

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION



TEXAS RE

IBR Registration

Howard Gugel
Vice President, Regulatory Oversight
NERC

Erin Quigley
Registration & Certification
Program Manager
Texas RE

May 22, 2024

Antitrust Admonition

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Notice of this meeting was posted on the Texas RE website and this meeting is being held in public. Participants should keep in mind that the listening audience may include members of the press, representatives from various governmental authorities, and industry stakeholders.



Upcoming Texas RE Events



May 30, 2024

2023 Assessment of
Reliability Performance



June 3-25, 2024

Reliability 101 & 201 Webinar
Series



August 28, 2024

Cyber and Physical Security
Workshop



Upcoming ERO Enterprise Events



May 29 - 30, 2024

FERC Order 896 Workshop



May - July, 2024

GADS Wind & Solar
Template and Application
Training



June 10, 2024

Technical Talk with RF



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IBR Registration Initiative: State & Provincial Integration of Reliable Renewable Energy

Howard Gugel, Vice President, Regulatory Oversight
May 22, 2024

RELIABILITY | RESILIENCE | SECURITY



- Background on NERC's IBR Strategy
- Key Reliability Trends Related to Inverter-Based Resources (IBRs)
- Work Plan to Address FERC Order
- Anticipated Timeline for Completion

- Numerous ERO Enterprise reports determine that operational characteristics of IBRs may cause reduced power output
- Potential for IBRs to have a material impact on bulk power system which is not limited to larger IBRs that typically register with NERC

<https://www.nerc.com/pa/rrm/ea/Pages/Major-Event-Reports.aspx>





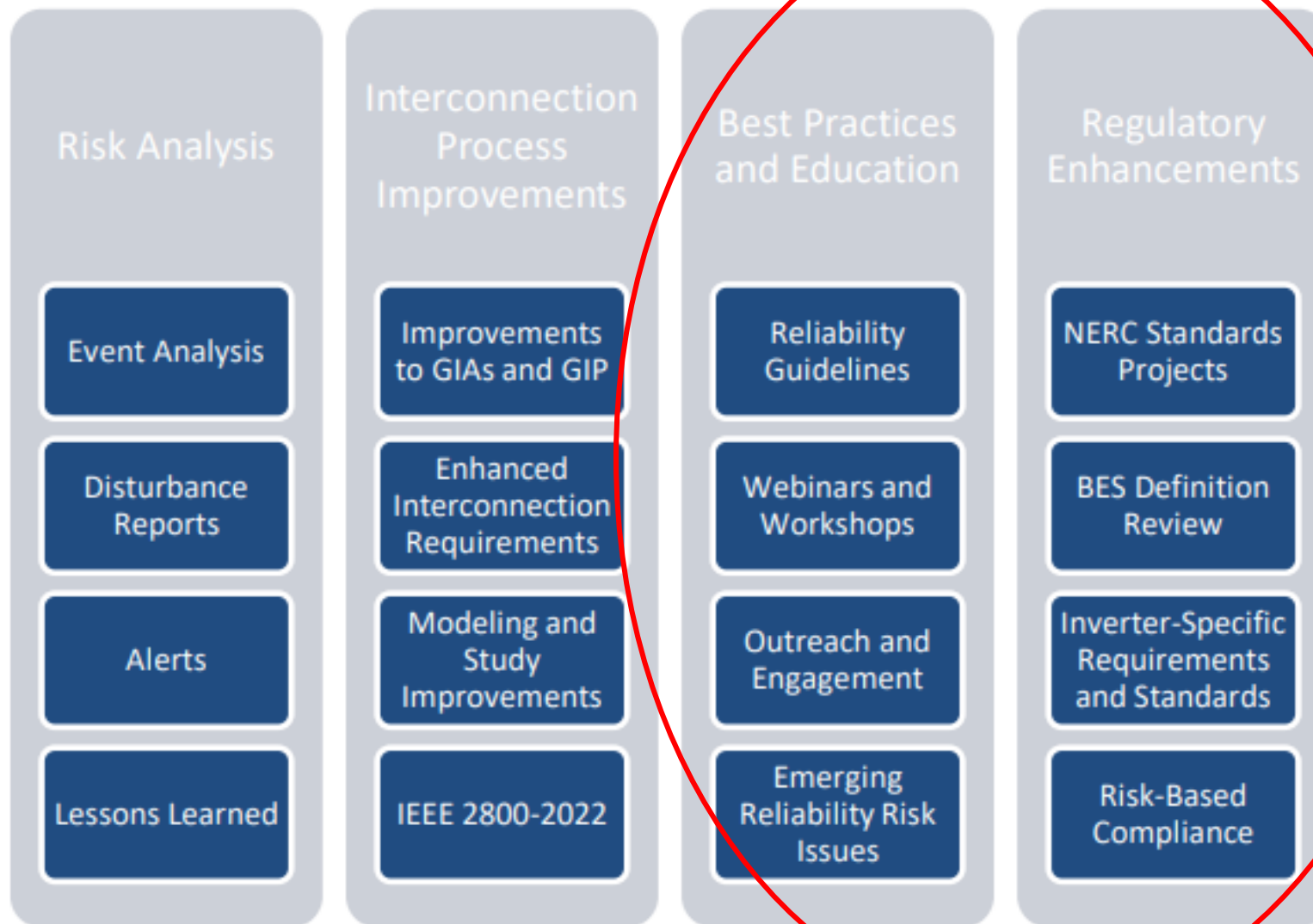
Problem Statement: *Analysis by NERC and the Regional Entities find that integration of inverter-based resources (IBRs) onto the bulk power system have material impacts on reliability that must be mitigated.*



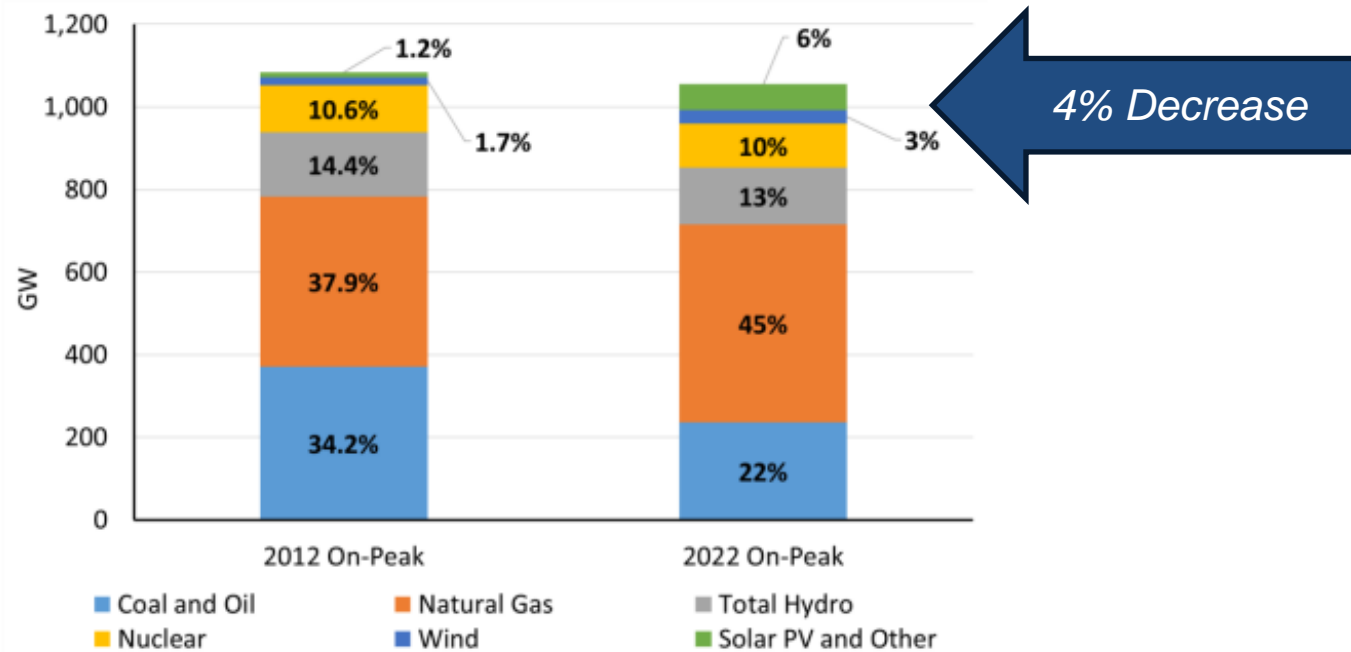
Risk Mitigation Strategy: *NERC is undertaking two initiatives to mitigate IBR risk. At the direction of FERC, these steps include: (1) Revising NERC rules governing the registration of IBRs so these resources will be subject to NERC Reliability Standards, and (2) Revising and developing Reliability Standards applicable to IBRs.*

Key Background Resources

- [NERC staff analysis](#) of IBRs
 - Numerous widespread IBR loss events indicating systemic performance issues with the inverter-based fleet over past six years
 - 16% of bulk power system (BPS) connected IBRs are not subject to NERC reliability standards
- [FERC Order](#) – November 17, 2022
 - Direct NERC to file work plan to identify and register unregistered owners and operators of IBRs that materially impact the reliable operation of the BPS
- [FERC Order 901](#) – October 19, 2023
 - Directs NERC to develop new or modify existing Reliability Standards that address reliability gaps related to IBRs in the following areas:
 - Data Sharing
 - Model Validation
 - Planning and operational studies
 - Performance Requirements



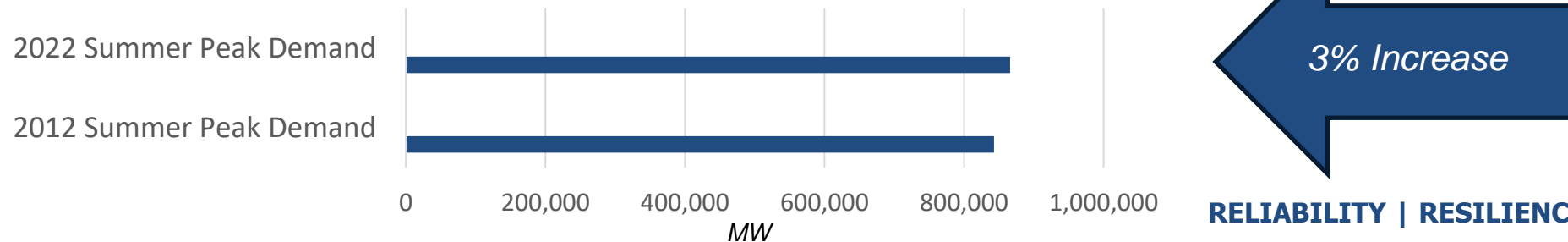
2012 and 2022 Peak Capacity Resource Mix NERC-Wide



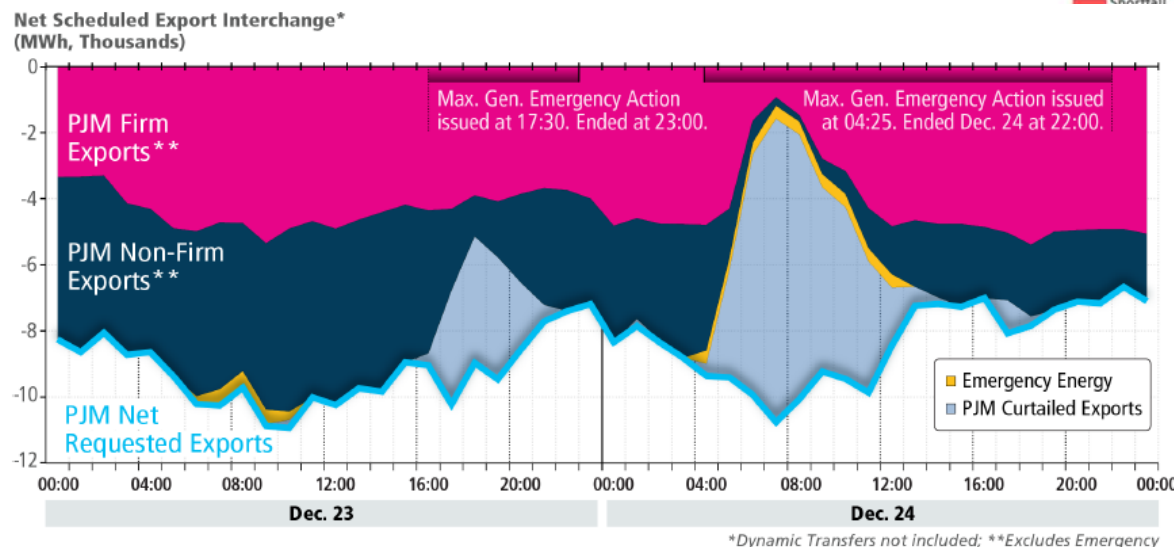
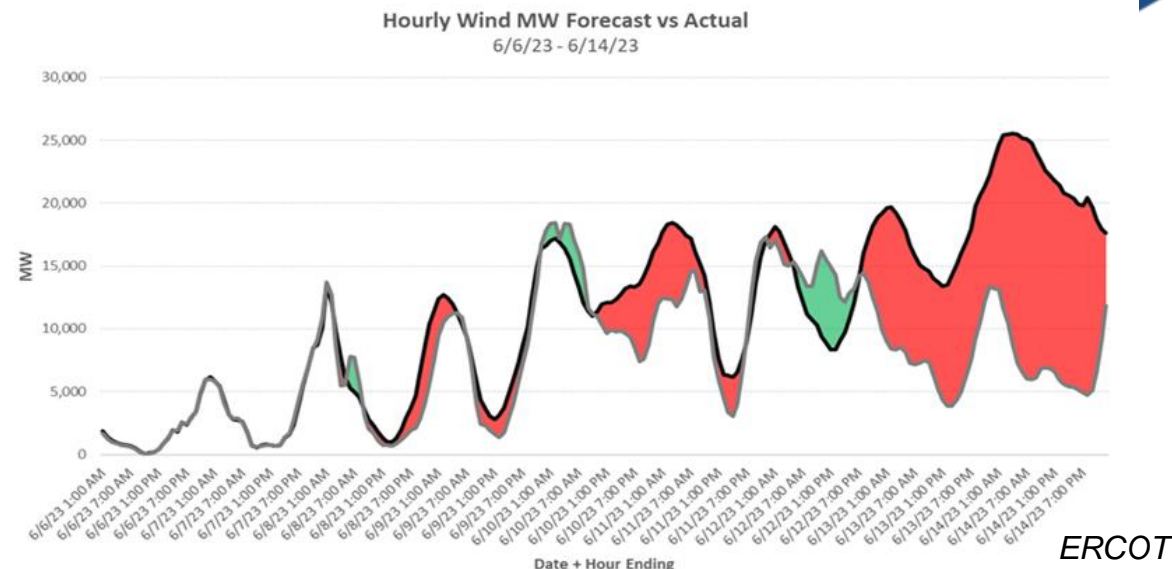
2025 Risk Areas



NERC-Wide Summer Peak Demand Changes 2012 and 2022



ERCOT, SPP, MISO: A “wind drought”
caused 60 GW of installed wind
capacity to generate 300 MW

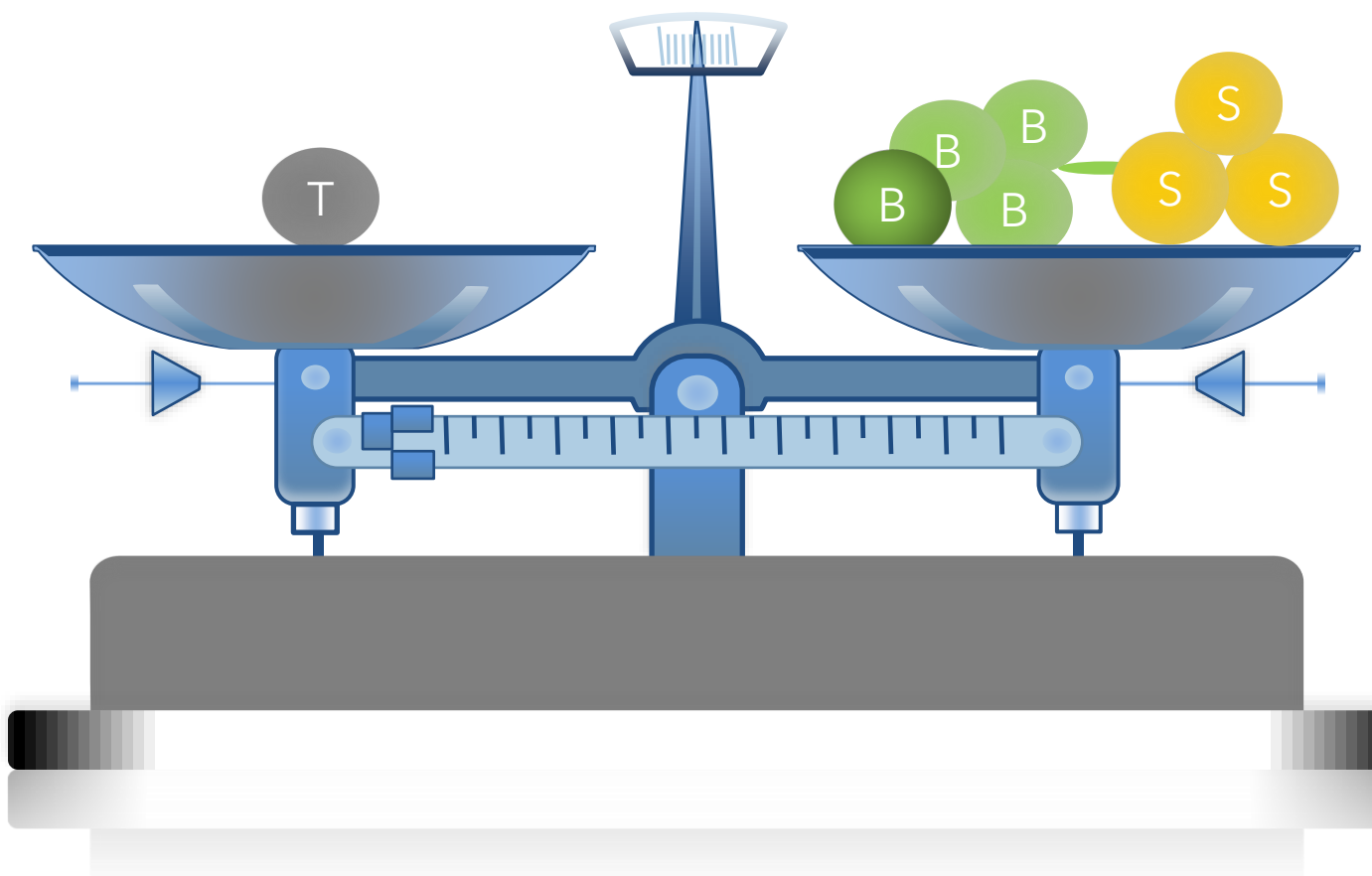


PJM: Transmission system during
extreme cold weather limited the
ability to export to support southern
neighbors



Retire 100 MW Base Load Generation

- 100 MW Traditional Base Load generates 2400 MWh



300 MW Solar + 400 MW Batteries

- Assume 8 hours of sunlight
- Assume no losses in conversion

Usage

- 100 MW **solar** for 8 hours (800 MWh)
- 400 MW **storage** for 4 hour discharge (1600 MWh)

Storage

- 200 MW **solar** to charge storage 8 hours (1600 MWh)

Work Plan Milestones

- [Work plan](#) and white paper filed with FERC
- May 18, 2023: FERC Order 901 approved work plan
 - Work plan updates every quarter | February 12, 2024: [Quarterly Update](#)

Milestone	Activity Description
1	Submission of Order No. 901 Work Plan (completion: January 2024)
2	Development and Filing of Reliability Standards to Address Performance Requirements and Post-Event Performance Validation for Registered IBRs (expected completion: November 4, 2024)
3	Development and Filing of Reliability Standards to Address Data Sharing and Model Validation for all IBRs (expected completion: November 4, 2025)
4	Development and Filing of Reliability Standards to Address Planning and Operational Studies Requirements for all IBRs (expected completion: November 4, 2026)

- March 19, 2024 – NERC filed its [proposed revisions](#) with FERC
- Category 2 Generator Owner and Generator Operator
- Register entities that own and/or operate:
 - Non-BES Inverter Based Resources (IBRs) with aggregate nameplate capacity ≥ 20 MVA connected at a voltage ≥ 60 kV
- These changes ensure 97.5% of impactful IBRs become subject to Reliability Standards



IBR Registration Milestones

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.)

- FERC currently reviews Rules of Procedure changes and either
 - Approves, or
 - Directs further changes

2024: Prioritize Milestone 2 Objectives

- Three identified active standard development projects for Milestone 2 this year

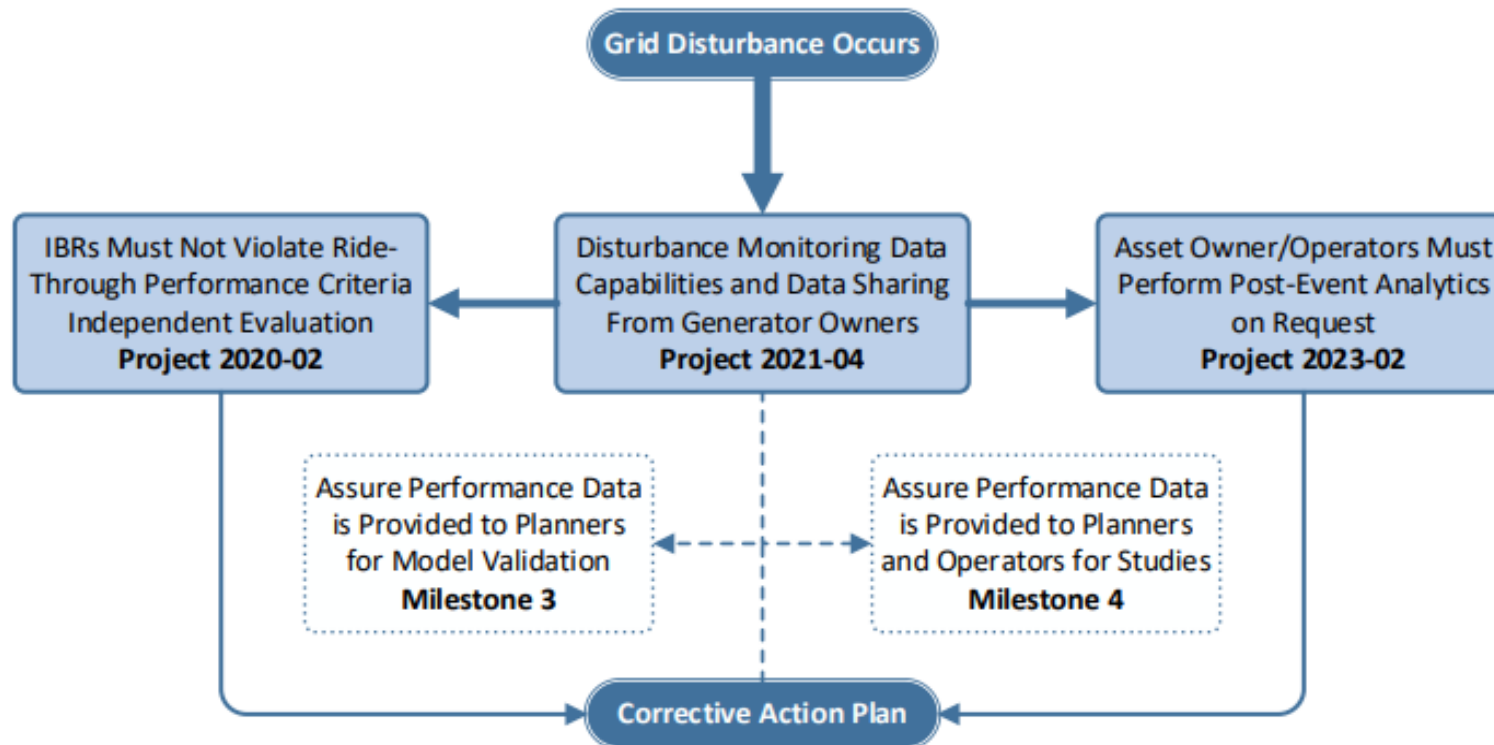




Figure 2: Flowchart of Interactions Between IBR Performance Requirements and Post-Event Performance Validation Standards Projects

- Current Communications Products:
 - Strategic Communications Plan
 - Talking Points
 - [Quick Reference Guides](#)
 - [FAQs](#)
 - [Fact Sheets](#)
 - Educational Materials
 - [Quarterly Updates](#)
 - EROCG Monthly Updates

Quick Reference Guide: IBR Registration Initiative

May 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

- NERC's Board of Trustees approved proposed Rules of Procedure revisions on February 22.
- NERC filed its [proposed revisions](#) with FERC on March 19.
- NERC published its [Q1 2024 Quarterly Update](#) on April 2.
- **NEW** NERC submitted its [quarterly work plan update](#) to FERC on May 9.




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"> • Complete Rules of Procedure revisions and approvals • Commence Category 2 GO and GOP candidate outreach and education (e.g., through trade organizations) 	<ul style="list-style-type: none"> • 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.) 	<ul style="list-style-type: none"> • 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.)

Available Resources

- [Frequently Asked Questions – Rules of Procedure Approach to Registration of Unregistered IBRs](#)
- [IBR Webinar Series and FAQs](#)
- [Quick Reference Guide: Candidate for Registration](#)
- [Quick Reference Guide: Inverter-Based Resource Activities](#)
- [NERC Registration Page](#) and [Standards Page](#)
- [Learn about NERC](#) and [Join the E-ISAC](#)

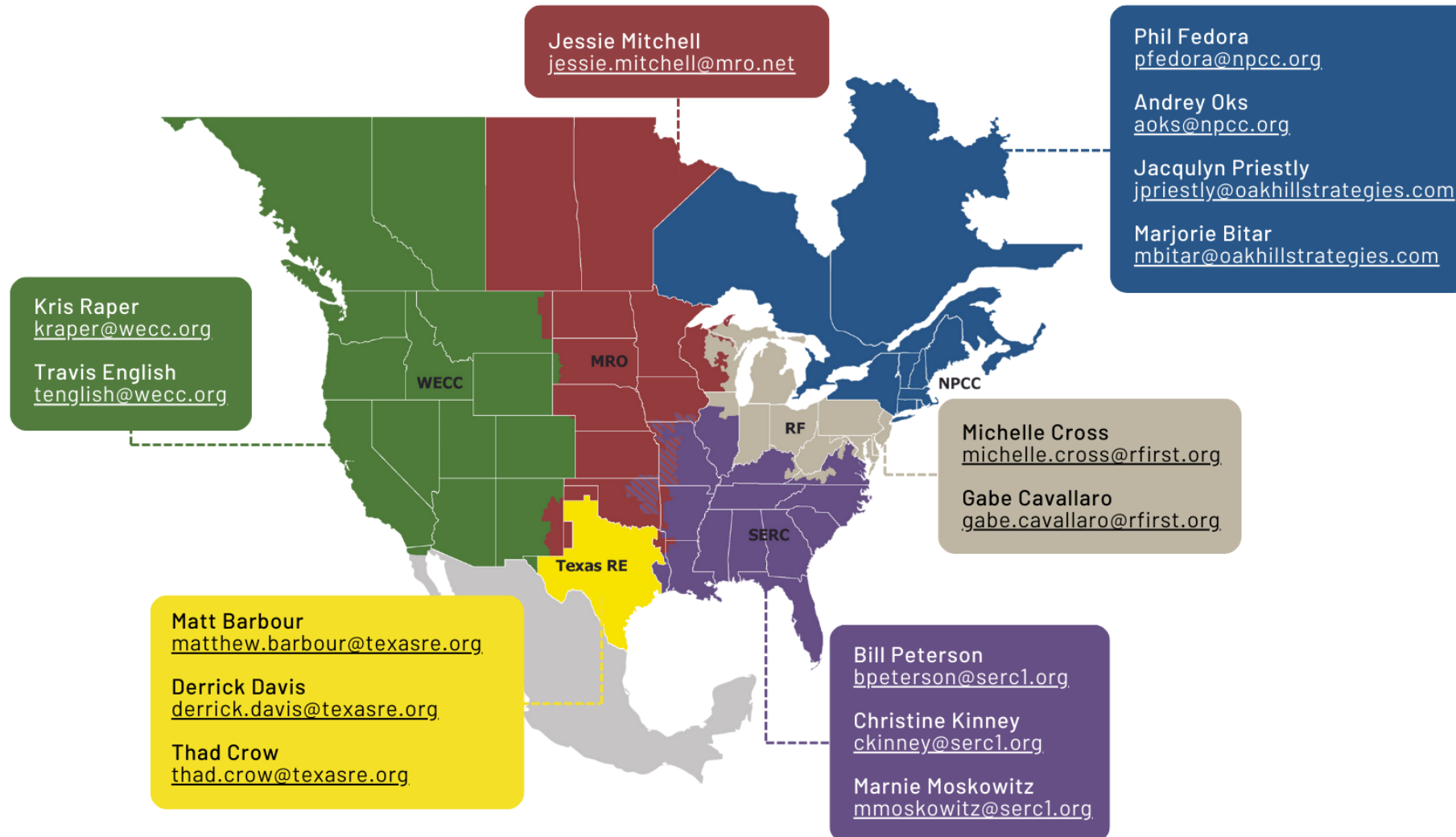
LEARN MORE ABOUT NERC AND THE E-ISAC

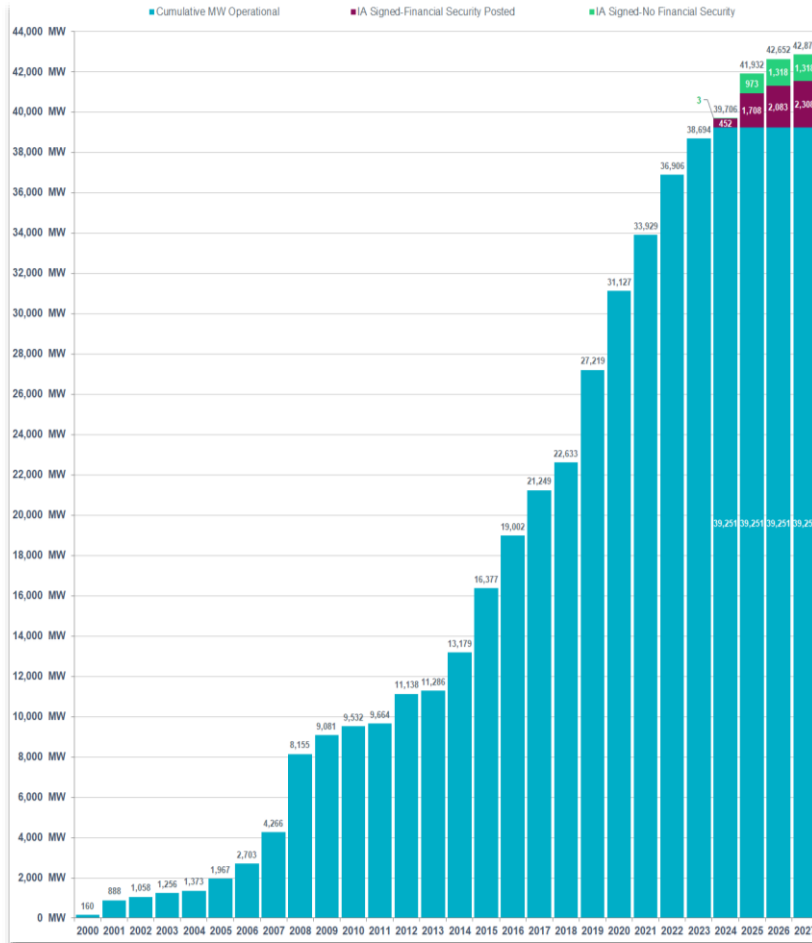
RELIABILITY | RESILIENCE | SECURITY

EROCG Points of Contact

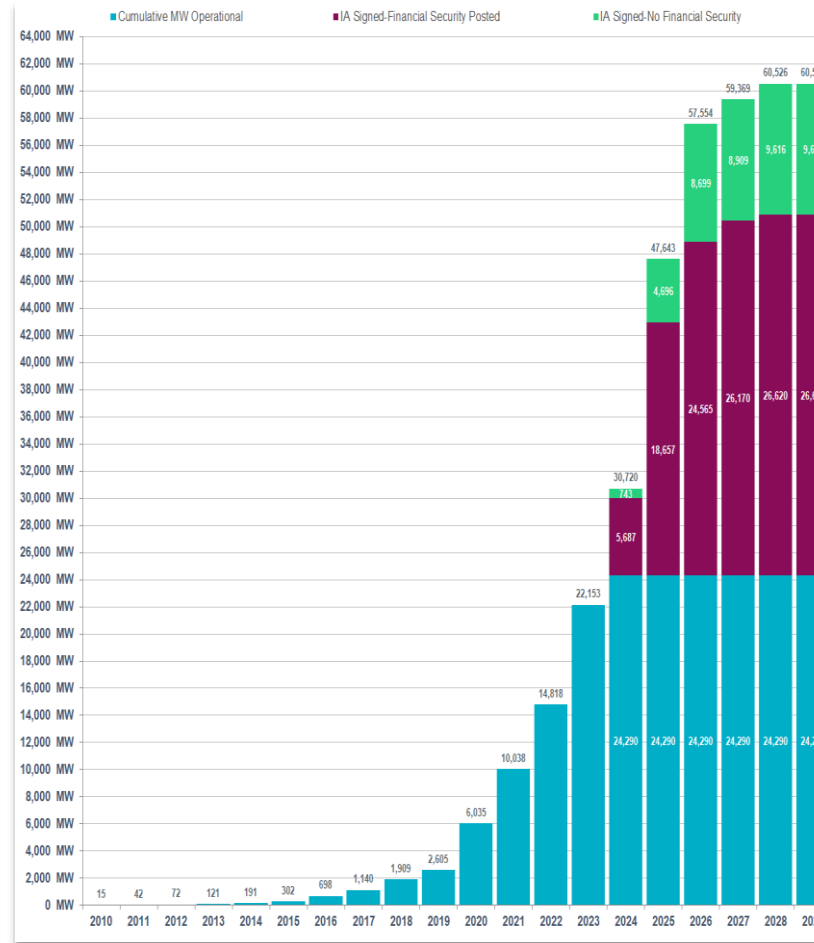


IBR Growth in Texas

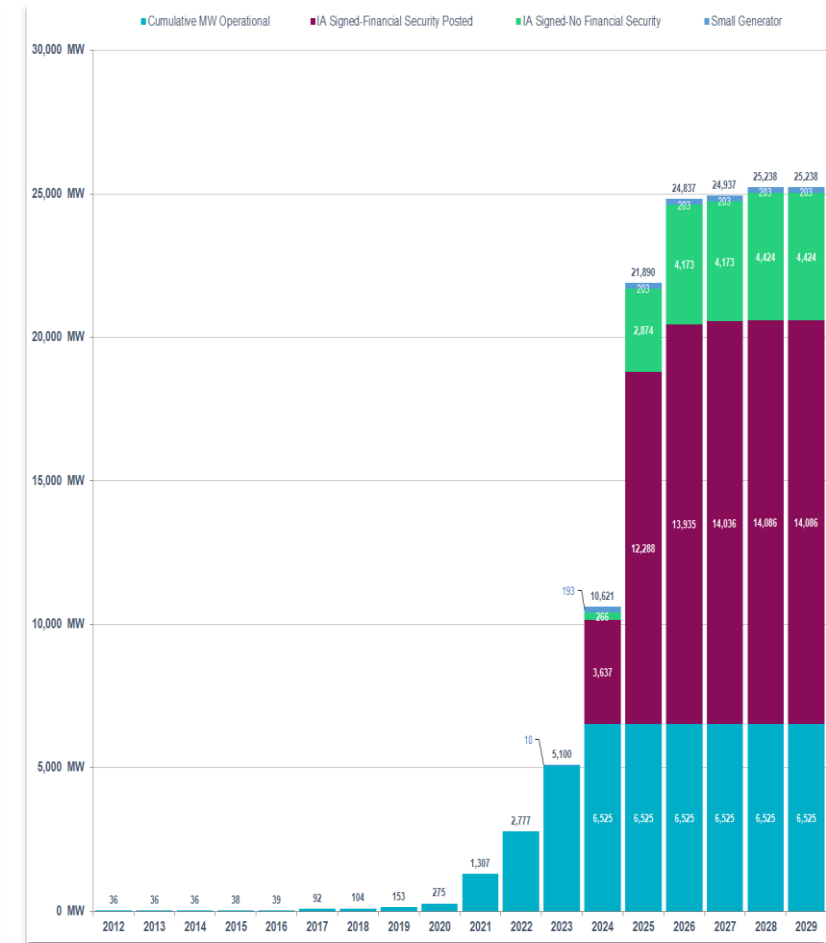
Wind Additions



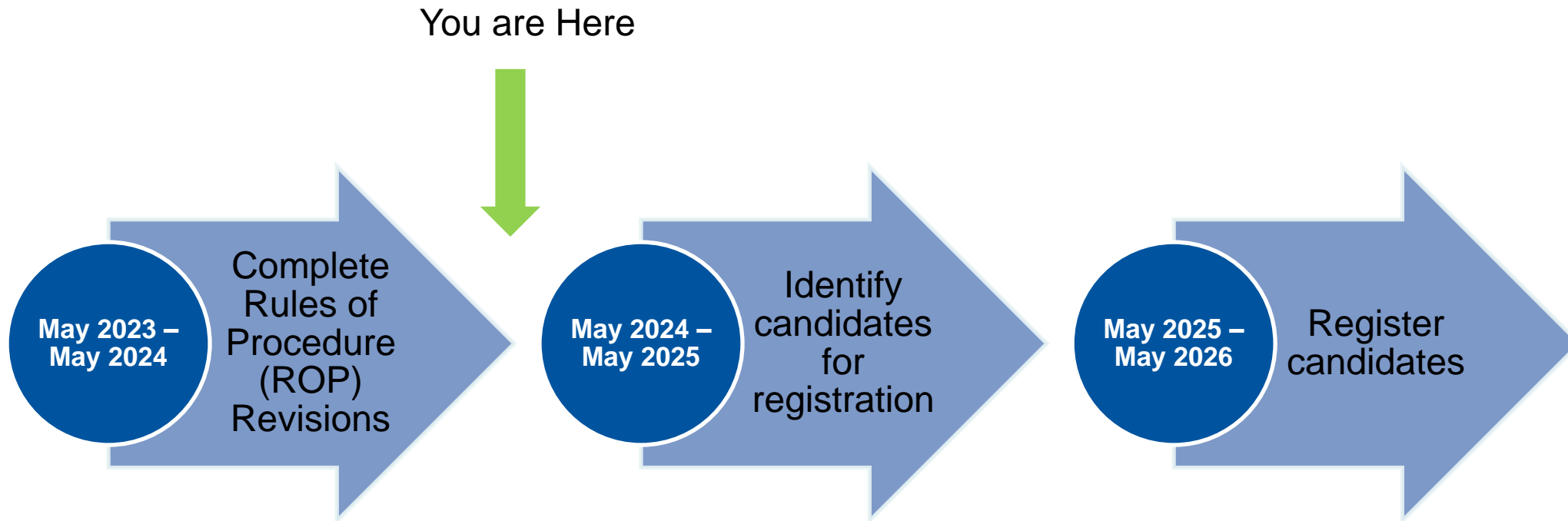
Solar Additions



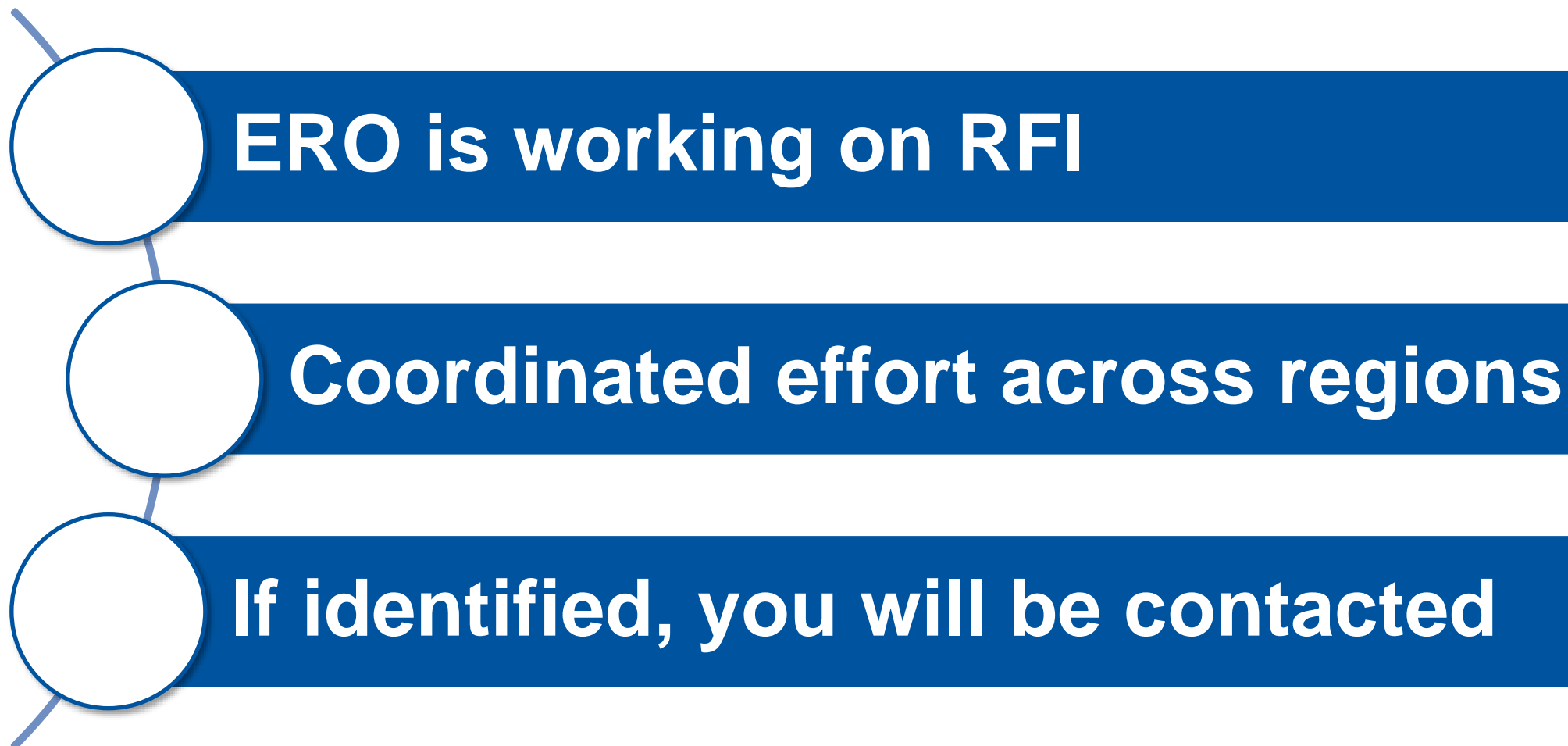
Battery Additions



IBR Registration Timeline



Next Steps – Identification



New Generator Welcome Package

List of applicable
standards is pending



New Generator Welcome Package

**Recommended
Reading**

**Internal
Controls**

**GO/GOP
Roadmap**

**Example Self-
Certification
Questions**



NERC IBR Quick Reference Guide

Find it here!



Quick Reference Guide: IBR Registration Initiative

May 2024

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LEARN MORE ABOUT
NERC AND THE E-ISAC



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RELIABILITY | RESILIENCE | SECURITY



NERC Resources

[ERO Enterprise Registration Procedure](#)

[ERO Enterprise Entity Onboarding Checklist](#)

[ERO Enterprise 101 Informational Package](#)

[ERO Enterprise GO GOP Asset Verification Form](#)

[CORES End User Guide](#)



What Happens after Registration?

Risk Assessment

- Inherent Risk Assessment
- Compliance Oversight Plan
- Engagement Scopes

Compliance Engagements

- Self-Certifications
- Audits
- Spot Checks



Staying Informed in Texas

**Texas RE Reliability 101 and 201
Webinar Series**

**Texas RE Member Representatives
Committee Meetings**

**Texas RE NERC Standards Review
Forum (NSRF) Meetings**



Staying Informed in the ERO Enterprise

FERC/NERC Outreach

Filing Notifications

Public Commenting Periods



Contacts



Erin Quigley

Manager, Registration & Certification

Erin.Quigley@texasre.org

(512) 583-4926



Brook Rodaway

Registration Program Coordinator

Brook.Rodaway@texasre.org

(512) 583-4974



The background of the slide features a blurred image of the Texas state flag on the left and a close-up of a wind turbine's hub and blades on the right. The blades are white with red tips. A dark blue rounded rectangle with a thin light blue border is centered over the image.

Questions?



TEXAS RE

Ensuring electric reliability for Texans