



Texas Reliability Entity, Inc.
Texas RE Member Representatives Committee
Meeting Agenda

December 11, 2024, at 9:00 a.m. Central Time**

WebEx Link:

<https://texasre.webex.com/texasre/j.php?MTID=m6067c0563dc4fa890c2eca72cff5a162>

Meeting number: 2558 227 7696

Password: 68UXmRfte9b

Dial-In: 1-855-797-9485

Item	Member Representatives Committee Meeting
1.	Call to Order <i>Curt Brockmann, MRC Chair</i>
2.	<u>Antitrust Admonition*</u> <i>Thad Crow, Communications and Training Coordinator</i>
3.	<u>Approval of September 18, 2024, Meeting Minutes*</u> (Vote) <i>Curt Brockmann, MRC Chair</i>
4.	NERC BOT Meeting Update <i>Curt Brockmann, MRC Chair</i>
5.	<u>SAR-013 Revision to BAL-001-TRE-2 Standard Drafting Team Approval*</u> (Vote) <i>Rachel Coyne, Executive Chief of Staff</i>
6.	Special Topics: a. <u>NERC Interregional Transfer Capability Study Summary*</u> <i>Mark Henry, Chief Engineer & Director, Reliability Outreach</i> b. <u>CIP-003 and Remote Access*</u> <i>Devin Ferris, Manager, CIP Compliance Monitoring</i>
7.	<u>NSRF Update*</u> <i>Shane Herrera</i>
8.	<u>CIPWG Update*</u> <i>Trevor Tidwell</i>
9.	NERC Standing Committee Updates: a. <u>NERC Compliance and Certification Committee*</u> <i>Daniela Hammons</i>
10.	NERC Program Area Reports: (Staff may not present on these reports, but will be available to answer questions) a. NERC Program Area Overview <i>Joseph Younger, Vice President and Chief Operating Officer</i> b. <u>Compliance Assessments Report and Risk Assessment Report*</u> <i>Kenath Carver, Director, Compliance Assessments</i>



	c. Enforcement Report and Registration Report* <i>Katie Van Zee, Director, Enforcement and Registration</i> d. Reliability Services Report* <i>David Penney, Director, Reliability Services</i> e. Standards Report* <i>Rachel Coyne, Executive Chief of Staff</i>
11.	Recognitions and Awards <i>Jim Albright, President and CEO</i>
12.	Other Business & Future Agenda Items <i>Curt Brockmann, MRC Chair</i>
Adjourn Meeting	

* Background material may be distributed electronically prior to or at meeting.

** Start and end times may be adjusted should meetings conclude early or extend past their scheduled end time.



ANTITRUST ADMONITION

Texas Reliability Entity, Inc. (Texas RE) strictly prohibits persons participating in Texas RE activities from using their participation as a forum for engaging in practices or communications that violate antitrust laws. Texas RE has approved antitrust guidelines available on its website. If you believe that antitrust laws have been violated at a Texas RE meeting, or if you have any questions about the antitrust guidelines, please contact the Texas RE General Counsel.

PUBLIC MEETING

Notice of this meeting was posted on the Texas RE website and the open portion of 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.



Member Representatives Committee Meeting
DRAFT September 18, 2024, Minutes

Member Representatives Committee Meeting
September 18, 2024
(Via video conference only)

Attendance

1. The attendees were as follows:

Name	Company	Sector	In Person	Virtual
Curt Brockmann , Chair	CPS Energy	Municipal		
Daniela Hammons , Vice Chair	CenterPoint Energy Houston Electric, LLC	Transmission/Distribution		X
Chad Thompson	ERCOT	System Coord & Planning		X
Betty Day (Alternate)	ERCOT	System Coord & Planning		
Lance Spross	Oncor Electric Delivery Company, LLC	Transmission/Distribution		X
Frank Owens	Rayburn Electric Co-op	Cooperative		X
Shari Heino	Brazos Electric Power Cooperative	Cooperative		X
Zachary Taylor (Alternate)	Guadalupe Valley Electric Cooperative	Cooperative		X
Brock Carter	Austin Energy	Municipal		X
Cameron Molsbee (Alternate)	Denton Municipal Electric	Municipal		
David Hodges	RWE Renewables	Generation		
Kristina Marriott	Miller Bros. Solar	Generation		X
Rob Robertson (Alternate)	Leeward Renewable Energy	Generation		X
Jeremy Carpenter	Tenaska Power Services, Inc.	Load Serving & Marketing		X
Venona Greaff	Occidental Power Services, Inc.	Load Serving & Marketing		
Adam Cochran	Proxy			X
Jeffrey A. Corbett	Texas RE Board Chair			X
Suzanne E. Spaulding	Texas RE Board Vice Chair			X
Crystal E. Ashby	Texas RE Independent Director			X
Milton B. Lee	Texas RE Independent Director			X
Thomas Gleeson	Public Utility Commission of Texas			



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Chris Ekoh	Office of Public Utility Counsel			
Jim Albright	Texas RE			X
Derrick Davis	Texas RE			X
Joseph Younger	Texas RE			X
Donna Bjornson	Texas RE			X
Kenath Carver	Texas RE			X
David Penney	Texas RE			X
Mark Henry	Texas RE			X
Kara Murray	Texas RE			X
J.W. Richards	Texas RE			X
Kaitlin Van Zee	Texas RE			X
Paul Curtis	Texas RE			X
Matthew Barbour	Texas RE			X
Rachel Coyne	Texas RE			X
Shane Herrerra	ERCOT			X
Trevor Tidwell	TNMP			X
David Grubbs	City of Garland			X
Other Texas RE staff members and stakeholders attended in person and via conference call				

At least two-thirds of the voting representatives on the MRC, either in person or by proxy, are required to constitute a quorum. A quorum was established.

Discussions and Activities

2. Call to Order, Announce Proxies and Telephone Attendees; Antitrust Admonition

Daniela Hammons called the MRC meeting to order at 9:30 a.m. Central Time. Curt Brockmann appointed Brock Carter as his proxy. Venona Greaff and Jeremy Carpenter appointed Adam Cochran as their proxies. Thad Crow reviewed the antitrust admonition.

3. Approval of May 15, 2024, MRC Meeting Minutes

Frank Owens made a motion to approve the May 15, 2024, meeting minutes. Kristina Marriott seconded the motion. The Motion passed by unanimous voice vote.

4. NERC BOT Meeting Update

Vice Chair Hammons gave the NERC BOT update. The Board approved 2025 business plans and budgets, discussed project 2020-02 Modifications to PRC-024

(Generator Ride-through), and heard a presentation on extreme weather from the chief meteorologist for CISA. They also heard an update on the Interregional Transfer Capability Study.

5. Election of MRC Sector Representatives

Matthew Barbour, Manager, Communications and Training, discussed the process for the upcoming membership elections.

6. SAR-013 Revision to BAL-001-TRE-2 Update

Rachel Coyne, Executive Chief of Staff, presented on SAR-013 Revision to BAL-001-TRE-2.

Chad Thompson made a motion to accept ERCOT's SAR as currently drafted as a candidate for development to review Texas RE Regional Standard BAL-001-TRE-2. Kristina Marriott seconded the motion. The Motion passed by unanimous voice vote.

7. NSRF Update

Shane Herrera, NSRF Chair, reported on the May, June, July, and August NSRF meetings. He noted that FERC approved Reliability Standard CIP-012-2 in May.

8. CIPWG Update

Trevor Tidwell, CIPWG Chair, provided an update on CIPWG activities. He said the working group heard presentations on Project 2022-02 (DER definition), a system performance review of the 2024 Arctic storms, and an ERCOT update of the NERC IRO-010/TOP-003 mapping document.

9. NERC Standing Committee Updates

David Grubbs provided an update on the NERC Reliability and Security Technical Committee's September meeting. The committee discussed the possibility of large increases in load growth related to trends such as increases in number of electric vehicles and data centers.

Daniela Hammons provided an update on the NERC Compliance and Certification Committee. She said the committee met in July and approved the 2023 Stakeholders' Perception Report, approved three hearing and mediation procedures, and discussed compliance monitoring processes.

10. Program Area Quarterly Reports

Joseph Younger, Vice President and Chief Operating Officer, discussed grid transformation and winterization issues.



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Texas RE staff provided written program area quarterly reports and were available to answer questions.

11. Other Business & Future Agenda Items

None.

The meeting adjourned at approximately 10:51 a.m. Central Time.

DRAFT



MEMORANDUM

To: Texas RE Member Representatives Committee (MRC)
From: Rachel Coyne, Executive Chief of Staff
Date: December 11, 2024
Re: Item 05: Recommendation for Standard Drafting Team for Project SAR-013 -
Revisions to BAL-001-TRE-2 SDT interim chair appointment

On June 28, 2024, ERCOT submitted a Regional Standard Authorization Request (SAR) to revise Texas RE's BAL-001-TRE-2 regional standard. In accordance with the Texas RE Regional Standards Development Process (RDSP), Texas RE has solicited industry participation for a Standards Drafting Team (SDT) following the MRC's approval of the SAR at its September meeting. Texas RE is now seeking the MRC's approval for the proposed SDT members, as well as for the designation of an interim SDT chair until the SDT can formally approve a Chair and Vice-Chair at its initial meeting.

Legal Background

The Texas RE RDSP provides that, upon acceptance of a SAR, the Regional Standards Manager (RSM) will solicit nominations for a SDT and recommend to the MRC for approval a slate of ad-hoc individuals that collectively have the necessary technical expertise and work process skills to comprise the SDT. In addition, the RDSP provides that upon acceptance of the SDT, the MRC shall appoint the SDT interim chair.

Recommended SDT

On September 23, 2024, the Texas RE RSM solicited industry participation for the Project SAR-013 SDT. Based on the responses from industry and Texas RE's review of the proposed SDT qualifications and sectors, Texas RE recommends the following individuals to serve on the SDT for the SAR-013 project:

- Jose Luis Hinojosa, ERCOT
- Arthur Mayclin, Calpine
- Chad Mulholland, NRG Energy
- Stewart Rake, Luminant
- Frank Owens, Rayburn Electric Cooperative, Inc.
- Juan M. Gomez Gonzales, CPS Energy
- Mark Prosperi-Porta, Acciona Energy North America (BT Cunningham Storage, LLC.)

Full bios for each SDT member are included for the MRC's review in Attachment 1. Consistent with the RDSP, Texas RE recommends that the MRC find that the proposed SDT has the necessary expertise to revise the Texas RE Regional Standard in accordance with the SAR. Texas RE further recommends that the MRC find that the proposed SDT is balanced, consisting of a representative from the relevant development sectors.

Recommended Interim SDT Chair

Texas RE recommends appointing **Jose Luis Hinojosa** as the interim chair of this project. The permanent chair and vice chair will be elected during the first SDT meeting.

Attachment 1: Proposed Standard Drafting Team Roster and Bios

Project SAR-013 Revisions to BAL-001-TRE-2
Texas RE Regional Standard BAL-001-TRE-2

Name	Experience and Qualifications to serve on the SDT	Development Sector(s)
Jose Luis Hinojosa, ERCOT	Luis is currently the Manager for Ancillary Services & Operations Analytics in the Operations Planning department at ERCOT ISO, where he has been employed since 2012. Luis has a strong background in the area of power system grid operations, renewable integration, data analytics and modeling. Luis has extensive experience in the area of grid balancing and frequency control (BAL-001, BAL-001-TRE, BAL-002, BAL-003) through his work monitoring and tuning ERCOT's frequency control systems and has been continuously improving ERCOT's processes and procedures related to frequency monitoring and control. Luis is a long-standing member of NERC's Resources Subcommittee and is intricately familiar with the issues being addressed under this SAR. Luis has received a BSEE degree from the University of Texas at Austin.	System Coordination and Planning
Arthur Mayclin, Calpine	Arthur oversees the PFR implementation and compliance for Calpine, which includes logic modifications and system troubleshooting for both balance of plant systems and turbine governor logic. He assisted with multiple battery projects but is just delving into PFR requirements and operation as all thus far have been in CAISO. Though he is not a regulatory/compliance expert, he has knowledge of engineering and equipment/system operation, including some experience with battery/inverter technology. Additionally, Arthur served on the standard drafting team for Project SAR-011: Revisions to Regional Standard BAL-001-TRE-1.	Generation
Chad Mulholland, NRG Energy	I have been a member of PDCWG leadership since 2017, and was a member of the previous Drafting Team for revisions to BAL-001-TRE.	Generation
Stewart Rake, Luminant	I am currently a member of the ERCOT PDCWG and I am familiar with the BAL-001-TRE standard. I served on the BAL-001-TRE-1 SDT and provided input into the original SDT. Since our Entity owns and operates several ESRs, I may be able to provide some insight into battery operations.	Generation
Frank Owens, Rayburn Electric Cooperative, Inc.	Mr. Owens joined Rayburn Electric Cooperative in 2018. He has over 44 years of experience in the utility industry and has participated in various NERC, ERCOT, and Texas RE committees, sub-committees, working groups, and task forces. At Rayburn Electric Cooperative Mr. Owens is responsible for providing leadership and direction to ensure compliance with NERC and FERC standards and regulations, as well as ERCOT Nodal Protocols and Operating Guides and PUCT rules. Mr. Owens is also responsible for Transmission Planning oversight. Prior to joining Rayburn Electric Cooperative, he worked for Cross Texas Transmission from July 2012 to April 2018 as its Director of Compliance and was responsible for providing leadership and direction to ensure compliance with NERC and FERC standards and regulations, as well as ERCOT Nodal Protocols and Operating Guides and PUCT rules. Further back,	Cooperative Utility

	Mr. Owens worked for Texas Municipal Power Agency from June 2007 to July 2012 as its Compliance Officer. He was responsible for transmission and generation compliance. Lastly, Mr. Owens worked for Garland Power and Light for 27 years in various positions including Journeyman Lineman, Chief System Operator and Transmission Operations Manager.	
Juan M. Gomez Gonzalez, CPS Energy	Highly skilled engineer (MS Industrial Engineering from University of Zaragoza, Spain) with also a MS in Management of Technology (University of Texas in San Antonio (UTSA)). Meticulous, detail oriented, well organized, analytical and experienced working in multi-cultural, multi-disciplinary environments, from project management and solar power generation to regulatory compliance. Other experience includes project development, R&D, QA/QC and teaching. 4+ years in Solar Energy generation as an Asset and O&M Manager, including one of the first energy storage systems in Texas, from installation to decommissioning. 6+ years of experience working with contractors, managing contracts, preparing RFPs and participating in contractor selection. See attached a copy of my resume.	Municipal Utility Transmission and Distribution Generation
Mark Prosperi-Porta, Acciona Energy North America (BT Cunningham Storage, LLC.)	Mr. Prosperi-Porta worked in a control room as a shift manager for the BA, TOP, GO and DP functions for 14 years, as well as the RC for three years (BC Hydro). He is currently the control center manager for Acciona Energy North America, which owns and operates over 1000 MW of wind, solar and batteries in ERCOT as BT Cunningham Storage, LLC.	Generation



TEXAS RE

**SAR-013: Revisions to
Regional Standard
BAL-001-TRE-2**

Request SDT Approval

**Member Representatives Committee
Meeting
September 18, 2024**

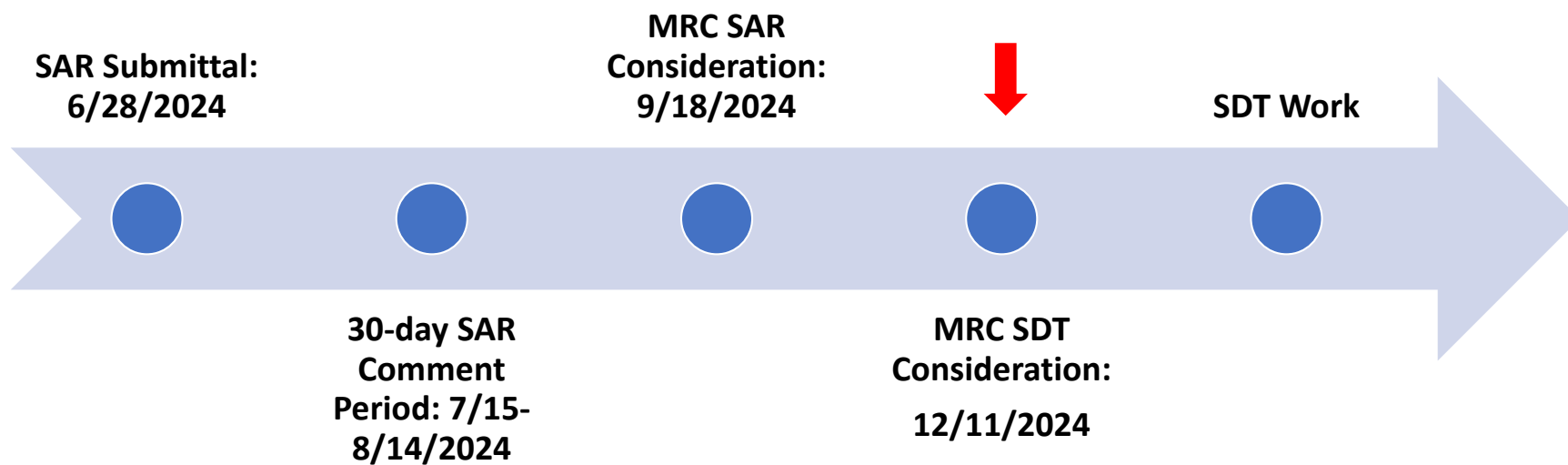
Request to Approve Standard Drafting Team

Expertise

**Representation from
Relevant Development
Sectors**



SAR-013 Timeline





TEXAS RE

NERC Interregional Transfer Capability Study Summary

**Member Representatives Committee
December 11, 2024**

ITCS Objectives

Congress directed NERC to perform an Interregional Transfer Capability Study (ITCS) in the Fiscal Responsibility Act of 2023. ITCS aligns with ERO's obligations to perform reliability assessments

Independent and objective

System-wide perspective

Reliability focus

Collaboration and coordination

Strategic planning

Repeatable process



ITCS Scope: Fiscal Responsibility Act of 2023



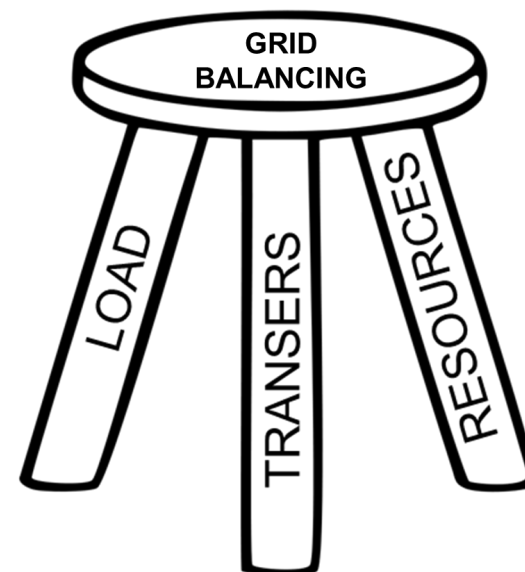
Part I: Calculate current total transfer capability



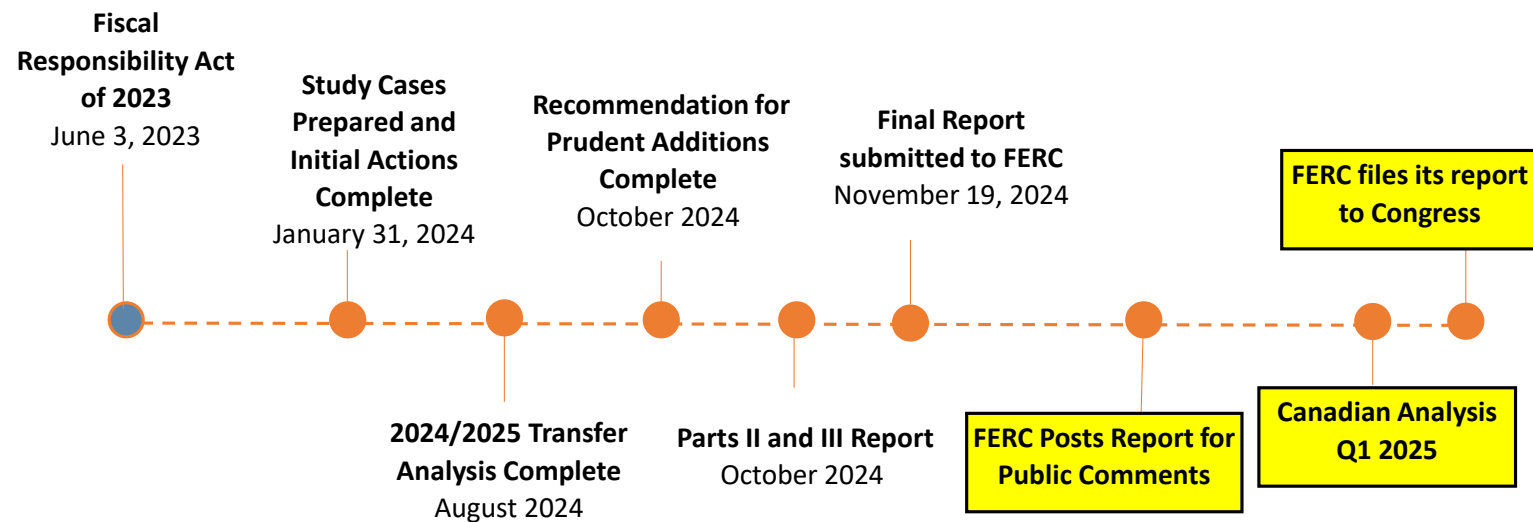
Part II: Recommend prudent additions to transfer capability



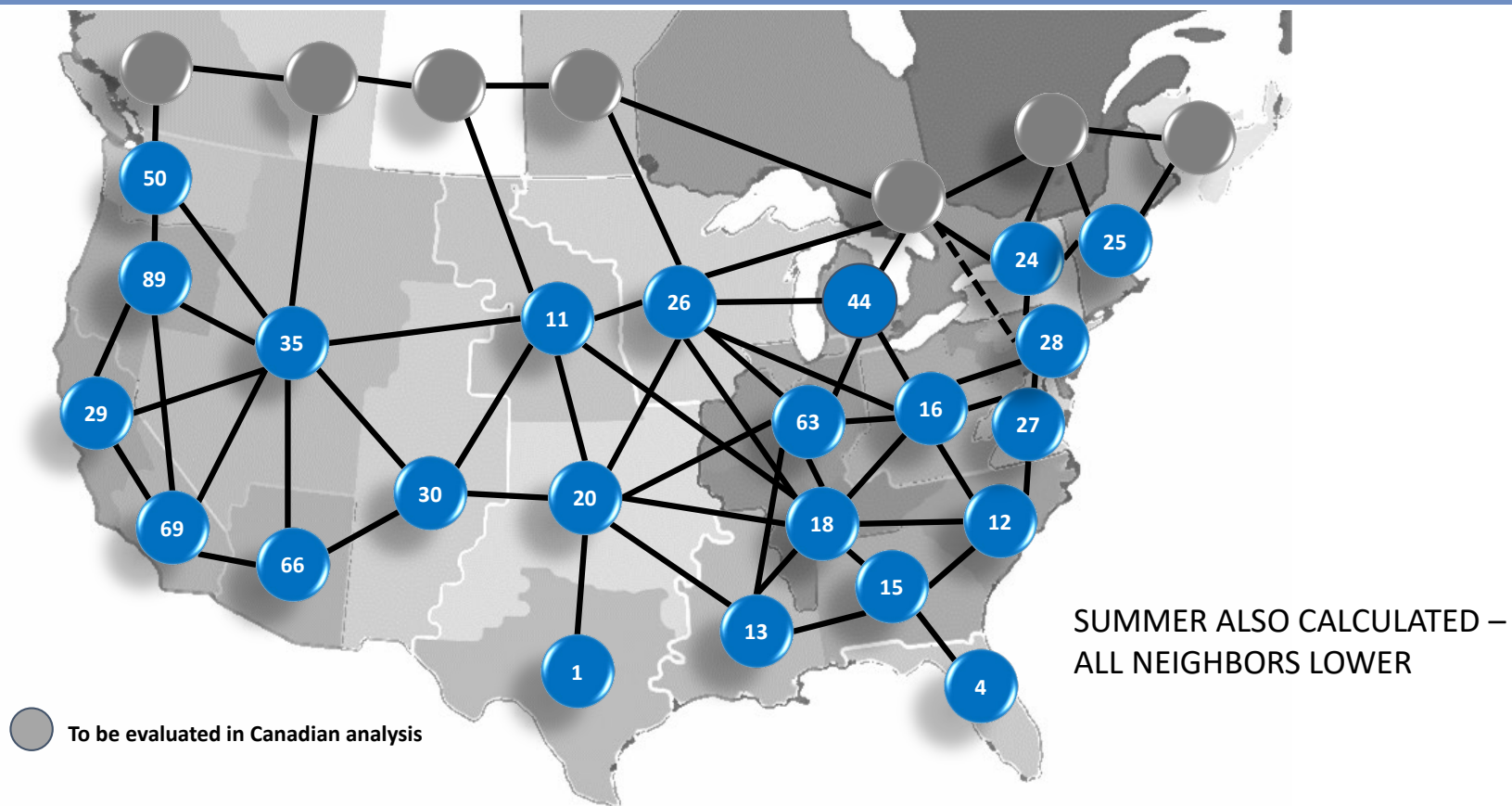
Part III: Recommend how to meet and maintain transfer capability



ITCS Timeline Overview



Part 1 Total Import Capabilities as Percentage of Peak Load (Winter)



Part 2 Technically Prudent Additions for Reliability

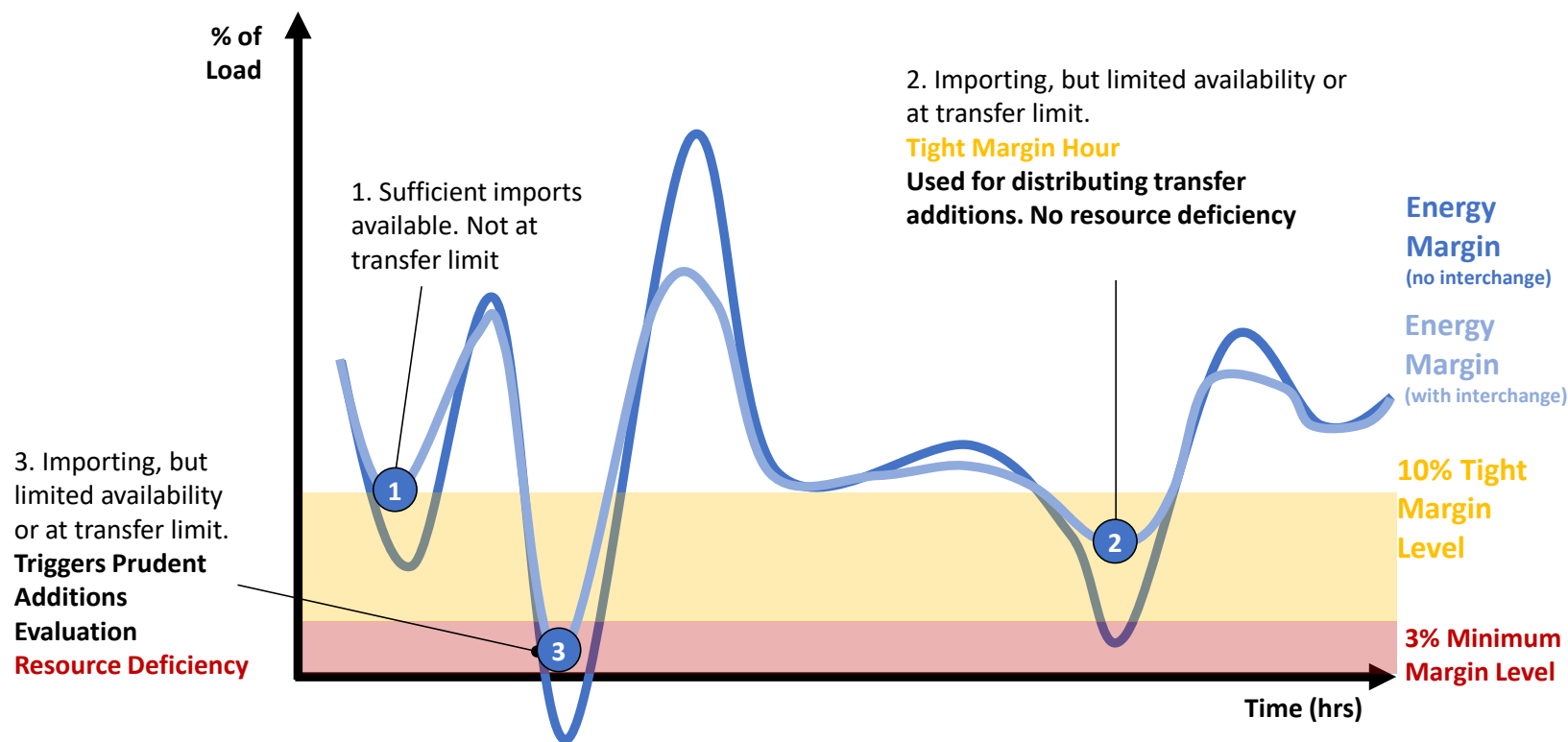
What are technically prudent additions to interregional transfer capability?

- *Strengthen reliability*
- *Serve load under extreme conditions*
- *Do not create other reliability problems*

FERC precedent provides that “prudence” means a determination of whether a reasonable entity would have made the same decision in good faith under the same circumstances, and at the relevant point in time.



Identify Hours and Regions with Resource Deficiencies



Report Chapter 2, Figure 2.5



Energy Margin Methodology for Part 2: Scope and Limitations

What this method DOES

- ✓ Prioritize regions for interregional transfer capability
- ✓ Tracks daily and hourly availability of all resource types
- ✓ Calculates relative surplus and deficit in each region, at the same time
- ✓ Performs a reliability-only dispatch of resources
- ✓ Allows regions to import from one region while exporting to another
- ✓ Assumes full import capability from neighbors
- ✓ Obtain results driven by extreme weather

What this method DOES NOT

- ✗ Represent actual physical power flows across the network ... not a planning study
- ✗ Track individual resource performance or replace a full energy assessment/LOLE study
- ✗ Calculate relative costs or prices between regions
- ✗ Perform an economic, least-cost (production cost) dispatch
- ✗ Only evaluate “neighbor” flows
- ✗ Evaluate potential import from non-adjacent planning areas (neighbors’ neighbor)
- ✗ Consider probability of extreme conditions



2033 Prudent Additions Criteria

The following criteria were applied to the study using the energy margin methodology based on 2024 transfer capacity (from Part 1) applied to 2033 resources and loads derived from the 2023 NERC Long-Term Reliability Assessment

3% minimum margin (6% sensitivity also reviewed)

Mitigate all resource deficiency hours (where practical). If lacking surplus energy to mitigate all resource deficiencies:

- Reduce maximum resource deficiency by at least 75% of additional transfer capability, or
- Reduce resource deficiency by at least 100% of additional transfer capability in at least 4 hours

Recommendations for deficiencies > 300 MW, rounded to nearest 100 MW

Address limiting interfaces (region-to-region) and total import interface

Purely reliability-based, not economic or policy objectives



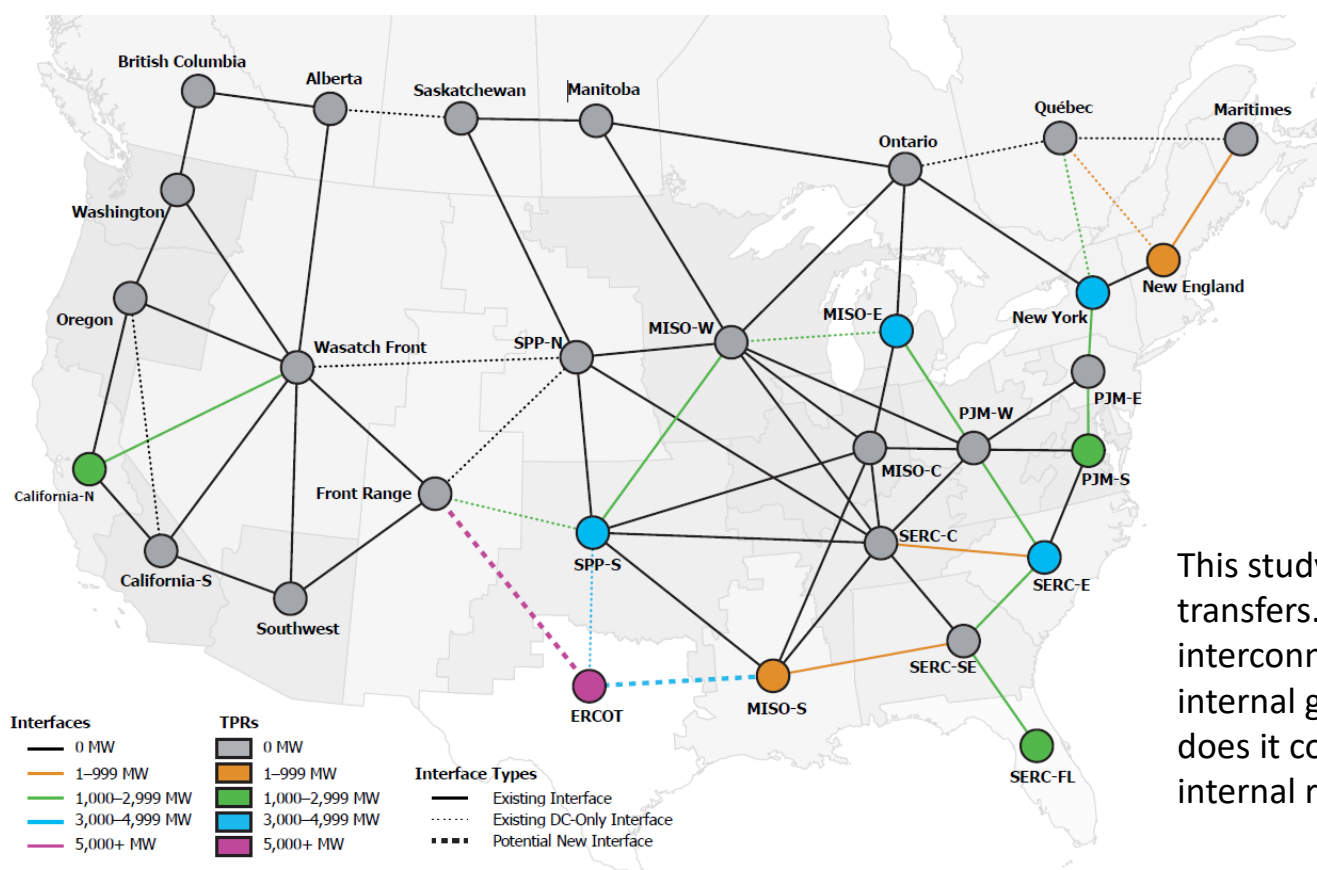
Part 2 Deficiencies and Recommended Prudent Additions (Final)

Transmission Planning Region	Weather Years (WY) / Events	Resource Deficiency Hours	ERCOT	Additional Transfer Capability (MW)	Interface Additions (MW)
California North*	WY2022 Heat Wave	17	3,211	1,100	Wasatch Front (1,100)
ERCOT*	Winter Storm Uri (WY2021) and nine other events	135	18,926	14,100	Front Range (5,700) MISO-S (4,300) SPP-S (4,100)
SPP-S	Winter Storm Uri (WY2021)	34	4,137	3,700	Front Range (1,200) ERCOT (800) MISO-W (1,700)
MISO-E	WY2020 Heat Wave and two other events	58	5,715	3,000	MISO-W (2,000) PJM-W (1,000)
MISO-S	WY2009 and WY2011 summer events	4	629	600	ERCOT (300) SERC-SE (300)
SERC-E	Winter Storm Elliott (WY2022)	9	5,849	4,100	SERC-C (300) SERC-SE (2,200) PJM-W (1,600)
SERC-Florida	Summer WY2009 and Winter WY2010	6	1,152	1,200	SERC-SE (1,200)
PJM-S	Winter Storm Elliott (WY2022)	20	4,147	2,800	PJM-E (2,800)
New York	WY2023 Heat Wave and seven other events	52	3,729	3,700	PJM-E (1,800) Québec (1,900)
New England	WY2012 Heat Wave and two other events	5	984	700	Québec (400) Maritimes (300)
TOTAL				35,000	

*Not all deficiency hours were resolved in these events



Part 2 Prudent Addition Recommendations Map (Final)



This study identifies potential transfers. It does NOT detail interconnection projects and internal grid changes, nor does it compare to increasing internal resources.



Part 3 Scope: Meet and Maintain

Mandate calls for:

- “Recommendations to meet and maintain total transfer capability together with such recommended prudent additions to total transfer capability...”

Report will describe general measures and actions needed to achieve and sustain the identified transfer capability and any recommended enhancements.

- Additional Analysis
- Capital & Infrastructure
- Grid Enhancing Technologies
- Markets & Regulatory
- Resource Additions



A Cooperative Effort with Varied Stakeholder Input Channels



EXTENSIVE STAKEHOLDER
ENGAGEMENT PLAN



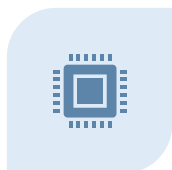
MONTHLY PUBLIC
ADVISORY GROUP
MEETINGS



PUBLICLY POSTED
FRAMEWORK AND SCOPE
DOCUMENTS



PUBLICLY POSTED REPORT
DRAFTS



LETTERS TO ALL
TRANSMITTING UTILITIES
(TOS, TOPS, PCS, TPS)



150+ EXTERNAL
PRESENTATIONS



DATA REQUEST LETTERS



ADVISORY GROUP
SURVEYS

Special thanks to Prabhu
Gnanem (ERCOT) &
Lance Spross (Oncor) for
serving as regional
representatives on the
Stakeholder Advisory
Group

[Interregional Transfer Capability
Study Documents](#)





TEXAS RE

CIP-003 & The 2025 CMEP IP

**Member Representatives Committee
Meeting
December 11, 2024**

2025 CMEP IP

2024

Remote Connectivity

Supply Chain

Physical Security

Incident Response

Stability Studies

Inverter-Based Resources

Facility Ratings

Extreme Weather Response

2025

Remote Connectivity

Supply Chain

Physical Security

Incident Response

Transmission Planning and Modeling

Inverter-Based Resources

Facility Ratings

Extreme Weather Response



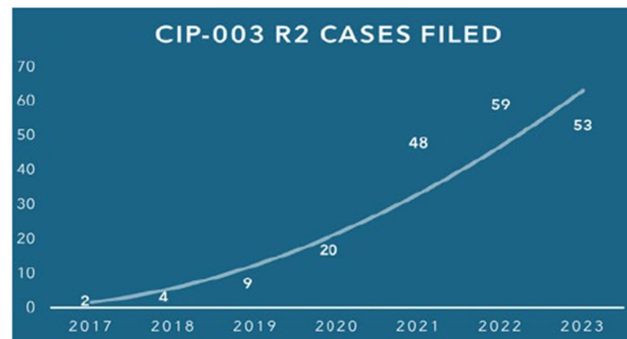
Remote Connectivity – Risk Factor

Remote Connectivity

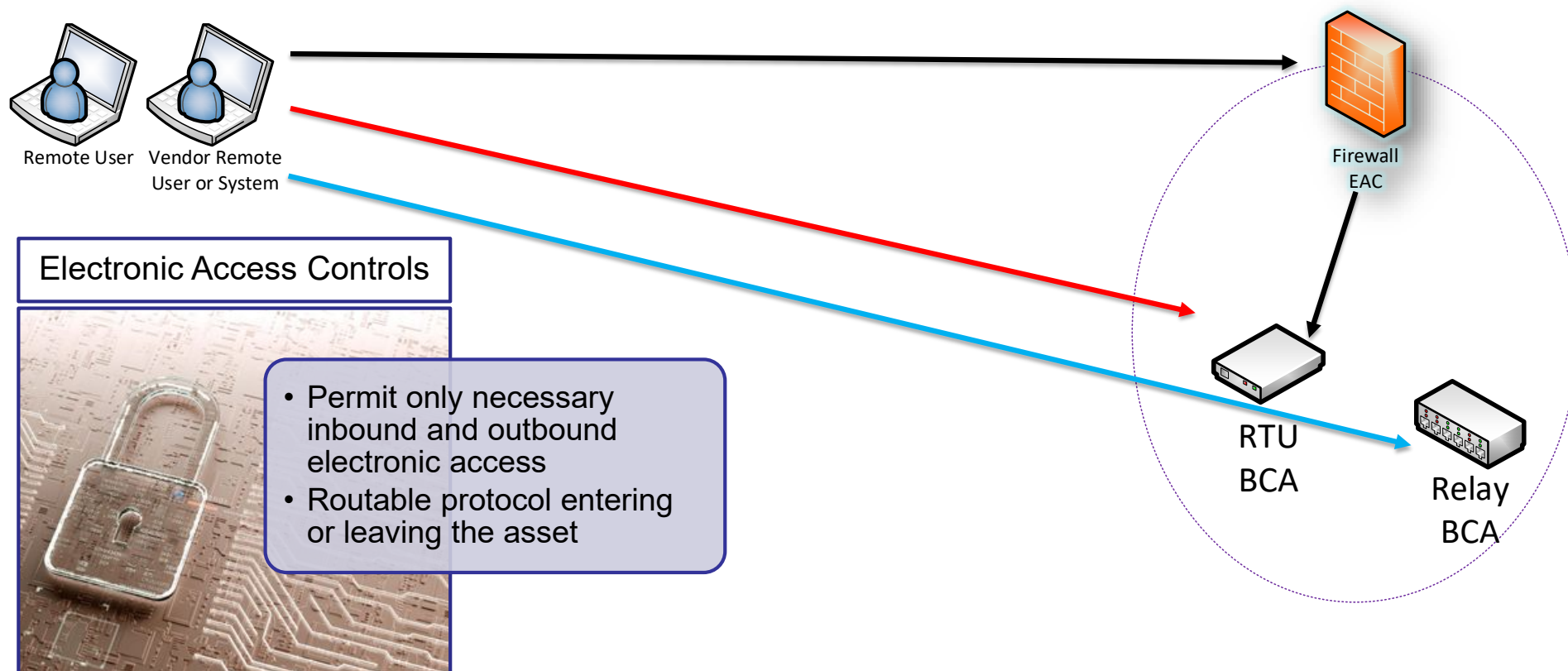
The protection of critical infrastructure remains a major focus for the 2025 risk areas. With remote connectivity and the use of remote workers continuing, it is vitally important that facility staff understand the changes taking place with their technology and have a better understanding of how to protect it. The ERO Enterprise has seen poor security practices (a) remotely unlocking doors for unauthorized individuals; (b) neglecting to secure doors and manage keys; and (c) generally failing to identify a need to create or apply security plans to new sites or sites transitioning from medium/high to low impact.⁵ Root causes in these cases often point to ineffective training and lack of direction or guidance, which can result in staff treating low impact sites as functionally out of scope for NERC CIP purposes, which in turn can increase the frequency of less-than-desirable security decisions.

As security needs evolve, the ERO Enterprise and industry must remain vigilant, identify any gaps, and mitigate, as necessary. There is a noticeable trend as it relates to low impact BES Cyber Systems. As noted in the [2024 CIP Themes and Lessons Learned Report](#), a compromise of such assets could create localized issues, and an individual low impact asset could (a) serve as a channel to attack other assets or (b) be used to conduct reconnaissance. And the potential risk to the BES multiplies in scenarios where several low impact assets are compromised in a coordinated attack.⁶

Regardless of the sophistication of a security system across all types of BES facilities, there is potential for human error. Compliance monitoring should seek to understand how entities manage the risk of remote connectivity and the complexity of the tasks the individuals perform.



Risk Element – Remote Connectivity



Risk Element – Physical Security



Control physical access, based on need as determined by the Responsible Entity to:



1) the asset or the locations of the low impact BES Cyber Systems within the asset, and



2) the Cyber Asset(s) providing electronic access controls implemented for Section 3.1, if any



Risk Element – Incident Response

Incident Response

- Cyber Security Incident
- Malware
- Disruption
- Compromise



CIP-003-9 Effective Date

Vendor Electronic Remote Access Security Controls

April 1, 2026

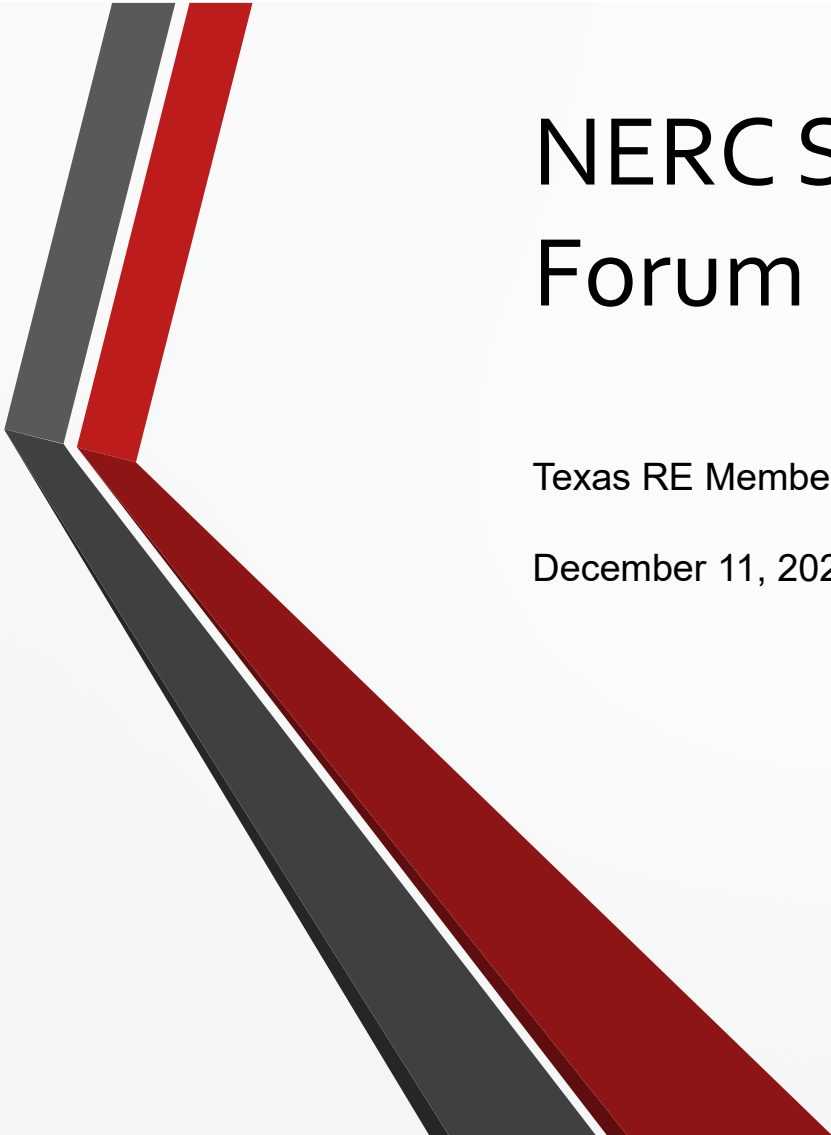


Supply Chain Revisions

Section 6. Vendor Electronic Remote Access Security Controls: For assets containing low impact BES Cyber System(s) identified pursuant to CIP-002, that allow vendor electronic remote access, the Responsible Entity shall implement a process to mitigate risks associated with vendor electronic remote access, where such access has been established under Section 3.1. These processes shall include:

- 6.1** One or more method(s) for determining vendor electronic remote access;
- 6.2** One or more method(s) for disabling vendor electronic remote access; and
- 6.3** One or more method(s) for detecting known or suspected inbound and outbound malicious communications for vendor electronic remote access.





NERC Standards Review Forum Update

Texas RE Member Representatives Committee

December 11, 2024

Shane Herrera, ERCOT

Chair

Chris Seaman, Rayburn
Electric Cooperative

Vice-Chair

Rachel Coyne, Texas RE

Texas RE Facilitator

Recent NSRF Meetings

- 9/19/2024 – Hybrid*
- 10/24/2024 – Remote only

Open sessions are hosted by Texas RE

Closed sessions are hosted by Rayburn Electric Cooperative

*In-person portion of hybrid meeting was hosted by Texas RE and held at the Texas RE offices

Standards Report

Standards Report

- Newly Effective Reliability Standards
 - 10/1/2024
 - EOP-011-4 – Emergency Operations*
 - EOP-012-2 – Extreme Cold Weather Preparedness and Operations *

**Refer to Implementation Plan for staggered timeframes of fully enforceable Standard.*

Standards Report

- Effective Dates for Upcoming Reliability Standards
 - 07/1/2025
 - IRO-010-5, Reliability Coordinator Data and information Specification and Collection
 - TOP-003-6.1, Transmission Operator and Balancing Authority Data and Information Specification and Collection
 - 10/1/2025
 - TOP-002-5, Operations Planning

**Refer to Implementation Plan for staggered timeframes of fully enforceable Standard.*



Ongoing NERC Reliability Standard Projects

Reliability Standards Under Development	
High Priority	
2020-02 Modifications to PRC-024 (Generator Ride-through)**	
2020-06 Verifications of Models and Data for Generators**	
2021-01 System Model Validation with IBRs**	
2021-03 CIP-002	
2021-04 Modifications to PRC-002-2**	
2022-02 Uniform Modeling Framework for IBR**	
2022-03 Energy Assurance with Energy-Constrained Resources	
2023-02 Analysis and Mitigation of BES Inverter-Based Resource Performance Issues**	
2023-04 Modifications to CIP-003	
2023-06 CIP-014 Risk Assessment Refinement	
2023-07 Transmission System Planning Performance Requirements for Extreme Weather	
2024-01 Rules of Procedure Definitions Alignment (Generator Owner and Generator Operator)	
2024-02 Planning Energy Assurance	
2024-03 Revisions to EOP-012-2	
Medium Priority	
2022-04 EMT Modeling*	
2023-01 EOP-004 IBR Event Reporting*	
2023-09 Risk Management for Third-party Cloud Services	
Low Priority	
2017-01 Modifications to BAL-003 Phase II	
2019-04 Modifications to PRC-005-6	
2021-02 Modifications to VAR-002-4.1*	
2021-08 Modifications to FAC-008	
2022-05 Modifications to CIP-008 Reporting Threshold	
2023-05 Modifications to FAC-001 and FAC-002 *	
2023-08 Modifications of MOD-031 Demand and Energy Data*	
Standard Processes Manual	
2023 Standard Processes Manual Revisions to Address SPSEG Recommendations	

High Priority Projects

1. 2020-02 Modifications to PRC-024 (Generator Ride-through) IBR, SPM
2. 2020-06 Verification of Models and Data for Generators IBR
3. 2021-01 System Model validation with IBRs IBR
4. 2021-04 Modifications to PRC-002-2 IBR, SPM
5. 2022-02 Uniform Modeling Framework for IBR IBR
6. 2022-03 Energy Assurance with Energy-Constrained Resources
7. 2023-02 Analysis and Mitigation of BES IBR Performance Issues IBR, SPM
8. 2023-06 CIP-014 Risk Assessment Refinement
9. 2023-07 Transmission Planning Performance for Extreme Weather SPM

IBR – Inverter-based resource and/or distributed energy resource projects

SPM – Standards Committee has approved a waiver to the Standards Procedure Manual timelines

Continues

High Priority Projects

Continued

- 10.2024-01 Rules of Procedure Definitions Alignment ^{IBR}
- 11.2024-02 Planning Energy Assurance
- 12.2024-03 Revisions to EOP-012-2 ^{SPM}

IBR – Inverter-based resource and/or distributed energy resource projects

SPM – Standards Committee has approved a waiver to the Standards Procedure Manual timelines

Medium Priority Projects

1. 2024-04 EMT Modeling ^{IBR}
2. 2023-01 EOP-004 IBR Event Reporting ^{IBR}

IBR – Inverter-based resource and/or distributed energy resource projects

SPM – Standards Committee has approved a waiver to the Standards
Procedure Manual timelines

Low Priority Projects

1. 2017-01 Modifications to BAL-003 Phase 2
2. 2019-04 Modifications to PRC-005-6
3. 2021-02 Modifications to VAR-002-4.1 ^{IBR}
4. 2021-08 Modifications to FAC-008
5. 2023-05 Modifications to FAC-001 and FAC-002 ^{IBR}
6. 2023-08 Modifications of MOD-031 Demand and Energy Data ^{IBR}

IBR – Inverter-based resource and/or distributed energy resource projects

SPM – Standards Committee has approved a waiver to the Standards Procedure Manual timelines



Recent NERC Filings

- 10/15/2024: RM24-6-000, DLR ANOPR Comments
- 11/4/2024: RM25-3-000, Petition for Approval of Proposed Reliability Standards PRC-024-4 and PRC-029-1
- 11/4/2024: RD25-3-000, Petition for Approval of proposed Reliability Standard PRC-030-1
- 11/4/2024: RD25-1-000, Petition for Approval of the definition of a new term "Inverter-Based Resource (IBR)"
- 11/4/2024: RD25-2-000, Petition for Approval of IBR Disturbance Monitoring Standards
- 11/7/2024: RD22-4-001, Inverter-Based Resources Work Plan Progress Update

Recent FERC Orders/Rules

- 10/30/2024: RR24-2-001, Letter Order Approving Compliance Filing

Recent Discussion Topics

- Implementation Plan of EOP-011-4
- ERCOT ISO's Provisions as required under EOP-011-4, R2, Part 2.2.9
- Project Updates
- Commenting Forum
- NSRF Survey
- 2025 Meeting Dates
- Nomination of 2025 leadership

Recent Discussion Topics

Continued

- Presentation and Q&A by Texas RE
 - PRC-004 and PRC-027 – *Blair Giffin*
 - Order 901 Standards Update – *Mark Henry*
 - TPL-001-5.1, NERC CMEP IP – *Blake Ianni*

Closed Session Topics

- Open Session Carry Over
- ERCOT Updates
 - TOP CFR revisions milestones
 - EOP-011-4, R2, Part 2.2.9
- Audit Experiences
- Other Discussion Items
 - NERC Alert Level II: IBR MQ Deficiencies
 - NERC IBR RFI: GO/GOP Cat. 2
- Future of NSRF
- Nominations of 2025 leadership

Upcoming NSRF Meetings

Future Scheduled Meeting Dates (meetings are typically held on the 3rd or 4th Thursday of each month except as noted; no meeting is held in December):

- ~~November 21, 2024~~ (Hybrid¹) Breakfast tacos by CPS Energy
- January 23, 2025
- February 20, 2025 (Hybrid)*
- March 27, 2025*
- April 17, 2025*
- May 15, 2025 (Hybrid)*
- June 26, 2025*
- July 24, 2025*
- August 21, 2025*
- September 18, 2025 (Hybrid)*
- October 23, 2025*
- November 20, 2025 (Hybrid)*

¹ In-person portion is scheduled to be held at ERCOT MET

* Indicates the date is tentative upon other groups and committees establishing dates in 2025

Questions or Comments?

Thank you!

ERCOT CIP WORKING GROUP UPDATE

For the Texas RE – Member Representatives Committee (MRC)
December 11, 2024

Trevor Tidwell, TNMP
CIPWG Chair

Thomas Standifur, Austin Energy
CIPWG Vice Chair

- ▶ October 11th @ CPS
- ▶ November 8th

RECENT MEETINGS

- ▶ E-ISAC briefing
- ▶ PUCT & Paragon – Cybersecurity Symposium October 9-10 UTSA
- ▶ Ask Texas RE Topics
 - ▶ Cybersecurity Awareness
 - ▶ NIST Cyber Security Framework 2.0
- ▶ What future CIPWG meetings look like.

OPEN SESSION TOPICS SUMMARY

- ▶ Standards typically tracked during the open sessions

HIGH PRIORITY

- ▶ **2021-03 CIP-002 Transmission Owner Control Centers**
 - ▶ Recently passed final ballot on 11/22/2024.
- ▶ **2023-04 Modifications to CIP-003**
 - ▶ Passed in November without final ballot per Standard Processes Manual.

MEDIUM PRIORITY

- ▶ 2023-09 Risk Management for Third-Party Cloud Services
 - ▶ SAR closed on July 1st

LOW PRIORITY

- ▶ 2022-05 Modifications to CIP-008 Reporting Threshold
 - ▶ Has been on hold to allow more high priority items to clear.

WITH FERC

- ▶ 2016-02 Modifications to CIP under docket number RM24-8-000
- ▶ 2023-03 Internal Network Security Monitoring (INSM) under docket number FERC RM24-7-000. NOPR issued on 9/19/2024. Comment period has closed.

OPEN SESSION CIP STANDARDS TRACKED

► NONE

OPEN SESSION
NERC REPORTS, GUIDELINES, WHITE PAPERS
TRACKED

- ▶ Security Topics
 - ▶ Each session has a ERCOT Threat Operations update
- ▶ Compliance Topics
 - ▶ LISPA
 - ▶ Compliance Sharing – CIP-011 R1
 - ▶ Peer check compliance questions
- ▶ Grid Guardians
- ▶ Elections

CLOSED SESSION TOPICS SUMMARY

- ▶ CIPWG Leadership
 - ▶ No changes for the 4th consecutive year
- ▶ New format
 - ▶ Still meeting every month
 - ▶ Once a quarter meetings will be in person and located in different parts of the state.
 - ▶ Drive up engagement and possible better Grid Guardians participation
 - ▶ More in-depth content
 - ▶ Maximize travel budgets
 - ▶ All other months will be virtual only
- ▶ GridEx VIII
- ▶ Governor's Executive Order GA 49 relating to the protection of critical infrastructure.

LOOK AHEAD TO 2025

ANY QUESTIONS?

COMPLIANCE AND CERTIFICATION COMMITTEE

*Update to Texas RE Member Representatives Committee
December 2024*

- **October CCC Meeting ([CCC Agenda Package](#))**
 - NERC Activities Related to Inverter-Based Resources
 - Compliance Monitoring Tools - RSAWs
 - Q4 Focused Discussion
 - Best Use of Align's Capability and Progress on Align/SEL Fixes
 - NERC Internal Audit
 - Update

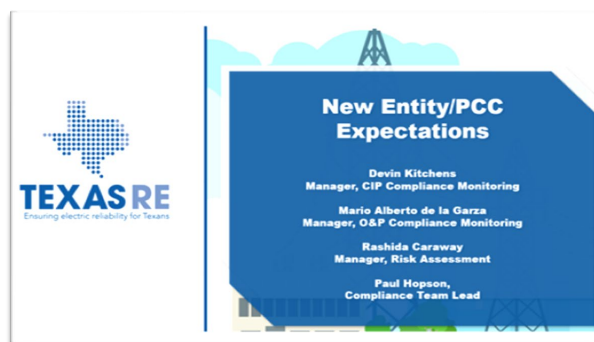


TEXAS RE

CIP Compliance Monitoring Report

**Member Representatives Committee
Meeting
December 11, 2024**

Q3 2024: Webinar, Workshop, and Conference Highlights



WECC

POWER SYSTEMS SECURITY CONFERENCE

WECC Power Systems Security Conference:

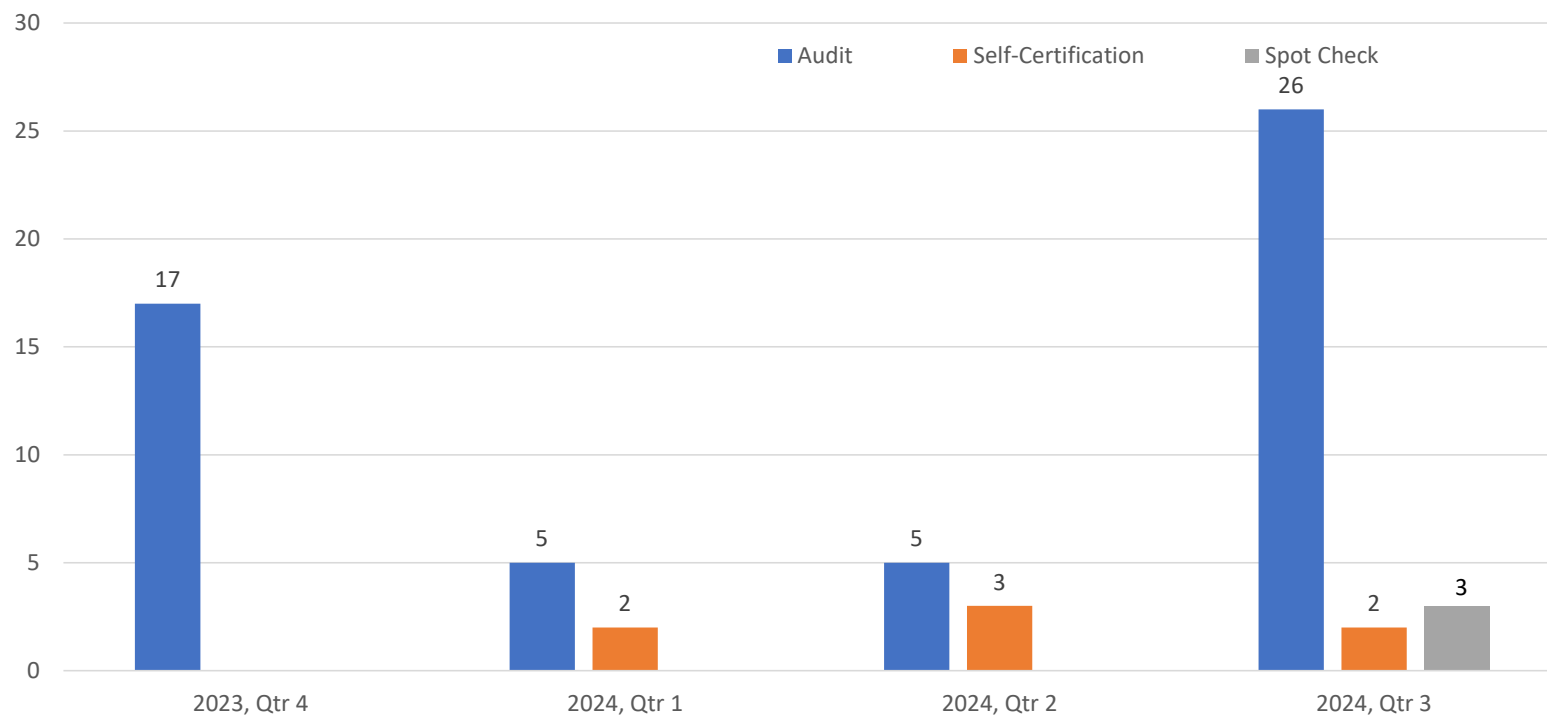
The conference will provide innovative solutions and insights from renowned security experts to enhance security training and mitigate operational risks. The conference will cover topics such as cyber- and physical security threat vectors, detection, management, and best practices in the industry. Experts from DHS CISA, FBI, Idaho National Labs, WECC, and other organizations will be presenting and participating in the panel discussions.

The conference will be held at the WECC offices in Salt Lake City from August 13 to 15. It will consist of two main events, with a day and a half dedicated to physical security and a day and a half focused on cybersecurity. This allows us to accommodate all attendees and gives you the chance to participate in both sessions.



Q4 2023 – Q3 2024: Total CIP Requirements

CIP Standard Requirements by Engagement Type

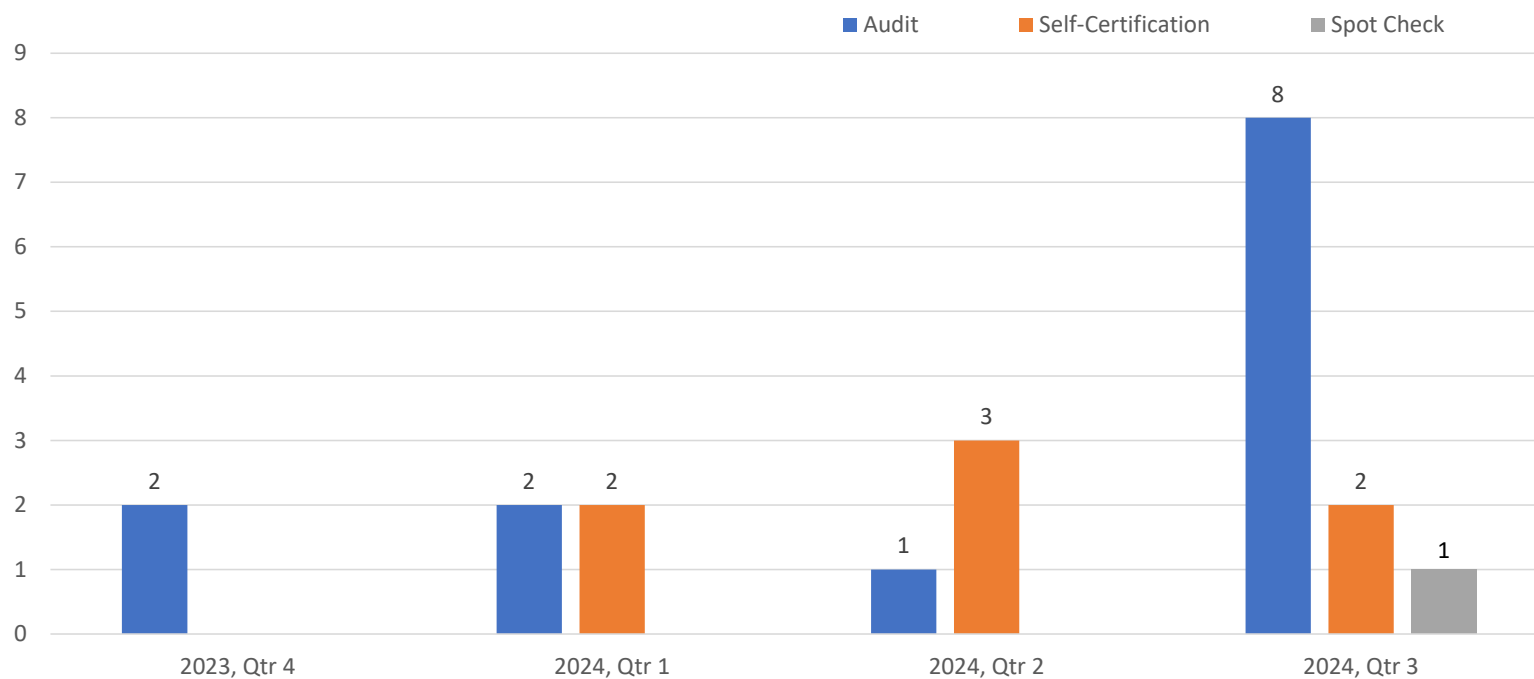


3

Member Representatives Committee Meeting

Q4 2023 – Q3 2024: Total CIP Engagements

Total CIP Entity Engagements

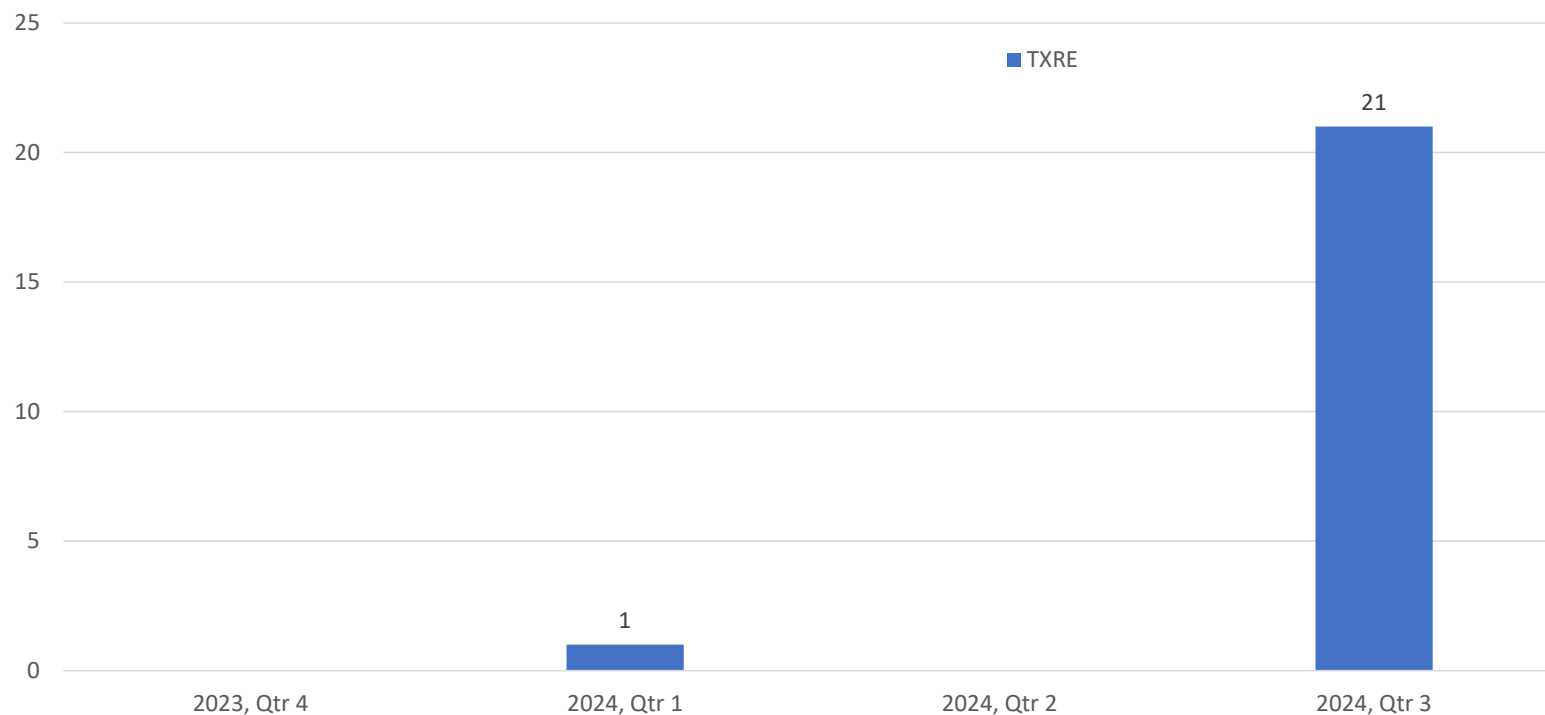


4

Member Representatives Committee Meeting

Q4 2023 – Q3 2024: Total CIP Requirements CO

Total CIP Standard Requirements in Coordinated Oversight



5

Member Representatives Committee Meeting



TEXAS RE

O&P Compliance Monitoring Report

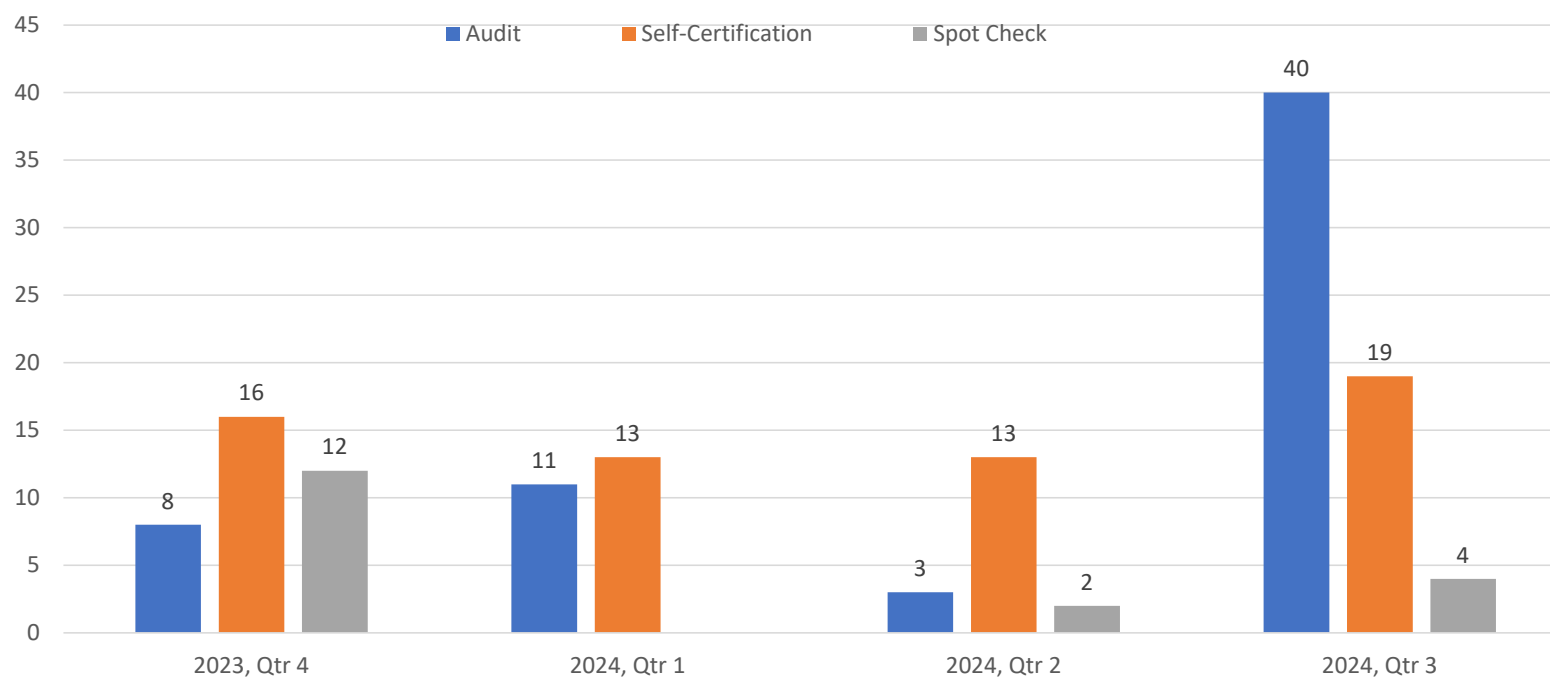
**Member Representatives Committee
Meeting
December 11, 2024**

Q3 2024: Webinar, Workshop, and Conference Highlights

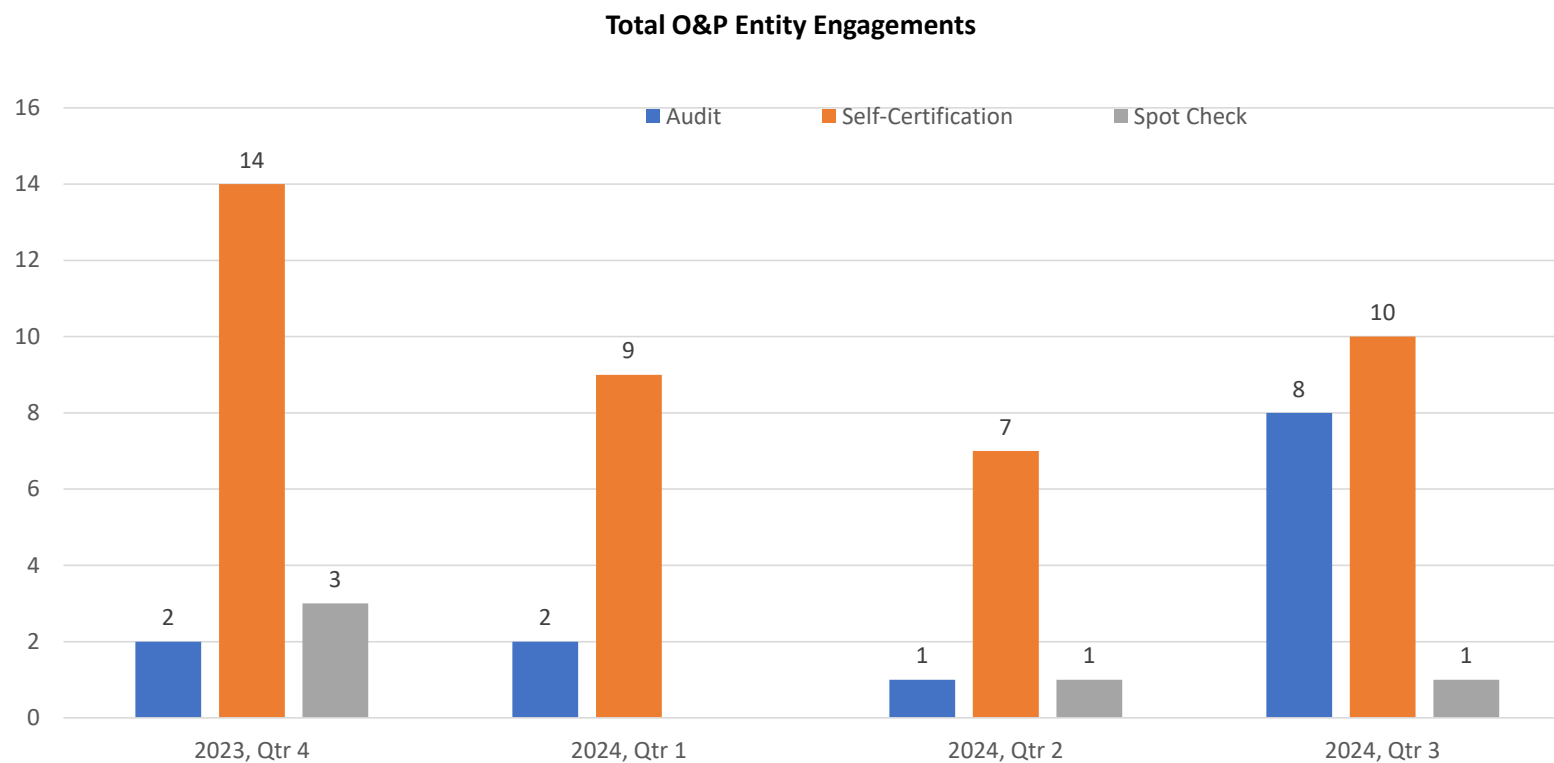


Q4 2023 – Q3 2024: Total O&P Requirements

O&P Standard Requirements by Engagement Type

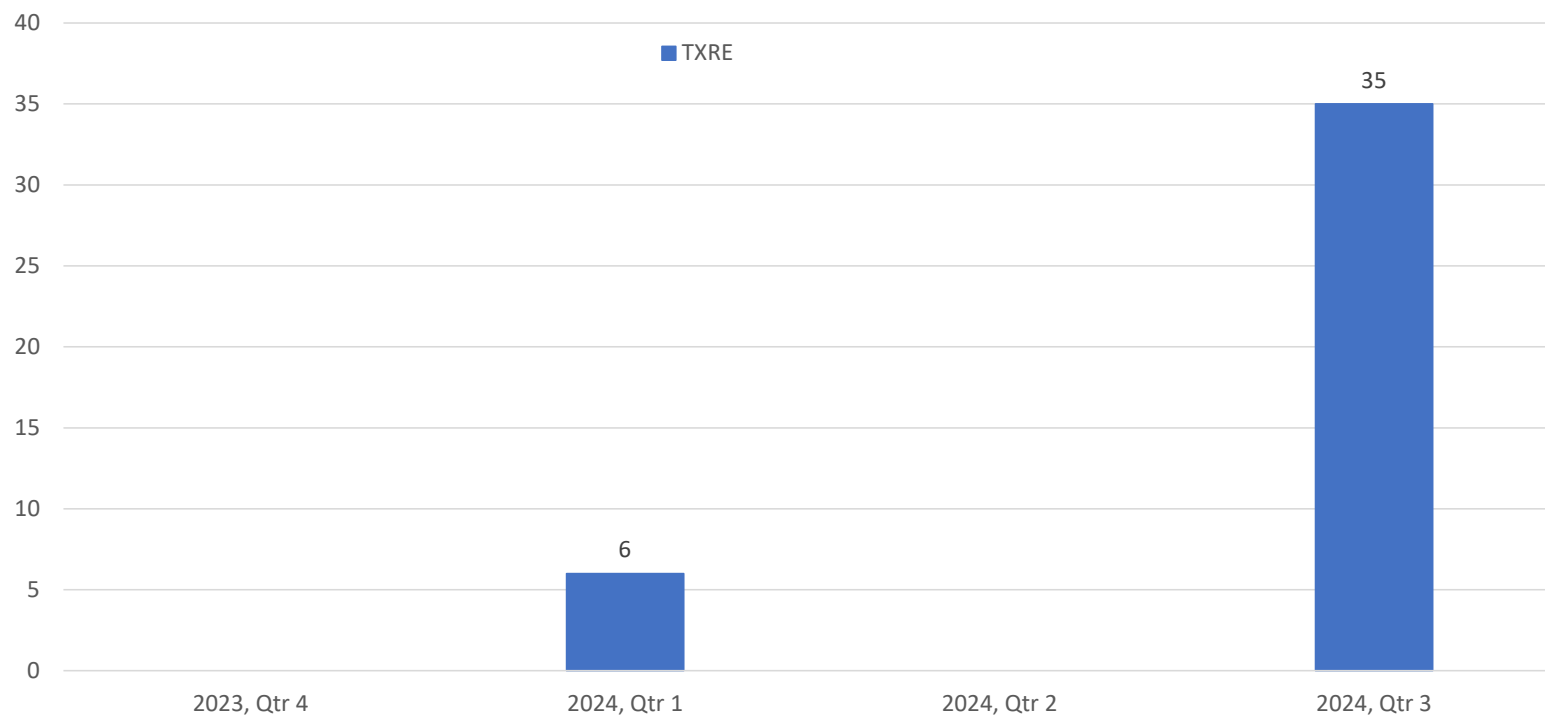


Q4 2023 – Q3 2024: Total O&P Engagements



Q4 2023 – Q3 2024: Total O&P Requirements CO

Total O&P Standard Requirements in Coordinated Oversight



5

Member Representatives Committee Meeting



TEXAS RE

Risk Assessment Report

**Member Representatives Committee
Meeting
December 11, 2024**

Q3 2024: Webinar, Workshop, and Conference Highlights



TEXASRE
Ensuring electric reliability for Texans

**New Entity/PCC
Expectations**

Devin Kitchens
Manager, CIP Compliance Monitoring

Mario Alberto de la Garza
Manager, O&P Compliance Monitoring

Rashida Caraway
Manager, Risk Assessment

Paul Hopson,
Compliance Team Lead



TEXASRE

**IRA/COP Expectations
for New Registrations**

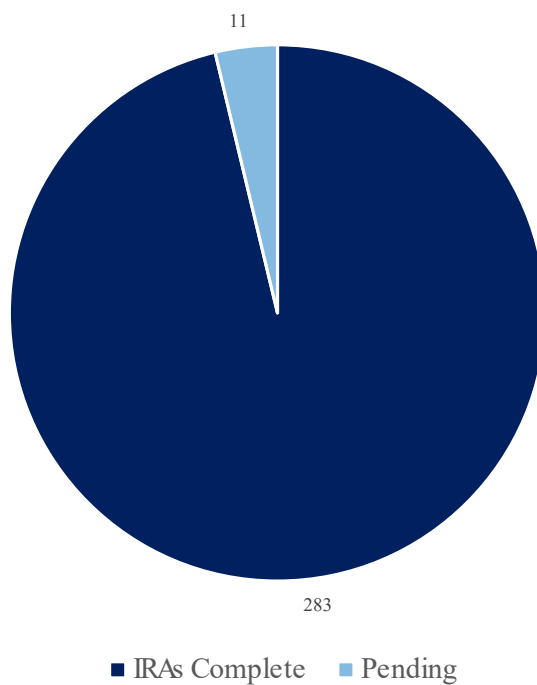
Sridhar Pushpavanam
Senior Assessment Risk Engineer

August 22, 2024

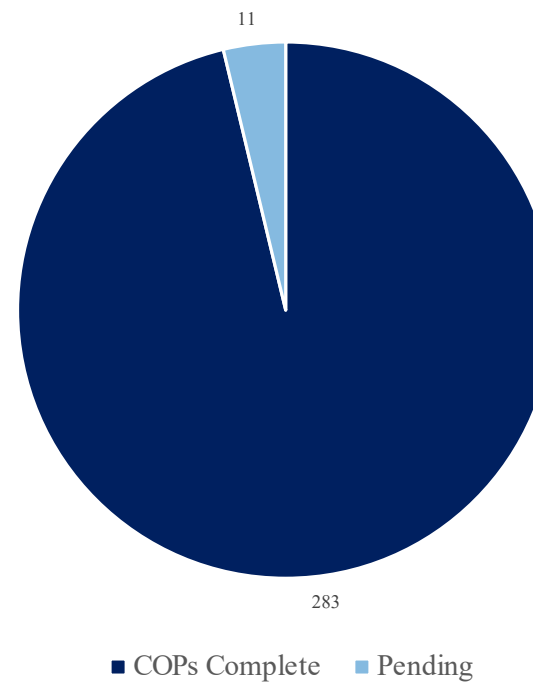


Q3 2024: Texas RE Non-Coordinated Oversight

Status of Texas RENon-COIRAs



Status of Texas RENon-COCOPs

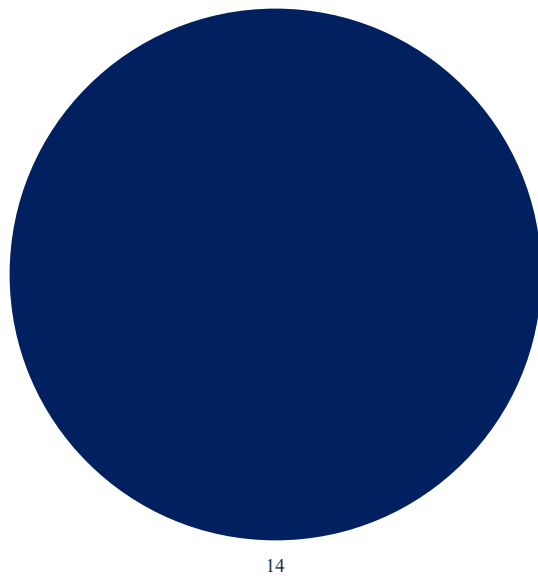


As of September 30, 2024



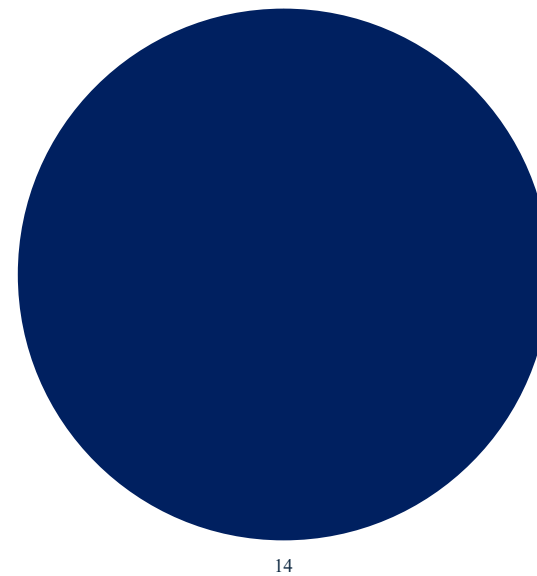
Q3 2024: Texas RE Coordinated Oversight

Status of CO Groups with Texas RE as LRE



■ IRAs Complete ■ Pending

Status of CO Groups with Texas RE as LRE



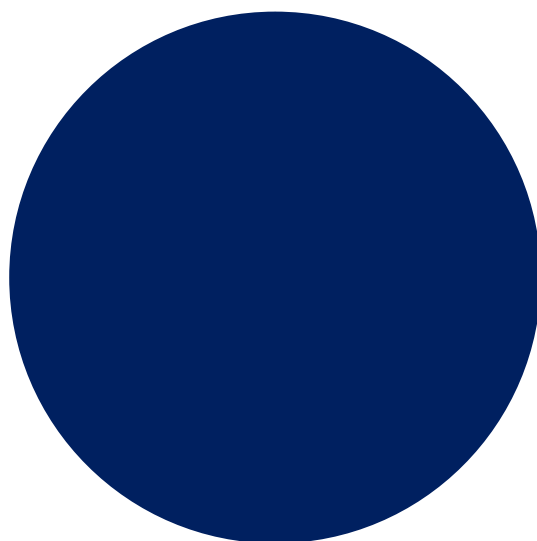
■ COPs Complete ■ Pending

As of September 30, 2024



Q3 2024: COPs Completed Prior to Audit

Status of COPs with an Audit Notification Letter Sent



3

■ Texas RE

As of September 30, 2024

5

Member Representatives Committee Meeting





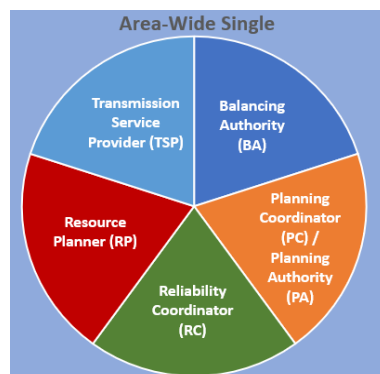
TEXAS RE

Registration Report

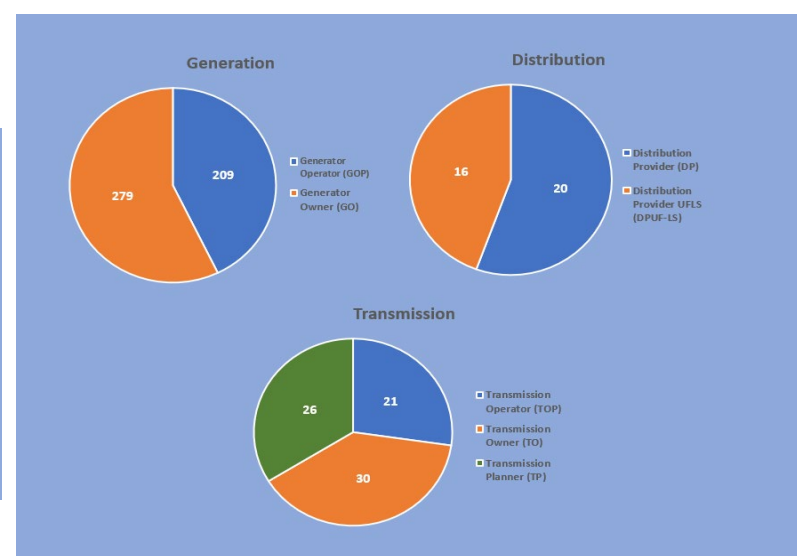
**Member Representatives Committee
Meeting
December 11, 2024**

Number of Registered Entities by Function – Texas RE Region

335 Registered Entities | 573 Functions
As of November 1, 2023



358 Registered Entities | 606 Functions
As of November 1, 2024

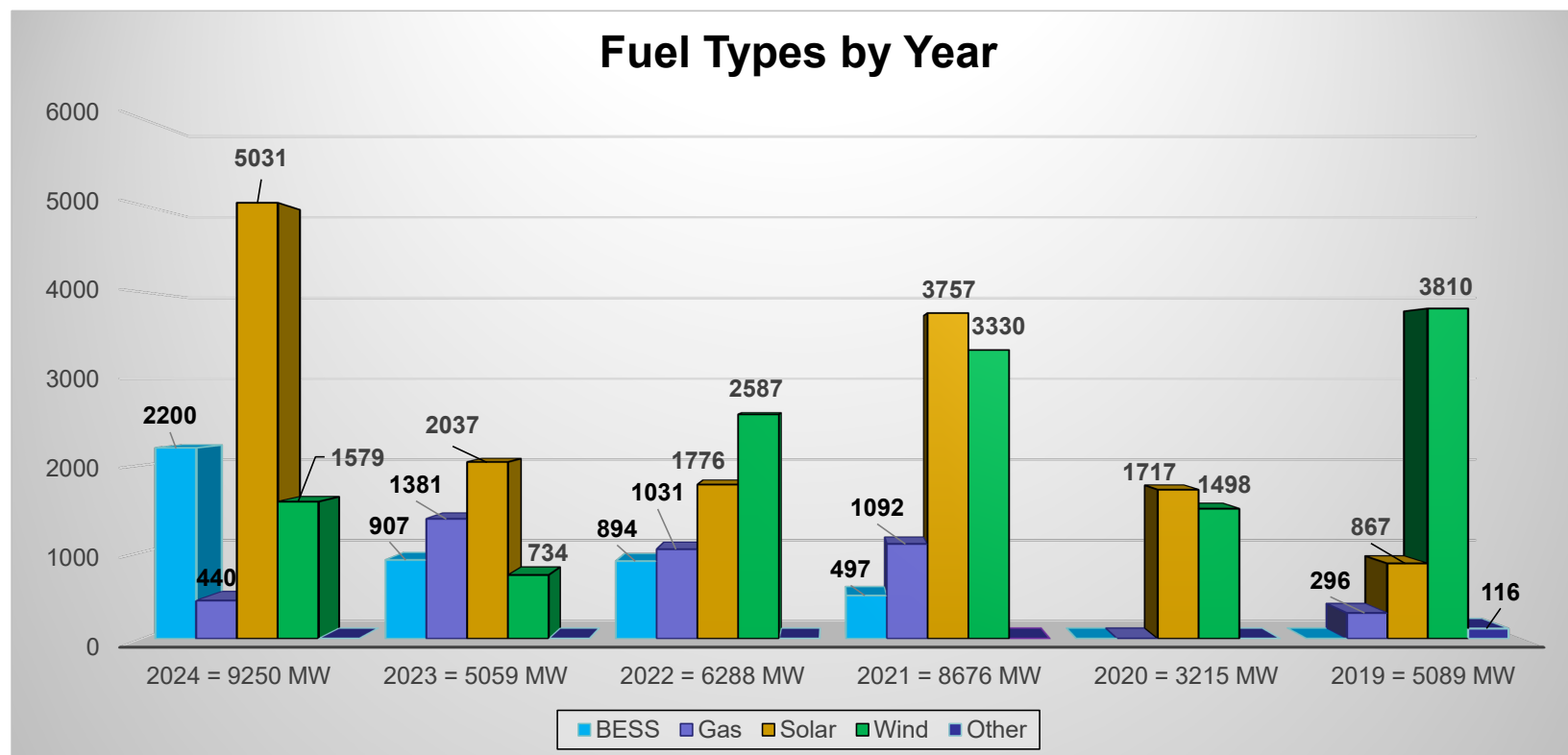


Note: 20 GOs and 11 GOPs deregistered in Q3 2024 due to a large consolidation project.

Over 20% of all Texas RE registered entities participate in the Coordinated Oversight Program



Registered Generation by Fuel Type



Other Registration Activities – CFR and JRO Agreements

Coordinated Functional Registration (CFR)

Voluntary Written Agreement

- A CFR agreement occurs when two or more NERC registered entities divide responsibilities of the NERC Reliability Standards
- Texas RE reviews CFR agreements in the Centralized Organization Registration ERO System (CORES) to ensure there are no gaps or overlaps in responsibility between the parties
- A CFR must be updated when modifications (changes to applicable parties or standards) occur
- A [CFR Member Listing](#) is available on NERC's [website](#)
 - Texas RE currently has 8 active CFRs
 - 1 GO CFR (MRO is the lead region)
 - 5 GOP CFRs
 - 2 TOP CFRs

Joint Registration Organization (JRO)

Voluntary Written Agreement

- A JRO agreement occurs when an entity is registered for a specific function and accepts all compliance responsibility of all applicable NERC Reliability Standards for itself and on behalf of one or more parties or related entities
- Texas RE reviews and approves JROs in CORES
- A JRO must be updated when any modifications occur
- A [JRO Member Listing](#) is available on NERC's [website](#)
 - Texas RE currently has 7 active JROs:
 - 2 DP JROs
 - 1 DP UFLS JRO
 - 2 GO JROs
 - 1 GOP JRO
 - 1 TP JRO



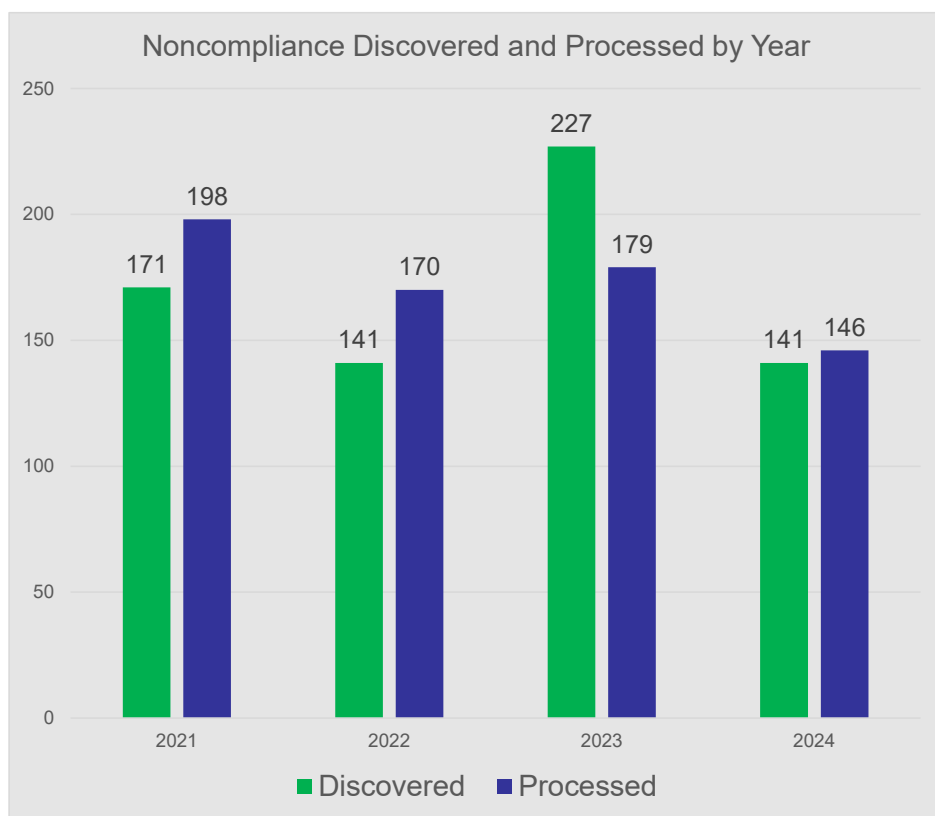


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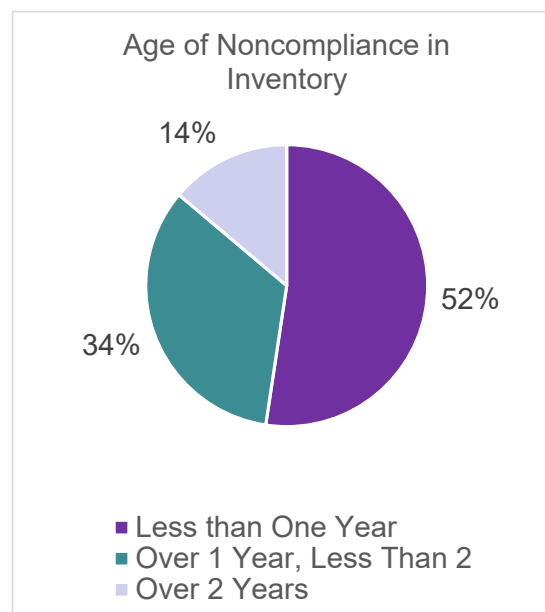
Enforcement Report

**Member Representatives Committee
Meeting
December 11, 2024**

Enforcement Inventory Dashboard



Inventory End of 2024 Q3:
231



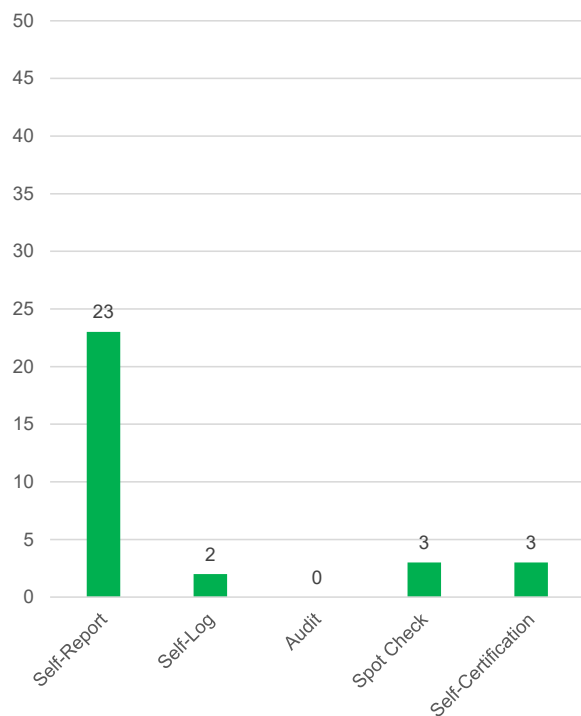
Top Violations Discovered by NERC Standards

FAC-008	16
CIP-003	12
VAR-002	11
CIP-004	10
MOD-025	10
MOD-026	8
CIP-010	7
MOD-027	7
PRC-005	6
BAL-001	5
CIP-007	5
EOP-011	5

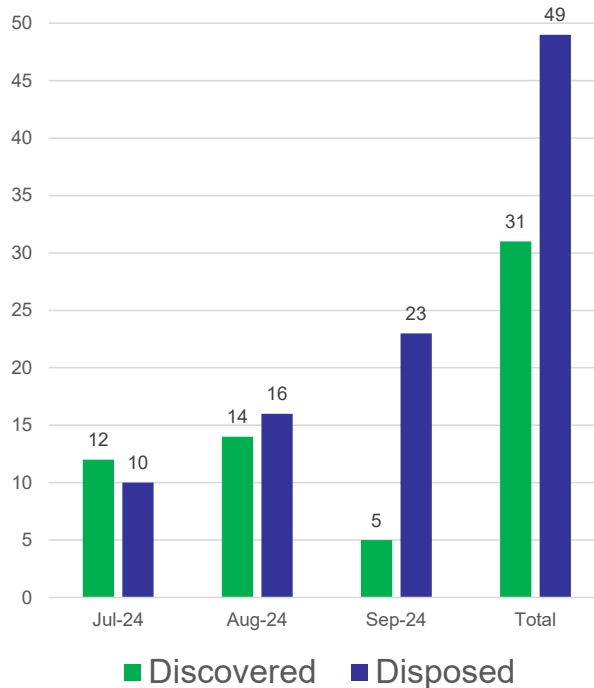


Enforcement Quarterly Dashboard

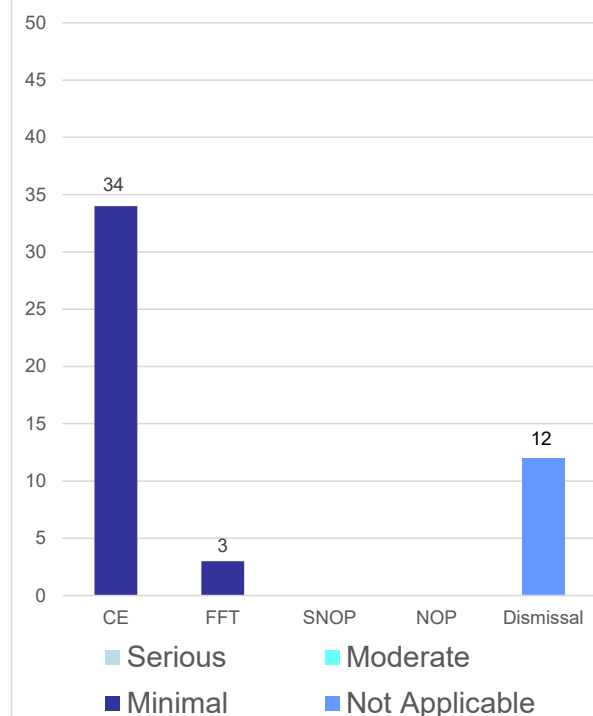
Q3 Noncompliance Discovered by Discovery Method



Quarter Discovered and Disposed Comparison



Q3 Noncompliance Processed Risk by Disposition Type





TEXAS RE

Reliability Services Report

**Member Representatives Committee
Meeting
December 11, 2024**

Key Activities

2024 Winter Reliability Assessment (WRA)

2024 Probabilistic Assessment (ProbA)

2024 Long Term Reliability Assessment (LTRA)

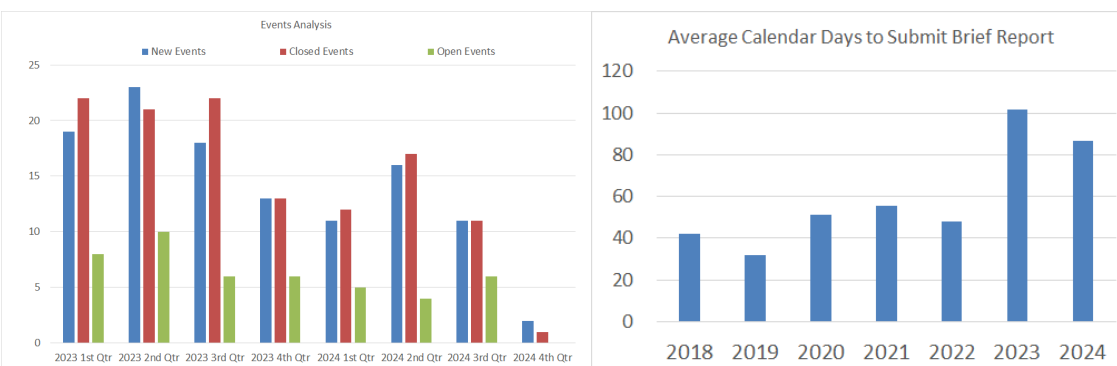
Interregional Transfer Capability Study in Progress

Energy Adequacy Process and Software Procurement



Reliability Services Functional Dashboard as of November 15, 2024

EVENTS ANALYSIS



SITUATIONAL AWARENESS

Through 11/15/2024

Category	OE-417 Submission	EOP-004 Submission
Physical/cyber Threat	2	
System Separation or Islanding		
Loss of Firm Load		
Public Appeals	3	
Loss of Monitoring	5	
Control Center Evacuation		
Loss of > 50k Customers	9	
Fuel Supply Emergency		
Damage/Destruction of Facility		9
Generation Loss		1
Transmission Loss		

PERFORMANCE ANALYSIS

On-Time Section 1600 Reporting Status as of 11/14/2024

	2023 Q4	2024 Q1	2024 Q2	2024 Q3
TADS	100%	97%	95%	87%
GADS	100%	69%	60%	64%
MIDAS	100%	97%	94%	61%
Wind GADS	96%	Delayed	Delayed	Delayed
Solar GADS	96%	Delayed	Delayed	Delayed

>90%
>80% and < 90%
<80%

Q3 data reporting
in progress

* Q3 data due 11/15 for TADS

** Q3 data due 11/30 for MIDAS

*** Q1/Q2/Q3 data due on 12/19 for GADS-Conventional, Wind and Solar

RELIABILITY ASSESSMENTS

Report Quality by Region

Region	LTRA Data Quality	LTRA Timeliness	WRA Quality	WRA Timeliness	SRA Quality	SRA Timeliness
MRO						
TPCC						
SP						
SEAC						
TEXAS-RE						
WROC						

RELIABILITY ASSESSMENT

Report	Planning	Request	Delivery	Draft/Revision	Publish
LTRA					
SRA					
WRA					

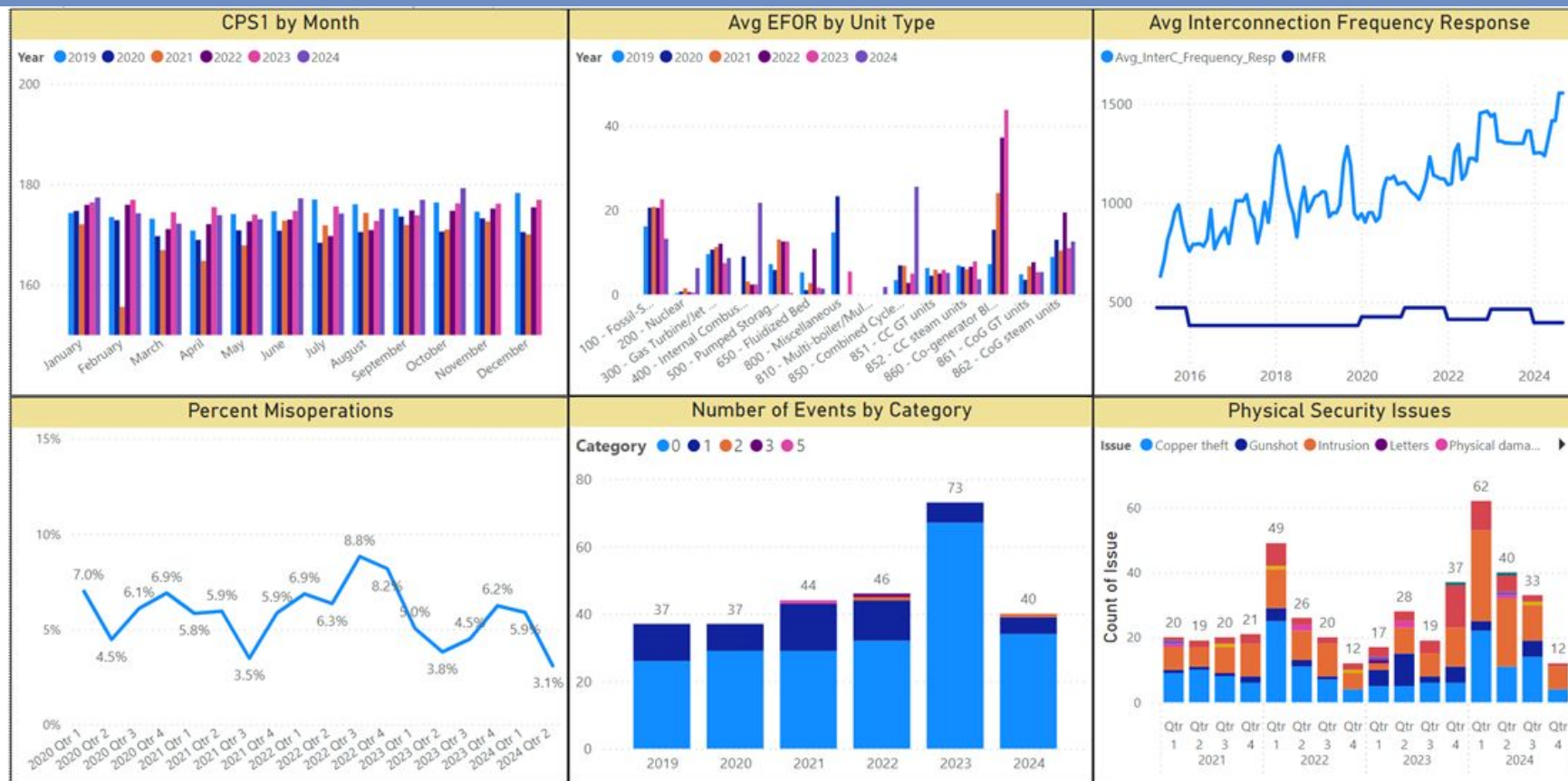
Reporting Process

Source: SPS Reliability Risk Monitor November 2020

Source: RPS Reliability Risk Monitor November 2024



Grid Reliability Dashboard as of November 15, 2024



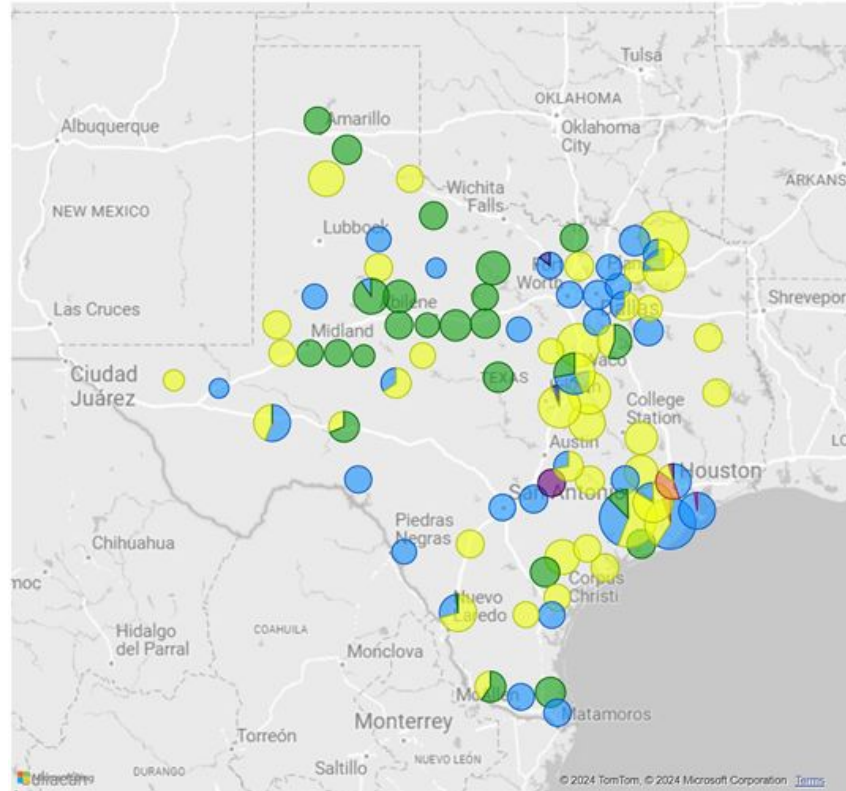
APPENDIX: RELIABILITY AND PERFORMANCE INDICATORS UPDATE



New Generation Interconnections as of November 1, 2024

New Generation Interconnections

Technology BA CC GT IC PV ST WT



Technology	Year	Count of Capacity (MW)	Sum of Capacity (MW)
WT	2022	2	41.00
WT	2023	6	104.50
BA	2024	20	2,070.73
CC	2024	3	88.00
GT	2024	3	220.10
PV	2024	40	10,014.67
ST	2024	1	14.00
WT	2024	28	4,344.73
BA	2025	36	5,609.09
GT	2025	1	143.70
IC	2025	2	218.40
PV	2025	30	6,727.04
WT	2025	6	1,240.91
BA	2026	1	150.60
PV	2026	4	813.06
WT	2026	2	424.62
BA	2027	1	510.40
Total		186	32,735.55

Approved for Synchronization/No COD

Year	Count of Capacity (MW)	Sum of Capacity (MW)
2017	1	7.30
2018	2	9.30
2019	6	634.10
2020	7	661.50
2021	11	2,217.83
2022	12	3,046.43
2023	22	4,852.73
2024	43	7,293.92
Total	104	18,723.11

New Generation interconnections with a signed interconnection agreement and meeting all Planning Guide requirements



Generation Mix Trends

Coal %, Natural Gas %, Nuclear % and Renewable % by Year and Month

● Coal % ● Natural Gas % ● Nuclear % ● Renewable %



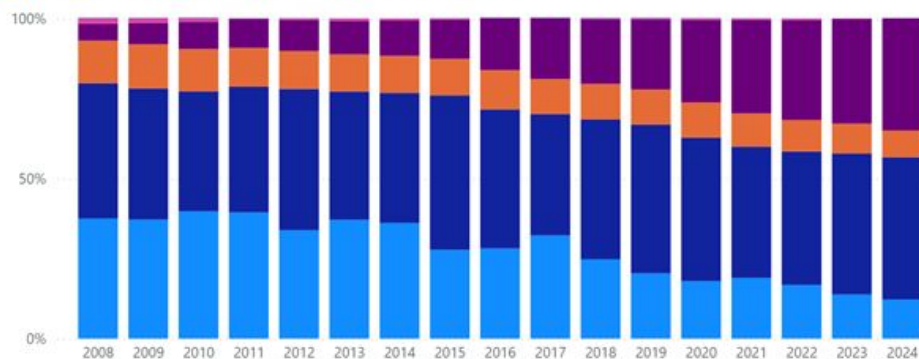
Natural Gas % and Natural Gas Electric Power Price \$/1000 ft3

● Natural Gas % ● Natural Gas Electric Power Price \$/1000 ft3

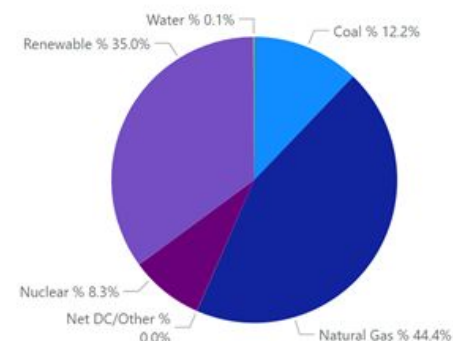


Coal %, Natural Gas %, Nuclear %, Renewable %, Net DC/Other % and Water % by Year

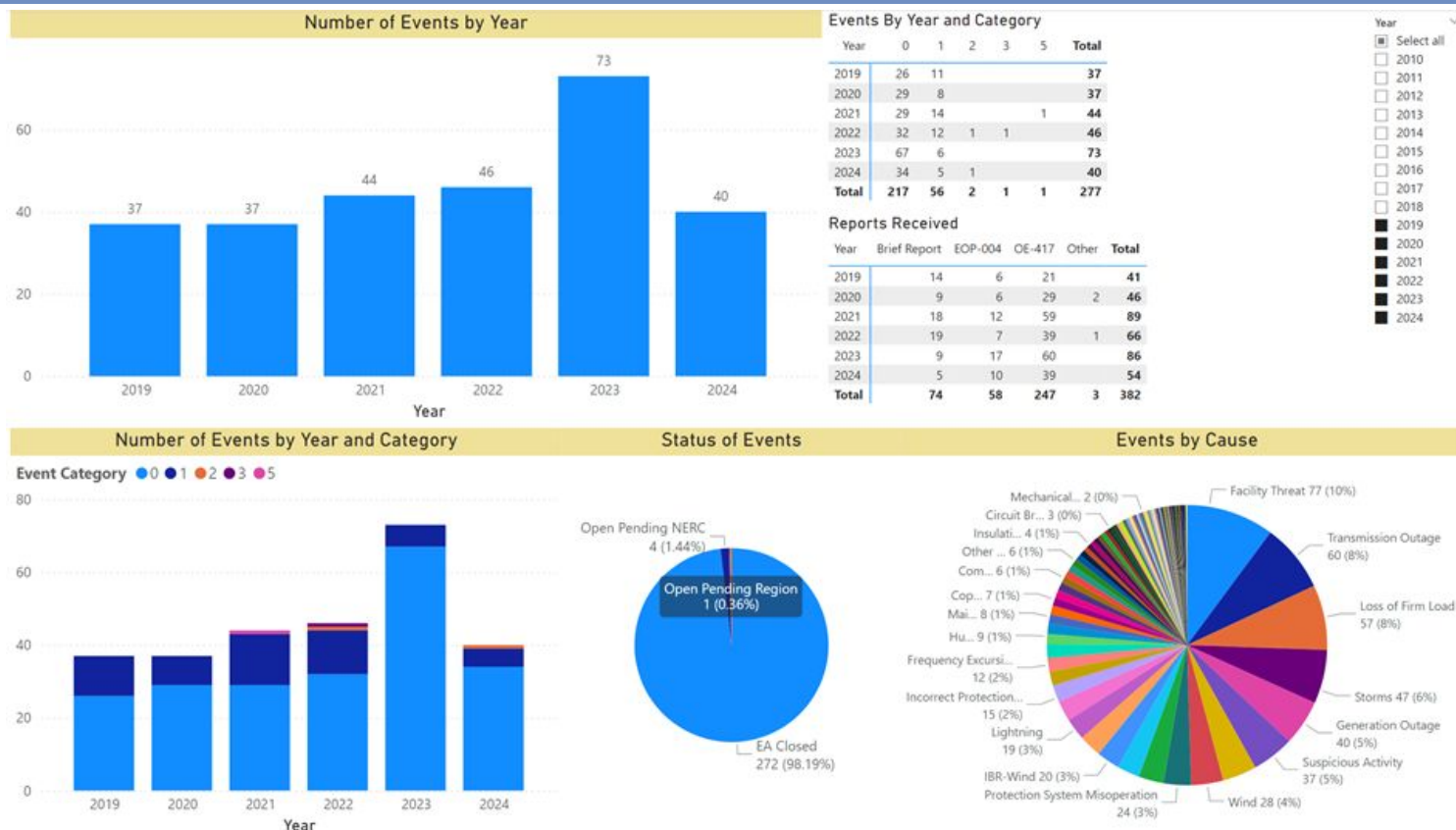
● Coal % ● Natural Gas % ● Nuclear % ● Renewable % ● Net DC/Other % ● Water %



2024 Generation Mix by Fuel Type



System Events Dashboard as of November 15, 2024



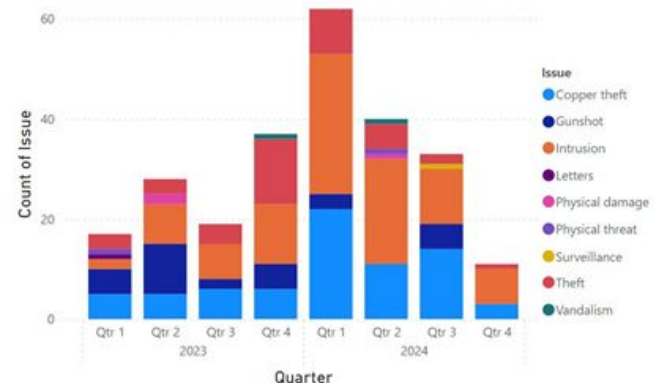
Key 2024 System Events

- Four reported loss of monitoring and control events
- 18 reported physical security events
- Hurricane Beryl
- CrowdStrike event
- One reported ransomware event
- One multiple generation unit loss event

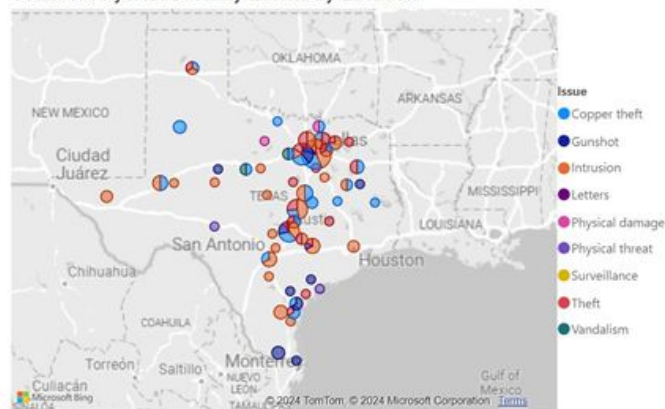


Infrastructure Protection – 2023/2024

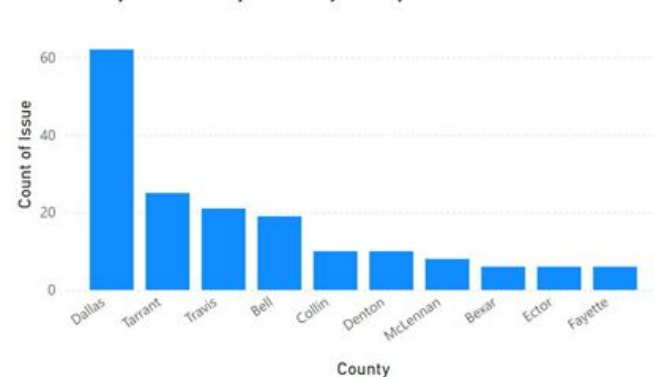
Count of Physical Security Events by Year, Quarter



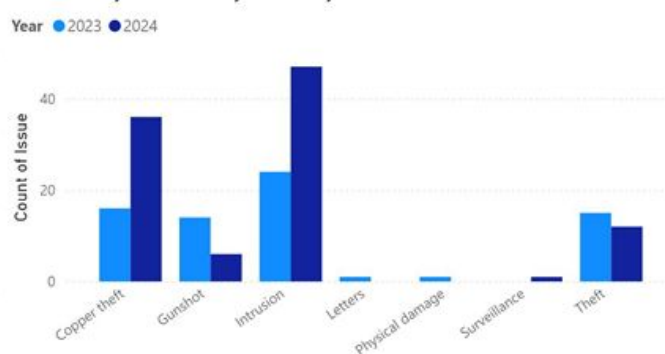
Count of Physical Security Events by Location



Count of Physical Security Events by County



Count of Physical Security Events by Issue and Year

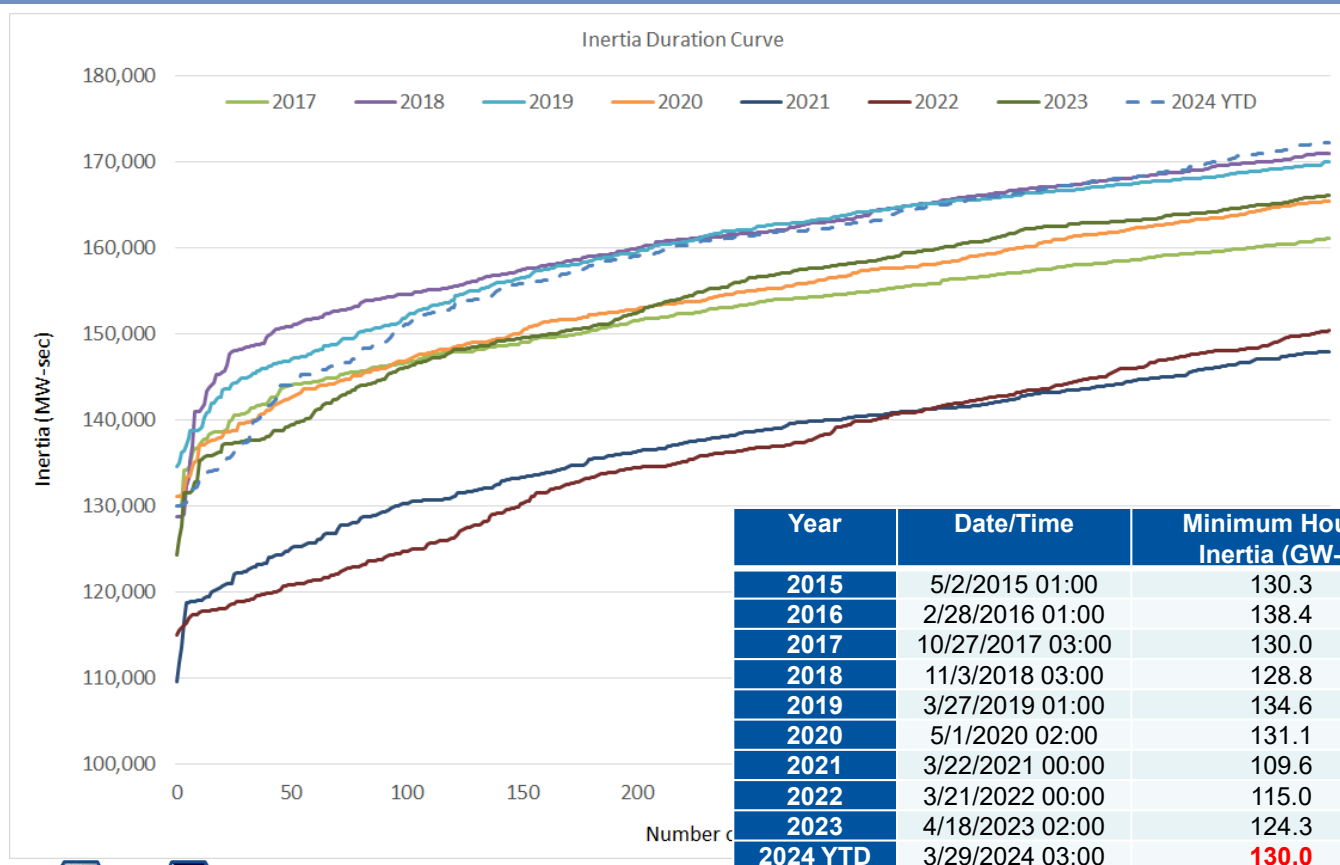


Incidents reported to System Security Response Group (SSRG) since 1/1/2023

Large increase in copper theft and physical intrusions to date in 2024 compared to 2023



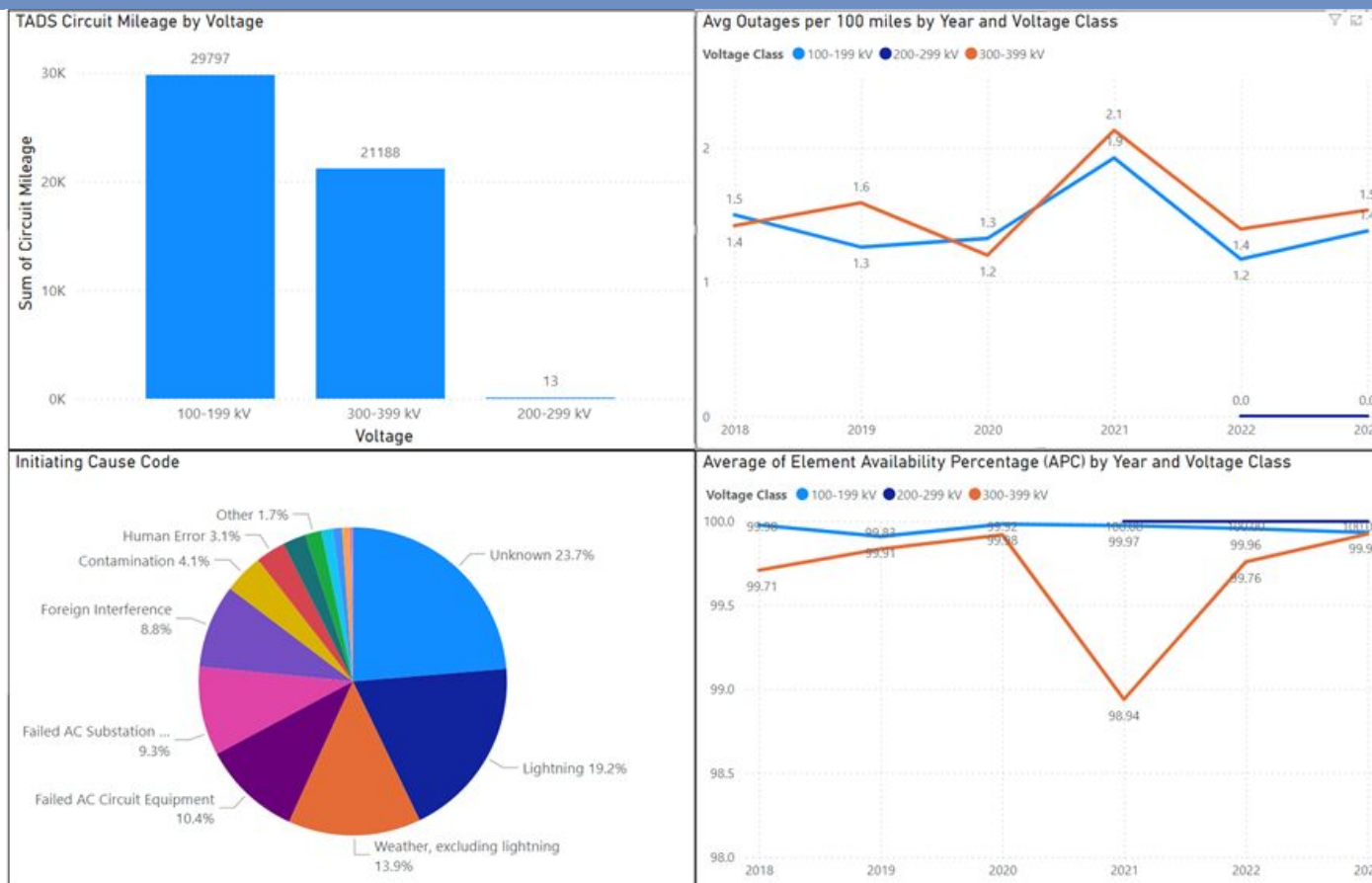
System Inertia as of November 15, 2024



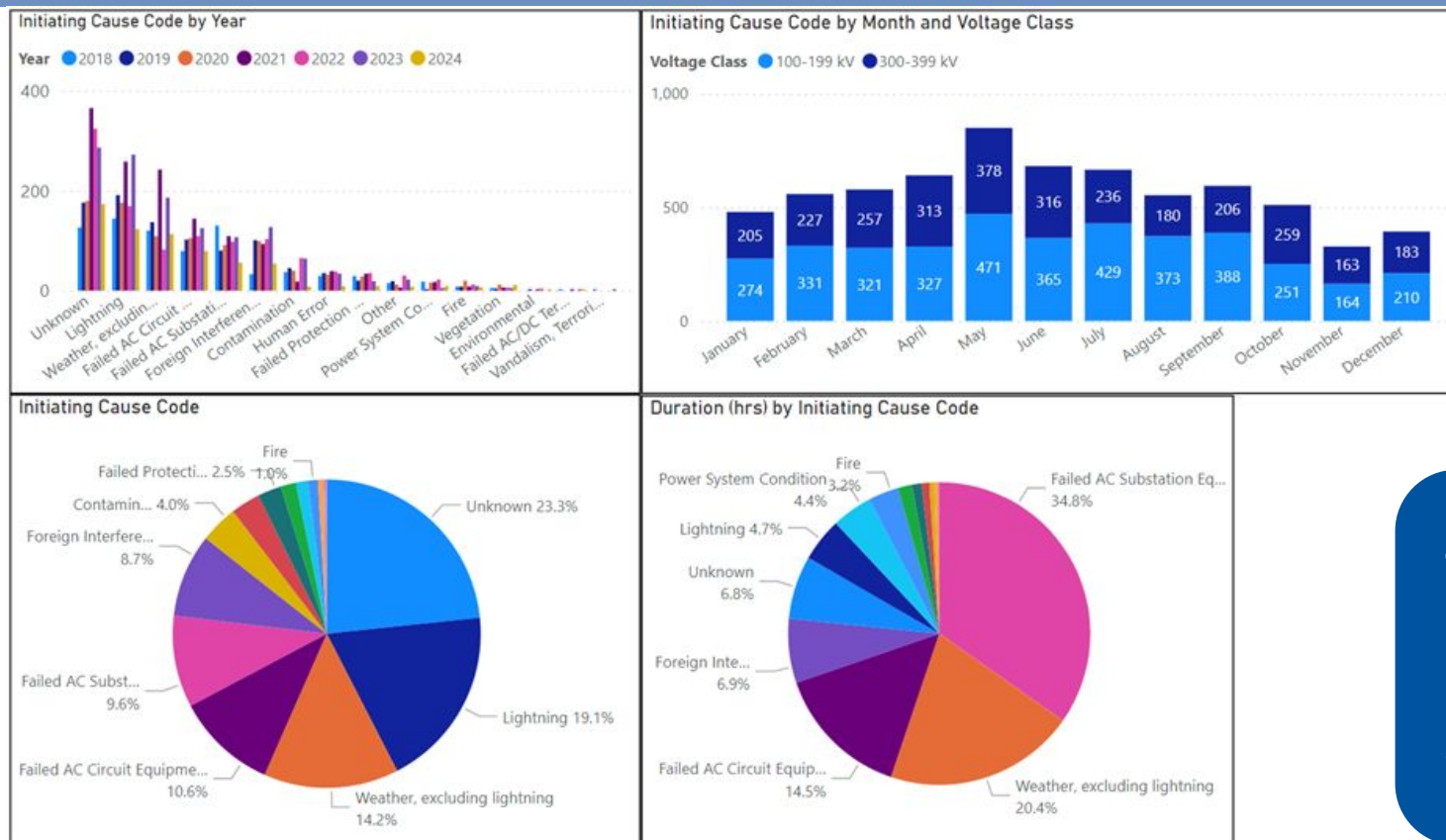
**2024 Inertia
Duration Curve**



Transmission Performance Dashboard



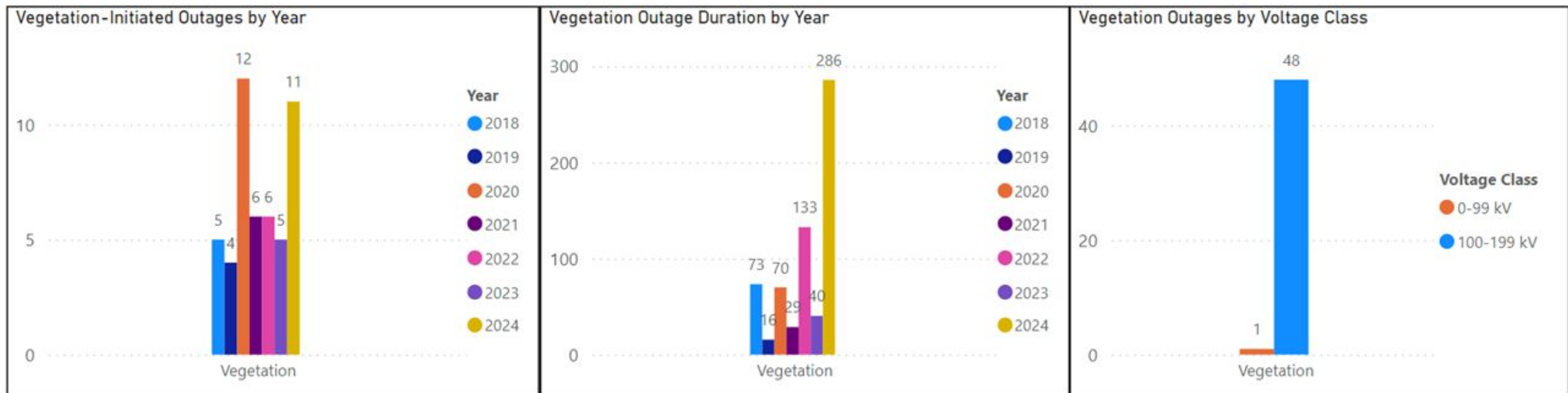
Transmission Performance Dashboard



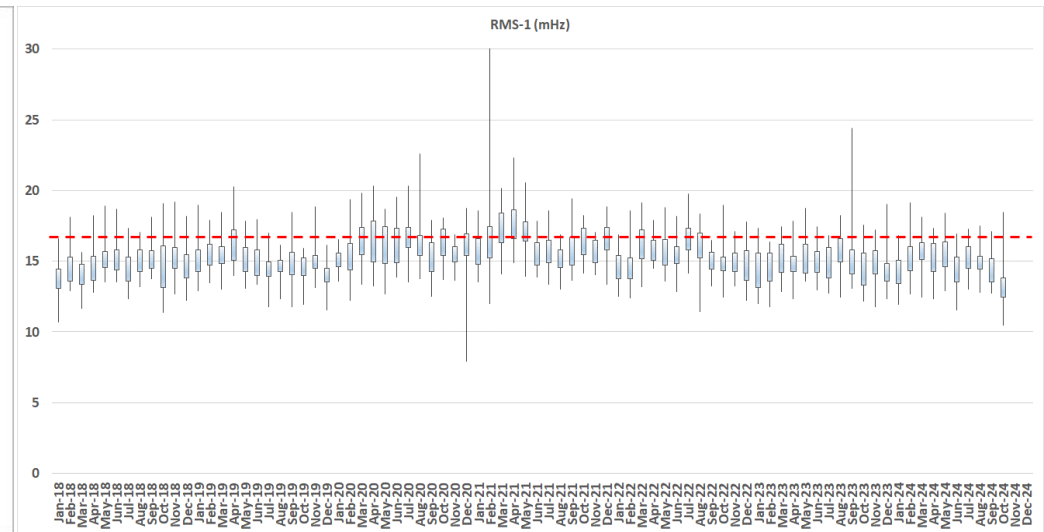
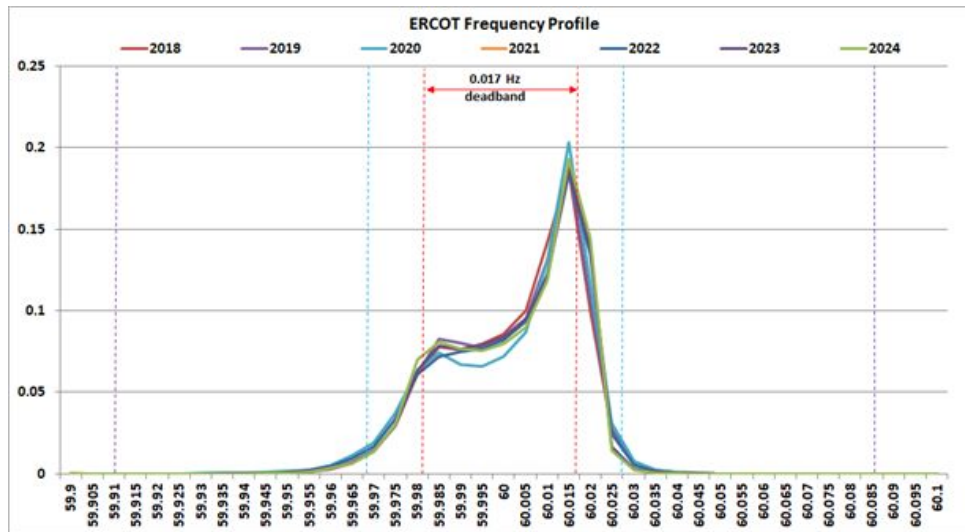
**Transmission Event
Data by Cause,
Month, and
Duration
2018 – 2024 YTD**



Vegetation Outage Trends – Available Data



Frequency Control as of November 15, 2024



Balancing Authority ACE Limit (BAAL) Exceedances

72 clock-minutes of BAAL Exceedances in 2021

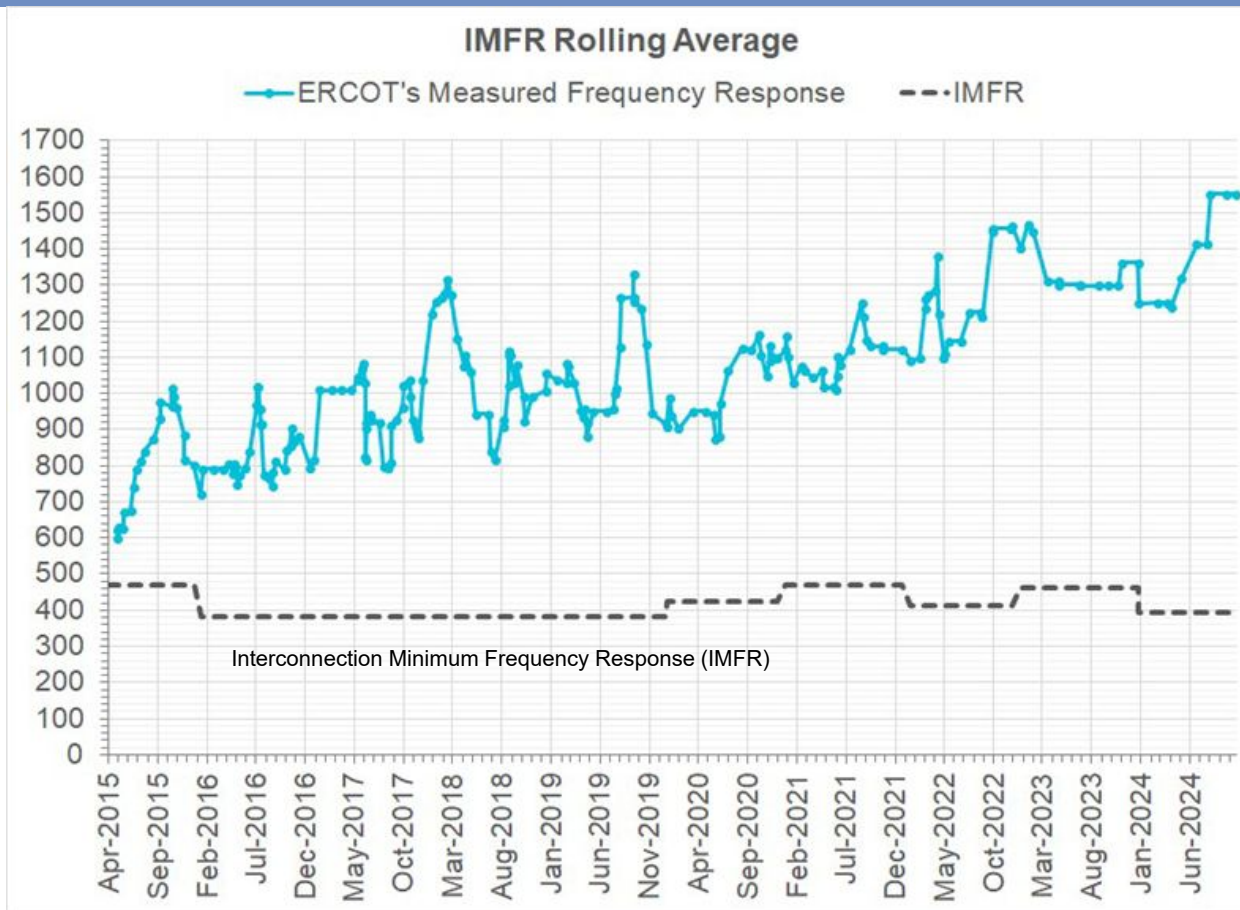
1 clock-minute of BAAL Exceedances in 2022

21 clock-minutes of BAAL Exceedances in 2023

5 clock-minutes of BAAL Exceedances in 2024



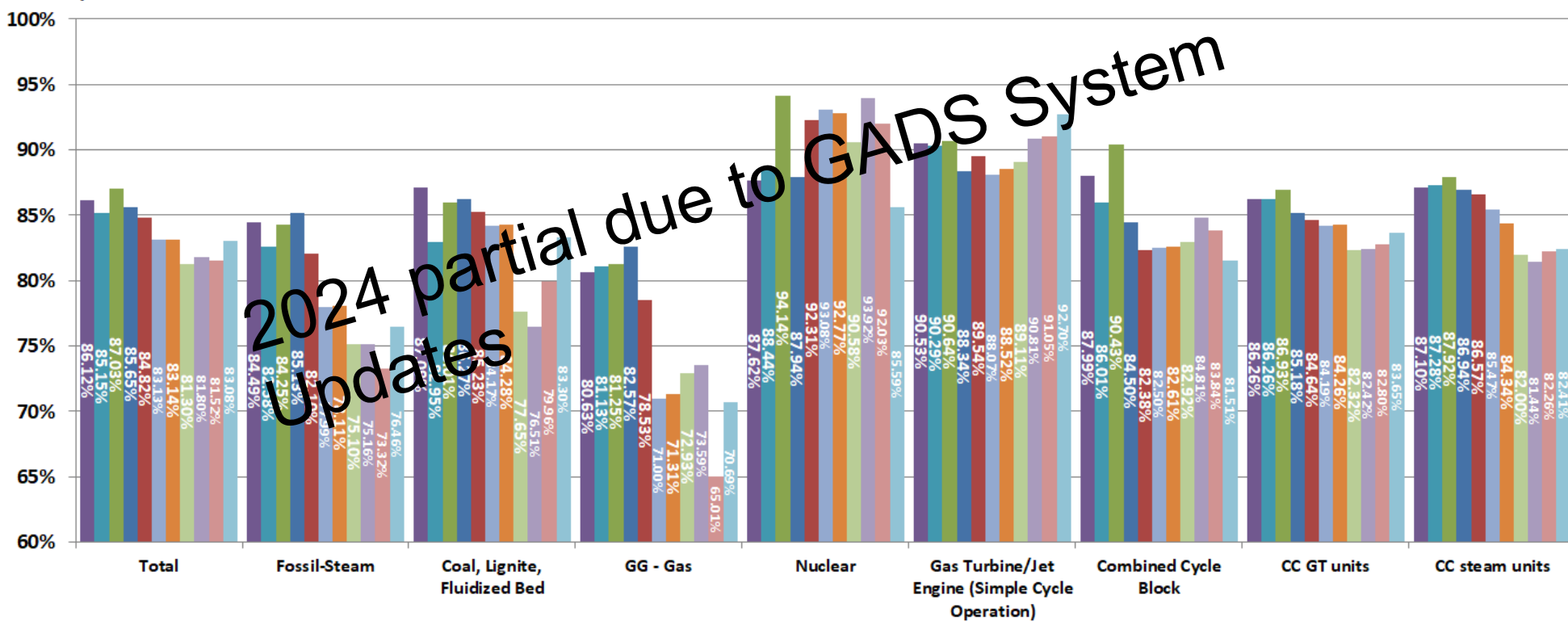
Primary Frequency Response – BAL-001-TRE



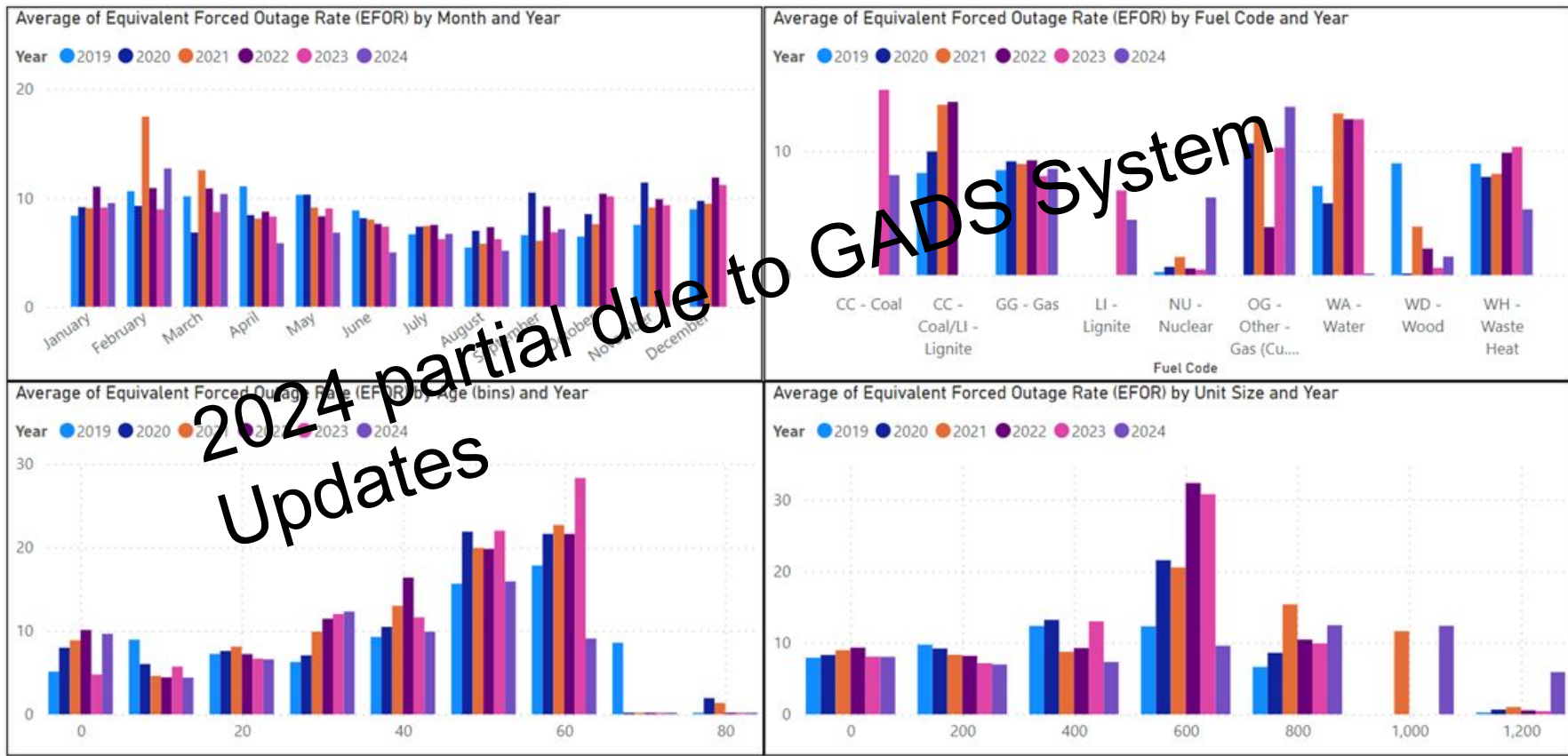
Generation Availability (Conventional)

Weighted Equivalent
Availability Factor

2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 YTD



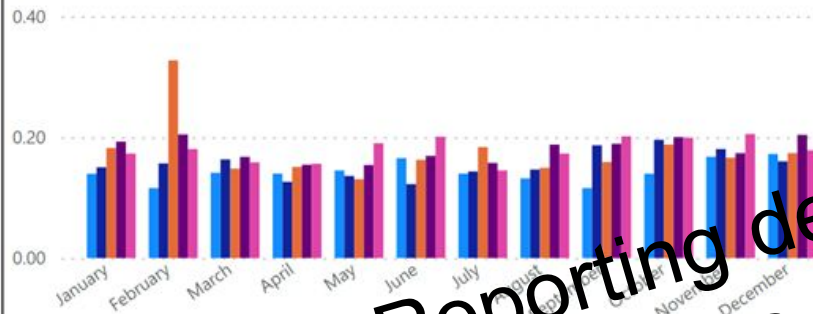
Generation Equivalent Forced Outage Rates (Conventional)



Wind GADS Metrics

Average of (REFOR) Resource Equivalent Forced Outage Rate by Month

Report Year ● 2019 ● 2020 ● 2021 ● 2022 ● 2023



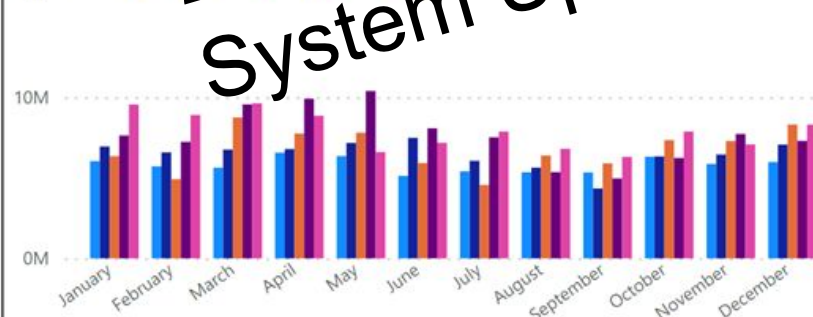
Sum of (FTH) Forced Turbine-Hours by Month and Report Year

Report Year ● 2019 ● 2020 ● 2021 ● 2022 ● 2023



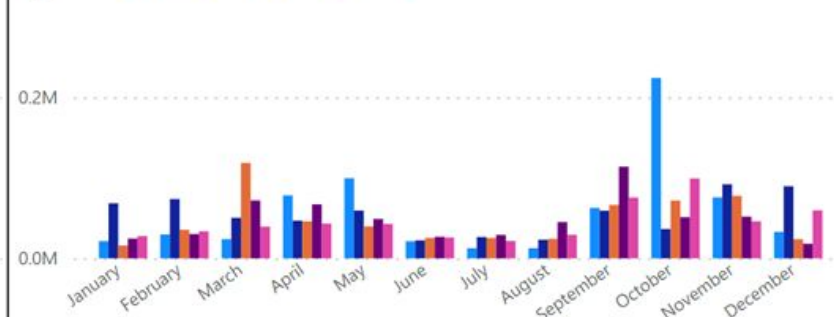
Sum of (NAG) Net Actual Generation by Month and Report Year

Report Year ● 2019 ● 2020 ● 2021 ● 2022 ● 2023



Sum of (PTH) Planned Turbine-Hours by Month and Report Year

Report Year ● 2019 ● 2020 ● 2021 ● 2022 ● 2023



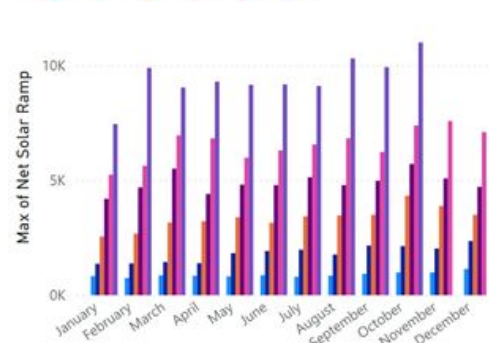
2024 Reporting delayed due to GADS System Updates



Ramping

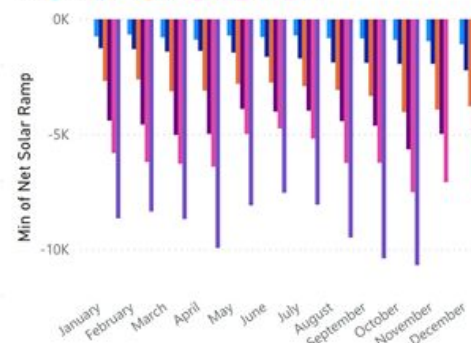
Max of Hourly Solar Up-Ramp by Month and Year

Year ● 2019 ● 2020 ● 2021 ● 2022 ● 2023 ● 2024



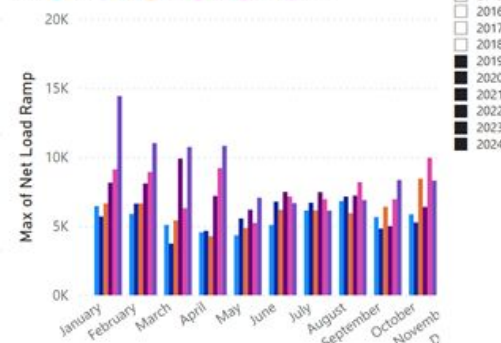
Max of Hourly Solar Down Ramp by Month and Year

Year ● 2019 ● 2020 ● 2021 ● 2022 ● 2023 ● 2024



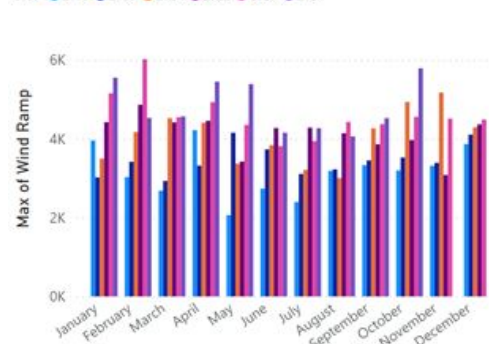
Max of Net Load Ramp by Month and Year

Year ● 2019 ● 2020 ● 2021 ● 2022 ● 2023 ● 2024



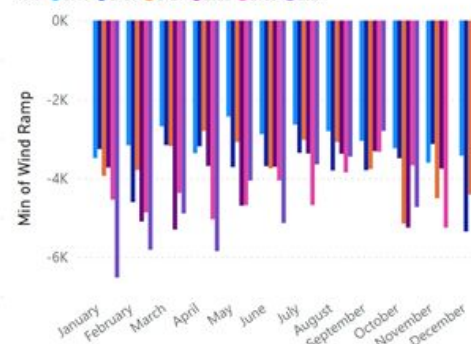
Max of Hourly Wind Up-Ramp by Month and Year

Year ● 2019 ● 2020 ● 2021 ● 2022 ● 2023 ● 2024



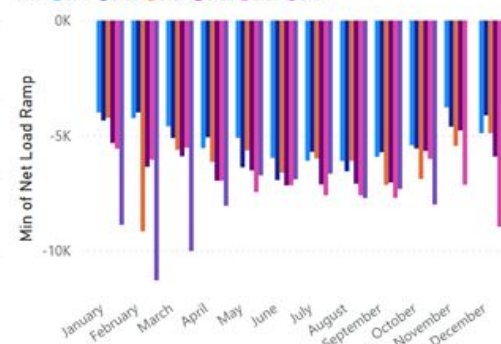
Max of Hourly Wind Down Ramp by Month and Year

Year ● 2019 ● 2020 ● 2021 ● 2022 ● 2023 ● 2024



Min of Net Load Ramp by Month and Year

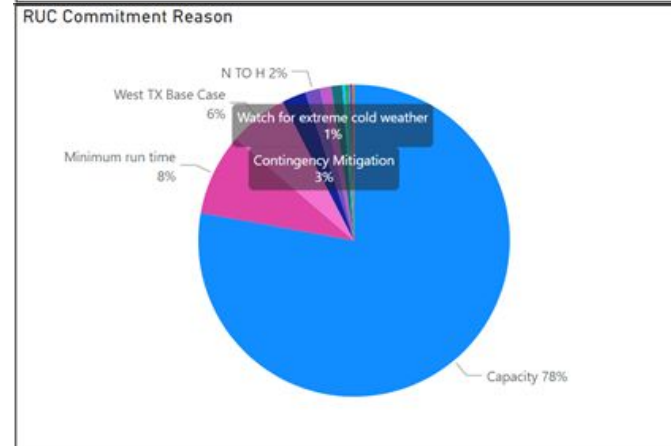
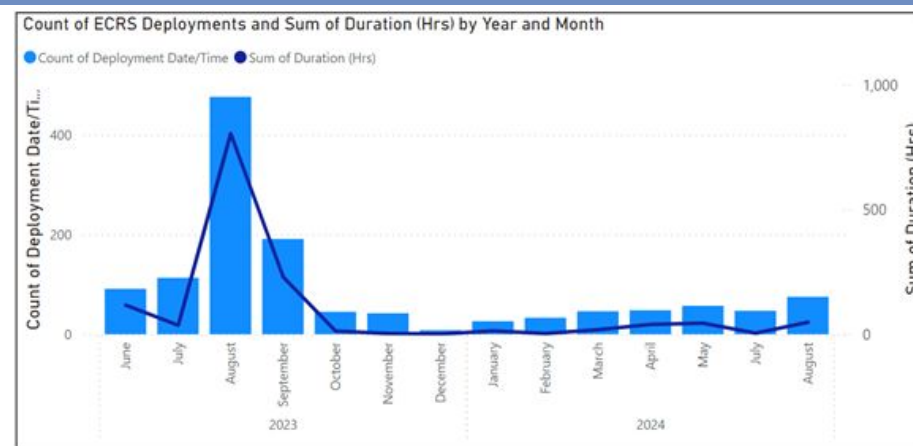
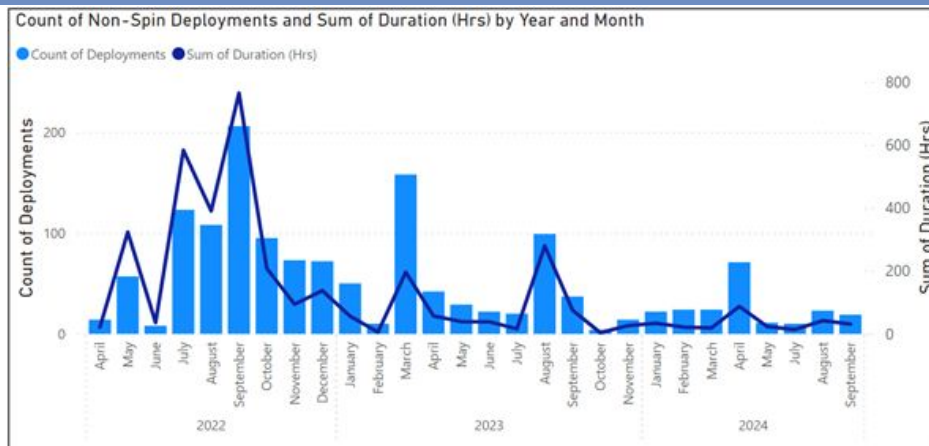
Year ● 2019 ● 2020 ● 2021 ● 2022 ● 2023 ● 2024



**2024 Maximum
solar up and
down ramps
now
approaching
10,000 MW per
hour**

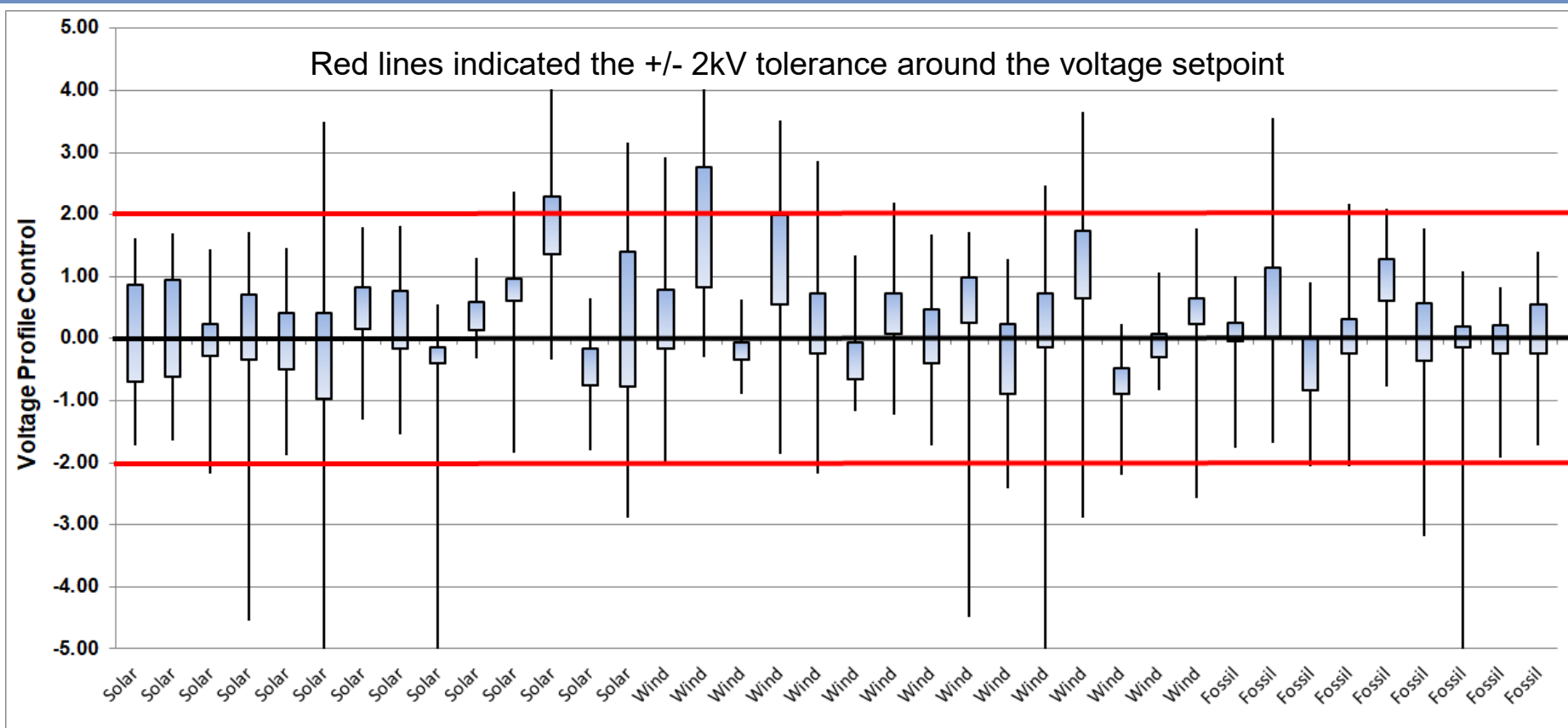


Non-Spin RUC and ECRS Deployments as of October 1, 2024

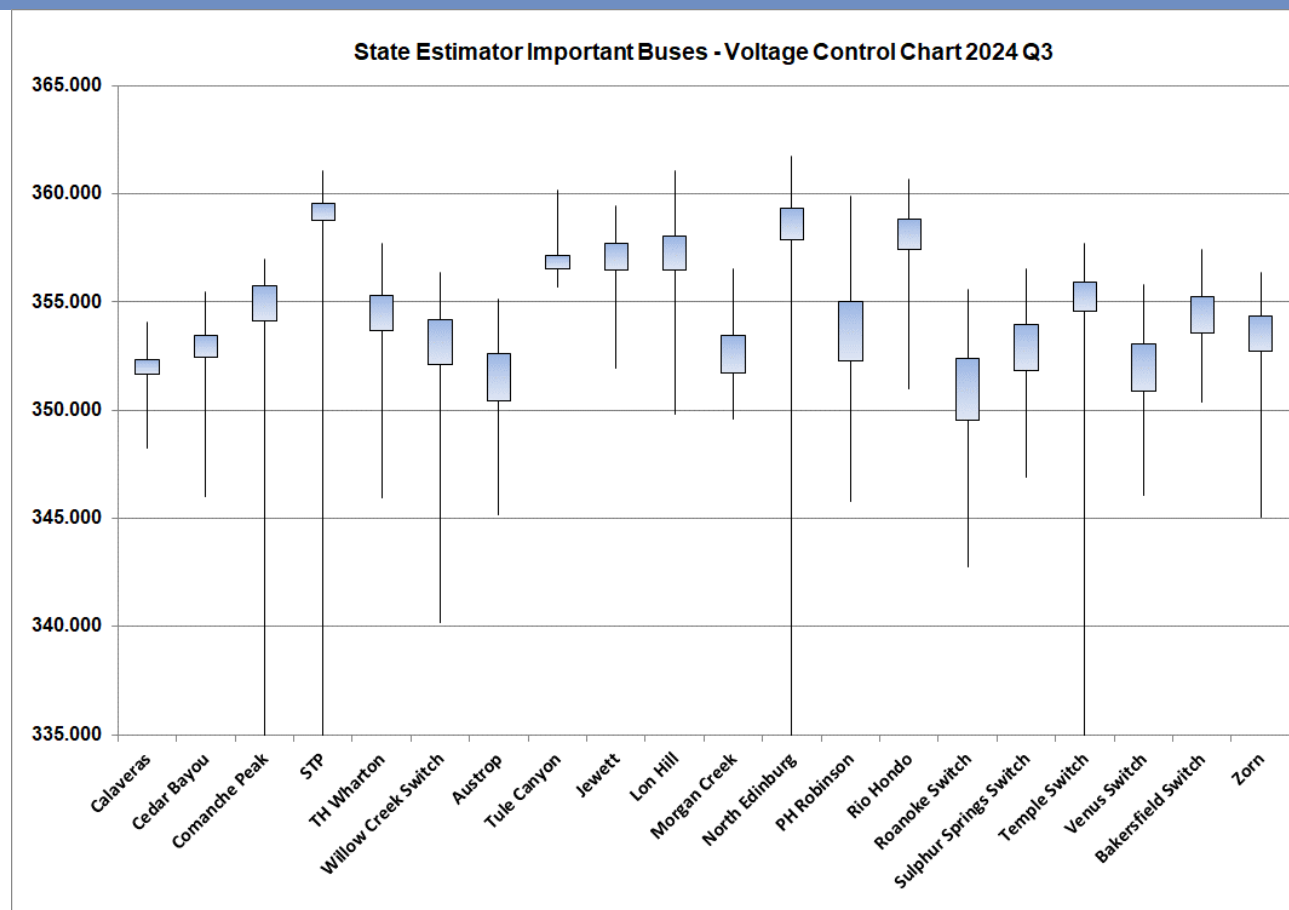




Voltage Control Metrics – 138kV Units for July-Sept 2024



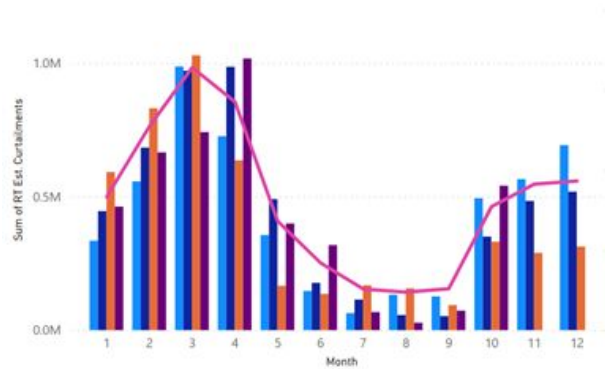
Voltage Control Metrics – State Estimator Important Buses



Curtailments as of November 1, 2024

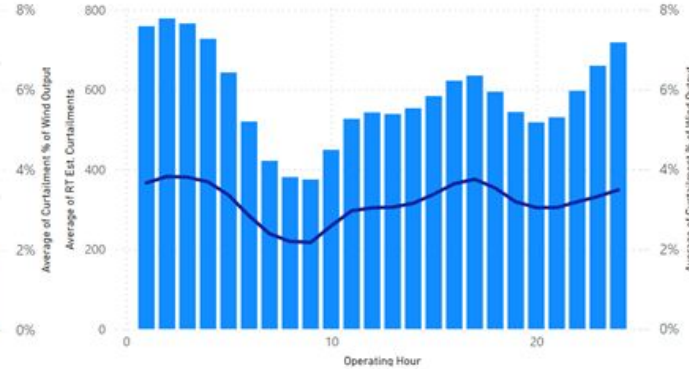
Wind Curtailments by Year and Month

Year ● 2021 ● 2022 ● 2023 ● 2024 ● Average of Curtailment % of Wind Output



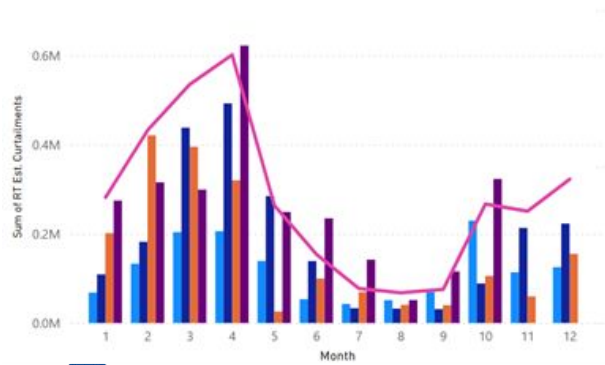
Wind Curtailments by Operating Hour

● Average of RT Est. Curtailments ● Average of Curtailment % of Wind Output



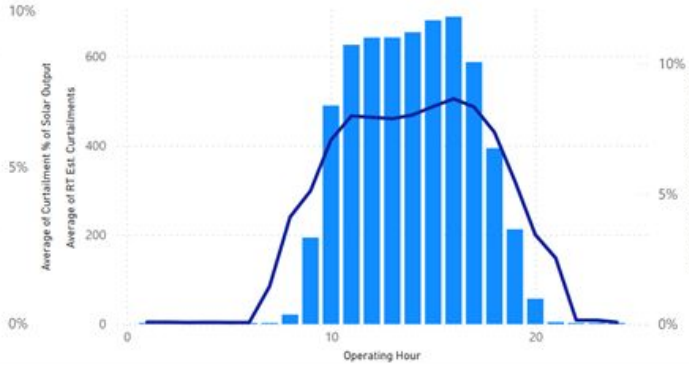
Solar Curtailments by Year and Month

Year ● 2021 ● 2022 ● 2023 ● 2024 ● Average of Curtailment % of Solar Output



Solar Curtailments by Operating Hour

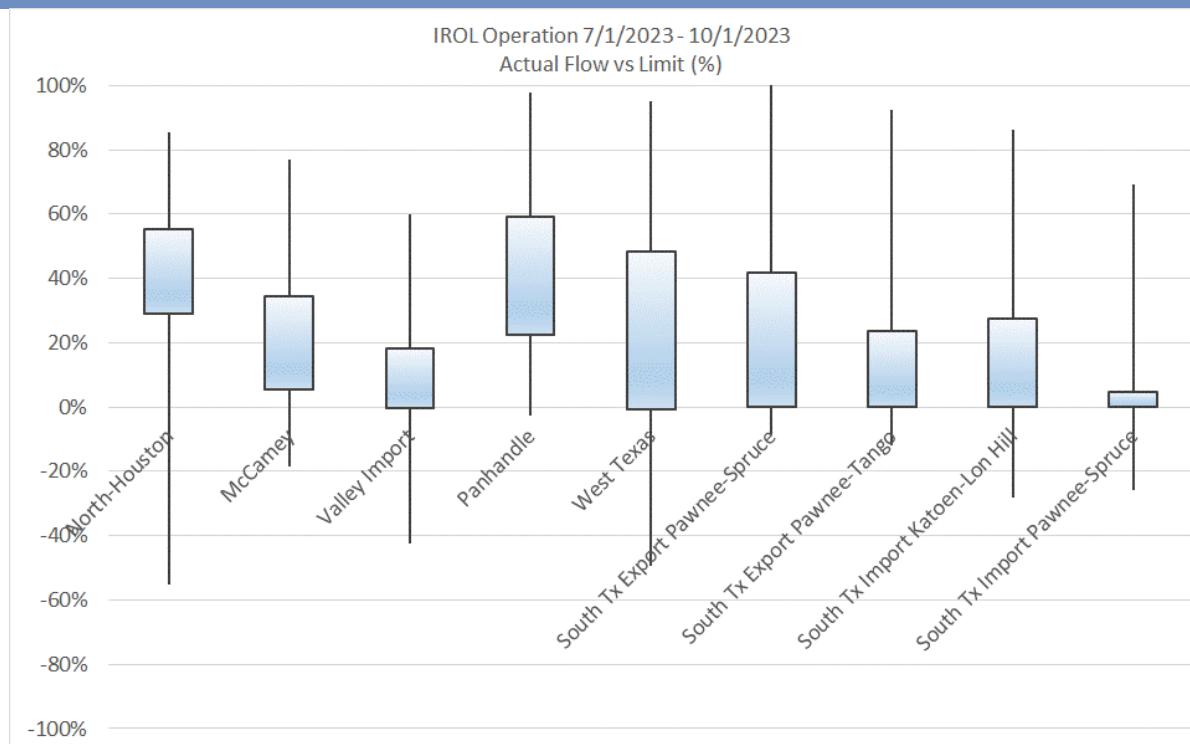
● Average of RT Est. Curtailments ● Average of Curtailment % of Solar Output



2024 YTD	Wind	Solar
GWHrs	4,313.5	2,626.4
Max Hourly MW Curtailment	9,703	10,290
Avg % of Uncurtailed Output	4.5%	6.0%



Generic Transmission Constraints

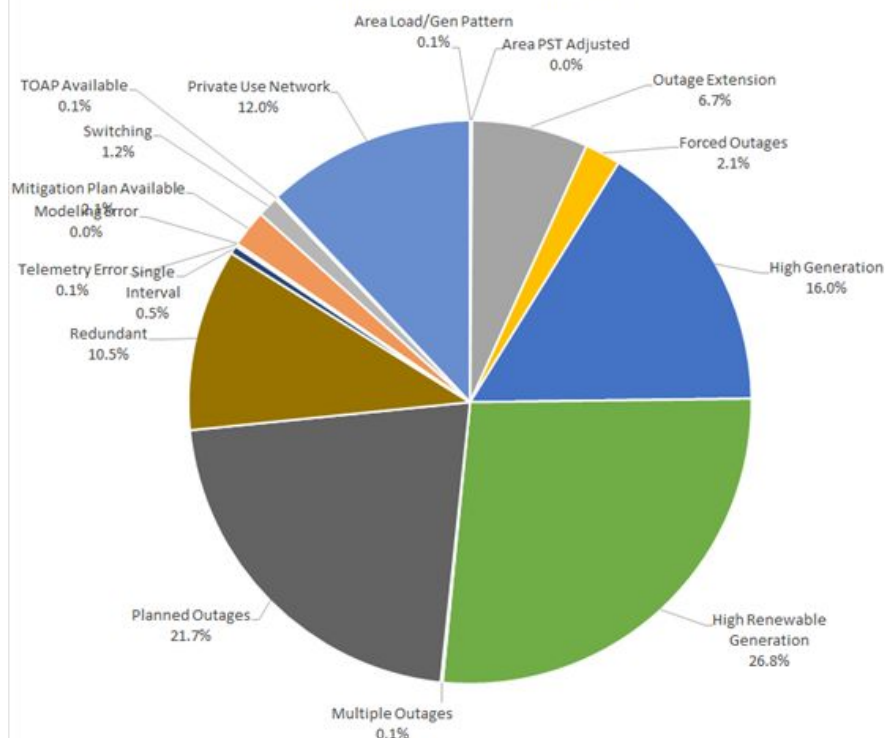


	North-Houston	McCamey	Valley Import	Panhandle	West Texas	South Tx Export Pawnee-Spruce	South Tx Import Pawnee-Spruce	South Tx Export Pawnee-Tango	South Tx Export Katoen-Lon Hill
# Minutes > 90%	0	0	0	474	1012	0	97	0	0
# Minutes > 100%	0	0	0	0	0	0	2	0	0

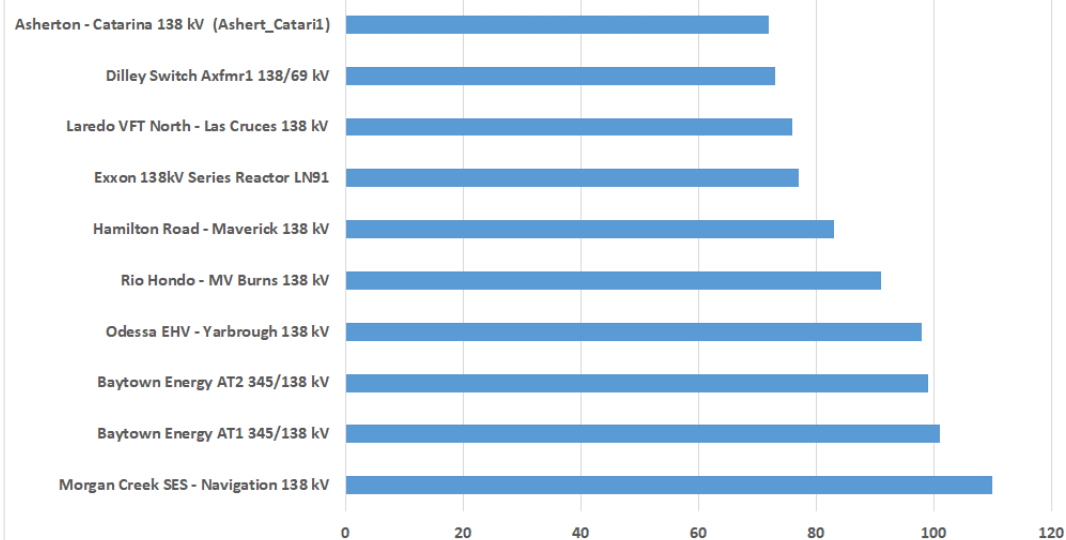


Transmission Congestion – 2024 as of November 1, 2024

Chronic Congestion by Duration - 2024

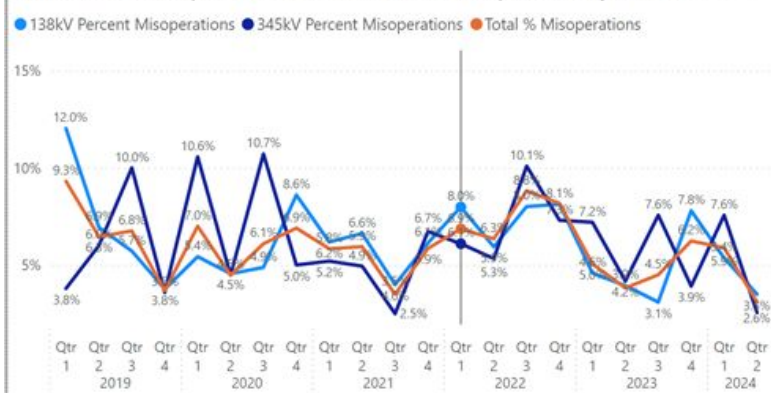


Top 10 Monitored Elements by 30 min Intervals > 100%

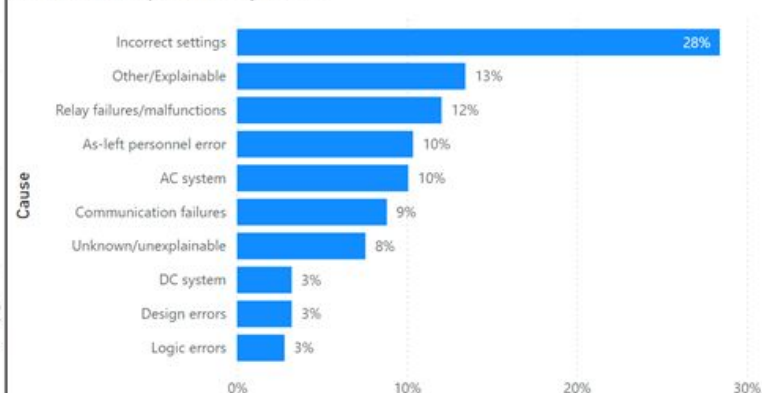


Protection System Misoperations Dashboard

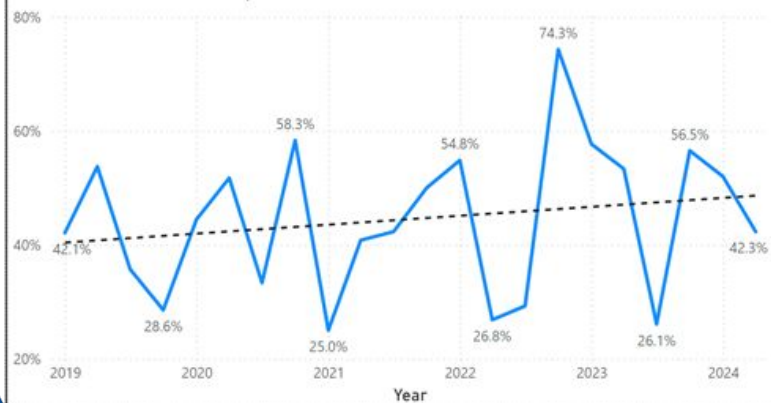
138kV Percent Misoperations and 345kV Percent Misoperations by Quarter



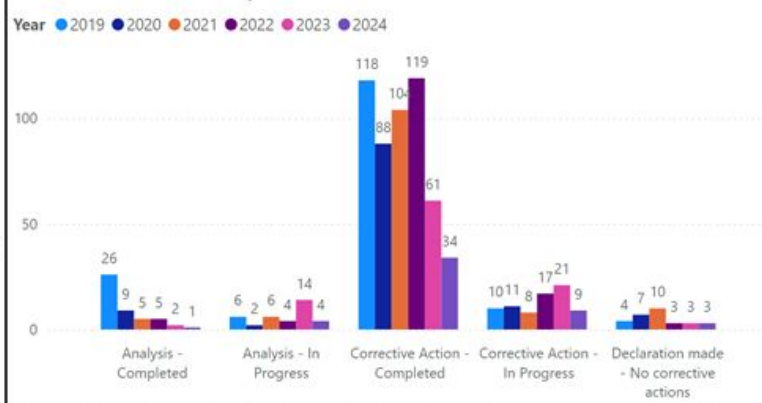
% of Total Misoperations by Cause



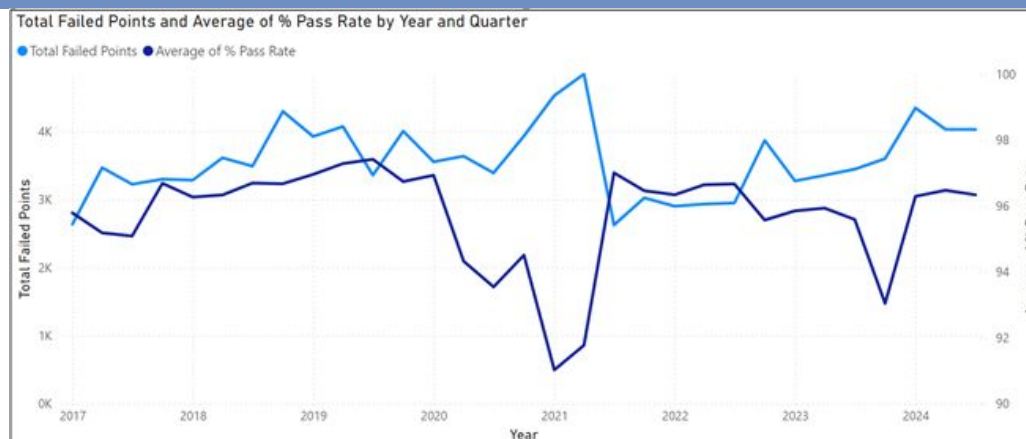
Human Performance Misoperation Rate



Corrective Action Status by Year



Telemetry Availability and Accuracy



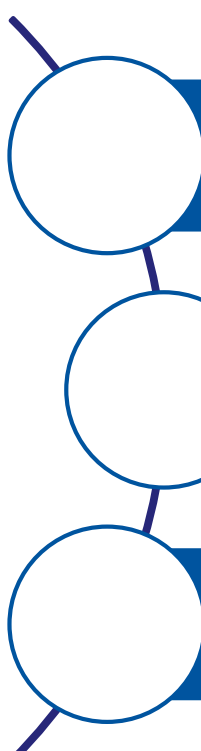


TEXAS RE

Standards Report

**Member Representatives Committee
Meeting
December 11, 2024**

Executive Summary



Texas RE Took Action on Nine NERC Reliability Standards Projects

NERC Submitted Filings for Five Proposed Reliability Standards to FERC

24 Projects in Active Standards Development



Texas RE Comments Submitted

<u>Project Number</u>	<u>Project Name</u>	<u>Action</u>
2020-02	Modifications to PRC-024 (Generator Ride-Through)	Additional Ballot, Comment Period
2021-03	CIP-002 Transmission Owner Control Centers	Additional Ballot, Comment Period
2022-02	Uniform Modeling Framework for IBR	Additional Ballot, Comment Period
2022-03	Energy Assurance with Energy-Constrained Resources	Additional Ballots, Comment Period
2023-02	Analysis and Mitigation of BES IBR Performance Issues	Additional Ballot, Comment Period
2023-04	Modifications to CIP-003	Additional Ballot, Comment Period
2023-06	CIP-014 Risk Assessment Refinement	Additional Ballot, Comment Period
2023-07	Transmission Planning Performance Requirements for Extreme Weather	Two Additional Ballot and Comment Periods
2024-03	Revisions to EOP-012-2	Initial Ballot and Comment Period



Recent NERC Filings to FERC

FERC Docket Number	Filing	FERC Submittal Date
RR24-5-000	NERC 2025 Business Plan and Budget Filing	8/23/2024
RR24-2-000	Compliance Filing Re: Order on NERC ROP Revisions	8/26/2024
RR24-7-000	Petition for Approval of the Amended and Restated NERC Bylaws	9/17/2024
RR10-1-000; RR13-3-000	Annual Report of NERC on Wide-Area Analysis of Technical Feasibility Exceptions	9/27/2024
RR25-1-000	Petition for Approval to ROP Appendix 4E	10/14/2024
RC11-6-000	NERC 2024 Annual FFT and CE Report	10/15/2024
RM24-6-000	DLR ANOPR Comments	10/15/2024
RM13-11-000	2024 Frequency Response Annual Analysis Report	10/28/2024
RM25-3-000	Petition for Approval of Proposed Reliability Standards PRC-024-4 and PRC-029-1	11/4/2024
RD25-3-000	Petition for Approval of Proposed Reliability Standard PRC-030-1	11/4/2024
RD25-1-000	Petition for Approval of the definition of new term "Inverter-Based Resource (IBR)"	11/4/2024
RD25-2-000	Petition for Approval of IBR Disturbance Monitoring Standards	11/4/2024
RD22-4-001	Inverter-Based Resources Work Plan Progress Update	11/7/2024
RR24-4-000	Supplemental filing to the 2024 Five-Year ERO Performance Assessment	11/8/2024



High Priority Active Projects

2020-02 Modifications
to PRC-024
(Generator Ride-
Through)

2020-06 Verifications
of Models and Data for
Generators
(IBR Definitions)

2021-01 Modifications
to MOD-025 and
PRC-019

2021-03 CIP-002

2021-04 Modifications
to PRC-002-2

2022-02 Uniform
Modeling Framework
for IBR

2022-03 Energy
Assurance with
Energy-Constrained
Resources

2023-02 Analysis and
Mitigation of BES
Inverter-Based
Resource Performance
Issues

2023-04 Modifications
to CIP-003

2023-06 CIP-014 Risk
Assessment

2023-07 Transmission
System Planning
Performance
Requirements for
Extreme Weather

2024-01 ROP
Definitions Alignment
(GO and GOP)

2024-02 Planning
Energy Assurance

2024-03 Revisions to
EOP-012-2



Project 2024-03 (EOP-012) Timeline

Process Steps	Dates	Notes
Drafting team members seated	8/21/2024	Standards Committee (SC) August meeting
Standards Committee Executive Committee (SCEC) Authorize revisions	9/6/2024	SCEC Special Call
SC approval of initial ballot	10/16/2024	SC October meeting
Initial ballot	10/17/2024 - 11/5/2024	20-day initial ballot and comment period per waiver approved at July SC meeting
First additional ballot	12/3-20/2024	18-day additional ballot and comment period per waiver
Consideration of 321 Action	1/2-8/2025	Based on additional ballot results, NERC staff will consider the comments received and if 321 action should be proposed to the NERC Board to meet the FERC deadline.
Second additional ballot	1/29/2025 - 2/12/2025	15-day additional ballot per waiver
Final ballot	3/3-7/2025	5-day final ballot per waiver
NERC Board approval	TBD	Anticipated NERC Board approval mid-March
FERC Order filing deadline	3/27/2025	



Medium Priority Active Projects

2022-04 EMT Modeling

2023-01 EOP-004 IBR Event Reporting

2023-09 Risk Management for Third-Party
Cloud Services



Low Priority Active Projects

2017-01
Modifications to
BAL-003 Phase II

2019-04
Modifications to
PRC-005-6

2021-02
Modifications to
VAR-002-4.1

2021-08
Modifications to
FAC-008

2022-05
Modifications to
CIP-008 Reporting
Threshold

2023-05
Modifications to
FAC-001 and
FAC-002

2023-08
Modifications to
MOD-031 Demand
and Energy Data

