

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

North American Electric Reliability Corporation)
)
)

Docket No. RD22-4-001

**NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION
INVERTER-BASED RESOURCES WORK PLAN PROGRESS UPDATE**

On May 18, 2023, the Federal Energy Regulatory Commission (“Commission”) issued an order (“Order”)¹ approving the North American Electric Reliability Corporation (“NERC”) Work Plan filed on February 15, 2023, as amended on March 13, 2023,² to address registration of Inverter-Based Resources (“IBRs”) that are connected to the Bulk-Power System (“BPS”) but not within NERC’s definition of the bulk electric system (“BES”) (referred to hereafter as “Category 2 GO/GOP”).³ As directed in the Order and prior IBR Order,⁴ NERC hereby submits its quarterly progress update on activities by the ERO Enterprise (NERC and the Regional Entities⁵) to execute the Work Plan.

¹ *Order Approving Registration Work Plan*, 183 FERC ¶ 61,116 (2023) [hereinafter *Order*]; and *Registration of Inverter-Based Resources*, 181 FERC ¶ 61,124 (2022) [hereinafter *IBR Order*] (directing the Work Plan).

² *N. Am. Elec. Reliability Corp.*, Docket No. RD22-4-001 (Feb. 15, 2023) [hereinafter *Work Plan Filing*].

³ As detailed below, the new category is included as a subset of the definitions for Generator Owner (“GO”) and Generator Operator (“GOP”). See NERC, Glossary of Terms Used in NERC Reliability Standards (Dec. 1, 2023), https://www.nerc.com/pa/Stand/Glossary%20of%20Terms/Glossary_of_Terms.pdf (NERC Glossary). The BES definition is a subset of the BPS. Reliability Standards support an adequate level of reliability of the BES. *Revisions to Elec. Reliability Org. Definition of Bulk Elec. Sys. & Rules of Proc.*, Order No. 773, 141 FERC ¶ 61,236 (2012), *order on reh’g*, Order No. 773-A, 143 FERC ¶ 61,053 (2013), *rev’d sub nom. People of the State of N.Y. v. FERC*, 783 F.3d 946 (2d Cir. 2015).

⁴ *Order* at PP 21 and 35; *IBR Order* at P 52 (directing NERC to provide Work Plan updates every 90 days detailing NERC’s progress toward identifying and registering owners and operators of unregistered IBRs).

⁵ The Regional Entities are (i) Midwest Reliability Organization (“MRO”); (ii) Northeast Power Coordinating Council, Inc. (“NPCC”); (iii) ReliabilityFirst Corporation (“ReliabilityFirst”); (iv) SERC Reliability Corporation (“SERC”); (v) Texas Reliability Entity, Inc. (“Texas RE”); and (vi) Western Electricity Coordinating Council (“WECC”).

As detailed below, proposed Registry Criteria⁶ revisions were presented to the NERC Board of Trustees (“NERC Board”) on February 15, 2024, and subsequently approved by the NERC Board on February 22, 2024. On March 19, 2024, NERC submitted the proposed Registry Criteria revisions to the Commission and requested a 30-day public comment period and an expedited Commission review period for 60 days thereafter.⁷ In the meantime, the ERO Enterprise is planning its efforts to identify candidates for registration under the proposed Registry Criteria revisions and continuing to communicate comprehensively with industry regarding the IBR Registration Initiative.

I. NERC SUBMITTAL OF REVISED REGISTRY CRITERIA TO THE COMMISSION

Since the last Work Plan update,⁸ NERC advanced the proposed revised Registry Criteria through its NERC Rules of Procedure (“ROP”) revisions process, culminating with the proposed criteria being filed with the Commission. As detailed in the previous Work Plan update, NERC engaged in extensive stakeholder outreach and posted proposed revisions to the NERC Registry Criteria that would address registration of Category 2 GO/GOP. On January 22, 2024, NERC made a final posting on the ROP page of NERC’s website.⁹ In the final posting, NERC proposed a new category of Generator Owners (“Category 2 GOs”) and Generator Operators (“Category 2 GOPs”) that own or operate IBRs that: (i) either have or contribute to an aggregate nameplate capacity of greater than or equal to 20 MVA, and (ii) are connected through a system designed primarily for

⁶ The Registry Criteria are within NERC’s Rules of Procedure (“ROP”). Per ROP Appendices 5A and 5B, owners, operators, or users of the BPS are candidates for Registration in the NERC Compliance Registry.

⁷ *N. Am. Elec. Reliability Corp.*, Docket No. RR24-2-000 (Mar. 19, 2024).

⁸ *N. Am. Elec. Reliability Corp.*, Docket No. RD22-4-001 (Feb. 12, 2024).

⁹ Available here: <https://www.nerc.com/AboutNERC/Pages/Rules-of-Procedure.aspx>. The posting included clean copies of proposed ROP Appendix 2, 5A, and 5B, as well as redlines to the currently approved versions and to the September posting version. The posting also included a document considering comments received by stakeholders from the September posting.

delivering such capacity to a common point of connection at a voltage greater than or equal to 60 kV.

On February 14 and 15, 2024, the NERC Board heard a discussion of NERC’s ROP proposal and stakeholder comments. The NERC Board deferred a vote on the proposal to provide additional opportunity for stakeholder feedback and allow time for the NERC Board to carefully consider the issues presented. On February 22, 2024, the NERC Board approved the proposed ROP revisions and authorized NERC to make appropriate filings with the Commission. On March 19, 2024, NERC submitted the proposed Registry Criteria revisions to the Commission for approval. NERC requested a 30-day public comment period and an expedited Commission review period for 60 days thereafter. The Commission set a comment deadline of April 18, 2024. Three commenters provided comments on NERC’s proposed revisions by the deadline, with one commenter supporting and two commenters protesting the proposed revisions.¹⁰ On April 30, 2024, NERC filed a motion for leave to answer and answer to the protest of two commenters and addressed why the alternatives offered by the commenters would be inappropriate methods to address the reliability needs of the BPS.¹¹

II. NEXT STEPS AND CONTINUED OUTREACH

The ERO Enterprise is comparing publicly accessible data from the Energy Information Administration (“EIA”) and other sources with the NERC Compliance Registry (“NCR”) to identify IBR facilities and associate their owners and operators with currently registered and unregistered entities that could be candidates for registration under the proposed Registry Criteria

¹⁰ For commenters protesting the proposed revisions, see *Motion to Intervene and Protest of Constellation Energy Generation, LLC*, Docket No. RR24-2-000 (Apr. 18, 2024); and *Comments of the Solar Energy Industries Assoc. and the American Clean Power Assoc.*, Docket No. RR24-2-000 (Apr. 18, 2024).

¹¹ *N. Am. Elec. Reliability Corp.*, Docket No. RR24-2-000 (Apr. 30, 2024).

revisions pending approval by the Commission (Work Plan Attachment 1 Updated). The ERO Enterprise is also drafting a request for information that will be sent out to relevant entities (starting with Balancing Authorities and Transmission Owners) once the Commission acts on the proposed Registry Criteria to assist in the identification of potential Category 2 GOs and GOPs. At the May 1, 2024, meeting of the Organization Registration and Certification Subcommittee of NERC's Compliance and Certification Committee, NERC staff asked for industry volunteers to provide input on the request for information.

NERC and the Regional Entities have developed a comprehensive communications plan to coordinate messaging to stakeholders regarding the Work Plan efforts, as well as Reliability Standards revisions related to IBRs.¹² To that end, NERC has posted a quick reference guide on the IBR Registration Initiative that includes quarterly updates on activities associated with the IBR Registration Initiative and provides links to various materials for candidates for registration, including the IBR webinar series and frequently asked questions, as well as the NERC Registration and NERC Standards pages.¹³ NERC anticipates that this communications plan will aid new entrants with integrating into ERO Enterprise activities under section 215 of the Federal Power Act¹⁴ and assist existing registered entities in understanding next steps.

¹² Order No. 901, Reliability Standards to Address Inverter-Based Resources, 185 FERC ¶ 61,042 (2023).

¹³ NERC, Quick Reference Guide: IBR Registration Initiative (May 2024), available at https://www.nerc.com/pa/Documents/IBR_Quick%20Reference%20Guide.pdf.

¹⁴ 16 U.S.C. 824o.

III. CONCLUSION

The ERO Enterprise looks forward to continuing to work with industry stakeholders and the Commission to: (i) implement Registry Criteria that address owners and operators of IBRs that are not currently required to register, and (ii) integrate new registrants subject to Commission approval of the ROP filing in this proceeding. For the reasons set forth above, NERC respectfully requests that the Commission accept this Work Plan update.

Respectfully submitted,

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Date: May 10, 2024

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 the above-referenced proceeding.

Dated at Washington, D.C. this 10th day of May 2024.

/s/ James McGrane

James McGrane
*Counsel for North American
Electric Reliability Corporation*

Registration of Inverter Based Resources – Docket No. RD22-4-000
NERC Work Plan Progress Update
May 10, 2024

On November 17, 2022, in order to respond to concerns regarding the reliability impacts from inverter-based resources (IBRs)¹ on the Bulk Power System² (BPS), the Federal Energy Regulatory Commission (FERC or Commission) directed the North American Electric Reliability Corporation (NERC) to submit a work plan to address registration of IBRs.³ Regulatory consideration differs based on whether the IBRs meet NERC’s Bulk Electric System (BES) definition and are registered with NERC for compliance purposes (registered IBRs), whether the IBRs are connected directly to the BPS but are not registered with NERC (unregistered IBRs), or whether the IBRs are distributed energy resources (i.e. connected to the distribution system) (IBR-DER). The Commission directed NERC to file a Work Plan within 90 days detailing how the ERO Enterprise plans to identify and register owners and operators of unregistered IBRs.

The Commission stated that the work plan should include the following:

- Explanation of how NERC will modify its processes to address unregistered IBRs (whether by working with stakeholders to change the BES definition, a change to its registration program, or some other solution) within 12 months of approval of the work plan, and
- Implementation milestones ensuring that owners and operators meeting the new registration criteria are identified within 24 months of the approval date of the work plan, and
- Implementation milestones ensuring that owners and operators meeting the new registration criteria are registered and thereby required to comply with applicable Reliability Standards within 36 months of the approval date of the work plan.

On May 18, 2023, the Commission accepted NERC’s Work Plan and directed NERC to provide updates every 90 days detailing progress to date. This document reflects the updated Work Plan. NERC anticipates further revisions to its August 2024 Work Plan update. This Work Plan update reflects the NERC Board of Trustees (“Board”) approval of the proposed ROP revisions in February 2024, NERC’s submission of the proposed ROP revisions to the Commission in March 2024, and NERC’s ongoing outreach to industry and work to identify potential new registrants based on the proposed Registry Criteria while awaiting Commission approval of the proposed ROP revisions.

Section I. Introduction

NERC recognizes that the landscape of the electric power system across North America is experiencing a substantial transformation. Conventional generation fueled in large part by coal, nuclear, and, in recent

¹ The Order states *“This order uses the term IBRs to include all generating facilities that connect to the electric power system using power electronic devices that change direct current (DC) power produced by a resource to alternating current (AC) power compatible with distribution and transmission systems. This order does not address IBRs connected to the distribution system.”*

² The Bulk Power System (BPS) is defined in the Glossary of Terms Used in NERC Reliability Standards as: (A) facilities and control systems necessary for operating an interconnected electric energy transmission network (or any portion thereof); and (B) electric energy from generation facilities needed to maintain transmission system reliability. The term does not include facilities used in the local distribution of electric energy. (Note that the terms “Bulk-Power System” or “Bulk Power System” shall have the same meaning.)

³ *Registration of Inverter-Based Resources*, 181 FERC ¶ 61,124 (2022) [hereinafter *IBR Order*].

years, natural gas turbines are being rapidly replaced by decentralized generation consisting of IBRs. These energy resources are primarily battery energy storage systems (BESS), solar photovoltaic (i.e., solar PV), and wind that are installed on the BPS and distribution systems. As stated in NERC’s recent document Inverter-Based Resource Strategy: Ensuring Reliability of the Bulk Power System with Increased Levels of BPS-Connected IBRs⁴ (IBR strategy), “[t]he rapid interconnection of bulk power system (BPS)-connected inverter-based resources (IBR) is the most significant driver of grid transformation and poses a high risk to BPS reliability.”

Evidence examined by NERC and the six Regional Entities (together the ERO Enterprise) over the 2017 – 2021 five-year timeframe reveals that the total capacity supplied by fossil-fired and nuclear resources on the BPS has decreased by 29 GW and the total generation supplied by IBRs has increased by 73 GW. IBRs accounted for over 15% of total resource capacity on the BPS in 2021 but only 84% of these IBRs are registered with NERC. Further, the large majority of the non-registered IBR capacity on the BPS is located at plants 20 MW and greater – approx. 24.3 GW (2021), and this total is expected to continue its rapid increase in the foreseeable future.⁵

As recognized by the IBR Order, this transformation has created a present and ongoing risk to the Reliable Operation of the BES. As a result, the ERO Enterprise plans to develop revisions to its Registration Criteria as reflected in Sections 500, Appendix 5A, and Appendix 5B of the NERC Rules of Procedure (ROP) under the milestones set forth below.

Section II. Proposed Registration Criteria Revisions for BPS Connected Generator Owners and Operators

NERC plans to modify its process to encompass presently unregistered IBRs through changes to its registration program. In particular, NERC proposes to revise its Registry Criteria under the ROP to address owners and operators of unregistered IBRs interconnected to the BPS as these resources and their owners/operators have a material aggregate impact on reliability of the BPS according to the thresholds reflected in the proposed Registry Criteria. The proposed revisions to the Registry Criteria were developed through the process applicable under the ROP, NERC Bylaws, and applicable Commission regulation.

The draft proposal included revisions to Appendices 2, 5A, and 5B of the ROP to address unregistered IBRs. The draft was posted on September 13, 2023 for 45 day public comment period on NERC’s ROP webpage.⁶ Supporting materials were also posted on the NERC Registration webpage.⁷ On January 22, 2024, NERC posted a final draft version of the ROP revisions on its website. The draft proposal includes clarifying revisions based on comments to the September posting, for example, renaming the new entrants Category 2 GOs and GOPs (rather than GO-IBRs and GOP-IBRs) and moving the detailed criteria on this type of GO/GOP more directly into the GO/GOP Registry Criteria definitions. NERC also presented the draft revisions to stakeholders in December and January. On February 14 and 15, 2024, the NERC Board heard a discussion of NERC’s ROP proposal and stakeholder comments. On February 22, 2024, the NERC Board approved the proposed ROP revisions and authorized NERC to make appropriate filings with

⁴ Available at: https://www.nerc.com/comm/Documents/NERC_IBR_Strategy.pdf

⁵ To help avoid potential confusion, NERC clarifies that in referring to IBRs, this Work Plan does not include distributed energy resources. Rather it only includes IBRs that are interconnected to the BPS. Nonetheless, NERC is reviewing potential impacts associated with DERs on the BPS.

⁶ Available at: <https://www.nerc.com/AboutNERC/Pages/Rules-of-Procedure.aspx>.

⁷ Available at: <https://www.nerc.com/pa/comp/Pages/Registration.aspx>.

the Commission. On March 19, 2024, NERC submitted the proposed Registry Criteria revisions to the Commission for approval.

Registering the entrants identified under NERC’s draft Category 2 GO/GOP criteria would lead to application of results-based Reliability Standards to address issues such as facility interconnection, data sharing, modeling, ride-through, and performance. As elaborated in the IBR Order, “Unregistered IBRs often have small individual generation capacities, are connected to the Bulk-Power System at less than 100 kV transmission or sub-transmission voltages, and do not meet one of the inclusions in the BES definition.”⁸ As the Commission concludes, “events and disturbances have shown that IBRs, regardless of size and transmission or sub-transmission voltage, have a material impact on Bulk-Power System reliability.... [U]ntil unregistered IBRs are registered, they will not be required to comply with the Reliability Standards.”⁹

Please see the accompanying transmittal, prior filings in this proceeding, and the materials posted on the Registration webpage for more details regarding the rationale underlying the present proposal.

Section III. Milestones to Implement Work Plan¹⁰

In addition to the milestones below, the ERO Enterprise will also continue to consider whether revisions to the BES Definition might also support continued reliability of the BPS as the grid transforms. NERC will update the milestones as appropriate in future update filings.

The Commission approved the work plan on May 18, 2023. Within 12 months of this date, NERC will do the following to revise its Registration Program:¹¹

TIMEFRAME	ACTIVITIES	STATUS
Month 1 (June 2023)	<ul style="list-style-type: none"> ERO Enterprise to complete review and draft proposed revisions of Section 500 and Appendices 5A and 5B of the ROP. 	<ul style="list-style-type: none"> ✓ Completed draft ROP revisions ✓ Stakeholder meeting with industry volunteers June 2, 2023.
Month 2 (July 2023)	<ul style="list-style-type: none"> ERO Enterprise to coordinate with the Organization Registration and Certification Subcommittee (ORCS) of the Compliance and Certification Committee (CCC) on proposed revisions.¹² ERO Enterprise to present proposed revisions to the CCC. 	<ul style="list-style-type: none"> ✓ Presented proposed revisions to CCC/ORCS July 19, 2023 ✓ Received comments from ORCS on proposed ROP revisions.

⁸ IBR Order, at P 23. See also, *id.*, at P 32-33.

⁹ IBR Order, at P 30.

¹⁰ Throughout this period and as directed in the IBR Order, NERC will continue submitting progress updates every 90 days thereafter. Please also refer to NERC’s filings in Docket No. RM22-12-000 for more information regarding matters pertaining to IBR-affiliated Reliability Standards.

¹¹ ✓ Indicates the activity status is complete.

¹² The CCC and ORCS work plans for 2023 contemplate providing comments on proposed revisions to the ROP related to IBRs and the Registration Program.

TIMEFRAME	ACTIVITIES	STATUS
Month 3 (August 2023)	<ul style="list-style-type: none"> • ERO Enterprise to present proposed revisions to other key stakeholder organizations in North America. • NERC to present proposed revisions to the MRC. • NERC to file work plan update with FERC. 	<ul style="list-style-type: none"> ✓ Presented proposed revisions to SEIA leadership on August 3, 2023. ✓ File Work Plan Update August 16, 2023. ✓ Present/Discuss ROP revisions at the Board meeting.
Month 4-5 (September – October 2023)	<ul style="list-style-type: none"> • ERO Enterprise to complete revisions to initial draft ROP proposal to address informal stakeholder feedback. • NERC to post ROP revisions for public comment period on NERC website for 45 days. 	<ul style="list-style-type: none"> ✓ NERC completed and posted the proposed ROP revisions for comment on September 13, 2023. ✓ NERC received comments on the posted ROP revisions from September 13 through October 30, 2023.
Month 6 (November 2023)	<ul style="list-style-type: none"> • NERC to file work plan update with FERC. 	<ul style="list-style-type: none"> ✓ Filed Work Plan Update November 14, 2023.
Month 7 (December 2023)	<ul style="list-style-type: none"> • ERO Enterprise to incorporate any further revisions to the ROP to the extent determined appropriate to address comments. • ERO Enterprise to prepare matrix summarizing proposal, comments, and responses thereto. • ERO Enterprise to present initial consideration of applicable Reliability Standards at the Reliability and Security Technical Committee December Meeting. 	<ul style="list-style-type: none"> ✓ Posted final draft January 22, 2024. ✓ Posted matrix summarizing proposal, comments, and responses thereto January 22, 2024. ✓ Presented December 7, 2023.
Month 8-10 (January – March 2024)	<ul style="list-style-type: none"> • ERO Enterprise to request NERC Board approval of the ROP revisions. • NERC to file the proposed ROP revisions with FERC, subject to Board approval, and <ul style="list-style-type: none"> ○ Request expedited notice, comment, and review over a 3-month period. 	<ul style="list-style-type: none"> ✓ Discussed at Board meeting February 15-16, 2024. ✓ NERC Board approved proposed ROP revisions February 22, 2024. NERC filed proposed Registry Criteria ROP revisions with FERC March 19, 2024.

TIMEFRAME	ACTIVITIES	STATUS
	<ul style="list-style-type: none"> • NERC to file work plan update with FERC. 	<ul style="list-style-type: none"> ✓ Filed Work Plan Update February 12, 2024.
Month 11-12 (April – May 2024)	<ul style="list-style-type: none"> • ERO Enterprise to continue considering applicable Reliability Standards including a possible subset list of Standards, as appropriate with stakeholder feedback.¹³ 	<ul style="list-style-type: none"> • In progress.

Within 24 months of Commission approval of the work plan NERC will do the following to identify candidates for registration that meet the updated Registry Criteria:

TIMEFRAME	ACTIVITIES	STATUS
Month 12-13 (May – June 2024)	<ul style="list-style-type: none"> • ERO Enterprise to cross reference Energy Information Administration (EIA) Form 860 Database with the NERC Compliance Registry (NCR) to identify unregistered owners of IBRs as potential candidates under revised Registry Criteria. • NERC to initiate information technology (IT) updates to extent necessary. • ERO Enterprise to issue requests for information to Balancing Authorities and Transmission Owners regarding potential Category 2 GOs/GOPs in their footprints. • ERO Enterprise to issue bulletins and other communication materials to support registration. • NERC to file work plan update with FERC. 	<ul style="list-style-type: none"> • In progress. • In progress. • ERO Enterprise developing request for information. • Posted a quick reference guide on the IBR Registration Initiative that includes quarterly updates on activities associated with the IBR Registration Initiative.
Month 13-14 (June – July 2024)	<ul style="list-style-type: none"> • ERO Enterprise to compare identified unregistered owners of IBRs to the revised Registry Criteria to identify candidates. • ERO Enterprise to develop approach for implementation of 	<ul style="list-style-type: none"> • No status update at this time.

¹³ This work will coordinate with broader Reliability Standards revisions.

TIMEFRAME	ACTIVITIES	STATUS
	revised Registry Criteria and applicable Reliability Standards, including a possible subset list of Standards, as appropriate. <ul style="list-style-type: none"> • ERO Enterprise to send communication to candidates for Registration. • ERO Enterprise to issue notice of webinar on Registration. 	
Month 14-20 (July 2024 – January 2025)	<ul style="list-style-type: none"> • ERO Enterprise to hold workshops across Regional Entities and at NERC regarding registration and implementation. • NERC to file work plan update(s) with FERC. 	<ul style="list-style-type: none"> • No status update at this time.
Month 20-22 (January – March 2025)	<ul style="list-style-type: none"> • ERO Enterprise to examine any updates to EIA Form 860 Database. • NERC to file work plan update with FERC. 	<ul style="list-style-type: none"> • No status update at this time.
Month 23-24 (April – May 2025)	<ul style="list-style-type: none"> • ERO Enterprise to send communication to any newly identified candidates for registration, as needed. • NERC to continue IT transitions as necessary. 	<ul style="list-style-type: none"> • No status update at this time.

Within 36 months of Commission approval of the work plan, NERC will do the following to register new candidates:

TIMEFRAME	ACTIVITIES
Month 25-26	<ul style="list-style-type: none"> • ERO Enterprise to hold training for newly registering entities on the Centralized Organization Registration ERO System (CORES).¹⁴ • ERO Enterprise to provide ERO Enterprise 101 Informational Package, ERO Enterprise Entity Onboarding Checklist, and guidance.¹⁵ • NERC to file work plan update with FERC.

¹⁴ The ERO Enterprise anticipates the need to update its IT, external facing communications, and systems to accommodate the registration of the new entities. This may impact the milestones reported on during 90-day progress reports.

¹⁵ The ERO Enterprise has already been providing such materials to stakeholder groups, and is examining further opportunities for dissemination and update to facilitate a smooth transition if Registry Criteria revisions are approved.

TIMEFRAME	ACTIVITIES
Month 26-27	<ul style="list-style-type: none"> • NERC to complete IT transition for expansion of registration for new entities.
Month 27-36	<ul style="list-style-type: none"> • NERC to file work plan update(s) with FERC. • ERO Enterprise to issue notification letters to newly registered entities that will provide notice of registration and responsibility for compliance with applicable NERC Reliability Standards.