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

TRANSMISSION RELAY LOADABILITY) **Docket No. RM11-16-000**
RELIABILITY STANDARD)

**COMMENTS OF THE
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION
IN RESPONSE TO NOTICE OF PROPOSED RULEMAKING**

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TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	NOTICES AND COMMUNICATIONS	2
III.	DISCUSSION	2
IV.	CONCLUSION	6

I. INTRODUCTION

The North American Electric Reliability Corporation (“NERC”) hereby provides these comments in response to the Federal Energy Regulatory Commission’s (“FERC” or “Commission”) Notice of Proposed Rulemaking (“NOPR”)¹ regarding a proposed Reliability Standard PRC-023-2 — Transmission Relay Loadability.² In the NOPR, the Commission proposed to approve Reliability Standard PRC-023-2 and the NERC Rules of Procedure Section 1700 – Challenges to Determinations. The Commission sought comments from interested parties on the proposed standard.

The purpose of PRC-023-2 is to ensure that protective relay settings shall: not limit transmission loadability; not interfere with system operators’ ability to take remedial action to protect system reliability; and be set to reliably detect all fault conditions and protect the electrical network from these faults. The NERC Rules of Procedure Section 1700 – Challenges to Determinations was formed in response to the Commission directive to develop a mechanism for entities to challenge critical determinations and provides an appeals process for determinations made by Planning Coordinators under the PRC-023-2 Reliability Standard. The Commission proposes to approve both the PRC-023-2 Reliability Standard and NERC Rules of Procedure Section 1700. NERC supports the Commission’s proposals in the September 15, 2011 NOPR.

By this filing, NERC submits its response to the NOPR.

¹ *Transmission Relay Loadability Reliability Standard*, 136 FERC ¶ 61,187 (September 15, 2011) (“NOPR”).

² FERC certified NERC as the electric reliability organization (“ERO”) in its order issued on July 20, 2006 in Docket No. RR06-1-000. *North American Electric Reliability Corporation*, “Order Certifying North American Electric Reliability Corporation as the Electric Reliability Organization and Ordering Compliance Filing,” 116 FERC ¶ 61,062 (July 20, 2006).

II. NOTICES AND COMMUNICATIONS

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

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III. DISCUSSION

NERC has committed to applying the test set forth in Attachment B to PRC-023-2 to a representative sample of utilities from each of the three Interconnections and will file the results of these tests in a report on or before February, 2013 ("NERC Report").³ FERC seeks comments regarding three issues for the ERO to address in the NERC Report related to the test to determine critical sub-200 kV facilities in Attachment B to PRC-023-2.

Responses to Specific Matters Identified by the Commission

³ The Commission directed NERC:

to specify the test that planning coordinators must use to determine whether a sub-200kV facility is critical to the reliability of the Bulk-Power System [and to] file its test, and the results of applying the test to a representative sample of utilities from each of the three Interconnections for Commission approval. *Transmission Relay Loadability Reliability Standard*. 130 FERC ¶ 61,221, (2010) ("Order No. 733") at P 69. This directive was later modified in *Transmission Relay Loadability Standard*, 134 FERC ¶ 61,127, (2011) ("Order No.733-A") at P 78, which extended the deadline for filing the test and results to twenty-four months from the date of Order No. 733-A.

Issue 1

In the NOPR, the Commission identifies concern with “the rigor of the simulations” in criterion B4, noting that Planning Coordinators are required to apply their engineering judgment.⁴ Therefore, the Commission proposes that the NERC Report address:

whether the power system assessment proposed in criterion B4 includes the critical system conditions utilized under Reliability Standard TPL-003-0 Requirement R1.3.2 and whether applicable entities evaluate relay loadability under the B4 criterion consistent with Requirement R1 which requires, in part, that they ‘evaluate relay loadability at 0.85 per unit voltage and a power factor angle of 30 degrees’ in addition to applicable current criteria. If the evaluation uses other per unit voltage and power factor angle assumptions, [the Commission] propose[d] that the Report include a comparison of results obtained from those that would be achieved were the assumptions consistent with Requirement R1.⁵

NERC Response:

The intent of the power flow analysis, defined in Attachment B to PRC-023-2, is to have Planning Coordinators utilize the base cases that are used for demonstrating compliance with the TPL standards. NERC proposes to include in the NERC Report a summary of the base cases used in applying the criteria to a representative sample of utilities and an assessment of how the base cases used related to the TPL-003-0, Requirement R1.3.2.

While the measures in Criterion B4 of Attachment B do not explicitly reference voltage or power factor, the measures were derived from the conditions in PRC-023-2, Requirement R1 – specifically, 0.85 per unit voltage and 30 degree power factor angle. This allows the Planning Coordinators to make a comparison of the loading in the power flow simulation against a threshold based on the Facility Rating assigned for that circuit, without regard to the simulated voltage and power factor angle. This achieves two purposes: (i) it simplifies the test - because entities can efficiently perform the assessment using standard screening tools provided in the

⁴ NOPR at P 43.

⁵ *Id.*

power flow software, and (ii) it provides for a conservative test - because the measures are based on 0.85 per unit voltage and 30 degree power factor angle. A more detailed assessment that accounts for simulated voltage and power factor angle would demonstrate a greater margin against undesired tripping because the simulated apparent impedance will be a higher value when simulated voltage is greater than 0.85 per unit, and the trip threshold for a phase distance relay will be a lower value when power factor angle is less than 30 degrees. It is therefore unnecessary for NERC to include in the NERC Report a comparison of results obtained to those that would be achieved based on assumptions consistent with Requirement R1.

Issue 2

The NOPR proposes that the NERC Report should comment on what other types of technical studies or assessments the Planning Coordinators may use to identify critical facilities in Criterion B5. Specifically, the Commission states:

Criterion B5 of Attachment B requires compliance with the proposed Reliability Standard with respect to a “circuit ... selected by the Planning Coordinator based on technical studies or assessments, other than those specified in criteria B1 through B4, in consultation with the Facility owner.” The Commission proposes that the Report comment on what “technical studies or assessments” planning coordinators use to identify critical facilities.⁶

NERC Response:

NERC included Criterion B5 in Attachment B to address situations where Criteria B1 through B4 do not identify a circuit for compliance with PRC-023-2, but the Planning Coordinator can demonstrate, based on other technical studies or assessments, that PRC-023-2 should apply to the circuit. Attachment B does not specify a finite list to avoid unnecessarily limiting the technical studies or assessments the Planning Coordinators may use to identify

⁶ *Id.* at P 44.

circuits. However, NERC proposes to discuss in the NERC Report the types of studies that Planning Coordinators may use.

Issue 3

In the NOPR, the Commission proposes:

Notwithstanding the various phrases used to describe the reliability objective, the NERC Petition indicates that the test is intended to identify all circuits in a planning coordinator's area that could have an operational impact on the reliability of the bulk electric system. The Commission proposes that the Report assess whether Attachment B is sufficiently comprehensive to capture all such circuits.⁷

NERC Response:

NERC proposes to include in the NERC Report an assessment that demonstrates whether Attachment B is sufficiently comprehensive to capture all circuits in a Planning Coordinator's area that could have an operational impact on the reliability of the Bulk Electric System in the context of transmission relay loadability.

⁷ *Id.* at P 45.

IV. CONCLUSION

For the reasons stated above, NERC respectfully requests that the Commission take action consistent with these comments when it issues its Final Rule regarding the proposed Reliability Standard PRC-023-2.

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Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that I have served a copy of the foregoing document upon all parties listed on the official service list compiled by the Secretary in this proceeding.

Dated at Washington, D.C. this 21st day of November, 2011.

/s/ Andrew M. Dressel
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