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

**Generator Verification Reliability
Standards**

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Docket No. RM13-16-000

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

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November 25, 2013

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The North American Electric Reliability Corporation (“NERC”)¹ hereby provides these comments in response to the Federal Energy Regulatory Commission’s (“FERC” or the “Commission”) September 19, 2013, Notice of Proposed Rulemaking (“NOPR”)² proposing to approve the following Reliability Standards: MOD-025-2 (Verification and Data Reporting of Generator Real and Reactive Power Capability and Synchronous Condenser Reactive Power Capability), MOD-026-1 (Verification of Models and Data for Generator Excitation Control System or Plant Volt/Var Control Functions), MOD-027-1(Verification of Models and Data for Turbine/Governor and Load Control or Active Power/Frequency Control Functions), PRC-019-1 (Coordination of Generating Unit or Plant Capabilities, Voltage Regulating Controls, and Protection), and PRC-024-1 (Generator Frequency and Voltage Protective Relay Settings).

I. Executive Summary

NERC supports the Commission’s proposal to approve the proposed Reliability Standards. As the Commission notes, the proposed Reliability Standards help ensure that verified data is available for power system planning and operational studies by requiring the verification of generator equipment needed to support Bulk-Power System reliability and

¹ The Federal Energy Regulatory Commission 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*, 116 FERC ¶ 61,062 (2006).

² *Generator Verification Reliability Standards*, Notice of Proposed Rulemaking, 144 FERC ¶ 61,205 (2013).

enhance coordination of important protection system settings.³ In response to the NOPR, NERC provides comments on certain aspects of proposed Reliability Standards MOD-026-1 and MOD-027-1, including: (1) the applicability thresholds; and (2) the “technically justified” provision. In addition, NERC provides comments on the Violation Severity Level for proposed Reliability Standard PRC-024-1.

Proposed Reliability Standard MOD-026-1 is applicable to Generator Owners and Transmission Planners and the purpose of the standard is to ensure that detailed modeling of generator excitation systems, essential for valid simulations in power system stability studies, will be conducted and that those models accurately represent generator excitation control system or plant volt/var control function behavior for Bulk Electric System reliability assessments.

Proposed Reliability Standard MOD-027-1 is also applicable to Generator Owners and Transmission Planners and the purpose of the standard is to verify that the turbine/governor and load control or active power/frequency control model and the model parameters, used in dynamic simulations that assess Bulk Electric System reliability, accurately represent generator unit real power response to system frequency variations.

II. Notices and Communications

Notices and communications with respect to this filing may be addressed to the following:⁴

³ NOPR at P 25.

⁴ Persons to be included on the Commission’s service list are identified by an asterisk. NERC respectfully requests a waiver of Rule 203 of the Commission’s regulations, 18 C.F.R. § 385.203 (2013), to allow the inclusion of more than two persons on the service list in this proceeding.

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III. Background

On May 30, 2013, NERC submitted a petition for approval of proposed Reliability Standards MOD-025-2, MOD-026-1, MOD-027-1, PRC-019-1 and PRC-024-1. Four of the five Reliability Standards are new, while existing Reliability Standards MOD-024-1 and MOD-025-1 were merged into proposed Reliability Standard MOD-025-2.

On September 19, 2013, the Commission issued the NOPR proposing to approve proposed Reliability Standards MOD-025-2, MOD-026-1, MOD-027-1, PRC-019-1 and PRC-024-1, including the associated implementation plan and proposed violation risk factors and violations severity levels, as just, reasonable, not unduly discriminatory or preferential, and in the public interest. The NOPR seeks comment on the following issues:

- (1) the higher Megavolt Amperes (“MVA”) applicability threshold for proposed Reliability Standards MOD-026-1 and MOD-027-1;
- (2) the process for determining when it is “technically justified” for a transmission planner to require a generator owner to provide model reviews under MOD-026-1;
- (3) why the “technically justified” provision is not also included in MOD-027-1; and
- (4) assignment of violation of severity levels.⁵

⁵ NOPR at P 26.

IV. Comments

The following comments provide information regarding: (1) the applicability thresholds for proposed Reliability Standards MOD-026-1 and MOD-027-1; (2) the process for identifying “technically justified” generating units and applicability to MOD-027-1; and (3) the Violation Severity Level for proposed Reliability Standard PRC-024-1.

A. The Applicability Thresholds for Proposed Reliability Standards MOD-026-1 and MOD-027-1 are Appropriate

Proposed Reliability Standards MOD-026-1 and MOD-027-1 apply to units rated above 100 MVA (Eastern and Quebec Interconnections), 75 MVA (Western Interconnection) and 50 MVA (ERCOT Interconnection). The NOPR requests comments on whether the applicability thresholds for MOD-026-1 and MOD-027-1 could limit the overall effectiveness of the standards, particularly in areas with a high concentration of generators falling below the thresholds.⁶

The standard drafting team made a determination, based on their collective expertise, that there is little, if any, reliability benefit to requiring every single generator to comply with MOD-026-1 and MOD-027-1. Similarly, proposed Reliability Standards MOD-025-2, PRC-019-1 and PRC-024-1 do not apply to every single generator. The standard drafting team selected the MVA thresholds to correspond to 80% of the MVA for each Interconnection. The standard drafting team believes that these applicability thresholds will result in substantial accuracy improvements to the excitation models and associated reliability-based limits determined by

⁶ NOPR at PP 4, 28.

dynamic simulations, while balancing concerns regarding the resources it requires to implement verification efforts.⁷

Furthermore, Section 4.2.4 of proposed Reliability Standard MOD-026-1 extends the applicability of the Standard beyond the MVA thresholds included in Sections 4.2.1 through 4.2.3, to encompass all Interconnections. This provision allows a Transmission Planner to request information regarding units when “technically justified,” *i.e.*, where the simulated unit or plant response does not match the measured unit or plant response. Therefore, the applicability threshold of MOD-026-1 will not limit the effectiveness of the proposed Reliability Standard. For these reasons, the standard drafting team determined that the applicability thresholds for MOD-026-1 and MOD-027-1 are appropriate.

B. Process for Identifying “Technically Justified” Generating Units

Proposed Reliability Standard MOD-026-1 applies to generating units that are connected to the Bulk Electric System when “technically justified.” A Transmission Planner can compel a Generator Owner to provide model reviews and related information in accordance with Requirement R5 if the Transmission Planner’s unit simulations do not match the Generator Owner’s measured unit data. In the NOPR, the Commission seeks comment as to whether the means or process for Transmission Planners to determine whether a Generator Owner’s unit is “technically justified” is sufficiently clear and workable.⁸

As noted above, the “technically justified” provision in proposed Reliability Standard MOD-026-1 expands the applicability of the standard, when necessary, *i.e.*, where the simulated unit or plant response does not match the measured unit or plant response. The standard drafting

⁷ As noted in the field trial results, many entities will require the use of consultants to perform the needed tests and model validations due to the expertise required. For example, it was observed in the SERC field trial that using consultants for MOD-026-1 cost roughly \$20,000 to \$30,000 for one unit. *See* SERC Engineering Committee Generation Standards Field Test Report at 3 (June 15, 2007), included in Exhibit E to the NERC Petition.

⁸ NOPR at P 30.

team determined that it is readily apparent when measured data does not match simulations and that such situations will be sufficiently clear and workable.

C. Applicability of the “Technically Justified” Provision to MOD-027-1

The NOPR seeks comment as to whether the technical justification provision should also be included in proposed Reliability Standard MOD-027-1 to provide an opportunity for Transmission Planners to address discrepancies between unit simulations and Generator Owners’ measured unit data.⁹

This issue was considered and rejected by the standard drafting team. The standard drafting team determined that the data required by proposed Reliability Standard MOD-027-1 is more difficult to verify, whereas the data required by proposed Reliability Standard MOD-026-1 is objective. Proposed Reliability Standard MOD-027-1 addresses verification regarding models of governor response, which is not consistent from one event to another. Therefore, while there may be particular instances where the modeled response does not match the measured response, this does not demonstrate unambiguously that the model is incorrect.

Further, proposed Reliability Standard MOD-026-1 addresses the verification of excitation control system dynamic models – whose modeled behavior in the simulation of system events is a large factor in the determination of local stability limits. In contrast, proposed Reliability Standard MOD-027-1 addresses the verification of turbine/governor and load control models – and this equipment rarely, if ever, contributes to a local stability limit.¹⁰ For these reasons, the standard drafting team did not include the “technically justified” provision in proposed Reliability Standard MOD-027-1.

⁹ NOPR at P 31.

¹⁰ See Exhibit E to the NERC Petition, Consideration of Comments: Project 2007-09: MOD-026-1 (posting period from September 28, 2012 through October 31, 2012) at 77 (“It is extremely unlikely that the turbine/governor and load control or active power/frequency control system will contribute to a stability limit.”).

D. Violation Severity Level for PRC-024-1, Requirements R1 and R2

The NOPR states that the wording of the violation severity level for Requirements R1 and R2 of PRC-024-1 could be read to mean that a Generator Owner that set generator frequency or voltage protective relaying to trip within the “no-trip zone” based on either the first or second exception in Requirement R1 and either the first, second, or third exception in R2, violated that Requirement with a severe violation severity level. The NOPR states that “to avoid that interpretation, NERC should confirm in its comments that a [G]enerator [O]wner will not violate Requirement R1 or R2 if it sets generator frequency or voltage protective relaying to trip within the “no-trip zone” based upon the exceptions for Requirements R1 and R2.”¹¹ Consistent with the NOPR, NERC confirms this statement.

¹¹ NOPR at P 33.

V. **Conclusion**

For the reasons set forth above, NERC respectfully requests that the Commission issue an order consistent with the comments herein.

Respectfully submitted,

/s/ Stacey Tyrewala

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