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

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| **Reliability Standards to Address Inverter-Based Resources** | **)** **)** | **Docket No. RM22-12-000** |

# COMMENTS OF ISO NEW ENGLAND INC.

ISO New England Inc. ("ISO-NE") respectfully submits these comments in response to the Federal Energy Regulatory Commission's ("FERC" or "Commission") Notice of Proposed Rulemaking ("NOPR") issued in the above-referenced docket on November 17, 2022.[1]

In the NOPR, the Commission proposes to direct the North American Electric Reliability Corporation ("NERC") to develop new or modified Reliability Standards that address the following four reliability "gaps" related to inverter-based resources ("IBR"): (i) data sharing; (ii) model validation; (iii) planning and operational studies; and (iv) performance requirements.[2] The Commission also proposes to direct NERC to submit to the Commission a compliance filing within 90 days of the effective date of the final rule in this proceeding that includes a "detailed, comprehensive standards development and implementation plan explaining how NERC will prioritize the development and implementation of new or modified Reliability Standards."[3]

ISO-NE's comments relate to data sharing, model validation, and performance requirements. ISO-NE's comments also include additional considerations that apply to the new or modified Reliability Standards as a whole.

[1] *Reliability Standards to Address Inverter-Based Resources*, 181 FERC ¶ 61,125 (2022).

[2] NOPR at P 1

[3] *Id*. at P 7.

## I. IDENTIFICATION OF FILING PARTY

ISO-NE is the private, non-profit entity that serves as the regional transmission organization for the six New England states. Among other functions, ISO-NE is registered with NERC as a Reliability Coordinator, Planning Coordinator, Transmission Planner and Balancing Authority.

## II. COMMENTS

### A. Comments on Data Sharing

In the NOPR, the Commission recognizes that the new or modified Reliability Standards should ensure that NERC registered entities, such as planning coordinators and reliability coordinators, have the necessary data to predict the behavior of all IBRs, including unregistered IBRs and IBR-distributed energy resources ("DERs"), and their impact on the reliable operation of the bulk-power system. To achieve this, the Commission states that the new or modified Reliability Standards should ensure that generator owners, transmission owners, and distribution providers are required to share validated modeling, planning, operations, and disturbance monitoring data for IBRs with planning coordinators, transmission planners, reliability coordinators, transmission operators, and balancing authorities.[4]

ISO-NE agrees that including a requirement to provide aggregate IBR-DER data will be very useful. ISO-NE notes that, currently, in the absence of this aggregate data, ISO-NE uses assumptions based on industry documents and benchmarking to actual events, which may not always reflect the realities of IBRs.

In addition, ISO-NE respectfully requests that the final rule in this proceeding make clear that the new or modified Reliability Standards should specify that the data to be submitted by all

[4] NOPR at P 5.

types of IBRs (*i.e.*, registered IBRs, unregistered IBRs, and IBR-DERs) and transmission devices using similar technologies (such as HVDC and STATCOMs) should not be limited to typical data used by PSSE, but should also include modeling data for other analysis such as electromagnetic transient (EMT).

### B. Comments on Model Validation

The NOPR states that the new or modified Reliability Standards should ensure that IBR models are comprehensive, *validated*, and updated in a timely manner, so that they can adequately predict the behavior of all IBRs, including unregistered IBRs and IBR-DERs, and their impacts on the reliable operation of the Bulk-Power System.[5]

ISO-NE agrees that the new or modified Reliability Standards must require generator owners, transmission owners, and distribution providers to provide *validated* models to planning coordinators. Thus, the final rule should make clear that the entities that should validate the data are generator owners, transmission owners, and distribution providers (not transmission planners or transmission operators).

In addition, ISO-NE respectfully requests that the final rule state that the new or modified Reliability Standards should specifically require the model validation to include field tests of the equipment that show the models accurately represent the equipment, including control settings, installed in the field. Recent events, such as the Odessa disturbances in Texas have identified the need for such validation. In addition, the models should reflect potential trip settings that could result in loss of the IBR for loss of key facilities, such as auxiliary load, and for EMT (PSCAD) analysis, include software-accurate models.

[5] NOPR at P 5.

Moreover, ISO-NE respectfully requests that the final rule state that the new or modified Reliability Standards should require model validation in PSSE and PSCAD since the data used to populate both pieces of software are necessary to ensure that adequate study work can be done to ensure the continued reliability of the system. Only the planning and operating entities (transmission planners, planning coordinators, transmission operators and reliability coordinators) have a wide enough modeling scope to capture adverse control interactions which would be unseen by asset owner modeling efforts.

Finally, ISO-NE respectfully requests that, in the final rule, the Commission direct NERC to modify Reliability Standard MOD-032 by adding distribution providers as functional entities. This will allow planning coordinators and transmission planners to obtain DER information from the distribution providers.[6]

### C. Comments on Performance Standards

The NOPR states that the new or modified Reliability Standards should ensure that registered IBRs provide frequency and voltage support during frequency and voltage excursions in a manner necessary to contribute toward the overall system needs for essential reliability services. The Reliability Standards should establish clear and reliable technical limits and capabilities for registered IBRs to ensure that all registered IBRs are operated in a predictable and reliable manner during: (1) normal operations; and (2) contingency event conditions. The Reliability Standards should require that the engineering and operational aspects of registered

[6] The load serving entity has been deregistered, and NERC's System Planning Impacts from Distributed Energy Resources Working Group ("SPIDERWG") has determined that distribution providers are the best suited to provide DER information to transmission planners and planning coordinators for modeling purposes. *See Draft Reliability Guideline DER Data Collection and Model Verification of Aggregate DER,* December 2022, note 61, available at https://www.nerc.com/comm/RSTC_Reliability_Guidelines/Reliability_Guideline_DER_Data_Collection_for_Modeling_and_Model_Verification-Merged_clean.pdf

IBRs necessary to contribute toward the overall system needs for essential reliability services include registered IBR post-disturbance ramp rates and phase-locked loop synchronization.[7]

ISO-NE agrees that the new or modified Reliability Standards should require registered IBRs to provide frequency and voltage support. However, ISO-NE notes that placing these performance requirements only on registered IBRs means that, in New England, the requirements would not apply to the vast majority of IBR capacity. ISO-NE recognizes that the Commission has directed NERC to submit a work plan describing, in detail, how it plans to identify and register owners and operators of IBRs that are connected to the Bulk Power System, but are not currently required to register with NERC under the Bulk Electric System ("BES") definition.[8] Registering these IBRs should at least decrease the number of resources that would not be subject to the new or modified Reliability Standards' performance requirements.

### D. Additional Considerations

ISO-NE respectfully requests that the final rule in this proceeding make clear that transmission devices such as HVDC, STATCOMs, and SVCs will also be subject to the data sharing, model validation, planning and operational studies, and performance requirements of the new or modified Reliability Standards. These devices (*e.g.* HVDC, STATCOMs and SVCs) will now be added more often to either integrate or support the interconnection of new IBR, and the required level of modeling (and model validation) will exceed past needs due to the potential for control interaction between the IBR and these inverter-based transmission devices, with a higher potential for widespread impacts from unstudied control interaction. In addition, ISO New England respectfully requests that the final rule make clear that, once the new or modified

[7] NOPR at P 5.
[8] *Registration of Inverter-Based Resources*, 181 FERC ¶ 61,124 (2022).

Reliability Standards become effective, they will apply to both new and existing IBRs and similar transmission devices.

## III. CONCLUSION

ISO-NE requests that the Commission consider these comments on the NOPR and include the details described above in the final rule in this proceeding

Respectfully submitted,

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