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

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| Interpretation of Protection System Reliability Standard | ) ) | Docket No. RM10-5-000 |

# COMMENTS OF THE ISO/RTO COUNCIL

The ISO/RTO Council ("IRC")[1] submits the following comments in response to the Federal Energy Regulatory Commission's ("Commission") December 16, 2010 Notice of Proposed Rulemaking regarding the North American Electric Reliability Corporation's ("NERC") interpretation of Transmission and Generation Protection System Maintenance and Testing Reliability Standard PRC-005-1.[2] The Commission should accept NERC's proposed interpretation of Reliability Standard PRC-005-1, but should reconsider its proposal to direct NERC to modify the Reliability Standard to include devices and equipment that are not required to maintain Bulk Electric System

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1 The IRC is comprised of the Alberta Electric System Operator ("AESO"), the California Independent System Operator ("CAISO"), Electric Reliability Council of Texas ("ERCOT"), the Independent Electricity System Operator of Ontario, Inc., ("IESO"), ISO New England, Inc. ("ISONE"), Midwest Independent Transmission System Operator, Inc., ("Midwest ISO"), New Brunswick System Operator ("NBSO"), New York Independent System Operator, Inc. ("NYISO"), PJM Interconnection, L.L.C. ("PJM"), and Southwest Power Pool, Inc. ("SPP"). The AESO, IESO, and NBSO are not subject to the Commission's jurisdiction and these comments do not constitute agreement or acknowledgement that they can be subject to the Commission's jurisdiction. The IRC's mission is to work collaboratively to develop effective processes, tools, and standard methods for improving the competitive electricity markets across North America. In fulfilling this mission, it is the IRC's goal to provide a perspective that balances Reliability Standards with market practices so that each complements the other, thereby resulting in efficient, robust markets that provide competitive and reliable service to customers.

2 *Interpretation of Protection System Reliability Standard*, Notice of Proposed Rulemaking, IV FERC Stats. & Regs., Proposed Regs. ¶ 32,669 (2010) ("NOPR").

reliability. As the primary purpose of PRC-005-1 is to ensure adequate maintenance and testing of equipment necessary for the reliability of the Bulk Electric System, and PRC-005-1 as currently drafted achieves this objective, the Commission's proposal to expand the standard to address devices that are designed to protect equipment rather than to ensure the reliability of the Bulk Electric System exceeds the purpose of the standard and is unnecessary to fulfill NERC's obligation to maintain an adequate level of Bulk Electric System reliability.

## I. BACKGROUND & SUMMARY OF COMMENTS

On November 17, 2009, NERC submitted a petition requesting approval of its interpretation of Requirement R1 of Reliability Standard PRC-005-1 (Transmission and Generation Protection System Maintenance and Testing).[3] The purpose of PRC-005-1 is to "ensure all transmission and generation Protection Systems affecting the reliability of the Bulk Electric System (BES) are maintained and tested."[4] Requirement R1 directs each Transmission Owner, any Distribution Provider that owns a transmission Protection System, and each Generator Owner that owns a generation Protection System to adopt a maintenance and testing program for Protection Systems that affect the reliability of the Bulk Electric System.[5] NERC's proposed interpretation was submitted to the Commission in response to a request for interpretation submitted to NERC by the

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3 Petition of North American Electric Reliability Corp., Docket No. RM06-16-000 (Nov. 17, 2009) ("NERC Petition").

4 *Id.* at 5 (internal quotations omitted).

5 *Id*.

Regional Entities Compliance Monitoring Processes Working Group ("Working Group") on January 30, 2009.[6]

On December 16, 2010, the Commission issued the NOPR proposing to accept NERC's interpretation of Requirement R1 of PRC-005-1 and proposing to direct NERC to develop modifications to PRC-005-1 to address perceived "gaps" in the Protection System maintenance and testing standard identified by the Commission based on its review of NERC's proposed interpretation.

While not directly impacted by the proposed modifications to PRC-005-1, which imposes requirements on Transmission Owners and Distribution Providers and Generator Owners that own Protection Systems, the IRC members offer the following comments regarding the Commission's proposal to broaden the definition of "Protection System" to include additional devices and components:

- The NOPR proposes to include devices that are primarily designed to be business-based, not reliability-based, protective devices that are not deployed to protect against an N-1 contingency;

- The NOPR proposal exceeds both the stated purpose of Reliability Standard PRC-005-1 and the Commission's stated purpose in issuing the NOPR;

- The proposed expansion of PRC-005-1 imposes costs on entities without showing that such expansion is necessary to ensure an adequate level of reliability.

## II. COMMENTS

The IRC supports NERC's proposed interpretation of Requirement R1 of Reliability Standard PRC-005-1 and NERC's responses to the questions submitted by the

[6] *Id.*

Working Group.[7] Reliability Standard PRC-005-1 currently mandates that owners of Protection Systems necessary for Bulk Electric System reliability adopt maintenance and testing programs for such systems. However, the IRC disagrees with the Commission's proposal to require NERC to modify PRC-005-1 to address perceived "gaps" in the Reliability Standard, because the Commission's proposed changes: (1) are not necessary to protect the Bulk Electric System from an N-1 contingency; (2) exceed the stated purpose of PRC-005-1 and the NOPR; and (3) are not required to fulfill NERC's Federal Power Act section 215[8] obligations to maintain an adequate level of reliability. While the IRC believes that the proposed modification of PRC-005-1 is not necessary and is problematic for the reasons discussed below, should the Commission disagree, the IRC proposes, in the alternative, that the Commission direct NERC to review the current, unmodified Reliability Standard to determine if gaps do in fact exist, and, if gaps are identified, to propose Reliability Standard language specifically to address those identified gaps.

### A. The NOPR Proposal Includes Devices That Are Not Designed to Maintain N-1 State Operations

As the NERC Petition indicates, "[t]he stated purpose of PRC-005-1 is 'to ensure all transmission and generation Protection Systems ***affecting the reliability of the Bulk Electric System*** (BES) are maintained and tested.'"[9] Requirement R1 of PRC-005-1 requires that all Transmission Owners, as well as Distribution Providers and Generator

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7 *See* NOPR at P 7 (summarizing NERC's interpretation of PRC-005-1 and responses to questions submitted by the Working Group).

8 16 U.S.C. § 824o.

9 NERC Petition at 5 (emphasis added).

Owners that own Protection Systems, have a maintenance and testing program for all Protection Systems "that affect the reliability of the [Bulk Electric System]."[10] Reliability Standard PRC-005-1, as interpreted in the NERC petition, includes the devices and equipment that are specifically designed to ensure that the Bulk Electric System is protected from cascading outages as a result of the loss of any single element or facility. Such devices and equipment are properly characterized as "Protection Systems" and are included in the NERC definition because they are designed to ensure that the system continues to operate post contingency (i.e., in the N-1 state), consistent with Reliability Standard PRC-005-1.

Other devices that may be used to protect assets that are interconnected to the Bulk Electric System can be described as business-based protection systems and are not designed nor are they coordinated with N-1 state operations. These asset protection systems are installed at the discretion of the asset owner and are designed to protect the asset, not the system. In fact, these asset protection systems are not required to operate the system under N-1 conditions and indeed may operate independently of the Protection Systems deployed to maintain the reliability of the Bulk Electric System. Such devices are designed primarily to ensure personnel safety and protection of the asset.

Specifically, the Commission proposed to include in the standard "any component that detects any quantity needed to take an action, or that initiates any control action" affecting Bulk Electric System reliability.[11] There are numerous other relays associated with the interconnected Bulk Electric System that provide protection for assets and

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10 *Id.*

11 NOPR at P 11.

equipment, such as transformer sudden pressure relays, or that provide automated actions to sectionalize faulted portions of the Bulk Electric System or restore facilities that are tripped due to transient faults (i.e., reclosing relays), but are not required to isolate the faulted equipment to prevent cascading outages on the Bulk Electric System.

Because these systems are not built or coordinated with the reliability of the Bulk Electric System in mind, but instead are built and operated as a defense against damage to the asset as a result of either a system condition or mechanical failure, they do not support operation under an N-1 contingency and therefore are not required for Bulk Electric System reliability. While these relays are beneficial, they do not serve the purpose of protecting the integrated Bulk Electric System from failure. Business-based protection systems that are intended for asset protection whether or not there is a contingency inducing an N-1 state need not be included in the definition of Protection System for purposes of complying with Reliability Standard PRC-005-1.

### B. The Commission's Proposal Exceeds the Stated Purpose of Reliability Standard PRC-005-1 and the Stated Purpose of the NOPR

#### *1. The Commission's Proposal to Address "Gaps" In PRC-005-1 Expands the Scope of the Reliability Standard*

Because Reliability Standard PRC-005-1, as interpreted by NERC, currently includes the Protection Systems necessary to maintain Bulk Electric System reliability, the Commission's proposal to require NERC to develop modifications to address perceived gaps in this Reliability Standard and Requirement R1 would expand the scope of the Reliability Standard and therefore should be reconsidered. As discussed above,[12] the stated purpose of Reliability Standard PRC-005-1 is to ensure the proper testing and

[12] *See supra* note 9 and accompanying text.

maintenance of transmission and generation Protection Systems affecting the reliability of the Bulk Electric System. The IRC is concerned that the changes the Commission proposes seek to expand the Reliability Standard's applicability to relays and controls that are beyond the purpose of protecting the Bulk Electric System from cascading outage.

The Commission's proposed expansion of the NERC definition for "Protection System" would include devices whose primary purposes are not for mitigating first contingencies on the Bulk Electric System but to protect assets (i.e., business-based protection systems).[13] PRC-005-1 does not need to address potential second contingency conditions to satisfy the stated purpose of the Reliability Standard. The Commission's concern regarding gaps in system reliability extends to devices that are not primarily designed to address N-1 contingencies, and therefore goes beyond the purpose of NERC Reliability Standard PRC-005-1.

The intent of PRC-005-1 is to require entities to employ maintenance and testing programs for relays whose purpose is to protect the Bulk Electric System. As with all NERC Reliability Standards, the focus is to protect the Bulk Electric System from events that can adversely affect the reliability of the interconnected system. The relays that provide for such protection are those relays that are currently within the scope of PRC-005-1 – primarily, transmission line protection, station bus fault protection, DC control circuitry, protective relays, and communications systems to support the functionality of such relays. NERC's proposed interpretation of PRC-005-1 accurately defines the scope of such Protection Systems and need not be expanded to address other equipment that is

[13] *See supra* Section II.A.

not critical to maintaining reliability of the Bulk Electric System, such as auxiliary and backup protection devices,[14] reclosing relays,[15] and other devices that can better be characterized as business-based protection systems.

*2. The Proposed Expansion of PRC-005-1 Exceeds the Stated Purpose of the NOPR by Including Equipment Not Necessary for Maintaining Reliability of the Bulk Electric System*

As discussed above, the Commission proposes to require NERC to develop modifications to PRC-005-1 to include components and devices that are not necessary to ensure the reliability of the Bulk Electric System.[16] The Commission's stated purpose in issuing the NOPR is to direct NERC to modify PRC-005-1 "to include any component or device that is designed ***to detect defective lines or other apparatuses or other power system conditions*** of an abnormal or dangerous nature and to initiate appropriate control circuit actions."[17] The Commission's proposal to include business-based protective devices within the scope of "Protection Systems" and make them subject to PRC-005-1 exceeds not only the purpose of the standard as discussed above,[18] but also the stated purpose of the NOPR.

Broadening the Reliability Standard to include these devices is akin to expanding the scope of the NERC Reliability Standard to an operating practice or to address local issues other than Bulk Electric System reliability, as the devices in question are designed

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14 NOPR at P 14.

15 *Id.* at P 15.

16 *See supra* Section II.A.

17 NOPR at P 11 (emphasis added).

18 *See supra* section II.B.1.

to protect equipment, to ensure personal or community safety, or to establish a certain level of electric service quality. The Commission indicates that because such devices protect assets that may be critical to the reliability of the interconnected Bulk Electric System, they in turn must be critical to reliability, and that not including such devices within the scope of PRC-005-1 would result in a "gap" in reliability.[19] The IRC disagrees, given that the relays currently included under the scope of PRC-005-1 are, in fact, able to protect the Bulk Electric System from various types of initiating events.

For example, distance sensing relays not only protect transmission lines from phase to ground and phase to phase faults on conductors, but they are also set to "see" into the impedance of transmission substations to protect from faults on equipment within the bus. Requiring transformer sudden pressure relays to be included in PRC-005-1 is beyond the intent of PRC-005-1. Sudden pressure relays protect transformers from internal faults, and from a Bulk Electric System standpoint do not rise to the level of fault detection needed to prevent adverse impacts on the Bulk Electric System that may propagate through the interconnected system.

The same is true for reclosing relays. Planning and operating studies that are performed to assess Bulk Electric System reliability assume that automatic reclosing schemes are unsuccessful, hence failure of reclosing relays does not further jeopardize the reliability of the Bulk Electric System. The primary purpose of reclosing relays is to allow more expeditious restoration of lost components of the Bulk Electric System, not to maintain reliability of the Bulk Electric System in the first instance. Therefore, automatic reclosing relays should not be subject to the NERC Reliability Standard for relay

[19] *See* NOPR at P 11 (indicating that any device that serves "in some protective capacity" should be included in the definition of Protection System).

maintenance and testing because they are not required to support the reliable operation of the Bulk Electric System and as such do not warrant inclusion in the NERC definition for "Protection System."

*3. The Commission's Observation That Prior NERC Standards Included Such Equipment Is Misplaced*

The Commission referenced the voluntary NERC standards in effect prior to NERC's certification as the Electric Reliability Organization to support inclusion of additional relays and devices in the definition of Protection System for the purposes of PRC-005-1. Specifically, the Commission noted that:

> NERC's practice prior to mandatory and enforceable Reliability Standards, included such elements, and we believe that that understanding should be restored in either the definition or the Reliability Standard. In particular, prior to the Version 0 standards, NERC's Compliance Template for NERC Planning Standard III.A.M4 - System Protection and Control, Transmission Protection System, S4 (Protection system maintenance and testing programs shall be developed and implemented) stated that "[t]ransmission system protection identification [components] shall include, *but are not limited to*; relays, instrument transformers, communication systems where appropriate, and batteries" (emphasis added)." The "but are not limited to" language was not translated into the Version 0 Reliability Standards that were filed for Commission approval.[20]

However, the intent of the "but are not limited to" language should not be interpreted to and does not equate to including relays other than those that serve for "transmission system protection" to maintain interconnected system reliability. Instead, the purpose of the quoted language is to include within the scope of the standard those devices that are necessary for the "transmission system protection" device(s) to operate properly. The NERC Glossary's current definition of "Protection System" used for Version 0 PRC-005-1 properly does this by including "[p]rotective relays, associated

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[20] *Id.* (emphasis in original).

communication systems, voltage and current sensing devices, station batteries and DC control circuitry."[21] Therefore, the Commission's proposal to expand the scope of PRC-005-1 is not supported by NERC reliability practices, past or present.

### C. The Proposed Expansion of Reliability Standard PRC-005-1 Exceeds the FPA Requirement of Ensuring an Adequate Level of Reliability

Because NERC's current definition of Protection System includes devices necessary to protect the Bulk Electric System in the event of an N-1 contingency, the Commission's proposed expansion of the definition to include other systems and devices that primarily provide asset protection will impose additional burdens without contributing to NERC's mandate of ensuring an adequate level of reliability, and therefore should not be adopted.

In Section 215 of the Federal Power Act, Congress authorized the Commission to certify an Electric Reliability Organization ("ERO") that the Commission determines, among other things: "has the ability to develop and enforce . . . reliability standards that provide for an ***adequate level of reliability*** of the bulk-power system."[22] In its 2006 Order certifying NERC as the ERO, the Commission opined on the role of cost-benefit analysis in Reliability Standard setting, stating that:

> it is sufficient to understand that, while a Reliability Standard need not reflect the optimal method, or best practice, for achieving its reliability goal with regard to implementation cost, it should achieve its reliability goal ***effectively and efficiently***. Therefore, we direct NERC to consider and propose methods for ensuring that Reliability Standards provide for an adequate level of reliability and defining "an adequate level of reliability."[23]

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21 NERC Petition at 5 (quoting NERC's Glossary of Terms).

22 16 U.S.C. § 824o(c)(1).

23 *N. Am. Elec. Reliability Corp.*, 116 FERC ¶ 61,062, at P 240 (emphasis added), *order on reh'g and compliance*, 117 FERC ¶ 61,126 (2006), *order on compliance*, (Continued . . . )

In an order accepting a NERC compliance filing addressing its ERO responsibilities, the Commission acknowledged that "NERC maintains that determining 'adequate reliability' cannot be separated from the question of cost, as ultimately there are necessary tradeoffs between cost and reliability. Those tradeoffs must be evaluated in the best interests of electricity consumers, who wish to have both affordable and reliable electricity."[24] Additionally, in a subsequent informational filing to the Commission on the issue of defining an "adequate level of reliability," NERC indicated that "costs versus benefits, including societal benefits, can only be determined by the individual users, owners, and operators. They will have different perspectives on what is 'cost effective' for them, and they will exercise their judgments by participating in the standards drafting process, and ultimately, when they cast their ballots to approve or reject a standard."[25] NERC also indicated that "[u]ltimately, the ballot body, which decides on standards, decides on its cost effectiveness."[26]

Therefore, NERC's development of standards to maintain an adequate level of Bulk Electric System reliability inherently includes an assessment of the costs to be imposed upon entities that are required to comply with Reliability Standards. Requiring entities to adopt testing and maintenance programs for protective devices that are not

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( . . . continued)

118 FERC ¶ 61,030, *order on clarification and reh'g*, 119 FERC ¶ 61,046 (2007), *aff'd sub nom. Alcoa Inc. v. FERC*, 564 F.3d 1342 (D.C. Cir. 2009).

[24] *N. Am. Elec. Reliability Corp.*, 118 FERC ¶ 61,030, at P 11 (2007).

[25] North American Electric Reliability Corporation, Definition of "Adequate Level of Reliability," Informational Filing, Docket No. RR06-1-000, Attachment B at 6-7 (May 5, 2008) ("NERC Informational Filing").

[26] NERC Informational Filing, Attachment B at 7 n.8.

primarily related to ensuring the reliability of the Bulk Electric System will impose additional costs on entities without any showing that broadening Reliability Standard PRC-005-1 is necessary to ensure an adequate level of reliability. The Commission should consider the impact, including costs, of its proposal to broaden the scope of PRC-005-1 to include systems not primarily related to ensuring an adequate level of reliability.

### D. In the Alternative to Rejection of the Proposed Modification, the Commission Should Assign NERC And Its Stakeholders with the Task of Identifying Whether Gaps Exist, And, If So, Proposing Modified Language to Address Such Gaps

The IRC understands that the Commission may be looking for a "bright line" between business-based protective devices and Protection Systems affecting reliability. Simply sweeping all protection devices within the ambit of the Reliability Standard, including those systems that are designed to protect equipment rather than maintain Bulk Electric System reliability, is, in the IRC's view, an unnecessary expansion of the scope of the Reliability Standard that will only add confusion and blur the important focus needed by the industry and NERC on those Protection Systems that affect Bulk Electric System reliability. While the IRC believes that the modifications proposed in the NOPR should not be adopted for the reasons set forth above, the IRC requests that if FERC does not reject the proposed modification, then the Commission, in the alternative, direct NERC to address the issue by first reviewing the current, unmodified Reliability Standard to determine if gaps indeed exist, and, if gaps are found, to propose revisions to the Reliability Standard specifically to address the identified gaps.

## III. CONCLUSION

For the foregoing reasons, the IRC supports the Commission's approval of NERC's interpretation of Reliability Standard PRC-005-1, and respectfully requests that the Commission rescind its proposal to direct NERC to modify PRC-005-1 to address equipment not directly related to ensuring the reliability of the Bulk Electric System.

Respectfully submitted,


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