

# ERO Enterprise Webinar

Inverter-Based Resource Registration Initiative

November 13, 2024

**RELIABILITY | RESILIENCE | SECURITY**



# NERC Antitrust Compliance Guidelines

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- Join at **slido.com** with the code **#2315011** and passcode **IBRreg** or **Scan the QR Code.**



# Welcome and Opening Remarks

Jim Stuart – Associate Director, Registration - NERC

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- IBR Initiative Milestones and Workplan Update
- NERC Standards Update
- Compliance Expectations
- Communication Resources
- E-ISAC Overview
- Regional Entity Registration Panel
- Upcoming GO Request for Information
- Practice Guide Preview
- Next Steps
- Q & A

# IBR Initiative Milestones/Workplan

Steven Masse – Principal Engineer, Registration - NERC

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- FERC Order on Registration of non-BES Inverter-Based Resources, Docket RD22-4-000 (Issued November 17, 2022)
  - Modify registration process within 12 months of Commission approval of the work plan (by May 2024)
  - Identify of owners and operators of IBRs that are connected to the Bulk Power System and that, in the aggregate, materially impact the reliable operation of the Bulk-Power System within 24 months of Commission approval of the work plan (by May 2025)
  - Complete registration of unregistered IBR owners and operators so they are required to comply with applicable Reliability Standards within 36 months of Commission approval of the work plan (by May 2026)
  - Submit Work Plan updates every 90 days

## Phase 1: May 2023–May 2024

- Complete Rules of Procedure revisions and approvals
- Commence Category 2 GO and GOP candidate outreach and education (e.g., through trade organizations)

## Phase 2: May 2024–May 2025

- Complete identification of Category 2 GO and GOP candidates
- Continue Category 2 GO and GOP candidate outreach and education (e.g., quarterly updates, webinars, workshops, etc.)

## Phase 3: May 2025–May 2026

- Complete registration of Category 2 GO and GOP candidates thereafter subject to applicable NERC Reliability Standards
- Conduct specific Category 2 GO and GOP outreach and education (e.g., quarterly updates, webinars, workshops, etc.)



- Revision to the NERC Registry Criteria for “Generator Owner” and “Generator Operator” to add a new category of owners and operators of unregistered Bulk-Power System connected, non-BES IBRs
  - Appendix 5B, Statement of Compliance Registry Criteria
  - Appendix 2, Definitions used in the Rules of Procedure
- FERC approved these revisions on June 27, 2024

## Generator Owner

The entity that:

- 1) owns and maintains generating Facility(ies) (Category 1 GO);or
- 2) owns and maintains non-BES inverter based generating resources that either have or contribute to an aggregate nameplate capacity of greater than or equal to 20 MVA, connected through a system designed primarily for delivering such capacity to a common point of connection at a voltage greater than or equal to 60 kV (Category 2 GO).

## Generator Operator

The entity that:

- 1) operates generating Facility(ies) and performs the functions of supplying energy and Interconnected Operations Services (Category 1 GOP); or
- 2) operates non-BES inverter based generating resources that either have or contribute to an aggregate nameplate capacity of greater than or equal to 20 MVA, connected through a system designed primarily for delivering such capacity to a common point of connection at a voltage greater than or equal to 60 kV (Category 2 GOP).

- ERO Request for Information to registered Balancing Authorities and Transmission Owners
  - Identification of Category 2 GOs and GOPs currently in-service or expected to be in-service by May 2026
  - Completed between July 8 – September 20, 2024
    - 95% Response Rate
    - Verification Ongoing
- Regional Request for Information to the identified Category 2 GO Candidates
  - Target: December 2024
- Development of educational tools and outreach activities
  - Communications Resources
  - CMEP Practice Guide for Cat2 GOs and GOPs
  - ERO Webinars and various Regional Outreach / Workshops



# Questions and Answers

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# GO/GOP Category 2

## Standards Update

Jessica Harris- Senior Standards Developer, Standards Development -  
NERC

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# **Project 2024-01**

## **Rules of Procedure Definitions Alignment (Generator Owner and Generator Operator)**

- Revise the **Generator Owner (GO)** and **Generator Operator (GOP)** definitions in the *NERC Glossary of Terms* to match the approved changes to the Rules of Procedure (ROP) definitions
- Changes approved June 2024 (Federal Energy Regulatory Commission (FERC) Docket No. RD22-4-000)

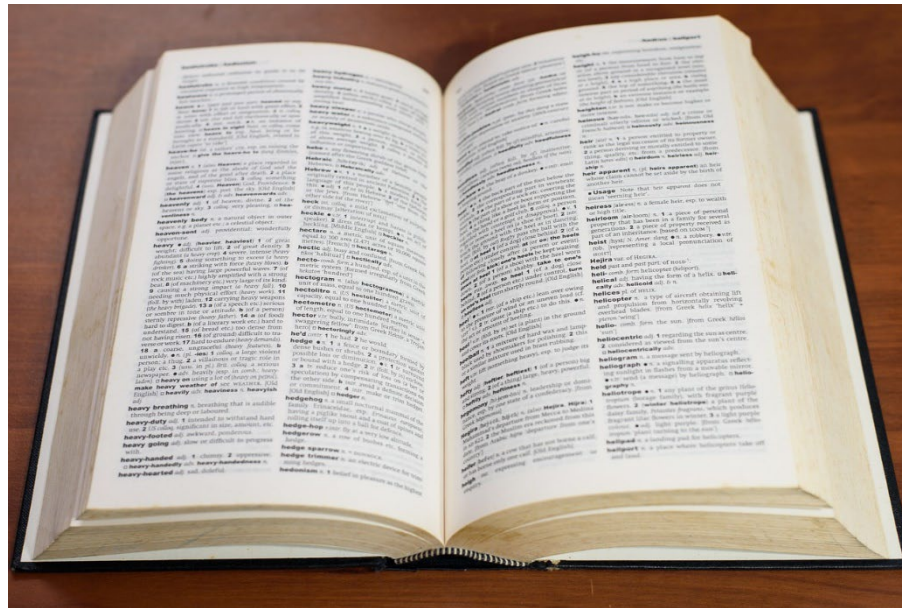




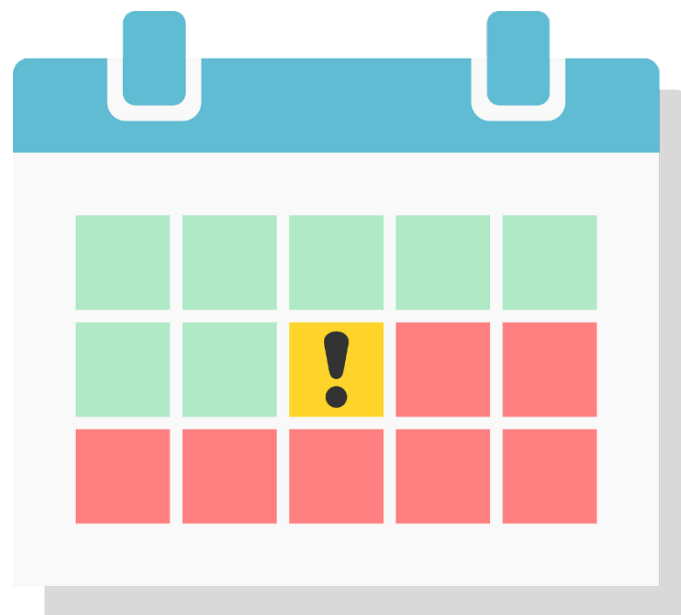


- Drafting Team meetings began September 2024
- Preparing responses to GO and GOP Definition Alignment Standard Authorization Request (SAR) comments

- Revising GO and GOP definitions
- Developing Implementation Plan for new definitions
- Proposing Initial Ballot of revised definitions Q1-2025



- Confirmed for Compliance
  - PRC-028-1
- Anticipated for Compliance\*
  - IRO-010-5
  - MOD-032-1
  - TOP-003-6.1
  - PRC-012-2
  - PRC-017-1
  - BAL-001-TRE-2
  - VAR-001-5
  - VAR-002-4.1



\*Pending completion of Project 2024-01

- Confirmed for Compliance

- PRC-029-1
- PRC-030-1

- Require modification for Compliance

- |           |           |           |
|-----------|-----------|-----------|
| ▪ MOD-025 | ▪ EOP-004 | ▪ PRC-005 |
| ▪ MOD-026 | ▪ EOP-012 | ▪ PRC-019 |
| ▪ MOD-027 | ▪ FAC-002 | ▪ PRC-025 |
| ▪ MOD-032 | ▪ FAC-008 | ▪ PRC-027 |
| ▪ MOD-033 | ▪ IRO-001 | ▪ TOP-001 |
| ▪ CIP-002 | ▪ IRO-010 | ▪ TOP-003 |
| ▪ CIP-003 | ▪ PER-005 | ▪ TPL-007 |
| ▪ CIP-012 | ▪ PER-006 | ▪ Any New |
| ▪ COM-001 | ▪ PRC-002 |           |
| ▪ COM-002 | ▪ PRC-004 |           |

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# Compliance Expectations

James McGrane – Senior Counsel - NERC

Kiel Lyons – Senior Manager, Compliance Assurance - NERC

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- ERO Enterprise uses a risk-based approach to Enforcement
  - Our work is governed by the [NERC Rules of Procedure](#)
    - Section 400
    - Appendix 4B (Sanction Guidelines)
    - Appendix 4C (Compliance Monitoring and Enforcement Program)
- Goal is to reduce risks to reliability and security of the grid
  - Mitigation of noncompliance is always required
  - Mitigation should include steps to prevent recurrence
- More information:
  - [Enforcement and Mitigation page](#)
  - [CMEP and Vegetation Reports](#)

- ERO Enterprise uses a risk-based approach to Monitoring
  - Our work is governed by the [NERC Rules of Procedure](#)
    - Section 400
    - Appendix 4C (Compliance Monitoring and Enforcement Program)
- Goal is to reduce risks to reliability and security of the grid
  - Annual [CMEP Implementation Plan](#)
  - Inherent Risk Assessment (IRA) and Compliance Oversight Plan (COP)
  - Use of various compliance monitoring tools
  - [Compliance Guidance](#)
    - Implementation Guidance
    - CMEP Practice Guides
- Initial compliance dates

# Questions and Answers

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# Communication Resources

Amy Klagholz – Director, External Communications- NERC

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**Strategic  
Communications Plan**



**Talking Points**



**ERO Communications Group  
Monthly Update**

## Currently Available

- Quarterly Updates: [Q1 2024](#), [Q2 2024](#), [Q3 2024](#)
- Resources:
  - [IBR Registration Initiative Quick Reference Guide](#)
  - [NERC, E-ISAC, and IBR Registration 101](#)
  - [Open Letter to New Registrants](#)
  - [Ensuring Grid Reliability—the Inverter-Based Resource Registration Initiative](#) (video)
  - [Candidate for Registration Quick Reference Guide](#)

**NERC**  
NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

**IBR**  
REGISTRATION  
INITIATIVE

**Quick Reference Guide: IBR Registration Initiative**  
November 2024

As part of its [Inverter-Based Resource Strategy](#), NERC is dedicated to identifying and addressing challenges associated with inverter-based resources (IBR) as the penetration of these resources continues to increase. ERO Enterprise assessments identified a reliability gap associated with the increasing integration of IBRs as part of the grid in which a significant level of bulk power system-connected IBR owners and operators are not yet required to register with NERC or adhere to its Reliability Standards.

In response, FERC issued an [order](#) in 2022 directing NERC to identify and register owners and operators of currently unregistered bulk power system-connected IBRs. Working closely with industry and stakeholders, NERC is executing a FERC-approved work plan to achieve the identification and registration directive by 2026. Resources are also posted on the [Registration page](#) of the NERC website.

**Key Activities**

- **November** On November 13, the ERO Enterprise will host an informational webinar on the IBR Registration Initiative. Register today!
- **November** NERC submitted its quarterly work plan update to FERC on November 7.
- **November** NERC released resources to provide support and education on IBRs: the IBR Registration Initiative and the ERO Enterprise model: NERC, E-ISAC, and IBR Registration 101 | [IBR Video](#) | [Open Letter to New Registrants](#) | [Full Announcement](#)

**Available Resources**

- [NERC Registration Page](#)
- [Standards Under Development Page | Milestone 3 Summary and Infographic](#)
- [Q1 2024 Update](#) | [Q2 2024 Update](#) | [Q3 2024 Update](#)
- [IBR Webinar Series and FAQs](#)
- [Quick Reference Guide: Candidate for Registration](#)
- [Learn about NERC and Join the E-ISAC](#)

**IBR Registration Milestones**

Phase 1: May 2023–May 2024	Phase 2: May 2024–May 2025	Phase 3: May 2025–May 2026
<ul style="list-style-type: none"> <li>• Complete Rules of Procedure revisions and approvals</li> <li>• Commence Category 2 GO and GOP candidate outreach and education (e.g., through trade organizations)</li> </ul>	<ul style="list-style-type: none"> <li>• Complete identification of Category 2 GO and GOP candidates</li> <li>• Continue Category 2 GO and GOP candidate outreach and education (e.g., quarterly updates, webinars, workshops, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Complete registration of Category 2 GO and GOP candidates thereafter subject to applicable NERC Reliability Standards</li> <li>• Conduct specific Category 2 GO and GOP outreach and education (e.g., quarterly updates, webinars, workshops, etc.)</li> </ul>

LEARN MORE ABOUT NERC AND THE E-ISAC [X](#) [in](#) [v](#)

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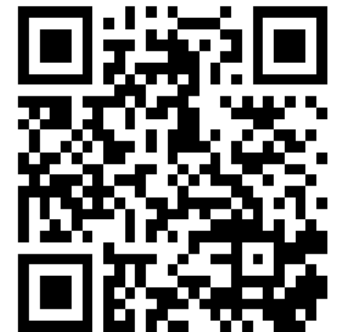
**E-ISAC**  
ELECTRIC INFRASTRUCTURE  
SECURITY AND CYBERSECURITY

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# E-ISAC

ELECTRICITY  
INFORMATION SHARING AND ANALYSIS CENTER

# The Electricity Information Sharing and Analysis Center (E-ISAC)

Carly Cipolla, Partnerships & Engagement Coordinator  
Andrea Baptiste, Manager, Stakeholder Relations

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- **Share and exchange** timely and actionable information
- **Analyze** security threats and mitigation strategies
- **Collaborate** with industry, U.S. and Canadian government partners, and other stakeholders
- **Facilitate** webinars, conferences, exercises, engagement programs

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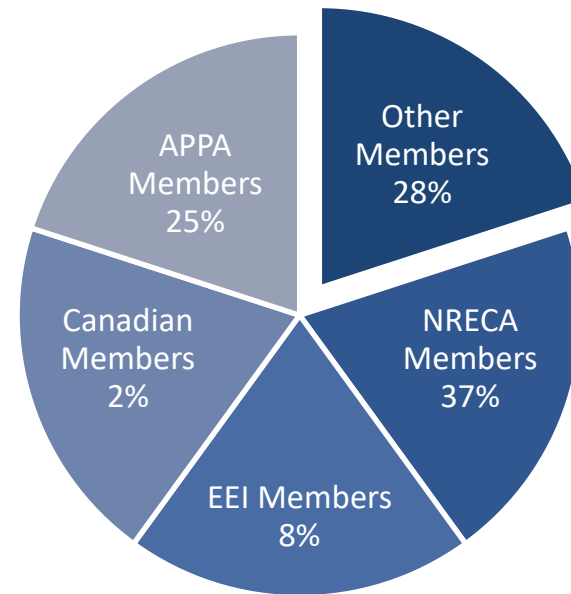
- While the E-ISAC is operated by NERC, the E-ISAC is organizationally isolated from NERC’s enforcement processes and each follow a strict [Code of Conduct](#)
- The E-ISAC is supporting NERC’s IBR Registration Initiative
  - Currently assisting in Phase 2 of the plan; identification, outreach, and education
- IBR GO/GOPs required to become NERC Registered Entities are highly encouraged to join the E-ISAC
  - E-ISAC membership is free and available to solar and renewable energy asset owners and operators



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- E-ISAC Community
  - 1,800 member and partner organizations
  - More than 7,000 individual Portal users
- Member Utilities Include
  - Public Power Utilities (APPA)
  - Canadian Utilities
  - Investor-Owned Utilities (EEI)
  - Rural Cooperatives (NRECA)
- IBR Membership
  - Free and available to IBR assets
  - SEIA and ACP members encouraged to join



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# E-ISAC

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## E-ISAC Partners



Electricity Canada / Électricité Canada



Public Safety Canada / Sécurité publique Canada



Electricity Subsector Coordinating Council



Japan Electricity Information Sharing and Analysis Center



Natural Resources Canada / Ressources naturelles Canada



Information sharing in network of trust



MS-ISAC Multi-State Information Sharing & Analysis Center



Information Sharing & Analysis Center  
Fueling the Exchange of Cyber Intelligence



Homeland Security



NARUC National Association of Regulatory Utility Commissioners



U.S. DEPARTMENT OF ENERGY



NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION



Pacific Northwest NATIONAL LABORATORY

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- 24/7 Watch Operations
- Secure Portal Access and Automated Feeds
- Customized situational awareness on:
  - Security Threats and Vulnerabilities
  - Cyber and Physical Incident Alerts
- Security Briefings
  - Monthly Threat Briefings
  - Special Topic Webinars
- Programs and Events
  - GridSecCon and GridEx
  - Industry Engagement Program
  - Vendor Affiliate Program
  - Security Workshops



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### Cyber Threat Landscape

- Geopolitical threats
- Exploiting vulnerabilities and fileless malware techniques (i.e. VOLT TYPHOON)
- Scanning and reconnaissance
- Ransomware
- Threat Hunting
- Out of date software and poor authentication practices

### Physical Threat Landscape

- Ballistic damage, theft, intrusion, vandalism
- Event monitoring for unusual activity (i.e. upcoming elections, geopolitical environment; anniversaries of physical attacks; etc.)
- Unmanned aerial systems and domestic violent extremists (DVEs)

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- Brings together vendors and member utilities to collaborate upon vulnerabilities, risks, and mitigation best practices
- Modeled after similar programs across ISACs
- Facilitate thought leadership and timely information sharing
- Fee-for-service; No direct business development or sales



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# E-ISAC

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INFORMATION SHARING AND ANALYSIS CENTER

A map of North America with the United States highlighted in dark blue and Canada in light blue. A semi-transparent dark blue box is overlaid on the map.

**Thank You**

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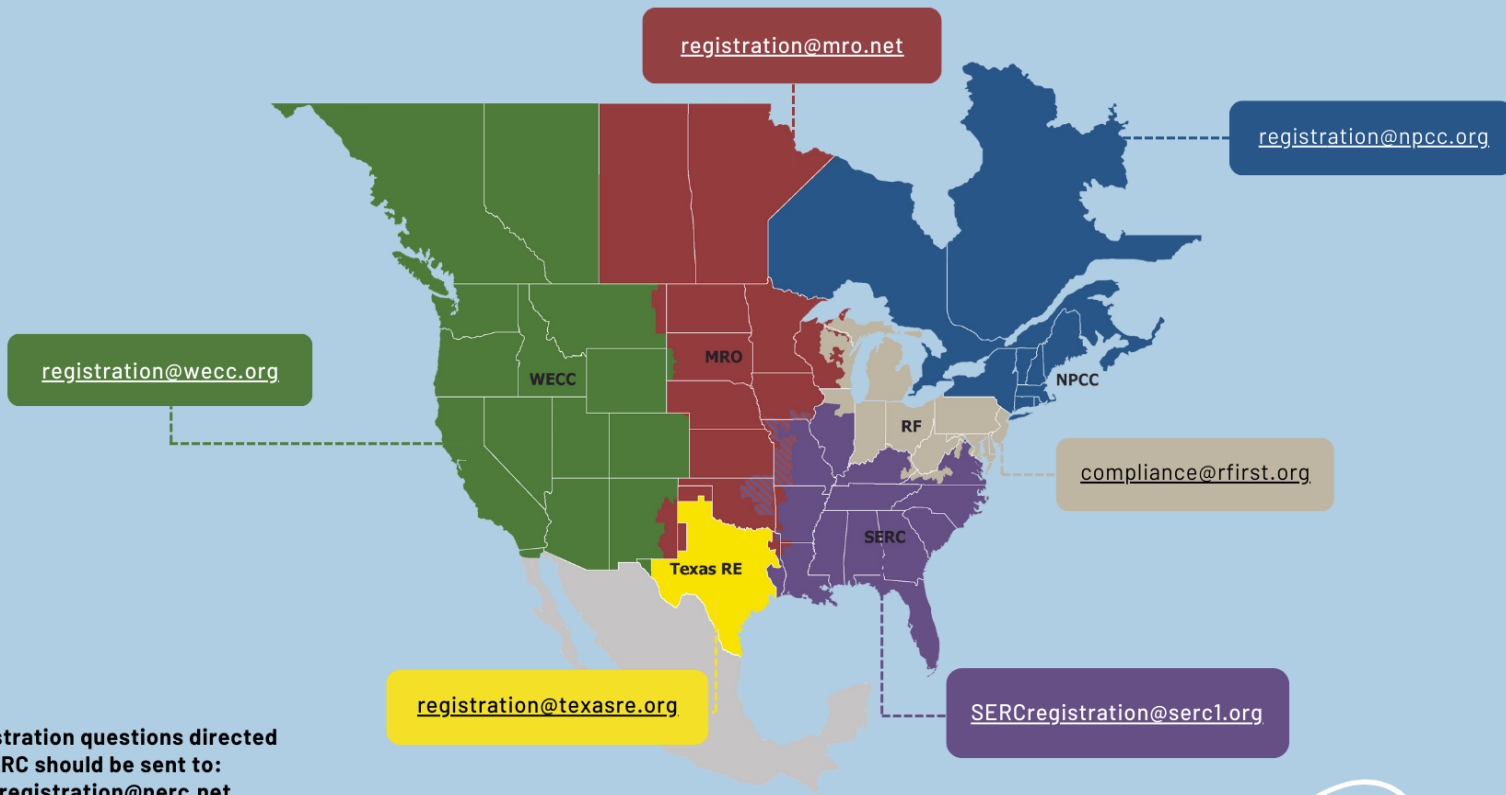
# Regional Entity Registration Panel

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## REGIONAL ENTITY REGISTRATION CONTACTS



Registration questions directed to NERC should be sent to:  
[nerc.registration@nerc.net](mailto:nerc.registration@nerc.net)



- Bryan L. Clark, P.E. Director, Reliability Analysis
  - Summer Stephens, Senior Reliability Specialist, Organization Registration and Certification Program Lead
  - Pete Pelowski, Senior Reliability Specialist
- MRO Registration Contact Email: [registration@mro.net](mailto:registration@mro.net)

- Brian Robinson, Manager Entity Risk Assessment
  - 2 Senior Entity Risk Assessment Analysts
  - 2 Senior Entity Risk Assessment Engineers
  - Entity Risk Assessment Analyst
- NPCC Registration Contact Email:
  - [Contact Us | NPCC](#)

- Anthony Jablonski – Senior Manager Risk Analysis and Mitigation
  - Bob Folt - Principal Analyst, Risk Analysis, Mitigation, and Registration
- RF Registration Contact Email:
  - [compliance@rfirst.org](mailto:compliance@rfirst.org)
- [Inverter-Based Resource \(IBR\) Registration Initiative](#)

- Peter Heidrich – Principal Advisor Registration & Certification
  - Marie Kozub – Senior Advisor Registration & Certification
  - Heath Martin – Advisor Registration & Certification
  - Ryan Stewart – Senior Advisor Registration & Certification
- SERC Registration Contact Email:
  - [SERCregistration@serc1.org](mailto:SERCregistration@serc1.org)
- SERC Registration Webpage:
  - <https://www.serc1.org/program-areas/compliance-registration/registration/registration>

- Erin Quigley – Manager, Registration & Certification Program
  - Kaitlin Van Zee – Director, Enforcement & Registration
  - Brook Rodaway – Registration Program Coordinator
- Texas RE Registration Contact Email:
  - [registration@texasre.org](mailto:registration@texasre.org)

- Kim Israelsson – Manager, Program Analysis & Administration
  - Mark Rogers - Sr. Technical Advisor Registration & Certification
  - Abby Fellingner - Sr. Registration & Certification Engineer
  - Sarah Mitchell - Staff Risk Assessment Engineer- Registration & Certification (PT)
  - WECC Registration Contact Email:
    - [registration@wecc.org](mailto:registration@wecc.org)



- Jim Stuart – Associate Director Registration
  - Steve Masse- Principal Engineer, Registration
  - Kevin Koloini – Senior Engineer & Project Manager, Registration
  - Chris Scheetz – Senior Technical Analyst - Registration
  - Brandy Dreves – Registration Engineer, Registration
  - Tiffany Washington – Program Administrator, Registration and Governance
- NERC Registration Contact Email:
  - [nerc.registration@nerc.net](mailto:nerc.registration@nerc.net)

# Questions and Answers

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# Request For Information

Category 2 Asset(s)

Mark Rogers, Sr Technical Advisor - Registration & Certification, WECC

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- Discussion Topics
  - Next Phase
  - Request For Information
  - Asset Verification Form

- All Regions are validating BA/TO data with EIA data
  - Remove duplicates
  - Provide total numbers to NERC, Regional Senior Management, and Boards



## Request For Information

## Regions Work Process

**Choose an item. Request for Information**  
Entities with Category 2 Inverter-Based Resources connected to the Bulk Power System  
December 2, 2024

**To: Primary Compliance Contact**  
Organization Registration identifies and registers bulk power system (BPS) owners, operators and users who are responsible for performing specified reliability functions to which requirements of mandatory NERC Reliability Standards are applicable. Requirements and activities for the Organization Registration Program are embodied in Section 500 (Organization Registration and Certification) and Appendices SA and SB of the FERC-approved NERC Rules of Procedure (ROP).

**Background**  
On November 17, 2022, the Federal Energy Regulatory Commission (FERC) directed NERC to submit a work plan describing how it plans to identify and register owners and operators of inverter-based resources (IBR) that are connected to and have a material impact in the aggregate on the Bulk Power System (BPS), but are not currently required to register with NERC under the bulk electric system (BES) definition. On February 15, 2023, as amended in March 2023, NERC filed a Work Plan outlining concepts and milestones to achieve that directive, including issuing a Request for Information (RFI) to functional entities with unregistered IBR in their footprints. On May 18, 2023, FERC accepted the Work Plan.

On March 19, 2024, NERC filed with FERC a proposed revision to its Registry Criteria to include owners and operators of non-BES IBRs interconnected to the BPS and have a material aggregate impact on BES reliability. To address the impact on reliability, the revised Generator Owner (GO) and Generator Operator (GOP) Registry Criteria would include owners and operators of non-BES IBRs that either have or contribute to an aggregate nameplate capacity of greater than or equal to 20 MVA, connected through a system designed primarily for delivering such capacity to a common point of connection at a voltage greater than or equal to 60 kV (i.e., Category 2 GO and Category 2 GOP). On June 27, 2024, FERC issued an order approving the Rules of Procedure revisions<sup>1</sup>.

**Request for Information – Material Information of Category 2 Assets**  
As part of an expedite effort to determine assets<sup>2</sup> under the new Category 2 criteria, your respective regional entity needs to assess the information identified by the Transmission Owner (TO), Balancing Authority, or the Energy Information Administration (EIA)<sup>3</sup> Data to prepare for registration. Please complete the outlined steps below. Step (1) complete the tab labeled **Case\_GO GOP Assets** within the Asset Verification Form (AVF) in the email. Add any information relevant to the asset(s) to your company in the notes section of the AVF. Step (2) provide your regional entity with the additional information requested. Step (3) follow any special instructions from the regional entity to return all information.

**Please do not return this information to NERC**

<sup>1</sup> NERC Rules of Procedure Appendix 2  
<sup>2</sup> Energy Information Administration (EIA)

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Limited Disclosure

- Consistent process of collecting data
  - One line diagram(s)
  - Generator Operating Agreements or Third-Party Agreements
  - Generator Interconnection Agreements
- RFI will go out from each region on December 2, 2024
- Requested information must be returned to the sending region within 45 days.

**Do Not Return  
Information to NERC**





# Questions and Answers

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# Questions and Answers Session

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# Closing Remarks

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