Draft:

This is the second version of the proposed revised standard and includes minor modifications based on comments submitted by stakeholders during the initial 45-day comment period. The SDT will be requesting the Standards Committee to move the standard forward to ballot.

Future Development Plan:

Anticipated Actions	Anticipated Date
1. Obtain the Standards Committee's approval to move the standard forward to balloting.	May 7, 2009
2. Post the standard and implementation plan for a 30-day pre-ballot review.	May 11, 2009
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5. Conduct a recirculation ballot for ten days.	July 13, 2009
6. BOT adoption.	August 2009

A. Introduction

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

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

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

4. **Applicability:**

   4.1. Nuclear Plant Generator Operator.

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

   4.2.1 Transmission Operators.

   4.2.2 Transmission Owners.

   4.2.3 Transmission Planners.

   4.2.4 Transmission Service Providers.

   4.2.5 Balancing Authorities.

   4.2.6 Reliability Coordinators.

   4.2.7 Planning Coordinators.

   4.2.8 Distribution Providers.

   4.2.9 Load-serving Entities.

   4.2.10 Generator Owners.

   4.2.11 Generator Operators.

5. **Effective Date:** This standard shall become effective the later of either April 1, 2010 or the first day of the first calendar quarter after applicable regulatory approval; or in those jurisdictions where no regulatory approval is required, the later of either April 1, 2010 or the first day of the first calendar quarter after Board of Trustees adoption.

B. Requirements

R1. The Nuclear Plant Generator Operator shall provide the proposed NPIRs in writing to the applicable Transmission Entities and shall verify receipt [*Risk Factor: Lower*]

R2. The Nuclear Plant Generator Operator and the applicable Transmission Entities shall have in effect one or more Agreements[1] that include mutually agreed to NPIRs and

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

document how the Nuclear Plant Generator Operator and the applicable Transmission Entities shall address and implement these NPIRs. [*Risk Factor: Medium*]

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

R4. Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall: [*Risk Factor: High*]

R4.1. Incorporate the NPIRs into their operating analyses of the electric system.

R4.2. Operate the electric system to meet the NPIRs.

R4.3. Inform the Nuclear Plant Generator Operator when the ability to assess the operation of the electric system affecting NPIRs is lost.

R5. The Nuclear Plant Generator Operator shall operate per the Agreements developed in accordance with this standard. [*Risk Factor: High*]

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

R7. Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall inform the applicable Transmission Entities of actual or proposed changes to nuclear plant design, configuration, operations, limits, protection systems, or capabilities that may impact the ability of the electric system to meet the NPIRs. [*Risk Factor: High*]

R8. Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall inform the Nuclear Plant Generator Operator of actual or proposed changes to electric system design, configuration, operations, limits, protection systems, or capabilities that may impact the ability of the electric system to meet the NPIRs. [*Risk Factor: High*]

R9. The Nuclear Plant Generator Operator and the applicable Transmission Entities shall include, as a minimum, the following elements within the agreement(s) identified in R2: [*Risk Factor: Medium*]

R9.1. Administrative elements:

R9.1.1. Definitions of key terms used in the agreement.

R9.1.2. Names of the responsible entities, organizational relationships, and responsibilities related to the NPIRs.

R9.1.3. A requirement to review the agreement(s) at least every three years.

R9.1.4. A dispute resolution mechanism.

R9.2. Technical requirements and analysis:

R9.2.1. Identification of parameters, limits, configurations, and operating scenarios included in the NPIRs and, as applicable, procedures for providing any specific data not provided within the agreement.

R9.2.2. Identification of facilities, components, and configuration restrictions that are essential for meeting the NPIRs.

R9.2.3. Types of planning and operational analyses performed specifically to support the NPIRs, including the frequency of studies and types of Contingencies and scenarios required.

R9.3. Operations and maintenance coordination:

R9.3.1. Designation of ownership of electrical facilities at the interface between the electric system and the nuclear plant and responsibilities for operational control coordination and maintenance of these facilities.

R9.3.2. Identification of any maintenance requirements for equipment not owned or controlled by the Nuclear Plant Generator Operator that are necessary to meet the NPIRs.

R9.3.3. Coordination of testing, calibration and maintenance of on-site and off-site power supply systems and related components.

R9.3.4. Provisions to address mitigating actions needed to avoid violating NPIRs and to address periods when responsible Transmission Entity loses the ability to assess the capability of the electric system to meet the NPIRs. These provisions shall include responsibility to notify the Nuclear Plant Generator Operator within a specified time frame.

R9.3.5. Provision for considering, within the restoration process, the requirements and urgency of a nuclear plant that has lost all off-site and on-site AC power. ~~to consider a nuclear plant's coping time (the period of time a nuclear plant can function without an AC power source) required by the NPLRs during the restoration of Off-site Power following a loss of all Off-site and On-site AC Power Sources~~.

R9.3.6. Coordination of physical and cyber security protection of the Bulk Electric System at the nuclear plant interface to ensure each asset is covered under at least one entity's plan.

R9.3.7. Coordination of the NPIRs with transmission system Special Protection Systems and underfrequency and undervoltage load shedding programs.

R9.4. Communications and training:

R9.4.1. Provisions for communications between the Nuclear Plant Generator Operator and Transmission Entities, including communications protocols, notification time requirements, and definitions of terms.

R9.4.2. Provisions for coordination during an off-normal or emergency event affecting the NPIRs, including the need to provide timely information explaining the event, an estimate of when the system will be returned to a normal state, and the actual time the system is returned to normal.

R9.4.3. Provisions for coordinating investigations of causes of unplanned events affecting the NPIRs and developing solutions to minimize future risk of such events.

R9.4.4. Provisions for supplying information necessary to report to government agencies, as related to NPIRs.

R9.4.5. Provisions for personnel training, as related to NPIRs.

C. Measures

M1. The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, provide a copy of the transmittal and receipt of transmittal of the proposed NPIRs to the responsible Transmission Entities. (Requirement 1)

M2. The Nuclear Plant Generator Operator and each Transmission Entity shall each have a copy of the Agreement(s) addressing the elements in Requirement 9 available for inspection upon request of the Compliance Enforcement Authority. (Requirement 2 and 9)

M3. Each Transmission Entity responsible for planning analyses in accordance with the Agreement shall, upon request of the Compliance Enforcement Authority, provide a copy of the planning analyses results transmitted to the Nuclear Plant Generator Operator, showing incorporation of the NPIRs. The Compliance Enforcement Authority shall refer to the Agreements developed in accordance with this standard for specific requirements. (Requirement 3)

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

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

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

M4.3 The Transmission Entity informed the Nuclear Plant Generator Operator when it became aware it lost the capability to assess the operation of the electric system affecting the NPIRs. (Requirement 4.3)

M5. The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, demonstrate or provide evidence that the Nuclear Power Plant is being operated consistent with the Agreements developed in accordance with this standard. (Requirement 5)

M6. The Transmission Entities and Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, provide evidence of the coordination between

the Transmission Entities and the Nuclear Plant Generator Operator regarding outages and maintenance activities which affect the NPIRs. (Requirement 6)

M7. The Nuclear Plant Generator Operator shall provide evidence that it informed the applicable Transmission Entities of changes to nuclear plant design, configuration, operations, limits, protection systems, or capabilities that would impact the ability of the Transmission Entities to meet the NPIRs. (Requirement 7)

M8. The Transmission Entities shall each provide evidence that it informed the Nuclear Plant Generator Operator of changes to electric system design, configuration, operations, limits, protection systems, or capabilities that would impact the ability of the Nuclear Plant Generator Operator to meet the NPIRs. (Requirement 8)

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Regional Entity.

1.2. Compliance Monitoring Period and Reset Time Frame

Not applicable.

1.3. Compliance Monitoring and Enforcement Processes:

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints

1.4. Data Retention

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

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

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

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

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

1.5. Additional Compliance Information

None.

2. Violation Severity Levels

2.1. Lower: Agreement(s) exist per this standard and NPIRs were identified and implemented, but documentation described in M1-M8 was not provided.

2.2. Moderate: Agreement(s) exist per R2 and NPIRs were identified and implemented, but one or more elements of the Agreement in R9 were not met.

2.3. High: One or more requirements of R3 through R8 were not met.

2.4. Severe: No proposed NPIRs were submitted per R1, no Agreement exists per this standard, or the Agreements were not implemented.

E. Regional Differences

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

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

F. Associated Documents

Version History

Version	Date	Action	Change Tracking
1	May 2, 2007	Approved by Board of Trustees	New
2	To be determined	Modifications for Order 716 to Requirement R9.3.5 and footnote 1; modifications to bring compliance	Revision

		elements into conformance with the latest version of the ERO Rules of Procedure.	

A. Introduction

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

2. **Number:** NUC-001-21

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

4. **Applicability:**

   4.1. Nuclear Plant Generator Operator.

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

   4.2.1 Transmission Operators.

   4.2.2 Transmission Owners.

   4.2.3 Transmission Planners.

   4.2.4 Transmission Service Providers.

   4.2.5 Balancing Authorities.

   4.2.6 Reliability Coordinators.

   4.2.7 Planning ~~Authorities~~Coordinators.

   4.2.8 Distribution Providers.

   4.2.9 Load-serving Entities.

   4.2.10 Generator Owners.

   4.2.11 Generator Operators.

5. **Effective Date:** ~~First day of first quarter 15 months after applicable regulatory approvals.~~ This standard shall become effective the later of either April 1, 2010 or the first day of the first calendar quarter after applicable regulatory approval; or in those jurisdictions where no regulatory approval is required, the later of either April 1, 2010 or the first day of the first calendar quarter after Board of Trustees adoption.

B. Requirements

R1. The Nuclear Plant Generator Operator shall provide the proposed NPIRs in writing to the applicable Transmission Entities and shall verify receipt [*Violation Risk Factor: Lower*]

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

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

R4. Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall: [*Violation Risk Factor: High*]

R4.1. Incorporate the NPIRs into their operating analyses of the electric system.

R4.2. Operate the electric system to meet the NPIRs.

R4.3. Inform the Nuclear Plant Generator Operator when the ability to assess the operation of the electric system affecting NPIRs is lost.

R5. The Nuclear Plant Generator Operator shall operate per the Agreements developed in accordance with this standard. [*Violation Risk Factor: High*]

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

R7. Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall inform the applicable Transmission Entities of actual or proposed changes to nuclear plant design, configuration, operations, limits, protection systems, or capabilities that may impact the ability of the electric system to meet the NPIRs. [*Violation Risk Factor: High*]

R8. Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall inform the Nuclear Plant Generator Operator of actual or proposed changes to electric system design, configuration, operations, limits, protection systems, or capabilities that may impact the ability of the electric system to meet the NPIRs. [*Violation Risk Factor: High*]

1. Agreements may include mutually agreed upon procedures or protocols ~~for both a single integrated system and~~ in effect between entities or between departments of a vertically integrated system.

R9. The Nuclear Plant Generator Operator and the applicable Transmission Entities shall include, as a minimum, the following elements within the agreement(s) identified in R2: [*Violation Risk Factor: Medium*]

R9.1. Administrative elements:

R9.1.1. Definitions of key terms used in the agreement.

R9.1.2. Names of the responsible entities, organizational relationships, and responsibilities related to the NPIRs.

R9.1.3. A requirement to review the agreement(s) at least every three years.

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R9.2.1. Identification of parameters, limits, configurations, and operating scenarios included in the NPIRs and, as applicable, procedures for providing any specific data not provided within the agreement.

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R9.2.3. Types of planning and operational analyses performed specifically to support the NPIRs, including the frequency of studies and types of Contingencies and scenarios required.

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R9.3.1. Designation of ownership of electrical facilities at the interface between the electric system and the nuclear plant and responsibilities for operational control coordination and maintenance of these facilities.

R9.3.2. Identification of any maintenance requirements for equipment not owned or controlled by the Nuclear Plant Generator Operator that are necessary to meet the NPIRs.

R9.3.3. Coordination of testing, calibration and maintenance of on-site and off-site power supply systems and related components.

R9.3.4. Provisions to address mitigating actions needed to avoid violating NPIRs and to address periods when responsible Transmission Entity loses the ability to assess the capability of the electric system to meet the NPIRs. These provisions shall include responsibility to notify the Nuclear Plant Generator Operator within a specified time frame.

R9.3.5. Provision for considering, within the restoration process, the requirements and urgency of a nuclear plant that has lost all off-site and on-site AC power. ~~to consider nuclear plant coping time required by the NPLRs and their relation to the coordination of grid and~~

~~nuclear plant restoration following a nuclear plant loss of Off-site Power.~~

R9.3.6. Coordination of physical and cyber security protection of the Bulk Electric System at the nuclear plant interface to ensure each asset is covered under at least one entity's plan.

R9.3.7. Coordination of the NPIRs with transmission system Special Protection Systems and underfrequency and undervoltage load shedding programs.

R9.4. Communications and training:

R9.4.1. Provisions for communications between the Nuclear Plant Generator Operator and Transmission Entities, including communications protocols, notification time requirements, and definitions of terms.

R9.4.2. Provisions for coordination during an off-normal or emergency event affecting the NPIRs, including the need to provide timely information explaining the event, an estimate of when the system will be returned to a normal state, and the actual time the system is returned to normal.

R9.4.3. Provisions for coordinating investigations of causes of unplanned events affecting the NPIRs and developing solutions to minimize future risk of such events.

R9.4.4. Provisions for supplying information necessary to report to government agencies, as related to NPIRs.

R9.4.5. Provisions for personnel training, as related to NPIRs.

C. Measures

M1. The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority~~Monitor~~, provide a copy of the transmittal and receipt of transmittal of the proposed NPIRs to the responsible Transmission Entities. (Requirement 1)

M2. The Nuclear Plant Generator Operator and each Transmission Entity shall each have a copy of the Agreement(s) addressing the elements in Requirement 9 available for inspection upon request of the Compliance Enforcement Authority~~Monitor~~. (Requirement 2 and 9)

M3. Each Transmission Entity responsible for planning analyses in accordance with the Agreement shall, upon request of the Compliance Enforcement Authority~~Monitor~~, provide a copy of the planning analyses results transmitted to the Nuclear Plant Generator Operator, showing incorporation of the NPIRs. The Compliance Enforcement Authority~~Monitor~~ shall refer to the Agreements developed in accordance with this standard for specific requirements. (Requirement 3)

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

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

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

M4.3 The Transmission Entity informed the Nuclear Plant Generator Operator when it became aware it lost the capability to assess the operation of the electric system affecting the NPIRs. (Requirement 4.3)

M5. The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement AuthorityMonitor, demonstrate or provide evidence that the Nuclear Power Plant is being operated consistent with the Agreements developed in accordance with this standard. (Requirement 5)

M6. The Transmission Entities and Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement AuthorityMonitor, provide evidence of the coordination between the Transmission Entities and the Nuclear Plant Generator Operator regarding outages and maintenance activities which affect the NPIRs. (Requirement 6)

M7. The Nuclear Plant Generator Operator shall provide evidence that it informed the applicable Transmission Entities of changes to nuclear plant design, configuration, operations, limits, protection systems, or capabilities that would impact the ability of the Transmission Entities to meet the NPIRs. (Requirement 7)

M8. The Transmission Entities shall each provide evidence that it informed the Nuclear Plant Generator Operator of changes to electric system design, configuration, operations, limits, protection systems, or capabilities that would impact the ability of the Nuclear Plant Generator Operator to meet the NPIRs. (Requirement 8)

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement AuthorityMonitoring Responsibility

Regional Reliability OrganizationEntity.

1.2. Compliance Monitoring Period and Reset Time Frame

One calendar yearNot applicable.

1.3. Compliance Monitoring and Enforcement Processes:

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints

1.3.1.4. Data Retention

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

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

If a Responsible n eEntity is found non-compliant the entityit shall keep information related to the noncompliance until found compliant. or for two years plus the current year, whichever is longer.

Evidence used as part of a triggered investigation shall be retained by the entity being investigated for one year from the date that the investigation is closed, as determined by the Compliance Enforcement AuthorityMonitor.

The Compliance Enforcement AuthorityMonitor shall keep the last periodic audit report records and all requested and submitted subsequent compliance audit records.

1.4.1.5. Additional Compliance Information

The Nuclear Plant Generator Operator and Transmission Entities shall each demonstrate compliance through self-certification or audit (periodic, as part of targeted monitoring or initiated by complaint or event), as determined by the Compliance Enforcement authorityMonitor.None.

2. Violation Severity Levels

2.1. Lower: Agreement(s) exist per this standard and NPIRs were identified and implemented, but documentation described in M1-M8 was not provided.

2.2. Moderate: Agreement(s) exist per R2 and NPIRs were identified and implemented, but one or more elements of the Agreement in R9 were not met.

2.3. High: One or more requirements of R3 through R8 were not met.

2.4. Severe: No proposed NPIRs were submitted per R1, no Agreement exists per this standard, or the Agreements were not implemented.

E. Regional Variances

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

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

F. Associated Documents

Version History

Version	Date	Action	Change Tracking
1	May 2, 2007	Approved by Board of Trustees	New
2	To be determined	Modifications for Order 716 to Requirement R9.3.5 and footnote 1; modifications to bring compliance elements into conformance with the latest version of the ERO Rules of Procedure.	Revision

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Implementation Plan for NUC-001-2 — Nuclear Plant Interface Coordination

Prerequisite Approvals

There are no other reliability standards or Standard Authorization Requests (SARs), in progress or approved, that must be implemented before this standard can be implemented.

Modified Standards

NUC-001-1 should be retired when NUC-001-2 becomes effective.

Compliance with Standards

Once this standard becomes effective, the responsible entities identified in the applicability section of the standard must comply with the requirements. These include:

- Transmission Operators
- Transmission Owners
- Transmission Planners
- Transmission Service Providers
- Balancing Authorities
- Reliability Coordinators
- Planning Coordinators
- Distribution Providers
- Load-serving Entities
- Generator Owners
- Generator Operators

Proposed Effective Date

NUC-001-2 shall become effective the later of either April 1, 2010 or the first day of the first calendar quarter after applicable regulatory approval; or in those jurisdictions where no regulatory approval is required, the later of either April 1, 2010 or the first day of the first calendar quarter after Board of Trustees adoption.

Standards Announcement

Initial Ballot Window Open

June 12–22, 2009

Now available at: https://standards.nerc.net/CurrentBallots.aspx

Project 2009-08: Revisions to Standard NUC-001-1 — Nuclear Plant Interface Coordination for Order 716
An initial ballot window for revisions to standard NUC-001-1 — Nuclear Plant Interface Coordination is now open **until 8 p.m. EDT on June 22, 2009**. An associated implementation plan has been posted with the revised standard.

Instructions:
Members of the ballot pool associated with this project may log in and submit their votes from the following page: https://standards.nerc.net/CurrentBallots.aspx

Next Steps:
Voting results will be posted and announced after the ballot window closes.

Project Background:
The Nuclear Plant Interface Coordination standard requires coordination between Nuclear Plant Generator Operators and Transmission Entities for the purpose of ensuring safe nuclear plant operation and shutdown. The proposed revisions address two directives in Federal Energy Regulatory Commission (FERC) Order 716 aimed at addressing stakeholder concerns for improved clarity. Additional revisions were made to change the term "Planning Authority" to "Planning Coordinator" (to match the terminology in the latest version of the Functional Model) and to bring the compliance elements of the standard into conformance with the latest version of the ERO Rules of Procedure.

Project page: http://www.nerc.com/filez/standards/Project2009-08_Nuclear_Plant_Interface_Coordination.html

Applicability of Standards in Project:
Transmission Operators
Transmission Owners
Transmission Planners
Transmission Service Providers
Balancing Authorities
Reliability Coordinators
Planning Coordinators
Distribution Providers
Load-serving Entities
Generator Owners
Generator Operators

Standards Development Process
The Reliability Standards Development Procedure contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate.

For more information or assistance,
please contact Shaun Streeter at shaun.streeter@nerc.net or at 609.452.8060.

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Standards Announcement
Initial Ballot Results

Now available at: https://standards.nerc.net/Ballots.aspx

Project 2009-08: Revisions to Standard NUC-001-1 — Nuclear Plant Interface Coordination for Order 716

The initial ballot for revisions to standard NUC-001-1 — Nuclear Plant Interface Coordination ended on June 22, 2009.

Ballot Results

Voting statistics are listed below, and the Ballot Results Web page provides a link to the detailed results:

Quorum: 81.72%
Approval: 94.09%

Since at least one negative ballot included a comment, these results are not final. A second (or recirculation) ballot must be conducted. Ballot criteria details are listed at the end of the announcement.

Next Steps

As part of the recirculation ballot process, the drafting team must draft and post responses to voter comments. The drafting team will also determine whether or not to make revisions to the balloted item(s). Should the team decide to make revisions, the revised item(s) will return to the initial ballot phase.

Project Background

The Nuclear Plant Interface Coordination standard requires coordination between Nuclear Plant Generator Operators and Transmission Entities for the purpose of ensuring safe nuclear plant operation and shutdown. The proposed revisions address two directives in Federal Energy Regulatory Commission (FERC) Order 716 aimed at addressing stakeholder concerns for improved clarity. Additional revisions were made to change the term "Planning Authority" to "Planning Coordinator" (to match the terminology in the latest version of the Functional Model) and to bring the compliance elements of the standard into conformance with the latest version of the ERO Rules of Procedure.

Project page: http://www.nerc.com/filez/standards/Project2009-08_Nuclear_Plant_Interface_Coordination.html

Applicability of Standards in Project:
Transmission Operators
Transmission Owners
Transmission Planners
Transmission Service Providers
Balancing Authorities
Reliability Coordinators
Planning Coordinators
Distribution Providers
Load-serving Entities
Generator Owners
Generator Operators

Standards Development Process

The *Reliability Standards Development Procedure* contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate.

Ballot Criteria: Approval requires both a (1) quorum, which is established by at least 75% of the members of the ballot pool for submitting either an affirmative vote, a negative vote, or an abstention, and (2) A two-thirds majority of the weighted segment votes cast must be affirmative; the number of votes cast is the sum of affirmative and negative votes, excluding abstentions and nonresponses. If there are no negative votes with reasons from the first ballot, the results of the first ballot shall stand. If, however, one or more members submit negative votes with reasons, a second ballot shall be conducted.

For more information or assistance,
please contact Shaun Streeter at shaun.streeter@nerc.net or at 609.452.8060.

Ballot Results	
Ballot Name:	Project 2009-08 - Nuclear Plant Interface Coordination for Order 716 _in
Ballot Period:	6/12/2009 - 6/22/2009
Ballot Type:	Initial
Total # Votes:	152
Total Ballot Pool:	186
Quorum:	81.72 % The Quorum has been reached
Weighted Segment Vote:	94.09 %
Ballot Results:	The standard will proceed to recirculation ballot.

Summary of Ballot Results

Segment	Ballot Pool	Segment Weight	Affirmative # Votes	Affirmative Fraction	Negative # Votes	Negative Fraction	Abstain # Votes	No Vote
1 - Segment 1.	44	1	28	0.903	3	0.097	5	8
2 - Segment 2.	10	0.7	7	0.7	0	0	3	0
3 - Segment 3.	47	1	32	0.97	1	0.03	7	7
4 - Segment 4.	8	0.4	4	0.4	0	0	2	2
5 - Segment 5.	35	1	19	0.905	2	0.095	5	9
6 - Segment 6.	24	1	15	0.938	1	0.063	3	5
7 - Segment 7.	0	0	0	0	0	0	0	0
8 - Segment 8.	3	0.3	3	0.3	0	0	0	0
9 - Segment 9.	7	0.4	4	0.4	0	0	1	2
10 - Segment 10.	8	0.7	6	0.6	1	0.1	0	1
Totals	186	6.5	118	6.116	8	0.385	26	34

Individual Ballot Pool Results

Segment	Organization	Member	Ballot	Comments
1	Allegheny Power	Rodney Phillips		
1	Ameren Services	Kirit S. Shah	Affirmative	
1	American Electric Power	Paul B. Johnson	Affirmative	
1	American Transmission Company, LLC	Jason Shaver	Negative	View
1	Bonneville Power Administration	Donald S. Watkins	Affirmative	
1	CenterPoint Energy	Paul Rocha	Abstain	
1	Central Maine Power Company	Brian Conroy	Affirmative	

1	Consolidated Edison Co. of New York	Christopher L de Graffenried	Affirmative	
1	Dominion Virginia Power	William L. Thompson	Negative	View
1	Duke Energy Carolina	Douglas E. Hils	Affirmative	
1	Entergy Corporation	George R. Bartlett	Affirmative	
1	Exelon Energy	John J. Blazekovich	Affirmative	
1	Farmington Electric Utility System	Alan Glazner	Affirmative	
1	FirstEnergy Energy Delivery	Robert Martinko	Affirmative	
1	Florida Keys Electric Cooperative Assoc.	Dennis Minton	Affirmative	
1	Great River Energy	Gordon Pietsch		
1	Hoosier Energy Rural Electric Cooperative, Inc.	Damon Holladay	Abstain	
1	Hydro One Networks, Inc.	Ajay Garg	Affirmative	
1	ITC Transmission	Elizabeth Howell	Affirmative	
1	Kansas City Power & Light Co.	Michael Gammon		
1	Kissimmee Utility Authority	Joe B Watson	Affirmative	
1	Lincoln Electric System	Doug Bantam		
1	MEAG Power	Danny Dees	Affirmative	
1	MidAmerican Energy Co.	Terry Harbour		
1	National Grid	Manuel Couto	Affirmative	
1	Nebraska Public Power District	Richard L. Koch	Affirmative	
1	New York Power Authority	Ralph Rufrano	Affirmative	
1	Northeast Utilities	David H. Boguslawski		
1	Northern Indiana Public Service Co.	Kevin M Largura	Abstain	
1	Oncor Electric Delivery	Charles W. Jenkins	Affirmative	
1	Otter Tail Power Company	Lawrence R. Larson	Affirmative	
1	Pacific Gas and Electric Company	Chifong L. Thomas	Affirmative	
1	Potomac Electric Power Co.	Richard J. Kafka	Affirmative	
1	PowerSouth Energy Cooperative	Larry D. Avery	Negative	
1	PP&L, Inc.	Ray Mammarella		
1	Progress Energy Carolinas	Sammy Roberts	Affirmative	
1	Public Service Electric and Gas Co.	Kenneth D. Brown	Affirmative	
1	Salt River Project	Robert Kondziolka	Affirmative	
1	Southern California Edison Co.	Dana Cabbell	Abstain	
1	Southern Company Services, Inc.	Horace Stephen Williamson	Affirmative	
1	Southwest Transmission Cooperative, Inc.	James L. Jones	Abstain	
1	Tennessee Valley Authority	Larry Akens	Affirmative	
1	Westar Energy	Allen Klassen		
1	Xcel Energy, Inc.	Gregory L. Pieper	Affirmative	
2	Alberta Electric System Operator	Anita Lee	Abstain	
2	California ISO	Greg Tillitson	Affirmative	
2	Electric Reliability Council of Texas, Inc.	Chuck B Manning	Affirmative	
2	Independent Electricity System Operator	Kim Warren	Affirmative	
2	ISO New England, Inc.	Kathleen Goodman	Affirmative	
2	Midwest ISO, Inc.	Terry Bilke	Abstain	View
2	New Brunswick System Operator	Alden Briggs	Affirmative	
2	New York Independent System Operator	Gregory Campoli	Abstain	
2	PJM Interconnection, L.L.C.	Tom Bowe	Affirmative	
2	Southwest Power Pool	Charles H Yeung	Affirmative	View
3	Allegheny Power	Bob Reeping	Affirmative	
3	Ameren Services	Mark Peters		
3	American Electric Power	Raj Rana	Affirmative	
3	Arizona Public Service Co.	Thomas R. Glock	Affirmative	
3	Atlantic City Electric Company	James V. Petrella	Affirmative	
3	BC Hydro and Power Authority	Pat G. Harrington	Abstain	
3	Bonneville Power Administration	Rebecca Berdahl	Affirmative	
3	City Public Service of San Antonio	Edwin Les Barrow	Affirmative	
3	Commonwealth Edison Co.	Stephen Lesniak	Affirmative	
3	Consolidated Edison Co. of New York	Peter T Yost	Affirmative	
3	Consumers Energy	David A. Lapinski	Affirmative	
3	Cowlitz County PUD	Russell A Noble	Affirmative	
3	Delmarva Power & Light Co.	Michael R. Mayer	Affirmative	
3	Detroit Edison Company	Kent Kujala	Affirmative	
3	Dominion Resources, Inc.	Jalal (John) Babik	Negative	View
3	Duke Energy Carolina	Henry Ernst-Jr	Affirmative	
3	FirstEnergy Solutions	Joanne Kathleen Borrell	Affirmative	
3	Florida Power Corporation	Lee Schuster	Affirmative	
3	Georgia Power Company	Leslie Sibert	Affirmative	

3	Georgia System Operations Corporation	Edward W Pourciau	Abstain	
3	Grays Harbor PUD	Wesley W Gray	Affirmative	
3	Great River Energy	Sam Kokkinen		
3	Gulf Power Company	Gwen S Frazier	Affirmative	
3	Hydro One Networks, Inc.	Michael D. Penstone	Affirmative	
3	JEA	Garry Baker	Abstain	
3	Kansas City Power & Light Co.	Charles Locke		
3	Kissimmee Utility Authority	Gregory David Woessner		
3	Lincoln Electric System	Bruce Merrill	Abstain	
3	Louisville Gas and Electric Co.	Charles A. Freibert		
3	MidAmerican Energy Co.	Thomas C. Mielnik		
3	Mississippi Power	Don Horsley	Affirmative	
3	Municipal Electric Authority of Georgia	Steven M. Jackson	Abstain	
3	New York Power Authority	Michael Lupo	Affirmative	
3	Niagara Mohawk (National Grid Company)	Michael Schiavone	Affirmative	
3	Northern Indiana Public Service Co.	William SeDoris	Abstain	
3	Orlando Utilities Commission	Ballard Keith Mutters	Abstain	
3	PacifiCorp	John Apperson	Affirmative	
3	PECO Energy an Exelon Co.	John J. McCawley	Affirmative	
3	Platte River Power Authority	Terry L Baker	Affirmative	
3	Potomac Electric Power Co.	Robert Reuter	Affirmative	
3	Progress Energy Carolinas	Sam Waters	Affirmative	
3	Public Service Electric and Gas Co.	Jeffrey Mueller	Affirmative	
3	Salt River Project	John T. Underhill	Affirmative	
3	South Carolina Electric & Gas Co.	Hubert C. Young		
3	Southern California Edison Co.	David Schiada	Affirmative	
3	Wisconsin Electric Power Marketing	James R. Keller	Affirmative	
3	Xcel Energy, Inc.	Michael Ibold	Affirmative	
4	Alliant Energy Corp. Services, Inc.	Kenneth Goldsmith		
4	American Municipal Power - Ohio	Kevin L Holt	Abstain	
4	Consumers Energy	David Frank Ronk	Affirmative	
4	Detroit Edison Company	Daniel Herring	Affirmative	
4	Georgia System Operations Corporation	Guy Andrews	Abstain	
4	Ohio Edison Company	Douglas Hohlbaugh	Affirmative	
4	Seminole Electric Cooperative, Inc.	Steven R. Wallace		
4	Wisconsin Energy Corp.	Anthony Jankowski	Affirmative	
5	AEP Service Corp.	Brock Ondayko	Affirmative	
5	Amerenue	Sam Dwyer	Affirmative	
5	Avista Corp.	Edward F. Groce	Abstain	
5	Bonneville Power Administration	Francis J. Halpin	Affirmative	
5	Colmac Clarion/Piney Creek LP	Harvie D. Beavers	Affirmative	
5	Consumers Energy	James B Lewis	Affirmative	
5	Detroit Edison Company	Ronald W. Bauer	Affirmative	
5	Dominion Resources, Inc.	Mike Garton	Negative	View
5	Duke Energy	Robert Smith		
5	East Kentucky Power Coop.	Stephen Ricker		
5	Entergy Corporation	Stanley M Jaskot	Affirmative	
5	Exelon Nuclear	Michael Korchynsky	Affirmative	
5	FirstEnergy Solutions	Kenneth Dresner	Affirmative	
5	FPL Energy	Benjamin Church		
5	Great River Energy	Cynthia E Sulzer		
5	Kansas City Power & Light Co.	Scott Heidtbrink	Affirmative	
5	Lincoln Electric System	Dennis Florom	Abstain	
5	Louisville Gas and Electric Co.	Charlie Martin		
5	Luminant Generation Company LLC	Mike Laney	Negative	View
5	New York Power Authority	Gerald Mannarino		
5	Northern Indiana Public Service Co.	Michael K Wilkerson	Abstain	
5	Northern States Power Co.	Liam Noailles		
5	Orlando Utilities Commission	Richard Kinas		
5	Pacific Gas and Electric Company	Richard J. Padilla	Affirmative	View
5	PacifiCorp Energy	David Godfrey	Affirmative	
5	PPL Generation LLC	Mark A. Heimbach	Affirmative	
5	Progress Energy Carolinas	Wayne Lewis	Affirmative	
5	PSEG Power LLC	Thomas Piascik	Affirmative	
5	Salt River Project	Glen Reeves	Affirmative	
5	Seminole Electric Cooperative, Inc.	Brenda K. Atkins	Affirmative	
5	Southeastern Power Administration	Douglas Spencer	Abstain	

5	Tennessee Valley Authority	Frank D Cuzzort	Abstain	
5	U.S. Army Corps of Engineers Northwestern Division	Karl Bryan	Affirmative	
5	U.S. Bureau of Reclamation	Martin Bauer		
5	Wisconsin Electric Power Co.	Linda Horn	Affirmative	
6	AEP Marketing	Edward P. Cox	Affirmative	
6	Ameren Energy Marketing Co.	Jennifer Richardson		
6	Bonneville Power Administration	Brenda S. Anderson	Affirmative	
6	Consolidated Edison Co. of New York	Nickesha P Carrol	Affirmative	
6	Dominion Resources, Inc.	Louis S Slade	Negative	View
6	Duke Energy Carolina	Walter Yeager	Affirmative	
6	Entergy Services, Inc.	Terri F Benoit	Affirmative	
6	Exelon Power Team	Pulin Shah	Affirmative	
6	FirstEnergy Solutions	Mark S Travaglianti	Affirmative	
6	Great River Energy	Donna Stephenson		
6	Kansas City Power & Light Co.	Thomas Saitta		
6	Lincoln Electric System	Eric Ruskamp	Abstain	
6	Louisville Gas and Electric Co.	Daryn Barker	Abstain	
6	New York Power Authority	Thomas Papadopoulos	Affirmative	
6	Northern Indiana Public Service Co.	Joseph O'Brien	Abstain	
6	PP&L, Inc.	Thomas Hyzinski	Affirmative	
6	Progress Energy	James Eckelkamp	Affirmative	
6	PSEG Energy Resources & Trade LLC	James D. Hebson		
6	Public Utility District No. 1 of Chelan County	Hugh A. Owen		
6	Salt River Project	Mike Hummel	Affirmative	
6	Seminole Electric Cooperative, Inc.	Trudy S. Novak	Affirmative	
6	Southern California Edison Co.	Marcus V Lotto	Affirmative	
6	Western Area Power Administration - UGP Marketing	John Stonebarger	Affirmative	
6	Xcel Energy, Inc.	David F. Lemmons	Affirmative	
8	Edward C Stein	Edward C Stein	Affirmative	
8	JDRJC Associates	Jim D. Cyrulewski	Affirmative	
8	Volkmann Consulting, Inc.	Terry Volkmann	Affirmative	
9	California Energy Commission	William Mitchell Chamberlain		
9	Commonwealth of Massachusetts Department of Public Utilities	Donald E. Nelson	Affirmative	
9	Maine Public Utilities Commission	Jacob A McDermott	Abstain	
9	National Association of Regulatory Utility Commissioners	Diane J. Barney	Affirmative	
9	New York State Department of Public Service	Thomas G Dvorsky		
9	Public Service Commission of South Carolina	Philip Riley	Affirmative	
9	Public Utilities Commission of Ohio	Klaus Lambeck	Affirmative	
10	Electric Reliability Council of Texas, Inc.	Kent Saathoff	Affirmative	
10	Florida Reliability Coordinating Council	Linda Campbell	Affirmative	
10	Midwest Reliability Organization	Dan R Schoenecker	Negative	View
10	New York State Reliability Council	Alan Adamson	Affirmative	
10	Northeast Power Coordinating Council, Inc.	Guy V. Zito	Affirmative	
10	ReliabilityFirst Corporation	Jacquie Smith	Affirmative	
10	SERC Reliability Corporation	Carter B. Edge		
10	Western Electricity Coordinating Council	Louise McCarren	Affirmative	

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NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Consideration of Comments on Initial Ballot — Nuclear Plant Interface Coordination for Order 716 (Project 2009-08)

Summary Consideration:
As demonstrated by the strong approval (94%) most balloters support the revised standard. Amongst the comments received with initial ballots, the major concern expressed dealt with the "intent" of Requirement R9.3.5 and the proposed wording. The SDT explained that Requirement R9.3.5 is intended to cover the unique situation of losing both off-site and on-site AC power. The SDT further explained that "provisions for considering" could include restoration steps taken by the Nuclear Plant Generator Operator and/or applicable Transmission Entities. The SDT also explained that the term "requirements" used in this context referred to situationally specific terms between the plant and transmission entities to be negotiated within the agreements.

One entity felt that the Requirement R9.3.5 was not needed since restoration of off-site power was covered in standard EOP-005. The SDT explained that the scope and application of Requirement R9.3.5 is different than the scope and application of EOP-005. The SDT further explained that NUC-001 Requirement R9.3.5 is intended to address the specific case of loss of not only the off-site (preferred) AC power source to the plant's safe shutdown equipment, but coincident loss of all on-site (emergency or backup) AC power sources. In this situation the loss of off-site power may or may not be a result of a BES blackout or isolation situation as referenced in EOP-005.

Another concern expressed dealt with the removal of the term "coping time". The SDT explained that Requirement R9.3.5 was being modified to provide clarity as directed in FERC Order 716. The SDT further explained that it removed the term "coping time" due to an overwhelming objection to include the term raised by the industry. The majority of the industry felt that the term was confusing and ambiguous. The SDT also explained that the present wording allowed for situational determination of restoration priorities and that removal of this term did not relieve or prevent a Nuclear Plant from meeting NPLRs.

Some balloters indicated that the standard addresses a safety issue rather than a reliability issue. The determination of whether this standard should exist as a reliability standard has already been determined by stakeholders.

If you feel that the drafting team overlooked your comments, please let us know immediately. Our goal is to give every comment serious consideration in this process. If you feel there has been an error or omission, you can contact the Vice President and Director of Standards, Gerry Adamski, at 609-452-8060 or at gerry.adamski@nerc.net. In addition, there is a NERC Reliability Standards Appeals Process.[1]

[1] The appeals process is in the Reliability Standards Development Procedure: http://www.nerc.com/files/RSDP_V6_1_12Mar07.pdf.

Voter	Entity	Segment	Vote	Comment
Dan R Schoenecker	Midwest Reliability Organization	10	Negative	1. Requirement 9.3.5 considers coping time, instead a nuclear plant should communicate their needs and time frames to us and we should prioritized our restoration process. A nuclear plant may not be the first unit to be restored; a coal plant may have a higher restoration priority then a nuclear plant. Section 215 of the Energy Policy Act of 2005, gave NERC the authority to develop regulations to assure the reliability of the Bulk Electric System (BES). Although Nuclear safety is of paramount concern, it is not within the scope of NERC's responsibilities. The Atomic Energy Act of 1954 as amended provides the Nuclear Regulatory Commission the statutory responsibility for assuring the safety of commercial nuclear power plants. The nuclear industry's excellent safety record, demonstrates the NRC ability to meet its charter. Therefore, we suggest NERC concentrate on assuring the reliability of BES and the systems and structures that support it regardless of the fuel type. 2. Also in requirement 9.3.5, the text "requirement" needs to be clarified. It should not include safety requirements such as NPRI standards. (Paragraph 107, FERC Order 716)
Response: The SDT modified the standard (before this ballot was conducted) and removed the term "coping time". The SDT believes that the present wording allows for situational determination of restoration priorities. The term "requirements" in this context refers to situationally specific negotiated terms between the plant and transmission entities.				
Jason Shaver	American Transmission Company, LLC	1	Negative	ATC appreciates the work of the Standards Drafting Team but is unable to support the proposed changes to NUC-001-2 for the following reasons. Requirement 9.3.5 is a duplicate of Requirement 11.4 in EOP-005-1 for Transmission Operators: We believe that Requirement 9.3.5 is duplicative of Requirement 11.4 in EOP-005-1 and should simply be deleted from NUC-001-2. EOP-005-1 Requirement 11: Following a disturbance in which one or more areas of the Bulk Electric System become isolated or blacked out, the affected Transmission Operators and Balancing Authorities shall begin immediately to return the Bulk Electric System to Normal. EOP-005-1 Requirement

Voter	Entity	Segment	Vote	Comment
				11.4: The affected Transmission Operators shall give high priority to restoration of off-site power to nuclear stations. NUC-001-2 Requirement 9.3.5: Requirement 9.3.5 simply states that the applicable transmission entity has to consider the "urgency of a nuclear plant that has lost all off-site and on-site AC power". Both Requirement 11.4 and Requirement 9.3.5 state that a transmission operator has to give priority to nuclear generators following the loss of off-site AC power. Because of the similarity in both requirements it's our belief that the best course of action is to simple delete Requirement 9.3.5. If the SDT does not agree with our assessment of Requirement 9.3.5 then we ask that the following changes be incorporated for clarity and to reduce potential conflicts between EOP-005 R11.4 and NUC-001 R9.3.5 for TOP's: Provision for including, within the applicable Transmission Entity system restoration plan, the physical and electrical needs and urgency of a nuclear plant that has lost all off-site and on-site AC power. a) The phrase "restoration process" in the standard being balloted is not clear on whose restoration process has to be considered. Does this mean that the Transmission Entities has to consider the Nuclear Plant's restoration process, or their restoration process? Our proposal to replace the existing phrase with "applicable Transmission Entity's system restoration plan" makes it absolutely clear as to whose restoration process is being identified. Note that entities other than BA's and TOP's (who are already required in EOP-005 to have a restoration plan) identified as a Transmission Entity under NUC-001 will now be required to have a restoration plan with the sole requirement to address R9.3.5. b) The term "requirements" is unclear and inappropriate without more specific qualifications. Use of the term here could easily be confused with NPLRs, NPIRs, Plant Licensing Requirement or the NUC-001-1 requirements themselves. ATC believes that the use of the term "electrical and physical needs" would be a more appropriate because it specifies

Voter	Entity	Segment	Vote	Comment
				what needs to be included. c) ATC believes that it will be very difficult for entities to demonstrate compliance on how they "consider" the nuclear plant's needs and urgency. We believe that the better word to use is "include" which lends itself to easier demonstration of compliance and implies more specifically that some coordination of this subject need be "included" not only in the restoration plan, but also in the interface agreement to satisfy R2 of this standard. Planning Authority versus Planning Coordinator: ATC does not agree with the proposed change from Planning Authority to Planning Coordinator. The term Planning Coordinator does exist in the latest version of the Functional Model Guideline but does not exist in NERC's Rule of Procedure's. In addition, NERC has not registered a single entity as a Planning Coordinator, so it is unclear who will be responsible for this Standard.

Response: The SDT believes that the requirement referenced in EOP-005 is slightly different than Requirement R9.3.5. Requirement R9.3.5 addresses situations that may not be covered in EOP-005. For example, the loss of on-site or off-site power does not necessarily constitute a blackout or isolation situation as described in EOP-005. In addition, Requirement R9.3.5 does not require "high priority" to be given as directed by EOP-005. Requirement R9.3.5 specifies that provision for considering the needs of a Nuclear Plant must be given within a restoration plan.

The SDT disagrees with your suggested wording for the following reasons:

- **a) The provisions for considering within the restoration process could include restoration steps taken by the Plant Operator and/or other Transmission Entities. Requirement R9.3.5 is one required element of negotiated agreements.**
- **b)** The term "requirements" in this context refers to situationally specific negotiated terms between the plant and transmission entities.
- **c) Requirement R9.3.5 requires the agreement(s) to include a provision for addressing the situation.**

The change from Planning Authority to Planning Coordinator is being made to provide uniformity within this standard and other standards under development. The Standards Committee has directed drafting teams to adopt the terms in Version 3 of the Functional Model – and Version 3 replaced the term, "Planning Authority" with "Planning Coordinator." Note that FERC has been notified of this change, and has indicated that it accepts the replacement of "Planning Authority" with "Planning Coordinator."

Voter	Entity	Segment	Vote	Comment
Mike Laney	Luminant Generation Company LLC	5	Negative	Luminant agrees with the wording change of "in effect" verses "executed" applicable to section B.R2. of the requirements. However, Luminant is not in support of the proposed modifications of R9.3.5. Nuclear Power Plants are required by the Nuclear Regulatory Commission (NRC) to comply with 10CFR 50.63, "Loss of all alternating current power." Per 10CFR50.63, "The reactor core and associated coolant, control, and protection systems, including station batteries and any other necessary support systems, must provide sufficient capacity and capability to ensure that the core is cooled and appropriate containment integrity is maintained in the event of a station blackout for the specified duration. The capability for coping with a station blackout of specified duration shall be determined by an appropriate coping analysis. Licensees are expected to have the baseline assumptions, analyses, and related information used in their coping evaluations available for NRC review." Luminant's nuclear facility was evaluated against the NRC's Station Black Out Rule requirements using NRC Regulatory Guide (RG) 1.155, "Station Blackout." Luminant is obligated and committed to RG 1.155 with NRC for a specific coping time. Nuclear Final Safety Analysis Reports (FSAR) describe the design, construction and operation of nuclear power plants. The NRC uses this design information provided within the FSAR to evaluate as to whether a nuclear plant can operate without undue risk to the health and safety of the public. Since "coping time" is part of a nuclear units licensing basis, Luminant feels the current proposed language change is not sufficient.
Response: The SDT was directed to provide clarity to Requirement R9.3.5 in FERC Order 716. The SDT removed the term "coping time" due to an overwhelming objection to include the term by the industry. The industry felt that the term was confusing and ambiguous. This requirement does not relieve nor prevent a Nuclear Plant from meeting NPLRs (such as coping time).				

Voter	Entity	Segment	Vote	Comment
William L. Thompson Jalal (John) Babik Mike Garton Louis S Slade	Dominion Virginia Power Dominion Resources, Inc. Dominion Resources, Inc. Dominion Resources, Inc.	1 3 5 6	Negative	Requirement R9.3.5 does not provide enough clarity for the Nuclear Plant Generator Operator and Transmission Entities to develop appropriate language for the agreements required by this standard. As an example, a likely scenario for a nuclear power plant, the loss of off-site power without the loss of on-site power, is not addressed within the scope of Requirement R9.3.5 or any of the other sub-requirements of Requirement 9.3.
Response: Requirement R9.3.5 is intended to cover the unique situation of losing both off-site and on-site power. The example you have provided would be covered in Requirements R4.2 and R9.2.2.				
Charles H Yeung	Southwest Power Pool	2	Affirmative	SPP, Inc. supports this version of NUC-001. We are concerned however that this standard is not directly relevant to bulk power system reliability - NERC's mission. Although it is important for obvious reasons for a nuclear plant to have agreements in place with transmission providers, these requirements are meant to be safeguards for the nuclear plant and not for the reliability of the bulk power system. Further, NIPRs are already in existence that require the nuclear plants to have agreements in place and can be enforced through other regulatory bodies.
Response: The SDT acknowledges your affirmative response and thanks you for your clarifying comment. The need for the standard has already been established through the Standards Development Process. The scope of the current project is to provide modification to Requirement R9.3.5 as directed in FERC Order 716.				
Richard J. Padilla	Pacific Gas and Electric Company	5	Affirmative	Proposed to change from R9.3.5. Provision for considering, within the restoration process, the requirements and urgency of a nuclear plant that has lost all off-site and on-site AC power. Change to: R9.3.5. Provision for considering, within the restoration process, the requirements and urgency of nuclear plants that have lost all off-site AC power.
Response: The SDT acknowledges your affirmative response and thanks you for your clarifying comment. Requirement R9.3.5 is intended to cover the unique situation of losing both off-site and on-site power. The example you have provided would be covered in Requirements R4.2 and R9.2.2.				

Voter	Entity	Segment	Vote	Comment
Terry Bilke	Midwest ISO, Inc.	2	Abstain	We have mixed feelings for this standard. We understand that NERC was directed to develop such a standard, but this standard clearly tries to address a nuclear safety rather than a reliability issue. The EPAct legislation specifically excluded authority for the development of safety standards. If there is a problem with auxiliary supply that jeopardizes reliability, other existing standards will apply. This encroachment on the purview of the NRC will continue to muddy the waters. When everyone is in charge, nobody is responsible. It will also lead to misallocation of resources.
Response: The need for the standard has already been established through the Standards Development Process. The scope of the current project is to provide modification to Requirement R9.3.5 as directed in FERC Order 716.				

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Standards Announcement

Recirculation Ballot Window Open

July 10–20, 2009

Now available at: https://standards.nerc.net/CurrentBallots.aspx

Project 2009-08: Revisions to Standard NUC-001-1 — Nuclear Plant Interface Coordination for Order 716

A recirculation ballot window for revisions to standard NUC-001-1 — Nuclear Plant Interface Coordination is now open **until 8 p.m. EDT on July 20, 2009**. An associated implementation plan has been posted with the revised standard.

Instructions

Members of the ballot pool associated with this project may log in and submit their votes from the following page: https://standards.nerc.net/CurrentBallots.aspx

Recirculation Ballot Process

The Standards Committee encourages all members of the ballot pool to review the consideration of comments submitted with the initial ballots. In the recirculation ballot, votes are counted by exception only — if a ballot pool member does not submit a revision to that member's original vote, the vote remains the same as in the first ballot. Members of the ballot pool may:

- Reconsider and change their vote from the first ballot.
- Vote in the second ballot even if they did not vote on the first ballot.
- Take no action if they do not want to change their original vote.

Next Steps

Voting results will be posted and announced after the ballot window closes.

Project Background

The Nuclear Plant Interface Coordination standard requires coordination between Nuclear Plant Generator Operators and Transmission Entities for the purpose of ensuring safe nuclear plant operation and shutdown. The proposed revisions address two directives in Federal Energy Regulatory Commission (FERC) Order 716 aimed at addressing stakeholder concerns for improved clarity. Additional revisions were made to change the term "Planning Authority" to "Planning Coordinator" (to match the terminology in the latest version of the Functional Model) and to bring the compliance elements of the standard into conformance with the latest version of the ERO Rules of Procedure.

Project page: http://www.nerc.com/filez/standards/Project2009-08_Nuclear_Plant_Interface_Coordination.html

Applicability of Standards in Project

Transmission Operators
Transmission Owners
Transmission Planners
Transmission Service Providers
Balancing Authorities
Reliability Coordinators
Planning Coordinators
Distribution Providers
Load-serving Entities
Generator Owners
Generator Operators

Standards Development Process

The Reliability Standards Development Procedure contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate

For more information or assistance,
please contact Shaun Streeter at shaun.streeter@nerc.net or at 609.452.8060.

Standard Development Roadmap

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

Development Steps Completed:

1. SAR and standard submitted to Standards Committee for authorization to post on January 30, 2009.
2. The SAR and Standard Drafting Team posted the SAR and standard for comments on February 2, 2009.
3. The SAR and Standard Drafting Team responded to comments on May 8, 2009.

Proposed Action Plan and Description of Current Draft:

This is the second version of the proposed revised standard and includes minor modifications based on comments submitted by stakeholders during the initial 45-day comment period. The SDT will be requesting the Standards Committee to move the standard forward to ballot.

Future Development Plan:

Anticipated Actions	Anticipated Date
1. Obtain the Standards Committee's approval to move the standard forward to balloting.	May 7, 2009
2. Post the standard and implementation plan for a 30-day pre-ballot review.	May 11, 2009
3. Conduct an initial ballot for ten days.	June 10, 2009
4. Respond to comments submitted with the initial ballot.	July 10, 2009
5. Conduct a recirculation ballot for ten days.	July 13, 2009
6. BOT adoption.	August 2009

A. Introduction

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

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

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

4. **Applicability:**

   4.1. Nuclear Plant Generator Operator.

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

   4.2.1 Transmission Operators.

   4.2.2 Transmission Owners.

   4.2.3 Transmission Planners.

   4.2.4 Transmission Service Providers.

   4.2.5 Balancing Authorities.

   4.2.6 Reliability Coordinators.

   4.2.7 Planning Coordinators.

   4.2.8 Distribution Providers.

   4.2.9 Load-serving Entities.

   4.2.10 Generator Owners.

   4.2.11 Generator Operators.

5. **Effective Date:** This standard shall become effective the later of either April 1, 2010 or the first day of the first calendar quarter after applicable regulatory approval; or in those jurisdictions where no regulatory approval is required, the later of either April 1, 2010 or the first day of the first calendar quarter after Board of Trustees adoption.

B. Requirements

R1. The Nuclear Plant Generator Operator shall provide the proposed NPIRs in writing to the applicable Transmission Entities and shall verify receipt [*Risk Factor: Lower*]

R2. The Nuclear Plant Generator Operator and the applicable Transmission Entities shall have in effect one or more Agreements[1] that include mutually agreed to NPIRs and

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

document how the Nuclear Plant Generator Operator and the applicable Transmission Entities shall address and implement these NPIRs. [*Risk Factor: Medium*]

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

R4. Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall: [*Risk Factor: High*]

R4.1. Incorporate the NPIRs into their operating analyses of the electric system.

R4.2. Operate the electric system to meet the NPIRs.

R4.3. Inform the Nuclear Plant Generator Operator when the ability to assess the operation of the electric system affecting NPIRs is lost.

R5. The Nuclear Plant Generator Operator shall operate per the Agreements developed in accordance with this standard. [*Risk Factor: High*]

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

R7. Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall inform the applicable Transmission Entities of actual or proposed changes to nuclear plant design, configuration, operations, limits, protection systems, or capabilities that may impact the ability of the electric system to meet the NPIRs. [*Risk Factor: High*]

R8. Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall inform the Nuclear Plant Generator Operator of actual or proposed changes to electric system design, configuration, operations, limits, protection systems, or capabilities that may impact the ability of the electric system to meet the NPIRs. [*Risk Factor: High*]

R9. The Nuclear Plant Generator Operator and the applicable Transmission Entities shall include, as a minimum, the following elements within the agreement(s) identified in R2: [*Risk Factor: Medium*]

R9.1. Administrative elements:

R9.1.1. Definitions of key terms used in the agreement.

R9.1.2. Names of the responsible entities, organizational relationships, and responsibilities related to the NPIRs.

R9.1.3. A requirement to review the agreement(s) at least every three years.

R9.1.4. A dispute resolution mechanism.

R9.2. Technical requirements and analysis:

R9.2.1. Identification of parameters, limits, configurations, and operating scenarios included in the NPIRs and, as applicable, procedures for providing any specific data not provided within the agreement.

R9.2.2. Identification of facilities, components, and configuration restrictions that are essential for meeting the NPIRs.

R9.2.3. Types of planning and operational analyses performed specifically to support the NPIRs, including the frequency of studies and types of Contingencies and scenarios required.

R9.3. Operations and maintenance coordination:

R9.3.1. Designation of ownership of electrical facilities at the interface between the electric system and the nuclear plant and responsibilities for operational control coordination and maintenance of these facilities.

R9.3.2. Identification of any maintenance requirements for equipment not owned or controlled by the Nuclear Plant Generator Operator that are necessary to meet the NPIRs.

R9.3.3. Coordination of testing, calibration and maintenance of on-site and off-site power supply systems and related components.

R9.3.4. Provisions to address mitigating actions needed to avoid violating NPIRs and to address periods when responsible Transmission Entity loses the ability to assess the capability of the electric system to meet the NPIRs. These provisions shall include responsibility to notify the Nuclear Plant Generator Operator within a specified time frame.

R9.3.5. Provision for considering, within the restoration process, the requirements and urgency of a nuclear plant that has lost all off-site and on-site AC power. .

R9.3.6. Coordination of physical and cyber security protection of the Bulk Electric System at the nuclear plant interface to ensure each asset is covered under at least one entity's plan.

R9.3.7. Coordination of the NPIRs with transmission system Special Protection Systems and underfrequency and undervoltage load shedding programs.

R9.4. Communications and training:

R9.4.1. Provisions for communications between the Nuclear Plant Generator Operator and Transmission Entities, including communications protocols, notification time requirements, and definitions of terms.

R9.4.2. Provisions for coordination during an off-normal or emergency event affecting the NPIRs, including the need to provide timely information explaining the event, an estimate of when the system will be returned to a normal state, and the actual time the system is returned to normal.

R9.4.3. Provisions for coordinating investigations of causes of unplanned events affecting the NPIRs and developing solutions to minimize future risk of such events.

R9.4.4. Provisions for supplying information necessary to report to government agencies, as related to NPIRs.

R9.4.5. Provisions for personnel training, as related to NPIRs.

C. Measures

M1. The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, provide a copy of the transmittal and receipt of transmittal of the proposed NPIRs to the responsible Transmission Entities. (Requirement 1)

M2. The Nuclear Plant Generator Operator and each Transmission Entity shall each have a copy of the Agreement(s) addressing the elements in Requirement 9 available for inspection upon request of the Compliance Enforcement Authority. (Requirement 2 and 9)

M3. Each Transmission Entity responsible for planning analyses in accordance with the Agreement shall, upon request of the Compliance Enforcement Authority, provide a copy of the planning analyses results transmitted to the Nuclear Plant Generator Operator, showing incorporation of the NPIRs. The Compliance Enforcement Authority shall refer to the Agreements developed in accordance with this standard for specific requirements. (Requirement 3)

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

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

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

M4.3 The Transmission Entity informed the Nuclear Plant Generator Operator when it became aware it lost the capability to assess the operation of the electric system affecting the NPIRs. (Requirement 4.3)

M5. The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, demonstrate or provide evidence that the Nuclear Power Plant is being operated consistent with the Agreements developed in accordance with this standard. (Requirement 5)

M6. The Transmission Entities and Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, provide evidence of the coordination between the Transmission Entities and the Nuclear Plant Generator Operator regarding outages and maintenance activities which affect the NPIRs. (Requirement 6)

M7. The Nuclear Plant Generator Operator shall provide evidence that it informed the applicable Transmission Entities of changes to nuclear plant design, configuration,

operations, limits, protection systems, or capabilities that would impact the ability of the Transmission Entities to meet the NPIRs. (Requirement 7)

M8. The Transmission Entities shall each provide evidence that it informed the Nuclear Plant Generator Operator of changes to electric system design, configuration, operations, limits, protection systems, or capabilities that would impact the ability of the Nuclear Plant Generator Operator to meet the NPIRs. (Requirement 8)

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Regional Entity.

1.2. Compliance Monitoring Period and Reset Time Frame

Not applicable.

1.3. Compliance Monitoring and Enforcement Processes:

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints

1.4. Data Retention

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

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

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

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

1.5. Additional Compliance Information

None.

2. Violation Severity Levels

2.1. Lower: Agreement(s) exist per this standard and NPIRs were identified and implemented, but documentation described in M1-M8 was not provided.

2.2. Moderate: Agreement(s) exist per R2 and NPIRs were identified and implemented, but one or more elements of the Agreement in R9 were not met.

2.3. High: One or more requirements of R3 through R8 were not met.

2.4. Severe: No proposed NPIRs were submitted per R1, no Agreement exists per this standard, or the Agreements were not implemented.

E. Regional Differences

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

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

F. Associated Documents

Version History

Version	Date	Action	Change Tracking
1	May 2, 2007	Approved by Board of Trustees	New
2	To be determined	Modifications for Order 716 to Requirement R9.3.5 and footnote 1; modifications to bring compliance elements into conformance with the latest version of the ERO Rules of Procedure.	Revision

Standard Development Roadmap

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

Development Steps Completed:

1. SAR and standard submitted to Standards Committee for authorization to post on January 30, 2009.
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5. Conduct a recirculation ballot for ten days.	July 13, 2009
6. BOT adoption.	August 2009

A. Introduction

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

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

4. **Applicability:**

   4.1. Nuclear Plant Generator Operator.

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

   4.2.1 Transmission Operators.

   4.2.2 Transmission Owners.

   4.2.3 Transmission Planners.

   4.2.4 Transmission Service Providers.

   4.2.5 Balancing Authorities.

   4.2.6 Reliability Coordinators.

   4.2.7 Planning Coordinators.

   4.2.8 Distribution Providers.

   4.2.9 Load-serving Entities.

   4.2.10 Generator Owners.

   4.2.11 Generator Operators.

5. **Effective Date:** This standard shall become effective the later of either April 1, 2010 or the first day of the first calendar quarter after applicable regulatory approval; or in those jurisdictions where no regulatory approval is required, the later of either April 1, 2010 or the first day of the first calendar quarter after Board of Trustees adoption.

B. Requirements

R1. The Nuclear Plant Generator Operator shall provide the proposed NPIRs in writing to the applicable Transmission Entities and shall verify receipt [*Risk Factor: Lower*]

R2. The Nuclear Plant Generator Operator and the applicable Transmission Entities shall have in effect one or more Agreements[1] that include mutually agreed to NPIRs and

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

document how the Nuclear Plant Generator Operator and the applicable Transmission Entities shall address and implement these NPIRs. [*Risk Factor: Medium*]

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

R4. Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall: [*Risk Factor: High*]

R4.1. Incorporate the NPIRs into their operating analyses of the electric system.

R4.2. Operate the electric system to meet the NPIRs.

R4.3. Inform the Nuclear Plant Generator Operator when the ability to assess the operation of the electric system affecting NPIRs is lost.

R5. The Nuclear Plant Generator Operator shall operate per the Agreements developed in accordance with this standard. [*Risk Factor: High*]

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

R7. Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall inform the applicable Transmission Entities of actual or proposed changes to nuclear plant design, configuration, operations, limits, protection systems, or capabilities that may impact the ability of the electric system to meet the NPIRs. [*Risk Factor: High*]

R8. Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall inform the Nuclear Plant Generator Operator of actual or proposed changes to electric system design, configuration, operations, limits, protection systems, or capabilities that may impact the ability of the electric system to meet the NPIRs. [*Risk Factor: High*]

R9. The Nuclear Plant Generator Operator and the applicable Transmission Entities shall include, as a minimum, the following elements within the agreement(s) identified in R2: [*Risk Factor: Medium*]

R9.1. Administrative elements:

R9.1.1. Definitions of key terms used in the agreement.

R9.1.2. Names of the responsible entities, organizational relationships, and responsibilities related to the NPIRs.

R9.1.3. A requirement to review the agreement(s) at least every three years.

R9.1.4. A dispute resolution mechanism.

R9.2. Technical requirements and analysis:

R9.2.1. Identification of parameters, limits, configurations, and operating scenarios included in the NPIRs and, as applicable, procedures for providing any specific data not provided within the agreement.

R9.2.2. Identification of facilities, components, and configuration restrictions that are essential for meeting the NPIRs.

R9.2.3. Types of planning and operational analyses performed specifically to support the NPIRs, including the frequency of studies and types of Contingencies and scenarios required.

R9.3. Operations and maintenance coordination:

R9.3.1. Designation of ownership of electrical facilities at the interface between the electric system and the nuclear plant and responsibilities for operational control coordination and maintenance of these facilities.

R9.3.2. Identification of any maintenance requirements for equipment not owned or controlled by the Nuclear Plant Generator Operator that are necessary to meet the NPIRs.

R9.3.3. Coordination of testing, calibration and maintenance of on-site and off-site power supply systems and related components.

R9.3.4. Provisions to address mitigating actions needed to avoid violating NPIRs and to address periods when responsible Transmission Entity loses the ability to assess the capability of the electric system to meet the NPIRs. These provisions shall include responsibility to notify the Nuclear Plant Generator Operator within a specified time frame.

R9.3.5. Provision for considering, within the restoration process, the requirements and urgency of a nuclear plant that has lost all off-site and on-site AC power. ~~to consider a nuclear plant's coping time (the period of time a nuclear plant can function without an AC power source) required by the NPLRs during the restoration of Off-site Power following a loss of all Off-site and On-site AC Power Sources~~.

R9.3.6. Coordination of physical and cyber security protection of the Bulk Electric System at the nuclear plant interface to ensure each asset is covered under at least one entity's plan.

R9.3.7. Coordination of the NPIRs with transmission system Special Protection Systems and underfrequency and undervoltage load shedding programs.

R9.4. Communications and training:

R9.4.1. Provisions for communications between the Nuclear Plant Generator Operator and Transmission Entities, including communications protocols, notification time requirements, and definitions of terms.

R9.4.2. Provisions for coordination during an off-normal or emergency event affecting the NPIRs, including the need to provide timely information explaining the event, an estimate of when the system will be returned to a normal state, and the actual time the system is returned to normal.

R9.4.3. Provisions for coordinating investigations of causes of unplanned events affecting the NPIRs and developing solutions to minimize future risk of such events.

R9.4.4. Provisions for supplying information necessary to report to government agencies, as related to NPIRs.

R9.4.5. Provisions for personnel training, as related to NPIRs.

C. Measures

M1. The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, provide a copy of the transmittal and receipt of transmittal of the proposed NPIRs to the responsible Transmission Entities. (Requirement 1)

M2. The Nuclear Plant Generator Operator and each Transmission Entity shall each have a copy of the Agreement(s) addressing the elements in Requirement 9 available for inspection upon request of the Compliance Enforcement Authority. (Requirement 2 and 9)

M3. Each Transmission Entity responsible for planning analyses in accordance with the Agreement shall, upon request of the Compliance Enforcement Authority, provide a copy of the planning analyses results transmitted to the Nuclear Plant Generator Operator, showing incorporation of the NPIRs. The Compliance Enforcement Authority shall refer to the Agreements developed in accordance with this standard for specific requirements. (Requirement 3)

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

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

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

M4.3 The Transmission Entity informed the Nuclear Plant Generator Operator when it became aware it lost the capability to assess the operation of the electric system affecting the NPIRs. (Requirement 4.3)

M5. The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, demonstrate or provide evidence that the Nuclear Power Plant is being operated consistent with the Agreements developed in accordance with this standard. (Requirement 5)

M6. The Transmission Entities and Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority, provide evidence of the coordination between

the Transmission Entities and the Nuclear Plant Generator Operator regarding outages and maintenance activities which affect the NPIRs. (Requirement 6)

M7. The Nuclear Plant Generator Operator shall provide evidence that it informed the applicable Transmission Entities of changes to nuclear plant design, configuration, operations, limits, protection systems, or capabilities that would impact the ability of the Transmission Entities to meet the NPIRs. (Requirement 7)

M8. The Transmission Entities shall each provide evidence that it informed the Nuclear Plant Generator Operator of changes to electric system design, configuration, operations, limits, protection systems, or capabilities that would impact the ability of the Nuclear Plant Generator Operator to meet the NPIRs. (Requirement 8)

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Regional Entity.

1.2. Compliance Monitoring Period and Reset Time Frame

Not applicable.

1.3. Compliance Monitoring and Enforcement Processes:

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints

1.4. Data Retention

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

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

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

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

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

1.5. Additional Compliance Information

None.

2. Violation Severity Levels

2.1. Lower: Agreement(s) exist per this standard and NPIRs were identified and implemented, but documentation described in M1-M8 was not provided.

2.2. Moderate: Agreement(s) exist per R2 and NPIRs were identified and implemented, but one or more elements of the Agreement in R9 were not met.

2.3. High: One or more requirements of R3 through R8 were not met.

2.4. Severe: No proposed NPIRs were submitted per R1, no Agreement exists per this standard, or the Agreements were not implemented.

E. Regional Differences

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

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

F. Associated Documents

Version History

Version	Date	Action	Change Tracking
1	May 2, 2007	Approved by Board of Trustees	New
2	To be determined	Modifications for Order 716 to Requirement R9.3.5 and footnote 1; modifications to bring compliance	Revision

		elements into conformance with the latest version of the ERO Rules of Procedure.	

A. Introduction

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

2. **Number:** NUC-001-21

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

4. **Applicability:**

   4.1. Nuclear Plant Generator Operator.

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

   4.2.1 Transmission Operators.

   4.2.2 Transmission Owners.

   4.2.3 Transmission Planners.

   4.2.4 Transmission Service Providers.

   4.2.5 Balancing Authorities.

   4.2.6 Reliability Coordinators.

   4.2.7 Planning ~~Authorities~~Coordinators.

   4.2.8 Distribution Providers.

   4.2.9 Load-serving Entities.

   4.2.10 Generator Owners.

   4.2.11 Generator Operators.

5. **Effective Date:** ~~First day of first quarter 15 months after applicable regulatory approvals.~~ This standard shall become effective the later of either April 1, 2010 or the first day of the first calendar quarter after applicable regulatory approval; or in those jurisdictions where no regulatory approval is required, the later of either April 1, 2010 or the first day of the first calendar quarter after Board of Trustees adoption.

B. Requirements

R1. The Nuclear Plant Generator Operator shall provide the proposed NPIRs in writing to the applicable Transmission Entities and shall verify receipt [*Violation Risk Factor: Lower*]

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

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

R4. Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall: [*Violation Risk Factor: High*]

R4.1. Incorporate the NPIRs into their operating analyses of the electric system.

R4.2. Operate the electric system to meet the NPIRs.

R4.3. Inform the Nuclear Plant Generator Operator when the ability to assess the operation of the electric system affecting NPIRs is lost.

R5. The Nuclear Plant Generator Operator shall operate per the Agreements developed in accordance with this standard. [*Violation Risk Factor: High*]

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

R7. Per the Agreements developed in accordance with this standard, the Nuclear Plant Generator Operator shall inform the applicable Transmission Entities of actual or proposed changes to nuclear plant design, configuration, operations, limits, protection systems, or capabilities that may impact the ability of the electric system to meet the NPIRs. [*Violation Risk Factor: High*]

R8. Per the Agreements developed in accordance with this standard, the applicable Transmission Entities shall inform the Nuclear Plant Generator Operator of actual or proposed changes to electric system design, configuration, operations, limits, protection systems, or capabilities that may impact the ability of the electric system to meet the NPIRs. [*Violation Risk Factor: High*]

1. Agreements may include mutually agreed upon procedures or protocols ~~for both a single integrated system and~~ in effect between entities or between departments of a vertically integrated system.

R9. The Nuclear Plant Generator Operator and the applicable Transmission Entities shall include, as a minimum, the following elements within the agreement(s) identified in R2: [*Violation Risk Factor: Medium*]

R9.1. Administrative elements:

R9.1.1. Definitions of key terms used in the agreement.

R9.1.2. Names of the responsible entities, organizational relationships, and responsibilities related to the NPIRs.

R9.1.3. A requirement to review the agreement(s) at least every three years.

R9.1.4. A dispute resolution mechanism.

R9.2. Technical requirements and analysis:

R9.2.1. Identification of parameters, limits, configurations, and operating scenarios included in the NPIRs and, as applicable, procedures for providing any specific data not provided within the agreement.

R9.2.2. Identification of facilities, components, and configuration restrictions that are essential for meeting the NPIRs.

R9.2.3. Types of planning and operational analyses performed specifically to support the NPIRs, including the frequency of studies and types of Contingencies and scenarios required.

R9.3. Operations and maintenance coordination:

R9.3.1. Designation of ownership of electrical facilities at the interface between the electric system and the nuclear plant and responsibilities for operational control coordination and maintenance of these facilities.

R9.3.2. Identification of any maintenance requirements for equipment not owned or controlled by the Nuclear Plant Generator Operator that are necessary to meet the NPIRs.

R9.3.3. Coordination of testing, calibration and maintenance of on-site and off-site power supply systems and related components.

R9.3.4. Provisions to address mitigating actions needed to avoid violating NPIRs and to address periods when responsible Transmission Entity loses the ability to assess the capability of the electric system to meet the NPIRs. These provisions shall include responsibility to notify the Nuclear Plant Generator Operator within a specified time frame.

R9.3.5. Provision for considering, within the restoration process, the requirements and urgency of a nuclear plant that has lost all off-site and on-site AC power. ~~to consider nuclear plant coping time required by the NPLRs and their relation to the coordination of grid and~~

~~nuclear plant restoration following a nuclear plant loss of Off-site Power.~~

R9.3.6. Coordination of physical and cyber security protection of the Bulk Electric System at the nuclear plant interface to ensure each asset is covered under at least one entity's plan.

R9.3.7. Coordination of the NPIRs with transmission system Special Protection Systems and underfrequency and undervoltage load shedding programs.

R9.4. Communications and training:

R9.4.1. Provisions for communications between the Nuclear Plant Generator Operator and Transmission Entities, including communications protocols, notification time requirements, and definitions of terms.

R9.4.2. Provisions for coordination during an off-normal or emergency event affecting the NPIRs, including the need to provide timely information explaining the event, an estimate of when the system will be returned to a normal state, and the actual time the system is returned to normal.

R9.4.3. Provisions for coordinating investigations of causes of unplanned events affecting the NPIRs and developing solutions to minimize future risk of such events.

R9.4.4. Provisions for supplying information necessary to report to government agencies, as related to NPIRs.

R9.4.5. Provisions for personnel training, as related to NPIRs.

C. Measures

M1. The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement Authority~~Monitor~~, provide a copy of the transmittal and receipt of transmittal of the proposed NPIRs to the responsible Transmission Entities. (Requirement 1)

M2. The Nuclear Plant Generator Operator and each Transmission Entity shall each have a copy of the Agreement(s) addressing the elements in Requirement 9 available for inspection upon request of the Compliance Enforcement Authority~~Monitor~~. (Requirement 2 and 9)

M3. Each Transmission Entity responsible for planning analyses in accordance with the Agreement shall, upon request of the Compliance Enforcement Authority~~Monitor~~, provide a copy of the planning analyses results transmitted to the Nuclear Plant Generator Operator, showing incorporation of the NPIRs. The Compliance Enforcement Authority~~Monitor~~ shall refer to the Agreements developed in accordance with this standard for specific requirements. (Requirement 3)

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

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

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

M4.3 The Transmission Entity informed the Nuclear Plant Generator Operator when it became aware it lost the capability to assess the operation of the electric system affecting the NPIRs. (Requirement 4.3)

M5. The Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement AuthorityMonitor, demonstrate or provide evidence that the Nuclear Power Plant is being operated consistent with the Agreements developed in accordance with this standard. (Requirement 5)

M6. The Transmission Entities and Nuclear Plant Generator Operator shall, upon request of the Compliance Enforcement AuthorityMonitor, provide evidence of the coordination between the Transmission Entities and the Nuclear Plant Generator Operator regarding outages and maintenance activities which affect the NPIRs. (Requirement 6)

M7. The Nuclear Plant Generator Operator shall provide evidence that it informed the applicable Transmission Entities of changes to nuclear plant design, configuration, operations, limits, protection systems, or capabilities that would impact the ability of the Transmission Entities to meet the NPIRs. (Requirement 7)

M8. The Transmission Entities shall each provide evidence that it informed the Nuclear Plant Generator Operator of changes to electric system design, configuration, operations, limits, protection systems, or capabilities that would impact the ability of the Nuclear Plant Generator Operator to meet the NPIRs. (Requirement 8)

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement AuthorityMonitoring Responsibility

Regional Reliability OrganizationEntity.

1.2. Compliance Monitoring Period and Reset Time Frame

One calendar yearNot applicable.

1.3. Compliance Monitoring and Enforcement Processes:

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints

1.3.1.4. Data Retention

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

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

If a Responsible n eEntity is found non-compliant the entityit shall keep information related to the noncompliance until found compliant. or for two years plus the current year, whichever is longer.

Evidence used as part of a triggered investigation shall be retained by the entity being investigated for one year from the date that the investigation is closed, as determined by the Compliance Enforcement AuthorityMonitor.

The Compliance Enforcement AuthorityMonitor shall keep the last periodic audit report records and all requested and submitted subsequent compliance audit records.

1.4.1.5. Additional Compliance Information

The Nuclear Plant Generator Operator and Transmission Entities shall each demonstrate compliance through self-certification or audit (periodic, as part of targeted monitoring or initiated by complaint or event), as determined by the Compliance Enforcement authorityMonitor.None.

2. Violation Severity Levels

2.1. Lower: Agreement(s) exist per this standard and NPIRs were identified and implemented, but documentation described in M1-M8 was not provided.

2.2. Moderate: Agreement(s) exist per R2 and NPIRs were identified and implemented, but one or more elements of the Agreement in R9 were not met.

2.3. High: One or more requirements of R3 through R8 were not met.

2.4. Severe: No proposed NPIRs were submitted per R1, no Agreement exists per this standard, or the Agreements were not implemented.

E. Regional Variances

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

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

F. Associated Documents

Version History

Version	Date	Action	Change Tracking
1	May 2, 2007	Approved by Board of Trustees	New
2	To be determined	Modifications for Order 716 to Requirement R9.3.5 and footnote 1; modifications to bring compliance elements into conformance with the latest version of the ERO Rules of Procedure.	Revision

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Implementation Plan for NUC-001-2 — Nuclear Plant Interface Coordination

Prerequisite Approvals

There are no other reliability standards or Standard Authorization Requests (SARs), in progress or approved, that must be implemented before this standard can be implemented.

Modified Standards

NUC-001-1 should be retired when NUC-001-2 becomes effective.

Compliance with Standards

Once this standard becomes effective, the responsible entities identified in the applicability section of the standard must comply with the requirements. These include:

- Transmission Operators
- Transmission Owners
- Transmission Planners
- Transmission Service Providers
- Balancing Authorities
- Reliability Coordinators
- Planning Coordinators
- Distribution Providers
- Load-serving Entities
- Generator Owners
- Generator Operators

Proposed Effective Date

NUC-001-2 shall become effective the later of either April 1, 2010 or the first day of the first calendar quarter after applicable regulatory approval; or in those jurisdictions where no regulatory approval is required, the later of either April 1, 2010 or the first day of the first calendar quarter after Board of Trustees adoption.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Standards Announcement
Final Ballot Results

Now available at: https://standards.nerc.net/Ballots.aspx

Project 2009-08: Revisions to Standard NUC-001-1 — Nuclear Plant Interface Coordination for Order 716

The recirculation ballot for revisions to standard NUC-001-1 — Nuclear Plant Interface Coordination ended July 20, 2009.

Ballot Results

Voting statistics are listed below, and the Ballot Results Web page provides a link to the detailed results. Ballot criteria details are listed at the end of the announcement.

Quorum: 87.10%
Approval: 96.94%

The ballot pool approved the standard. The revised standard will be named NUC-001-2 — Nuclear Plant Interface Coordination.

Next Steps

The standard will be submitted to the NERC Board of Trustees for adoption.

Project Background

The Nuclear Plant Interface Coordination standard requires coordination between Nuclear Plant Generator Operators and Transmission Entities for the purpose of ensuring safe nuclear plant operation and shutdown. The proposed revisions address two directives in Federal Energy Regulatory Commission (FERC) Order 716 aimed at addressing stakeholder concerns for improved clarity. Additional revisions were made to change the term "Planning Authority" to "Planning Coordinator" (to match the terminology in the latest version of the Functional Model) and to bring the compliance elements of the standard into conformance with the latest version of the ERO Rules of Procedure.

Project page: http://www.nerc.com/filez/standards/Project2009-08_Nuclear_Plant_Interface_Coordination.html

Applicability of Standards in Project

Transmission Operators
Transmission Owners
Transmission Planners

Transmission Service Providers
Balancing Authorities
Reliability Coordinators
Planning Coordinators
Distribution Providers
Load-serving Entities
Generator Owners
Generator Operators

Standards Development Process

The *Reliability Standards Development Procedure* contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate.

Ballot Criteria

Approval requires both a (1) quorum, which is established by at least 75% of the members of the ballot pool for submitting either an affirmative vote, a negative vote, or an abstention, and (2) A two-thirds majority of the weighted segment votes cast must be affirmative; the number of votes cast is the sum of affirmative and negative votes, excluding abstentions and nonresponses. If there are no negative votes with reasons from the first ballot, the results of the first ballot shall stand. If, however, one or more members submit negative votes with reasons, a second ballot shall be conducted.

For more information or assistance,
please contact Shaun Streeter at shaun.streeter@nerc.net or at 609.452.8060.

Ballot Results	
Ballot Name:	Project 2009-08 - Nuclear Plant Interface Coordination for Order 716 _rc
Ballot Period:	7/10/2009 - 7/20/2009
Ballot Type:	recirculation
Total # Votes:	162
Total Ballot Pool:	186
Quorum:	87.10 % The Quorum has been reached
Weighted Segment Vote:	96.94 %
Ballot Results:	The Standard has Passed

Summary of Ballot Results

Segment	Ballot Pool	Segment Weight	Affirmative # Votes	Affirmative Fraction	Negative # Votes	Negative Fraction	Abstain # Votes	No Vote
1 - Segment 1.	44	1	34	0.944	2	0.056	5	3
2 - Segment 2.	10	0.7	7	0.7	0	0	3	0
3 - Segment 3.	47	1	35	1	0	0	6	6
4 - Segment 4.	8	0.4	4	0.4	0	0	2	2
5 - Segment 5.	35	1	22	0.957	1	0.043	5	7
6 - Segment 6.	24	1	18	1	0	0	3	3
7 - Segment 7.	0	0	0	0	0	0	0	0
8 - Segment 8.	3	0.3	3	0.3	0	0	0	0
9 - Segment 9.	7	0.4	4	0.4	0	0	1	2
10 - Segment 10.	8	0.7	6	0.6	1	0.1	0	1
Totals	186	6.5	133	6.301	4	0.199	25	24

Individual Ballot Pool Results

Segment	Organization	Member	Ballot	Comments
1	Allegheny Power	Rodney Phillips		
1	Ameren Services	Kirit S. Shah	Affirmative	
1	American Electric Power	Paul B. Johnson	Affirmative	
1	American Transmission Company, LLC	Jason Shaver	Negative	View
1	Bonneville Power Administration	Donald S. Watkins	Affirmative	
1	CenterPoint Energy	Paul Rocha	Abstain	
1	Central Maine Power Company	Brian Conroy	Affirmative	

1	Consolidated Edison Co. of New York	Christopher L de Graffenried	Affirmative	
1	Dominion Virginia Power	William L. Thompson	Affirmative	View
1	Duke Energy Carolina	Douglas E. Hils	Affirmative	
1	Entergy Corporation	George R. Bartlett	Affirmative	
1	Exelon Energy	John J. Blazekovich	Affirmative	
1	Farmington Electric Utility System	Alan Glazner	Affirmative	
1	FirstEnergy Energy Delivery	Robert Martinko	Affirmative	
1	Florida Keys Electric Cooperative Assoc.	Dennis Minton	Affirmative	
1	Great River Energy	Gordon Pietsch	Abstain	
1	Hoosier Energy Rural Electric Cooperative, Inc.	Damon Holladay	Abstain	
1	Hydro One Networks, Inc.	Ajay Garg	Affirmative	
1	ITC Transmission	Elizabeth Howell	Affirmative	
1	Kansas City Power & Light Co.	Michael Gammon	Affirmative	
1	Kissimmee Utility Authority	Joe B Watson	Affirmative	
1	Lincoln Electric System	Doug Bantam		
1	MEAG Power	Danny Dees	Affirmative	
1	MidAmerican Energy Co.	Terry Harbour	Affirmative	
1	National Grid	Manuel Couto	Affirmative	
1	Nebraska Public Power District	Richard L. Koch	Affirmative	
1	New York Power Authority	Ralph Rufrano	Affirmative	
1	Northeast Utilities	David H. Boguslawski	Affirmative	
1	Northern Indiana Public Service Co.	Kevin M Largura	Abstain	
1	Oncor Electric Delivery	Charles W. Jenkins	Affirmative	
1	Otter Tail Power Company	Lawrence R. Larson	Affirmative	
1	Pacific Gas and Electric Company	Chifong L. Thomas	Affirmative	
1	Potomac Electric Power Co.	Richard J. Kafka	Affirmative	
1	PowerSouth Energy Cooperative	Larry D. Avery	Negative	
1	PP&L, Inc.	Ray Mammarella	Affirmative	
1	Progress Energy Carolinas	Sammy Roberts	Affirmative	
1	Public Service Electric and Gas Co.	Kenneth D. Brown	Affirmative	
1	Salt River Project	Robert Kondziolka	Affirmative	
1	Southern California Edison Co.	Dana Cabbell	Abstain	
1	Southern Company Services, Inc.	Horace Stephen Williamson	Affirmative	
1	Southwest Transmission Cooperative, Inc.	James L. Jones	Affirmative	
1	Tennessee Valley Authority	Larry Akens	Affirmative	
1	Westar Energy	Allen Klassen		
1	Xcel Energy, Inc.	Gregory L. Pieper	Affirmative	
2	Alberta Electric System Operator	Anita Lee	Abstain	
2	California ISO	Greg Tillitson	Affirmative	
2	Electric Reliability Council of Texas, Inc.	Chuck B Manning	Affirmative	
2	Independent Electricity System Operator	Kim Warren	Affirmative	
2	ISO New England, Inc.	Kathleen Goodman	Affirmative	
2	Midwest ISO, Inc.	Terry Bilke	Abstain	View
2	New Brunswick System Operator	Alden Briggs	Affirmative	
2	New York Independent System Operator	Gregory Campoli	Abstain	
2	PJM Interconnection, L.L.C.	Tom Bowe	Affirmative	
2	Southwest Power Pool	Charles H Yeung	Affirmative	View
3	Allegheny Power	Bob Reeping	Affirmative	
3	Ameren Services	Mark Peters		
3	American Electric Power	Raj Rana	Affirmative	
3	Arizona Public Service Co.	Thomas R. Glock	Affirmative	
3	Atlantic City Electric Company	James V. Petrella	Affirmative	
3	BC Hydro and Power Authority	Pat G. Harrington	Abstain	
3	Bonneville Power Administration	Rebecca Berdahl	Affirmative	
3	City Public Service of San Antonio	Edwin Les Barrow	Affirmative	
3	Commonwealth Edison Co.	Stephen Lesniak	Affirmative	
3	Consolidated Edison Co. of New York	Peter T Yost	Affirmative	
3	Consumers Energy	David A. Lapinski	Affirmative	
3	Cowlitz County PUD	Russell A Noble	Affirmative	
3	Delmarva Power & Light Co.	Michael R. Mayer	Affirmative	
3	Detroit Edison Company	Kent Kujala	Affirmative	
3	Dominion Resources, Inc.	Jalal (John) Babik	Affirmative	
3	Duke Energy Carolina	Henry Ernst-Jr	Affirmative	
3	FirstEnergy Solutions	Joanne Kathleen Borrell	Affirmative	
3	Florida Power Corporation	Lee Schuster	Affirmative	
3	Georgia Power Company	Leslie Sibert	Affirmative	

3	Georgia System Operations Corporation	Edward W Pourciau	Abstain	
3	Grays Harbor PUD	Wesley W Gray	Affirmative	
3	Great River Energy	Sam Kokkinen		
3	Gulf Power Company	Gwen S Frazier	Affirmative	
3	Hydro One Networks, Inc.	Michael D. Penstone	Affirmative	
3	JEA	Garry Baker	Abstain	
3	Kansas City Power & Light Co.	Charles Locke	Affirmative	
3	Kissimmee Utility Authority	Gregory David Woessner		
3	Lincoln Electric System	Bruce Merrill	Abstain	
3	Louisville Gas and Electric Co.	Charles A. Freibert		
3	MidAmerican Energy Co.	Thomas C. Mielnik		
3	Mississippi Power	Don Horsley	Affirmative	
3	Municipal Electric Authority of Georgia	Steven M. Jackson	Abstain	
3	New York Power Authority	Michael Lupo	Affirmative	
3	Niagara Mohawk (National Grid Company)	Michael Schiavone	Affirmative	
3	Northern Indiana Public Service Co.	William SeDoris	Abstain	
3	Orlando Utilities Commission	Ballard Keith Mutters	Affirmative	
3	PacifiCorp	John Apperson	Affirmative	
3	PECO Energy an Exelon Co.	John J. McCawley	Affirmative	
3	Platte River Power Authority	Terry L Baker	Affirmative	
3	Potomac Electric Power Co.	Robert Reuter	Affirmative	
3	Progress Energy Carolinas	Sam Waters	Affirmative	
3	Public Service Electric and Gas Co.	Jeffrey Mueller	Affirmative	
3	Salt River Project	John T. Underhill	Affirmative	
3	South Carolina Electric & Gas Co.	Hubert C. Young		
3	Southern California Edison Co.	David Schiada	Affirmative	
3	Wisconsin Electric Power Marketing	James R. Keller	Affirmative	
3	Xcel Energy, Inc.	Michael Ibold	Affirmative	
4	Alliant Energy Corp. Services, Inc.	Kenneth Goldsmith		
4	American Municipal Power - Ohio	Kevin L Holt	Abstain	
4	Consumers Energy	David Frank Ronk	Affirmative	
4	Detroit Edison Company	Daniel Herring	Affirmative	
4	Georgia System Operations Corporation	Guy Andrews	Abstain	
4	Ohio Edison Company	Douglas Hohlbaugh	Affirmative	
4	Seminole Electric Cooperative, Inc.	Steven R. Wallace		
4	Wisconsin Energy Corp.	Anthony Jankowski	Affirmative	
5	AEP Service Corp.	Brock Ondayko	Affirmative	
5	Amerenue	Sam Dwyer	Affirmative	
5	Avista Corp.	Edward F. Groce	Abstain	
5	Bonneville Power Administration	Francis J. Halpin	Affirmative	
5	Colmac Clarion/Piney Creek LP	Harvie D. Beavers	Affirmative	
5	Consumers Energy	James B Lewis	Affirmative	
5	Detroit Edison Company	Ronald W. Bauer	Affirmative	
5	Dominion Resources, Inc.	Mike Garton	Affirmative	
5	Duke Energy	Robert Smith	Affirmative	
5	East Kentucky Power Coop.	Stephen Ricker		
5	Entergy Corporation	Stanley M Jaskot	Affirmative	
5	Exelon Nuclear	Michael Korchynsky	Affirmative	
5	FirstEnergy Solutions	Kenneth Dresner	Affirmative	
5	FPL Energy	Benjamin Church	Affirmative	
5	Great River Energy	Cynthia E Sulzer		
5	Kansas City Power & Light Co.	Scott Heidtbrink	Affirmative	
5	Lincoln Electric System	Dennis Florom	Abstain	
5	Louisville Gas and Electric Co.	Charlie Martin		
5	Luminant Generation Company LLC	Mike Laney	Negative	View
5	New York Power Authority	Gerald Mannarino		
5	Northern Indiana Public Service Co.	Michael K Wilkerson	Abstain	
5	Northern States Power Co.	Liam Noailles		
5	Orlando Utilities Commission	Richard Kinas		
5	Pacific Gas and Electric Company	Richard J. Padilla	Affirmative	View
5	PacifiCorp Energy	David Godfrey	Affirmative	
5	PPL Generation LLC	Mark A. Heimbach	Affirmative	
5	Progress Energy Carolinas	Wayne Lewis	Affirmative	
5	PSEG Power LLC	Thomas Piascik	Affirmative	
5	Salt River Project	Glen Reeves	Affirmative	
5	Seminole Electric Cooperative, Inc.	Brenda K. Atkins	Affirmative	
5	Southeastern Power Administration	Douglas Spencer	Abstain	

5	Tennessee Valley Authority	Frank D Cuzzort	Abstain	
5	U.S. Army Corps of Engineers Northwestern Division	Karl Bryan	Affirmative	
5	U.S. Bureau of Reclamation	Martin Bauer		
5	Wisconsin Electric Power Co.	Linda Horn	Affirmative	
6	AEP Marketing	Edward P. Cox	Affirmative	
6	Ameren Energy Marketing Co.	Jennifer Richardson		
6	Bonneville Power Administration	Brenda S. Anderson	Affirmative	
6	Consolidated Edison Co. of New York	Nickesha P Carrol	Affirmative	
6	Dominion Resources, Inc.	Louis S Slade	Affirmative	
6	Duke Energy Carolina	Walter Yeager	Affirmative	
6	Entergy Services, Inc.	Terri F Benoit	Affirmative	
6	Exelon Power Team	Pulin Shah	Affirmative	
6	FirstEnergy Solutions	Mark S Travaglianti	Affirmative	
6	Great River Energy	Donna Stephenson		
6	Kansas City Power & Light Co.	Thomas Saitta	Affirmative	
6	Lincoln Electric System	Eric Ruskamp	Abstain	
6	Louisville Gas and Electric Co.	Daryn Barker	Abstain	
6	New York Power Authority	Thomas Papadopoulos	Affirmative	
6	Northern Indiana Public Service Co.	Joseph O'Brien	Abstain	
6	PP&L, Inc.	Thomas Hyzinski	Affirmative	
6	Progress Energy	James Eckelkamp	Affirmative	
6	PSEG Energy Resources & Trade LLC	James D. Hebson	Affirmative	
6	Public Utility District No. 1 of Chelan County	Hugh A. Owen		
6	Salt River Project	Mike Hummel	Affirmative	
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6	Southern California Edison Co.	Marcus V Lotto	Affirmative	
6	Western Area Power Administration - UGP Marketing	John Stonebarger	Affirmative	
6	Xcel Energy, Inc.	David F. Lemmons	Affirmative	
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8	JDRJC Associates	Jim D. Cyrulewski	Affirmative	
8	Volkmann Consulting, Inc.	Terry Volkmann	Affirmative	
9	California Energy Commission	William Mitchell Chamberlain		
9	Commonwealth of Massachusetts Department of Public Utilities	Donald E. Nelson	Affirmative	
9	Maine Public Utilities Commission	Jacob A McDermott	Abstain	
9	National Association of Regulatory Utility Commissioners	Diane J. Barney	Affirmative	
9	New York State Department of Public Service	Thomas G Dvorsky		
9	Public Service Commission of South Carolina	Philip Riley	Affirmative	
9	Public Utilities Commission of Ohio	Klaus Lambeck	Affirmative	
10	Electric Reliability Council of Texas, Inc.	Kent Saathoff	Affirmative	
10	Florida Reliability Coordinating Council	Linda Campbell	Affirmative	
10	Midwest Reliability Organization	Dan R Schoenecker	Negative	View
10	New York State Reliability Council	Alan Adamson	Affirmative	
10	Northeast Power Coordinating Council, Inc.	Guy V. Zito	Affirmative	
10	ReliabilityFirst Corporation	Jacquie Smith	Affirmative	
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Exhibit C

Standard Drafting Team Roster

Nuclear Plant Interface Coordination Standard Drafting Team Roster (Project 2009-08)

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