



June 8, 2011

**VIA OVERNIGHT MAIL**

Anne-Marie Erickson, Secretary of the Board  
National Energy Board  
444 Seventh Avenue SW  
Calgary, Alberta  
T2P 0X8

Re: *North American Electric Reliability Corporation*

Dear Ms. Erickson:

The North American Electric Reliability Corporation (“NERC”) hereby submits this petition seeking approval of interpretations to Requirements R1 and R3 of PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations, and interpretations to Requirements R1 and R2 of PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing, as set forth in **Exhibit B** to this petition. Upon approval, the Reliability Standards that include the interpretations will be referred to as PRC-004-1a and PRC-005-1a. For ease of reference, the interpretations will be referred to as PRC-004-1a and PRC-005-1a in this filing.

The interpretations to Requirements R1 and R3 of PRC-004-1 and Requirements R1 and R2 of PRC-005-1 were approved by the NERC Board of Trustees on February 17, 2011. NERC requests that PRC-004-1a — Analysis and Mitigation of Transmission and Generation Protection System Misoperations and PRC-005-1a — Transmission and

Generation Protection System Maintenance and Testing be made effective immediately upon approval.

NERC's petition consists of the following:

- This transmittal letter;
- A table of contents for the filing;
- Interpretations of Requirements R1 and R3 to PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations and Requirements R1 and R2 to PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing (**Exhibit A**);
- Reliability Standards PRC-004-1a and PRC-005-1a, which include the appended interpretations of Requirements R1 and R3 to PRC-004-1 and Requirements R1 and R2 to PRC-005-1, submitted for approval (**Exhibit B**);
- Stakeholder comments received and an explanation of how those comments were considered for the interpretations of Requirements R1 and R3 to PRC-004-1 and Requirements R1 and R2 to PRC-005-1 (**Exhibit C**);
- The complete development record of the interpretations of Requirements R1 and R3 to PRC-004-1 and Requirements R1 and R2 to PRC-005-1 (**Exhibit D**); and
- A roster of the interpretation drafting team for the interpretations of Requirements R1 and R3 to PRC-004-1 and Requirements R1 and R2 to PRC-005-1 (**Exhibit E**).

Please contact the undersigned if you have any questions.

Respectfully submitted,

/s/ Willie L. Phillips

Willie L. Phillips

*Attorney for North American Electric  
Reliability Corporation*



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**Exhibit A** — Interpretations of Requirements R1 and R3 of PRC-004-1 and Requirements R1 and R2 to PRC-005-1.

**Exhibit B** — Reliability Standards PRC-004-1a and PRC-005-1a, which include the appended interpretations of Requirements R1 and R3 to PRC-004-1 and Requirements R1 and R2 to PRC-005-1.

**Exhibit C** — Stakeholder comments received and an explanation of how those comments were considered for the interpretations of Requirements R1 and R3 to PRC-004-1 and Requirements R1 and R2 to PRC-005-1.

**Exhibit D** — Complete Record of Development of the Interpretations of Requirements R1 and R3 to PRC-004-1 and Requirements R1 and R2 to PRC-005-1.

**Exhibit E** — Roster of the Interpretation Drafting Team for the Interpretations of Requirements R1 and R3 to PRC-004-1 and Requirements R1 and R2 to PRC-005-1.

## **I. INTRODUCTION**

The North American Electric Reliability Corporation (“NERC”) hereby requests approval of interpretations to Requirements R1 and R3 of Reliability Standards PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations and interpretations to Requirements R1 and R2 to PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing. Upon approval, the Reliability Standards that include the interpretations will be referred to as PRC-004-1a and PRC-005-1a. For ease of reference, the interpretations will be referred to as PRC-004-1a and PRC-005-1a in this filing.

NERC’s interpretation process does not allow for modification to the language contained in a Reliability Standard or a requirement within a Reliability Standard through a request for an interpretation. A valid interpretation request is one that requests additional clarity about one or more requirements in a Reliability Standard and does not request approval as to how to comply with one or more requirements in a Reliability Standard. A valid interpretation in response to a request for interpretation provides additional clarity about one or more requirements within a Reliability Standard, but does not modify the Reliability Standard or any requirement within the Reliability Standard.

The NERC Board of Trustees approved the interpretations of Requirements R1 and R3 to PRC-004-1 and Requirements R1 and R2 to PRC-005-1 on February 17, 2011. NERC requests approval of Reliability Standards PRC-004-1a and PRC-005-1a, which include the appended interpretations for Requirements R1 and R3 to PRC-004-1 and Requirements R1 and R2 to PRC-005-1, with the revised PRC-004-1a and PRC-005-1a Reliability Standards to be made effective immediately upon approval. **Exhibit A** to this

filing sets forth the interpretations of Requirements R1 and R3 to PRC-004-1 and Requirements R1 and R2 to PRC-005-1. **Exhibit B** contains PRC-004-1a and PRC-005-1a, which include the appended interpretations of Requirements R1 and R3 to PRC-004-1 and Requirements R1 and R2 to PRC-005-1, submitted for approval. **Exhibit C** contains stakeholder comments received during balloting and an explanation of how those comments were considered. **Exhibit D** contains the complete development record of the proposed interpretations. **Exhibit E** contains a roster of the interpretation drafting team.

NERC filed these interpretations with the Federal Energy Regulatory Commission (“FERC”), and is also filing these interpretations with the other applicable governmental authorities in Canada.

## **II. NOTICES AND COMMUNICATIONS**

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

Gerald W. Cauley  
President and Chief Executive Officer  
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### **III. BACKGROUND**

#### **a. Basis for Approval of Proposed Reliability Standard**

While Reliability Standards PRC-004-1a and PRC-005-1a contain interpretations of requirements within existing Reliability Standards, they do not represent new or modified Reliability Standards. The proposed interpretations of the Reliability Standards provide additional clarity with regard to the intent of the Reliability Standards.

Accordingly, NERC requests approval of the interpretations of the Reliability Standards.

#### **b. Reliability Standards Development Procedure and Interpretation**

All persons who are directly or materially affected by the reliability of the North American bulk power system are permitted to request an interpretation of a Reliability Standard, as discussed in NERC's *Standard Processes Manual*, which is incorporated into the NERC Rules of Procedure as Appendix 3A.

Upon a valid request for an interpretation, NERC will assemble a team with the relevant expertise to address the interpretation request. The interpretation drafting team is then required to draft a response to the request for interpretation and then present the interpretation response for industry ballot within 45 days. If approved by the ballot pool and the NERC Board of Trustees, the interpretation is appended to the Reliability Standard and filed for approval by FERC and applicable governmental authorities in Canada to be made effective when approved. It is then expected that when the affected Reliability Standard is next substantively revised, the interpretation will then be incorporated into the Reliability Standard as appropriate.

The NERC Standards Committee appointed the interpretation drafting team to draft the response to the request for interpretations of Requirements R1 and R3 to PRC-

004-1 and Requirements R1 and R2 to PRC-005-1. The interpretations of the Reliability Standards drafted by the interpretation drafting team are included as **Exhibit A** to this petition. The interpretations included as Exhibit A to this petition were approved by industry stakeholders with an 82.41% weighted-sector vote on December 3, 2010, and subsequently unanimously approved by the NERC Board of Trustees on February 17, 2011.

**IV. INTERPRETATIONS OF RELIABILITY STANDARDS PRC-004-1 AND PRC-005-1**

In Section IV (a), below, NERC summarizes the interpretations of Requirements R1 and R3 to PRC-004-1 and Requirements R1 and R2 to PRC-005-1 and explains the development of the interpretations. Section IV (b), below, describes the stakeholder ballot results and provides an explanation of how stakeholder comments were considered and addressed by the interpretation drafting team.

The complete development record for the interpretations, set forth in **Exhibit D**, include the requests for the interpretations, the response to each request for the interpretation, the ballot pool and the final ballot results by registered ballot body members. **Exhibit E** contains a roster of the drafting team members who developed the proposed interpretations that includes individual biographies.

**a. Justification for Approval of Interpretations**

The Y-W Electric Association and Tri-State Generation and Transmission Association requested interpretations of Requirements R1 and R3 to PRC-004-1 and Requirements R1 and R2 to PRC-005-1 on March 25, 2009. Requirements R1 and R3 of PRC-004-1 state:



- R1. The Transmission Owner and any Distribution Provider that owns a transmission Protection System shall each analyze its transmission Protection System Misoperations and shall develop and implement a Corrective Action Plan to avoid future Misoperations of a similar nature according to the Regional Reliability Organization's procedures developed for Reliability Standard PRC-003 Requirement 1.
  
- R3. The Transmission Owner, any Distribution Provider that owns a transmission Protection System, and the Generator Owner shall each provide to its Regional Reliability Organization, documentation of its Misoperations analyses and Corrective Action Plans according to the Regional Reliability Organization's procedures developed for PRC-003 R1.

Requirements R1 and R2 of PRC-005-1 state:

- R1. Each Transmission Owner and any Distribution Provider that owns a transmission Protection System and each Generator Owner that owns a generation Protection System shall have a Protection System maintenance and testing program for Protection Systems that affect the reliability of the BES. The program shall include:
  - R1.1. Maintenance and testing intervals and their basis.
  - R1.2. Summary of maintenance and testing procedures.
  
- R2. Each Transmission Owner and any Distribution Provider that owns a transmission Protection System and each Generator Owner that owns a generation Protection System shall provide documentation of its Protection System maintenance and testing program and the implementation of that program to its Regional Reliability Organization on request (within 30 calendar days). The documentation of the program implementation shall include:
  - R2.1. Evidence Protection System devices were maintained and tested within the defined intervals.
  - R2.2. Date each Protection System device was last tested/maintained.

Y-W Electric Association and Tri-State Generation and Transmission Association requested clarity with respect to the term "transmission Protection System" regarding whether protection for a radially-connected transformer Protection System energized

from the Bulk Electric System is considered a transmission Protection System and, therefore, is subject to the PRC-004-1 and PRC-005-1 standards:

**Question:**

*Y-W Electric Association, Inc. (Y-WEA) and Tri-State Generation and Transmission Association, Inc. (Tri-State) respectfully request an interpretation of the term "transmission Protection System" and specifically whether protection for a radially-connected transformer protection system energized from the BES is considered a transmission Protection System and is subject to these standards.*

In response to the Y-W Electric Association and Tri-State Generation and Transmission Association request for interpretations of Requirements R1 and R3 to PRC-004-1 and Requirements R1 and R2 to PRC-005-1, the interpretation drafting team developed, and the industry stakeholders approved, the following interpretations:

**Response:**

The requests for interpretations of PRC-004-1 Requirements R1 and R3 and PRC-005-1 Requirements R1 and R2 focus on the applicability of the term “transmission Protection System.” The NERC *Glossary of Terms Used in Reliability Standards* contains a definition of “Protection System” but does not contain a definition of transmission Protection System. In these two standards, use of the phrase transmission Protection System indicates that the requirements using this phrase are applicable to any Protection System that is installed for the purpose of detecting faults on transmission elements (lines, buses, transformers, etc.) identified as being included in the Bulk Electric System (BES) and trips an interrupting device that interrupts current supplied directly from the BES.

A Protection System for a radially connected transformer energized from the BES would be considered a transmission Protection System and subject to these standards only if the protection trips an interrupting device that interrupts current supplied directly from the BES and the transformer is a BES element.

**b. Summary of the Reliability Standard Development Proceedings**

The interpretation drafting team originally developed three interpretations and posted them for ballot. The initial draft of the interpretations were posted for a 30-day

pre-ballot review beginning June 30, 2009, through July 31, 2009. The initial ballot began on July 31, 2009, through August 10, 2009, but failed to achieve the two thirds stakeholder approval needed to pass. The main concerns with the interpretations expressed during the initial ballot were within three areas:

- 1) The interpretations define a new term, “transmission Protection System,” which should not take place in an interpretation but rather as part of a standard revision. The drafting team agreed that defining a new term should only occur within the draft of a standard and not in an interpretation. However, the team explained that the request was for an interpretation of the specific phrase “transmission Protection System” and that the response developed was only intended to clarify the use of the term in the context of these standards and was not proposing to define a new term.
- 2) The applicability of the phrase “transmission Protection System”. The drafting team explained that the interpretations applied to all situations where the Protection System in question was designed to detect and initiate isolation of system faults on transmission elements identified as being included in the BES. To provide further clarity, the drafting team modified the interpretation.
- 3) The differences in the Regional Entity definitions of BES. The drafting team explained that under the present standards process, the definition of the BES is assigned to the Regional Entities, each of which has provided a

definition of BES to both the industry and NERC and that resolving these differences was beyond the scope of this project.<sup>1</sup>

The drafting team posted revised interpretations for a 30-day pre-ballot review from October 20, 2009, through November 19, 2009. The second ballot began on November 19, 2009, through December 7, 2009, but failed to achieve the two thirds stakeholder approval needed to pass. The primary concerns with the revised interpretations expressed during the second ballot were within three areas:

- 1) That low-voltage networks and small generators do not have a material impact on the reliability of the BES or that the discussion of low-voltage networks or “transmission system faults” was not clear. The drafting team removed the discussion regarding low-voltage networks and further modified the interpretations to provide clarity of the term “transmission Protection System”.
- 2) That the interpretations had created a defined term, “transmission Protection System”, and that definitions should be developed through the NERC standards development process. The drafting team modified the interpretations to clarify that the intent was to interpret the applicability of PRC-004-1 Requirements R1 and R3 and PRC-005-1 Requirements R1 and R2, and not to define a new term “transmission Protection System.”
- 3) That the interpretations were in conflict with regional definitions of the BES and that the discussion in the interpretations regarding regional differences in definitions of the BES amounted to a disclaimer and undermined the interpretations. The drafting team explained that they believed the

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<sup>1</sup> See Exhibit C.

interpretations, as modified, avoided potential conflicts with regional definitions and that references to the BES were valid for the existing definition of the BES and would also be applicable if a NERC-wide methodology for determining BES facilities was developed. The drafting team acknowledged the concern with the discussion regarding regional differences in definitions of the BES and removed the discussion from the interpretations, believing it was not needed to respond to the request for interpretation.<sup>2</sup>

The drafting team posted revised interpretations for a third pre-ballot review beginning on March 29, 2010, through April 28, 2010. NERC began the final ballot on April 28, 2010. The interpretations achieved an approval rating of 74.55%. Although the interpretations achieved the necessary two-thirds approval, the industry raised concerns in two areas:

- 1) Requesting further clarification of what could be construed as a BES element. The drafting team explained that providing a clarification or further defining a BES element was outside the scope of the interpretation.
- 2) That some Protection Systems were installed strictly for the purpose of protecting generators, substation transformers and Distribution Systems downstream and that, based on the interpretations, these elements would now be considered transmission Protection Systems. The drafting team explained that in order to be considered a “transmission Protection System” all three of the aspects of the interpretation must be met:

- (1) Installed for the purpose of detecting Faults on the transmission elements,

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<sup>2</sup> See Exhibit C.

- (2) The protected element identified is included in the BES, and
- (3) Trips an interrupting device that interrupts current supplied directly from the BES.<sup>3</sup>

Based on the comments received, the drafting team elected to make no further modifications to the interpretations. NERC began the re-circulation ballot on November 19, 2010. The re-circulation ballot achieved an approval rating of 82.41%. The NERC Board of Trustees approved the proposed interpretations on February 17, 2011.

## V. CONCLUSION

NERC respectfully requests approval of the re-designated Reliability Standards PRC-004-1a — Analysis and Mitigation of Transmission and Generation Protection System Misoperations, and PRC-005-1a — Transmission and Generation Protection System Maintenance and Testing, which include interpretations to Requirements R1 and R3 of Reliability Standard PRC-004-1 — Analysis and Mitigation of Transmission and Generation Protection System Misoperations and Requirements R1 and R2 of Reliability Standard PRC-005-1 — Transmission and Generation Protection System Maintenance and Testing, as set forth in **Exhibit B**. NERC requests that these interpretations be made effective immediately upon issuance of an order in this proceeding.

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<sup>3</sup>See Exhibit C.

Respectfully submitted,

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## **EXHIBITS A – E**

(Available on the NERC Website at  
[http://www.nerc.com/fileUploads/File/Filings/Attachments\\_PRC-004\\_PRC-005.pdf](http://www.nerc.com/fileUploads/File/Filings/Attachments_PRC-004_PRC-005.pdf))