

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

February 21, 2024, at 9:00 a.m. Central Time**
8000 Metropolis Drive, Building A, Suite 300, Austin, Texas 78744

Webex Link:

<https://texasre.webex.com/texasre/j.php?MTID=m78e7d7902420125c7c865b3beb5f7c92>

Meeting Number: 2551 496 2771

Password: 6UhMQYkNp63

Call-In: +1-855-797-9485

Item	Member Representatives Committee Meeting
1.	Call to Order <i>Daniela Hammons, MRC Vice Chair</i>
2.	<u>Antitrust Admonition*</u> <i>Thad Crow, Communications and Training Coordinator</i>
3.	<u>Approval of December 13, 2023, Meeting Minutes* (Vote)</u> <i>Daniela Hammons, MRC Vice Chair</i>
4.	NERC BOT Meeting Update <i>Daniela Hammons, MRC Vice Chair</i>
5.	Special Topics: a. ERCOT Winterization Inspection Update <i>David Kezell, ERCOT</i>
6.	<u>NSRF Update*</u> <i>Shane Herrera</i>
7.	<u>CIPWG Update*</u> <i>Trevor Tidwell</i>
8.	NERC Standing Committee Updates: a. <u>NERC Compliance and Certification Committee*</u> <i>Daniela Hammons</i>
9.	NERC Program Area Reports: <i>(Staff may not present on these reports, but will be available to answer questions)</i> a. <u>NERC Program Area Overview</u> <i>Joseph Younger, Vice President and Chief Operating Officer</i> b. <u>Reliability Services and Risk Assessment Reports*</u> <i>Mark Henry, Chief Engineer & Director, Reliability Outreach</i> c. <u>Enforcement and Registration Reports*</u> <i>Katie Van Zee, Director, Enforcement & Registration</i> d. <u>O&P and CIP Compliance Monitoring Reports*</u> <i>Kenath Carver, Director, Compliance Assessments</i>



10.	Other Business & Future Agenda Items <i>Daniela Hammons, MRC Vice Chair</i>
Adjourn Meeting 11:00 a.m.	

* 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 December 13, 2023, Meeting Minutes

Member Representatives Committee Meeting
December 13, 2023

Attendance

1. The attendees were as follows:

Name	Company	Sector	In Person	Called -In
Curt Brockmann , Chair	CPS Energy	Municipal	X	
Daniela Hammons , Vice Chair	CenterPoint Energy Houston Electric, LLC	Transmission/Distribution	X	
Betty Day	ERCOT	System Coord & Planning	X	
Chad Thompson (Alternate)	ERCOT	System Coord & Planning	X	
Liz Jones	Oncor Electric Delivery Company, LLC	Transmission/Distribution	X	
Bobby Christmas	Guadalupe Valley Electric Cooperative	Cooperative		
Shari Heino	Brazos Electric Power Cooperative	Cooperative	X	
Zachary Taylor (Alternate)	Guadalupe Valley Electric Cooperative	Cooperative	X	
Lisa Martin	Austin Energy	Municipal		
Cameron Molsbee (Alternate)	Denton Municipal Electric	Municipal		X
George Brown	Pattern Energy	Generation		X
Rob Robertson	Leeward Renewable Energy	Generation		
David Hodges (Alternate)	RWE Renewables LLC	Generation	X	
Brad Cox	Tenaska Power Services, Inc.	Load Serving & Marketing		X
Venona Greaff	Occidental Power Services, Inc.	Load Serving & Marketing		X
Milton B. Lee	Texas RE Board Chair			
Crystal E. Ashby	Texas RE Board Vice Chair			X
Suzanne E. Spaulding	Texas RE Independent Director		X	
Jeffrey A. Corbett	Texas RE Independent Director		X	
Jimmy Glotfelty	Public Utility Commission of Texas			



Member Representatives Committee Meeting
DRAFT December 13, 2023, Meeting Minutes

Courtney Hjaltman	Office of Public Utility Counsel			X
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	
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	
AJ Smullen	Texas RE		X	
Brad Collard	Pedernales Electric Cooperative, Inc.		X	
Trevor Tidwell	PNM Resources		X	
David Huff	FERC		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

1. Call to Order, Announce Proxies and Telephone Attendees

Chair Brockmann called the MRC meeting to order at 9:00 a.m. Central Time. All attendees participated in person or by phone or video conference.

2. Antitrust Admonition

Thad Crow reviewed the antitrust admonition.

3. Approval August 23, 2023, MRC Meeting Minutes

Daniela Hammons made a motion to approve the August 23, 2023, meeting minutes. Zachary Taylor seconded the motion. The motion passed by unanimous voice vote.

4. NERC BOT Update

Chair Brockmann said the NERC BOT approved the 2024 NERC Priorities and Focus Areas and revisions to the Working Capital and Reserve Policy. He said the NERC BOT also received updates on EOP-012 and the 2023-24 Winter Reliability Assessment, and it reviewed the 2023 Long-Term Reliability Assessment.

5. Special Topics

Kenath Carver, Director, Compliance Assessments, presented on Data in the Cloud.

David Huff, FERC, and David Penney, Texas RE Principal Sr., reviewed the Elliott Report.

6. NSRF Update

Brad Collard, NSRF Chair, reported on the August, September, and October NSRF meetings. Mr. Collard said Shane Herrera of ERCOT would take over as NSRF Chair in January.

7. CIPWG Update

Trevor Tidwell, CIPWG Chair, provided an update on CIPWG activities which included discussion of 2016-02 Modifications to CIP Standards and 2020-04 Modifications to CIP 012-1.

8. NERC Standing Committee Updates

Chad Thompson provided an update on the NERC Reliability and Security Technical Committee.

Vice Chair Hammons provided an update on the Compliance and Certification Committee (CCC). She said the CCC had discussions on Residual Risk and on Align and Secure Evidence Locker tools.

9. Program Area Quarterly Reports

Joseph Younger, Vice President and Chief Operating Officer, discussed topics including the NERC 2024 CMEP Implementation Plan, FERC's approval of Standards Process Manual revisions, and a recent Section 800 data request.

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

10. Other Business & Future Agenda Items

Jim Albright, President and CEO, thanked MRC members for their work on the committee, and welcomed new committee members.



Member Representatives Committee Meeting
DRAFT December 13, 2023, Meeting Minutes

The meeting adjourned at approximately 11:07 a.m. Central Time.

DRAFT



NERC Standards Review Forum Update

Texas RE Member Representatives Committee

February 21, 2024

Shane Herrera, ERCOT

Chair

Chris Seaman, Rayburn
Electric Cooperative

Vice-Chair

Recent NSRF Meetings

- 01/25 –Remote

Open sessions are hosted by Texas RE

Closed sessions are hosted by Rayburn Electric Cooperative

Standards Report



Standards Report

- Effective Dates for Upcoming Reliability Standards
 - 04/01/2024
 - FAC-003-5 – Transmission Vegetation Management
 - FAC-011-4 – System Operating Limits Methodology for the Operations Horizon
 - FAC-014-3 – Establish and Communicate System Operating Limits
 - IRO-008-3 – Reliability Coordinator Operational Analyses and Real-time Assessments
 - PRC-002-4 – Disturbance Monitoring and Reporting Requirements
 - PRC-023-5 – Transmission Relay Loadability
 - PRC-026-2 – Relay Performance During Stable Power Swings
 - TOP-001-6 – Transmission Operations

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Standards Report

(Continued)

- Effective Dates for Upcoming Reliability Standards
 - 10/1/2024
 - EOP-012-1 – Extreme Cold Weather Preparedness and Operations (R3, R5, R6, and R7 effective 10/1/2024 & (Requirements 1–2 effective 4/1/28; Requirement 4 effective 10/1/29))
 - 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



Ongoing NERC Reliability Standard Projects

Reliability Standards Under Development

High Priority - Completed by 2024

2016-02 Modifications to CIP Standards - CIP-002, CIP-003, CIP-004, CIP-005, CIP-006, CIP-007, CIP-008, CIP-009, CIP-010, CIP-011, CIP-012-1

2020-02 Modifications to PRC-024 (Generator Ride-through)*

2021-03 CIP-002

2021-04 Modifications to PRC-002-2*

2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination

2022-03 Energy Assurance with Energy-Constrained Resources

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

2023-03 Internal Network Security Monitoring (INSM)

2023-04 Modifications to CIP-003

2023-06 CIP-014 Risk Assessment Refinement

2023-07 Transmission System Planning Performance Requirements for Extreme Weather

Medium Priority - Completed By 2025 and Beyond

2020-06 [Verifications of Models and Data for Generators*](#)

2021-01 [Modifications to MOD-025 and PRC-019*](#)

2023-01 [EOP-004 IBR Event Reporting*](#)

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](#)

2022-01 [Reporting ACE Definition and Associated Terms](#)

2022-02 [Modifications to TPL-001-5.1 and MOD-032-1*](#)

2022-04 [EMT Modeling*](#)

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. Project 2020-02 Modifications to PRC-024^{IBR, SPM}
2. Project 2021-04 Modifications to PRC-002-2^{IBR, SPM}
3. Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination (EOP-012-2)^{SPM}
4. Project 2022-03 Energy Assurance with Energy–Constrained Resources
5. Project 2023-02 Analysis and Mitigation of IBR Performance^{IBR, SPM}
6. Project 2023-06 CIP-014 Risk Assessment Refinement
7. Project 2023-07 Transmission Planning Performance for Extreme Weather^{SPM}

IBR – Denotes inverter-based resource and/or distributed energy resource projects

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

(Continued on next slide)

Medium Priority Projects

1. Project 2020-06 Verifications of Models and Data for Generators
2. Project 2021-01 Modifications to MOD-025 and PRC-019
3. Project 2023-01 EOP-004 IBR Event Reporting

Low Priority Projects

1. Project 2017-01 Modifications to BAL-003-1.1 Phase 2
2. Project 2019-04 Modifications to PRC-005-6
3. Project 2021-02 Modifications to VAR-002 -4.1
4. Project 2021-08 Modifications to FAC-008
5. Project 2022-01 Reporting ACE Definition and Associated Terms
6. 2022-02 Modifications to TPL-001-5.1 and MOD-032-1
7. 2022-04 EMT Modeling
8. 2023-05 Modifications to FAC-001 and FAC-002
9. 2023-08 Modifications of MOD-031 Demand and Energy Data



New Directive from FERC

11/28/2023

RR23-4-000 Order approving NERC ROP Revisions- FERC found the ROP revisions to be just, reasonable, and not unduly discriminatory or preferential, and in the public interest. FERC found the ROP revisions are consistent with section 215 of the FPA (Reliability Standards will continue to be open and fair, balance stakeholder interest, steps to evaluate effect of proposed Reliability Standards, meet requirements of due process, and not unnecessarily delay development of Reliability Standards.). FERC continues stating they support to increase the speed and flexibility of the Reliability Standards development but remain concerned for a timely and responsive RS development process given the rapid pace of change in the reliability and security of the BPS. FERC requested NERC provide an informational filing in the form of a report with the Commission no later than 18 months after the due date of the order.

Recent Discussion Topics

- New vice-chair, Chris Seaman with Rayburn Electric Coop was nominated.
- Presentation and Q&A by a SDT member, Sun Wook, on Project 2023-07.
- Presentation and Q&A by Texas RE
 - MOD-26-1 Overview
 - Data Spreadsheets

Closed Session Topics

- ERCOT updates
 - SOL Methodology for the Operations Time Horizon
 - Extreme Weather Operating Limitations
- Balloting Strategies for Reliability Standards

Upcoming NSRF Meetings

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

- [February 22, 2024](#) (Hybrid) Breakfast tacos by CenterPoint Energy
- [March 28, 2024](#)
- [April 25, 2024](#)* (Hybrid) Breakfast tacos by???
- [May 16, 2024](#)
- [June 27, 2024](#)
- [July 25, 2024](#)
- [August 22, 2024](#)
- [September 19, 2024](#) (Hybrid) Breakfast tacos by???
- [October 24, 2024](#)
- [November 21, 2024](#) (Hybrid) Breakfast tacos by???



Questions or Comments?

Thank you!

ERCOT CIP WORKING GROUP UPDATE

For the Texas RE – Member Representatives Committee (MRC)
February 21, 2024

Trevor Tidwell, PNM Resources
CIPWG Chair

Thomas Standifur, Austin Energy
CIPWG Vice Chair

- ▶ January 5
- ▶ February 2

RECENT MEETINGS

- ▶ E-ISAC briefing
- ▶ PUCT & Paragon – October Cybersecurity Symposium
- ▶ House Select Committee on CCP– The CCP Cyber Threat to the American Homeland and National Security, January 31st
- ▶ Cybersecurity Training for Utility Workforce
- ▶ TEEX Cyber Readiness Summit – February 13 – 15
- ▶ ERCOT: CyberStrike Training for Market Participants
- ▶ Ask Texas RE Topics
 - ▶ Version 8 of CIP Evidence Request Tool
 - ▶ BCSI in the cloud

OPEN SESSION TOPICS SUMMARY

▶ Standards typically tracked during the open sessions

HIGH PRIORITY

- ▶ 2016-02 Modifications to CIP
 - ▶ Expecting final ballot in March
- ▶ 2021-03 CIP-002 Transmission Owner Control Centers
 - ▶ Working on draft 2
- ▶ 2023-03 Internal Network Security Monitoring (INSM)
 - ▶ First ballot failed at 15.42 weighted approval
- ▶ 2023-04 Modifications to CIP-003
 - ▶ Draft 2 posted with ballot and comments closing on 03/14/2024

LOW PRIORITY

- ▶ 2022-05 Modifications to CIP-008 Reporting Threshold
 - ▶ Working on first draft.

WITH FERC

- ▶ 2020-04 Modifications to CIP-012-1

OPEN SESSION CIP STANDARDS TRACKED

▶ NONE

OPEN SESSION
NERC REPORTS, GUIDELINES, WHITE PAPERS
TRACKED

- ▶ Security Topics
 - ▶ Each session has a ERCOT Threat Operations update
 - ▶ CISA Ransomware precog ability
- ▶ Compliance Topics
 - ▶ CIP Audit Experience Share Time
 - ▶ Various NERC CIP related Standards postings

CLOSED SESSION TOPICS SUMMARY

ANY QUESTIONS?



COMPLIANCE AND CERTIFICATION COMMITTEE

*Update to Texas RE Member Representatives Committee
February 2024*

- **January CCC Meeting ([CCC Agenda Package](#))**
 - 2024 Work Plan Status
 - Procedure updates
- **NERC Activities Related to Inverter-Based Resources**
 - Rules of Procedure Filing
- **Q1 Focused Discussion**
 - Standards Prioritization and the Role of CMEP
- **NERC Internal Audit**
 - Update



TEXAS RE

Program Area Highlights and Key Developments

**Joseph P. Younger
Vice President & Chief Operating
Officer**

February 21, 2024

Standards Projects with FERC Directives



Risk Mitigation

Extreme Events Resiliency and Winterization

- Project 2021-07 Extreme Cold Weather Grid Operations (EOP-012) (Feb. 16, 2024)
- Project 2023-07 Transmission System Planning Performance Requirements for Extreme Weather (TPL-001) (December 23, 2024)

Grid Transformation and IBR Performance

- Project 2020-02 Modifications to PRC-024 (Generator Ride-Through) (Nov. 4, 2024)
- Project 2021-04 Modifications to PRC-002 (Data Sharing) (November 4, 2024)
- Project 2023-02 Performance of IBRs (PRC-004) (November 4, 2024)
- Project 2020-06 Verification of Model and Data for Generators (IBR Definition)

Cyber and Physical Security

- Project 2023-04 Internal Network Security Monitoring (July 9, 2024)



Upcoming Reports



Security

Grid EX VII Lessons Learned Report

- **March/April 2024**



Engagement

January 2024 Arctic Cold Project

- **May/June 2024**

Texas RE 2023 Assessment of Reliability Performance

- **June 2024**



Upcoming Texas RE Workshops



Engagement

Women's Leadership in Grid Reliability & Security Conference

- March 5, 2024

Spring Standards, Security, and Reliability Workshop

- April 24, 2024

Cyber and Physical Security Workshop

- August 28, 2024

Winter Weatherization Workshop

- October 2, 2024

Fall Standards, Security, and Reliability Workshop

- November 20, 2024



The background of the slide features a Texas state flag on the left and a target with several darts on the right. The darts are all clustered in the center of the target, suggesting a focus on a specific point. The overall scene is set against a clear blue sky.

Questions?



TEXAS RE

Ensuring electric reliability for Texans



TEXAS RE

Reliability Services and Risk Assessment Reports

**Member Representatives Committee
Meeting
February 21, 2024**

Key Activities

ERO FERC Inquiries – Uri Blackstart Report Published and Presented

NERC Inverter-Based Resource Plan and FERC Order 901

Cold Weather Preparedness and Performance in January Winter Storm

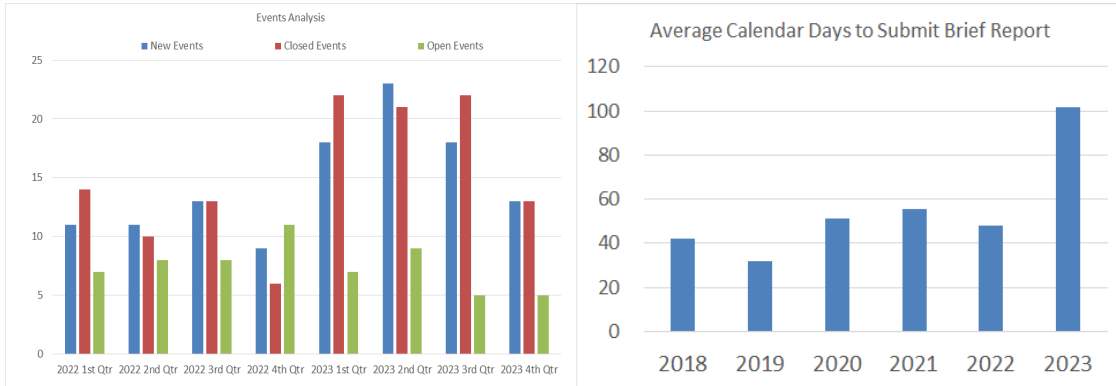
Interviews for 2024 Combined Risk/Reliability Services Team

Interregional Transfer Capability Study Progress



Reliability Services Functional Dashboard – As of January 1, 2024

EVENTS ANALYSIS



SITUATIONAL AWARENESS

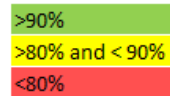
Through 1/1/2024

Category	OE-417 Submission	EOP-004 Submission
Physical/cyber Threat	1	1
System Separation or Islanding	1	
Loss of Firm Load	1	
Public Appeals	11	
Loss of Monitoring		1
Control Center Evacuation	1	
Loss of > 50k Customers	12	
Fuel Supply Emergency		
Damage/Destruction of Facility		15
Generation Loss		
Transmission Loss		1

PERFORMANCE ANALYSIS

On-Time Section 1600 Reporting Status as of 1/15/2024

	2022 Q4	2023 Q1	2023 Q2	2023 Q3
TADS	100%	100%	100%	100%
GADS	98%	95%	95%	95%
MIDAS	99%	99%	99%	99%
Wind GADS	93%	97%	97%	89%



Q4 data reporting in progress

* Q4 data due 2/15 for TADS, GADS, and Wind GADS

** Q4 data due 3/1 for MIDAS

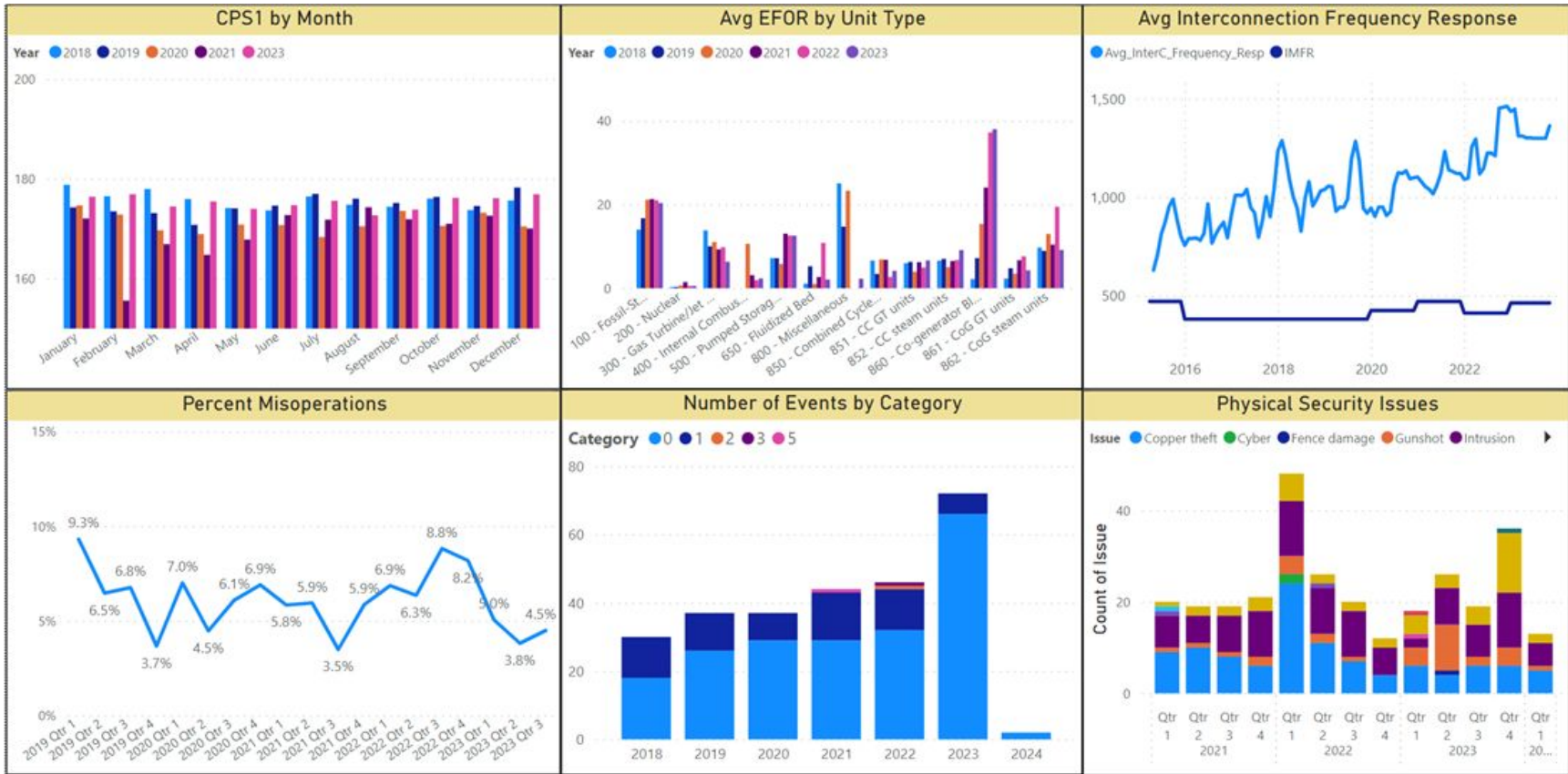
RELIABILITY ASSESSMENTS

Region	RELIABILITY ASSESSMENT						Reporting Process					
	LTRA Data Quality	LTRA Timeliness	WRA Quality	WRA Timeliness	SRA Quality	SRA Timeliness	Report	Planning	Request	Delivery	Draft/Revision	Publish
MRO	Green	Green	Green	Green	Green	Green						
NPCC	Green	Green	Green	Green	Green	Green						
RF	Green	Green	Green	Green	Green	Yellow						
SERC	Green	Green	Green	Green	Green	Green						
TEXAS-RE	Green	Green	Green	Green	Green	Green						
WECC	Green	Green	Green	Green	Green	Green						

Source: BPS Reliability Risk Monitor January 2024

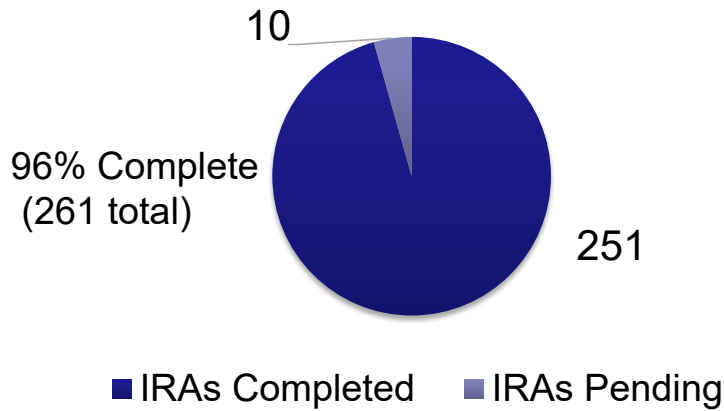


Grid Reliability Dashboard as of January 1, 2024

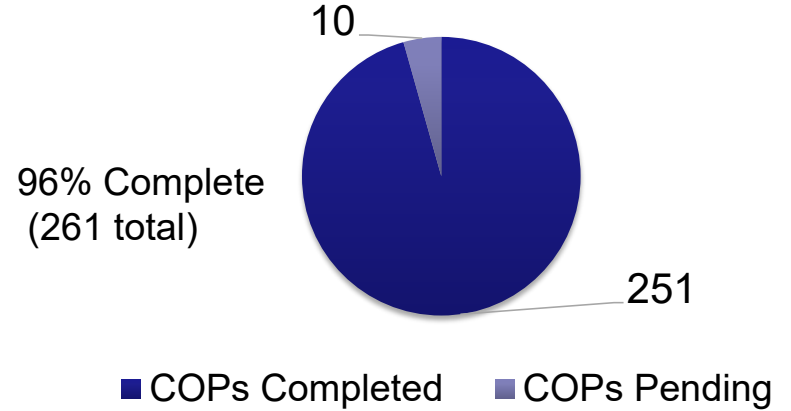


Risk: Texas RE Non-Coordinated Oversight Q4 2023

Status of Texas RE Non-CO IRAs



Status of Texas RE Non-CO COPs

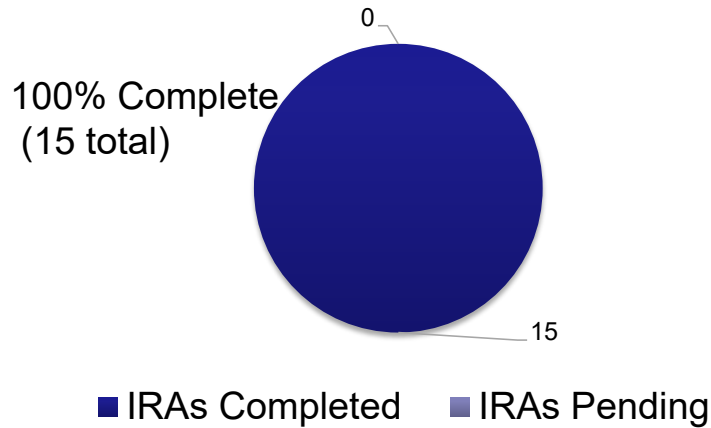


As of December 31, 2023

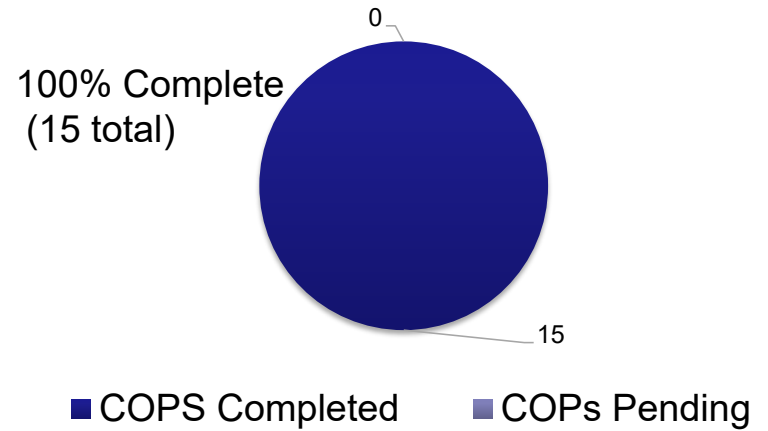


Risk: Texas RE Coordinated Oversight Q4 2023

Status of CO Groups with Texas RE as LRE



Status of CO Groups with Texas RE as LRE



41 Texas RE NCRs and 35 non-Texas RE NCRs included in CO Groups

As of December 31, 2023



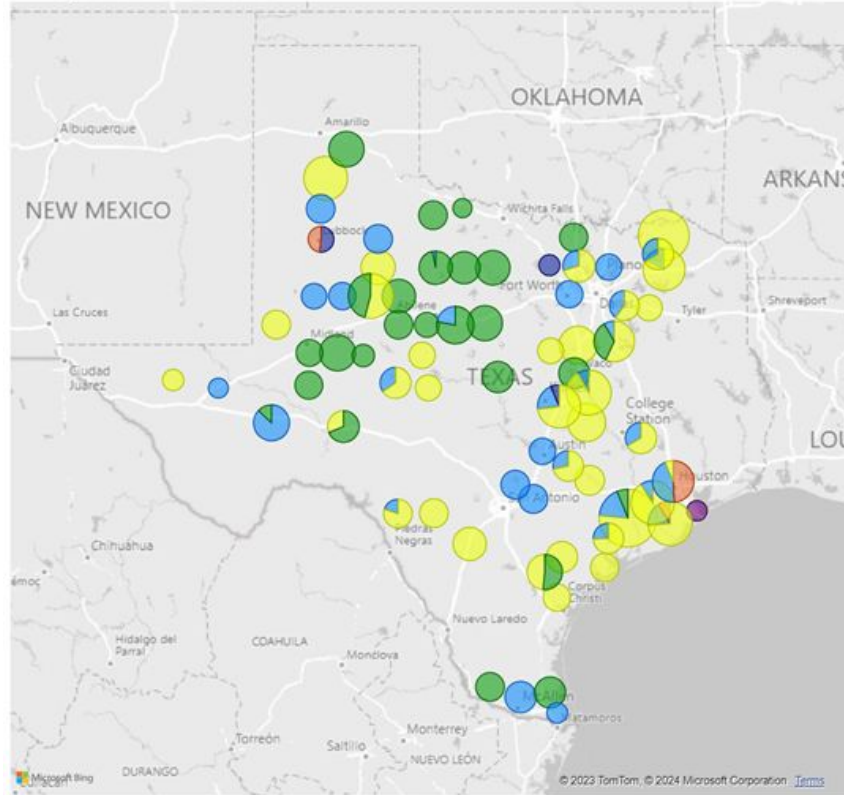
APPENDIX: RELIABILITY AND PERFORMANCE INDICATORS UPDATE



New Generation Interconnections as of 1/1/2024

New Generation Interconnections

Technology BA CC GT PV ST WT



Technology	Year	Count of Capacity (MW)	Sum of Capacity (MW)
CC	2021	1	58.00
GT	2021	2	54.00
CC	2022	1	67.00
WT	2022	2	41.00
BA	2023	3	289.10
CC	2023	2	21.00
PV	2023	14	2,958.76
WT	2023	17	2,026.06
BA	2024	35	4,600.05
GT	2024	3	560.00
PV	2024	47	12,158.53
ST	2024	1	14.00
WT	2024	26	4,762.48
PV	2025	8	1,482.90
WT	2025	3	604.72
Total		165	29,697.60

Approved for Synchronization/No COD

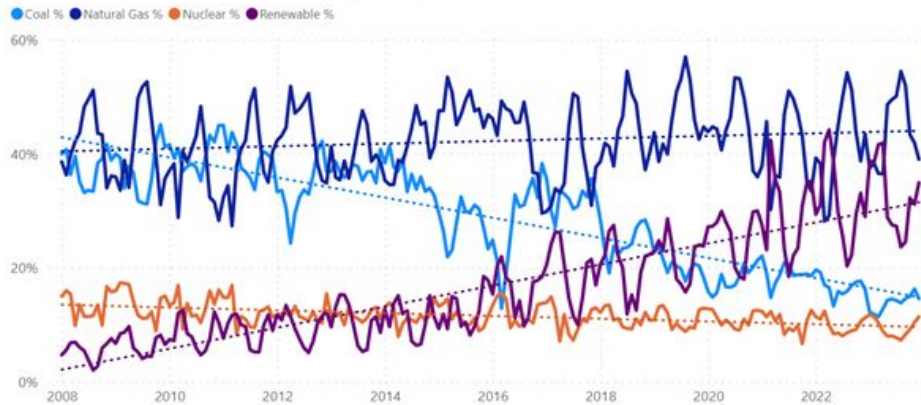
Year	Count of Capacity (MW)	Sum of Capacity (MW)
2017	1	7.30
2018	2	82.50
2019	6	634.10
2020	7	661.50
2021	14	2,329.83
2022	23	5,190.29
2023	44	8,948.28
Total	97	17,853.80

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

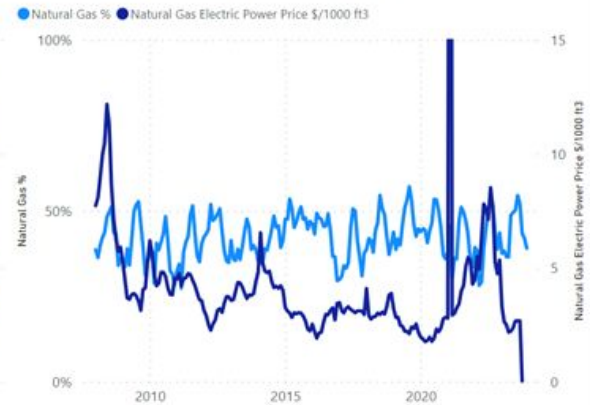


Generation Mix Trends

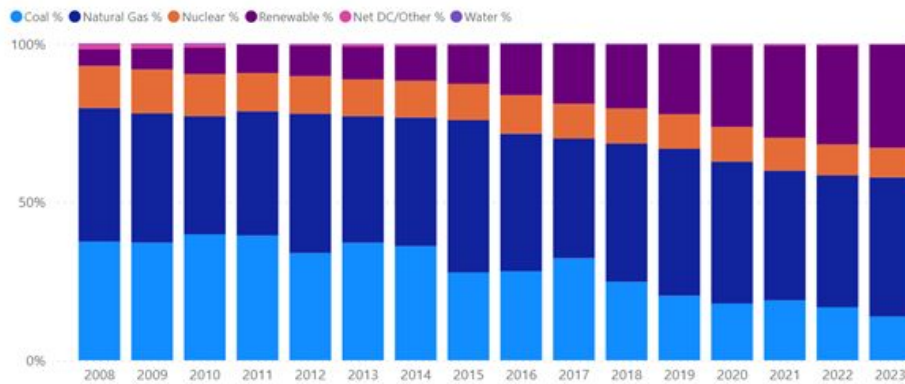
Coal %, Natural Gas %, Nuclear % and Renewable % by Year and Month



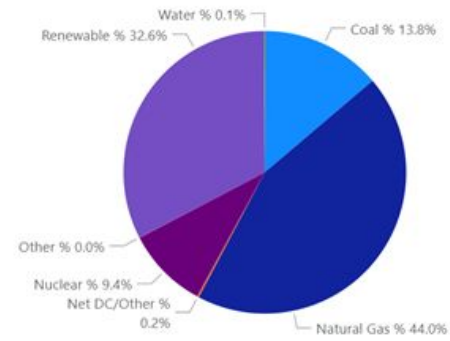
Natural Gas % and Natural Gas Electric Power Price \$/1000 ft3



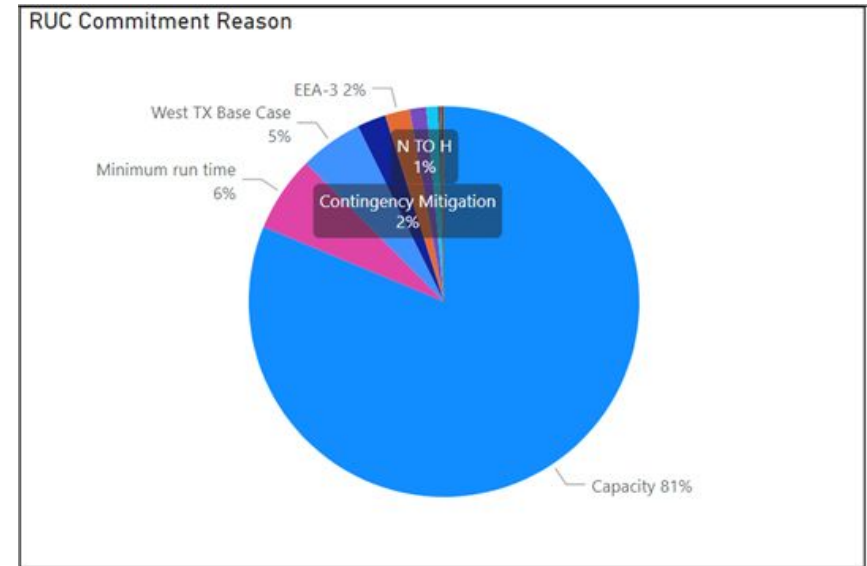
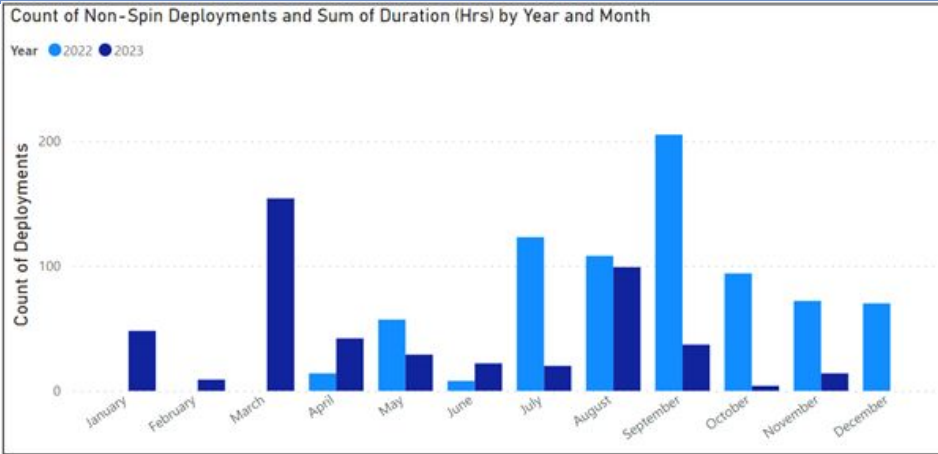
Coal %, Natural Gas %, Nuclear %, Renewable %, Net DC/Other % and Water % by Year



2023 Generation Mix by Fuel Type

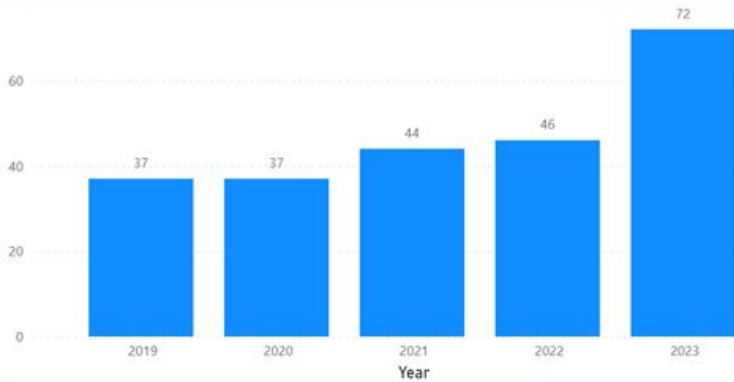


Non-Spin and Reliability Unit Commitments (RUC) as of 1/1/2024



System Events as of 1/1/2024

Number of Events by Year



Year	0	1	2	3	5	Total
2019	26	11				37
2020	29	8				37
2021	29	14	1	1		44
2022	32	12	1	1		46
2023	66	6				72
Total	182	51	1	1	1	236

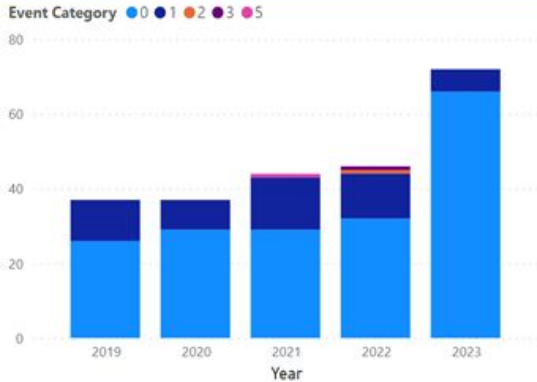
- Year
- Select all
 - 2010
 - 2011
 - 2012
 - 2013
 - 2014
 - 2015
 - 2016
 - 2017
 - 2018
 - 2019
 - 2020
 - 2021
 - 2022
 - 2023
 - 2024

Year	Brief Report	EOP-004	OE-417	Other	Total
2019	14	6	21		41
2020	9	6	29	2	46
2021	18	12	59		89
2022	19	7	39	1	66
2023	9	17	60		86
Total	69	48	208	3	328

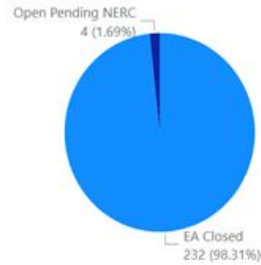
Key 2023 System Events

- 3/10/2023: Loss of multiple elements caused wind plant oscillations
- 6/3/2023: 138kV bus fault with multiple misoperations
- 6/9/2023 and 7/21/2023: Loss of multiple 345kV lines and one generator
- Twenty reported events of equipment damage due to gun fire

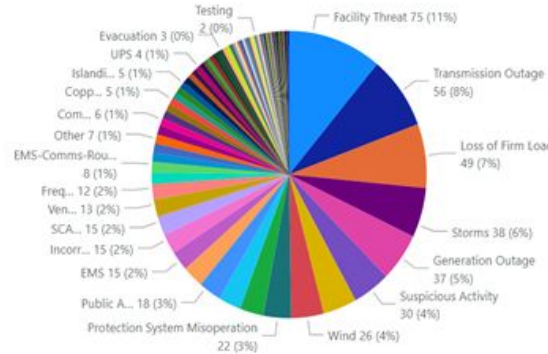
Number of Events by Year and Category



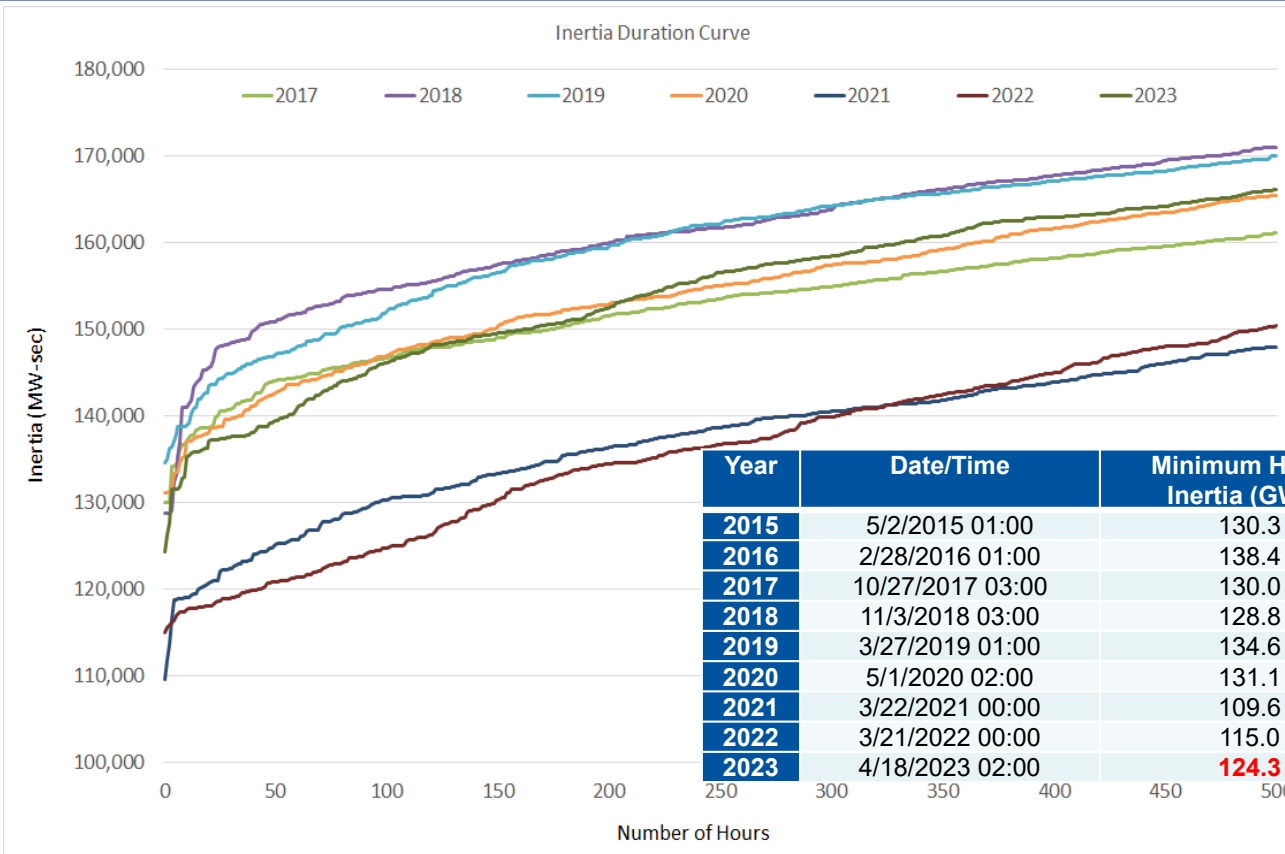
Status of Events



Events by Cause



System Inertia as of 1/1/2024

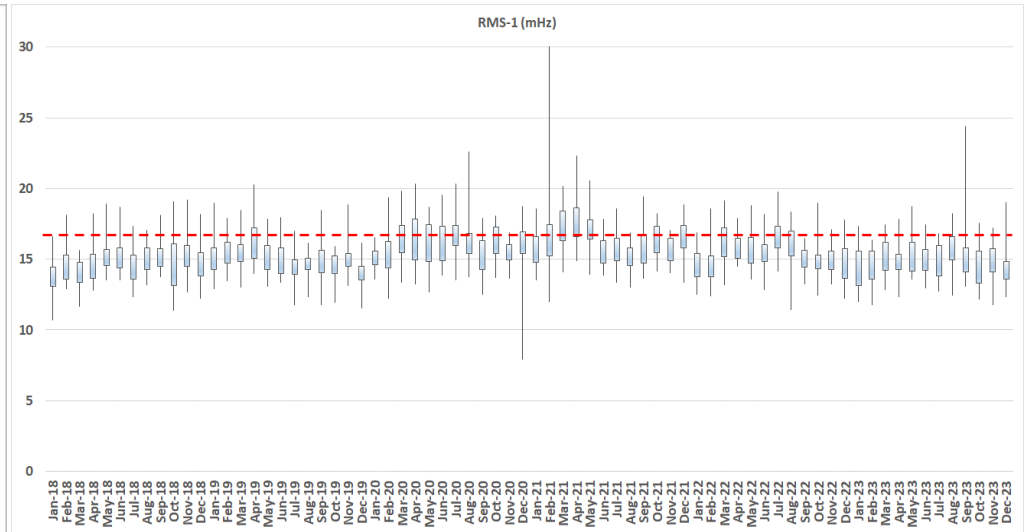
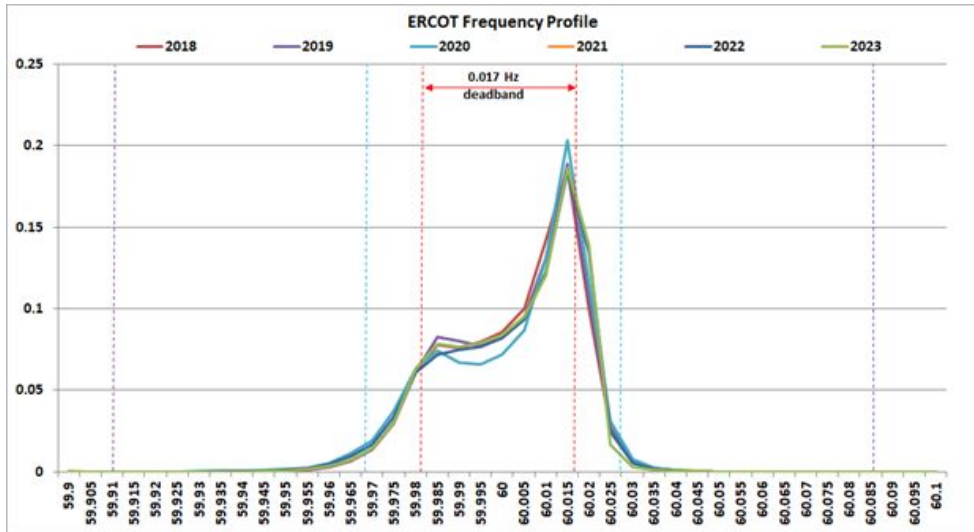


2023 Inertia Duration Curve

- 2023 is comparable to 2020 data



Frequency Control as of 1/1/2024



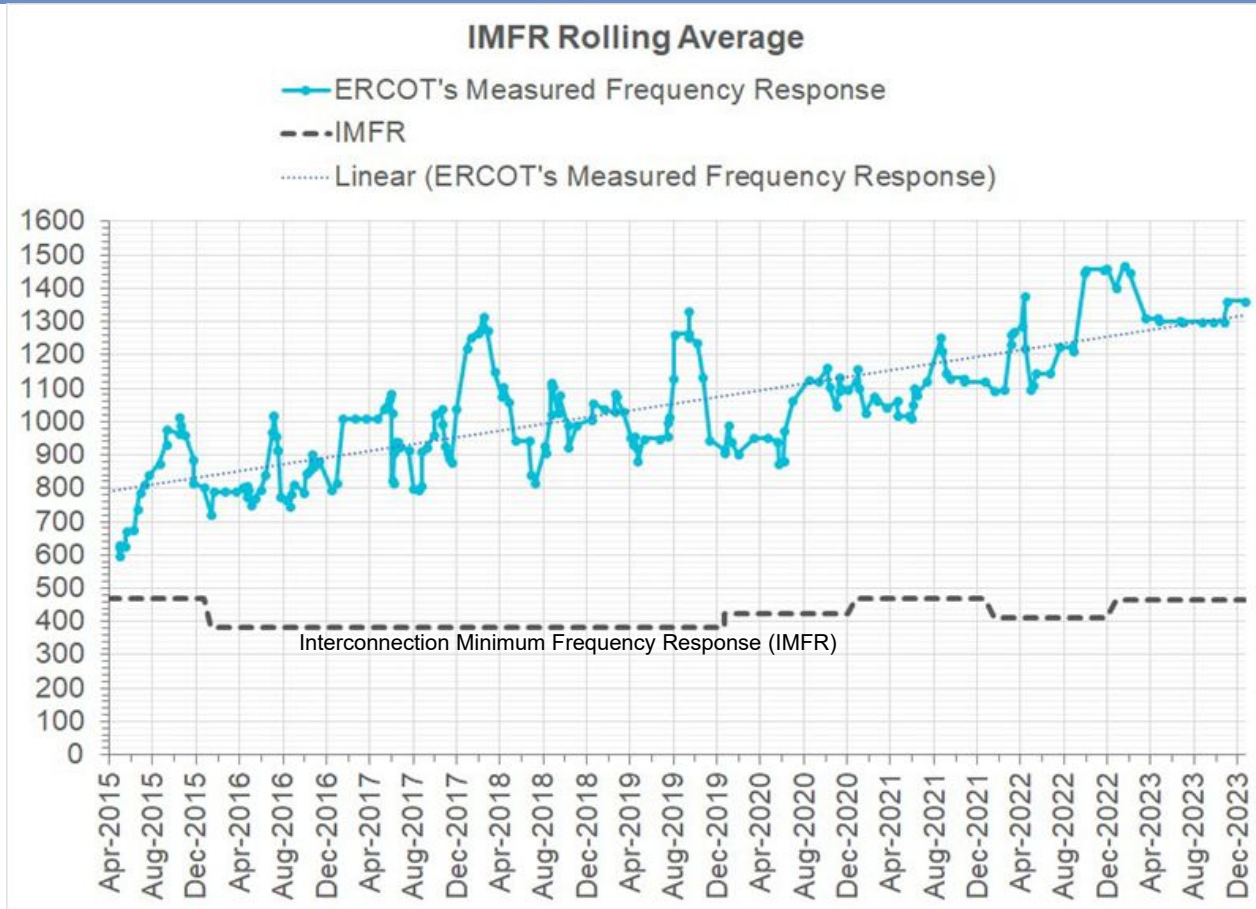
Balancing Authority ACE Limit (BAAL) Exceedances

- 29 clock-minutes of BAAL Exceedances in 2020
- 72 clock-minutes of BAAL Exceedances in 2021
- 1 clock-minute of BAAL Exceedances in 2022
- 21 clock-minutes of BAAL Exceedances in 2023

Red dashed line indicated 17 mHz governor dead-band



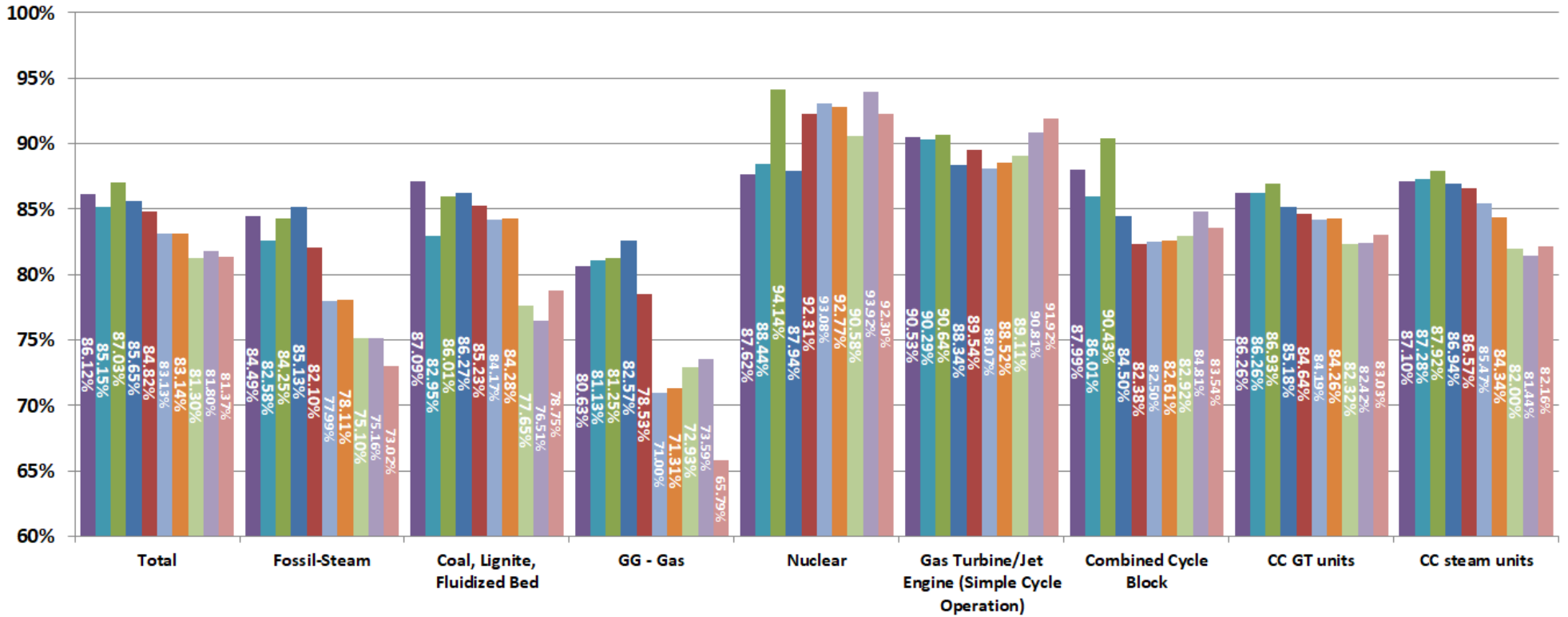
Primary Frequency Response – BAL-001-TRE



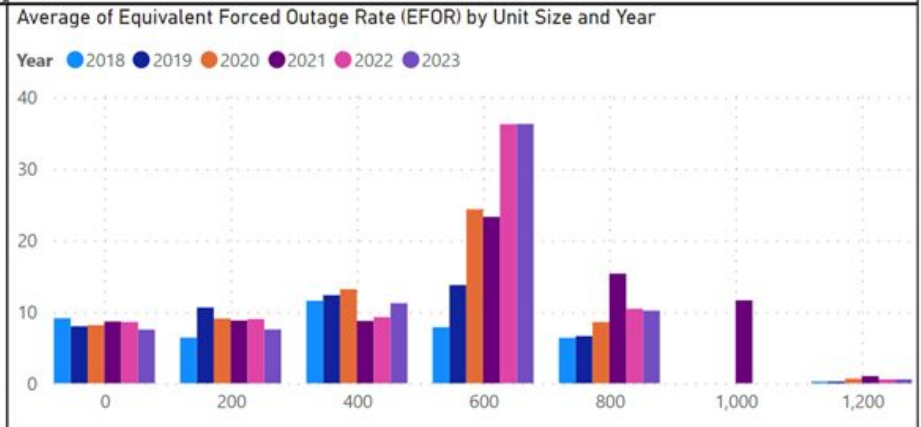
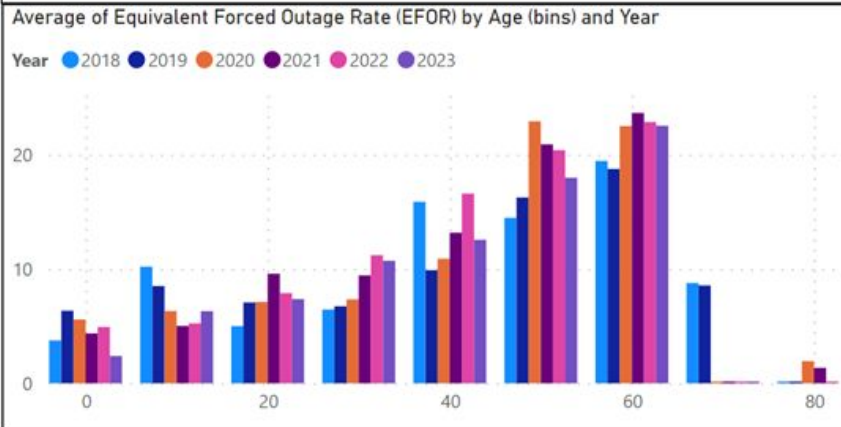
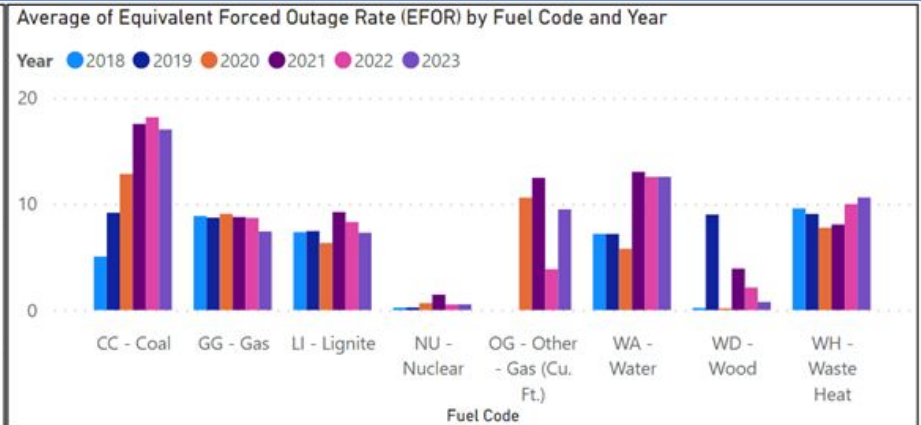
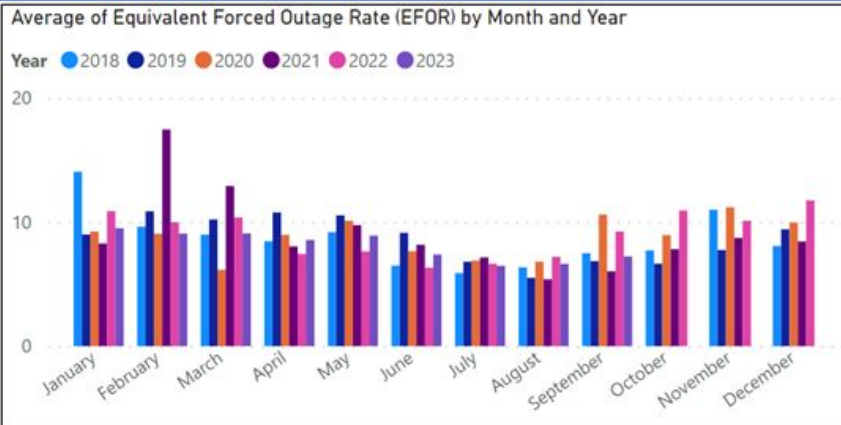
Generation Availability (Conventional)

Weighted Equivalent Availability Factor

2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 YTD

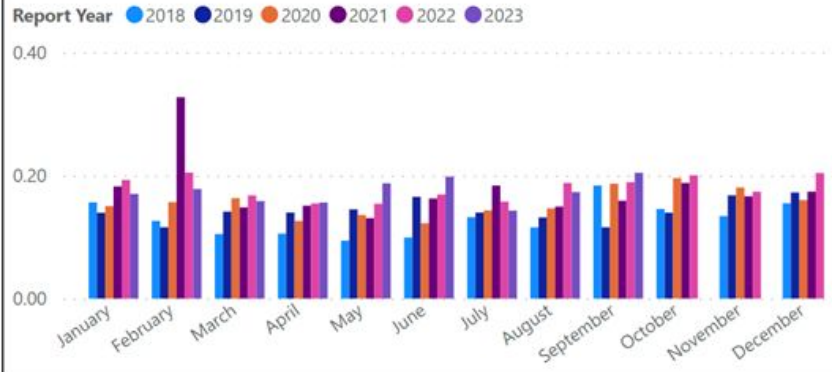


Generation Equivalent Forced Outage Rates (Conventional)

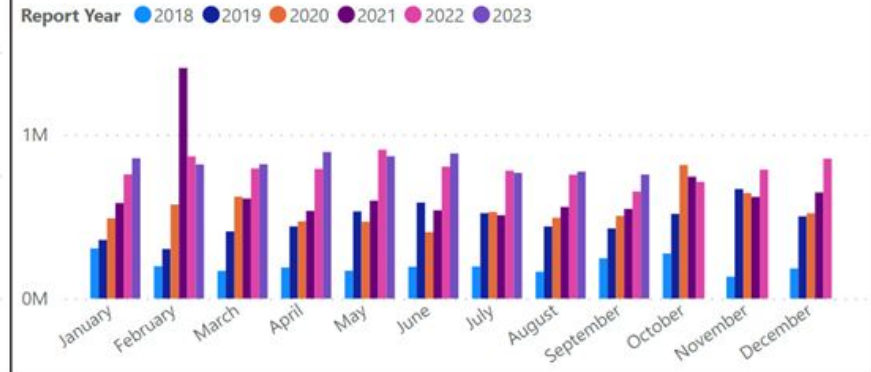


Wind GADS Metrics

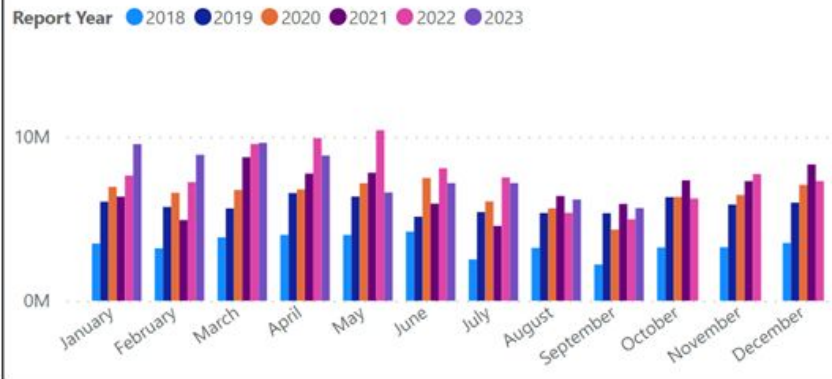
Average of (REFOR) Resource Equivalent Forced Outage Rate by Month



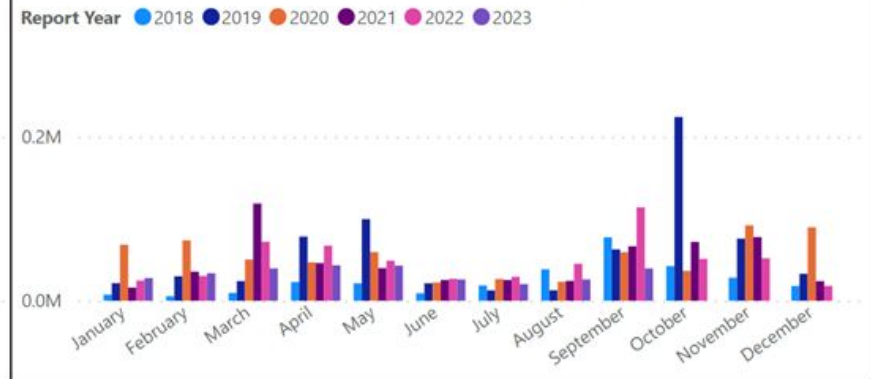
Sum of (FTH) Forced Turbine-Hours by Month and Report Year



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

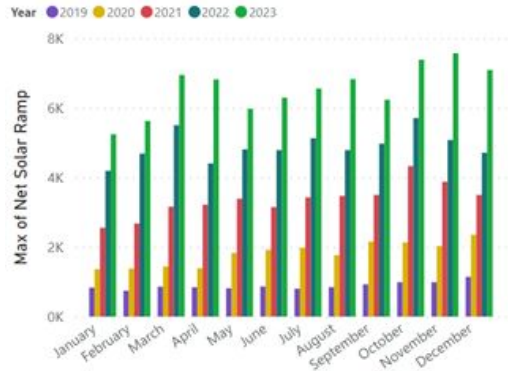


Sum of (PTH) Planned Turbine-Hours by Month and Report Year

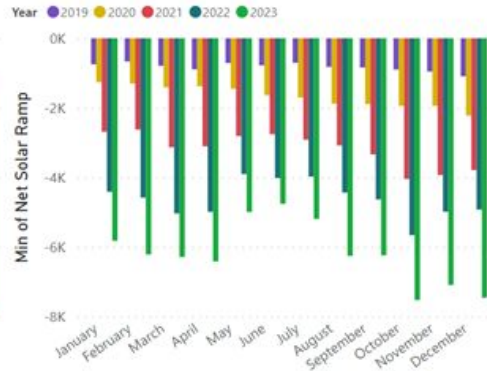


Ramping

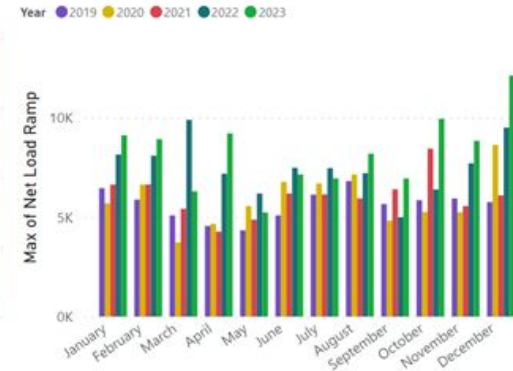
Max of Hourly Solar Up-Ramp by Month and Year



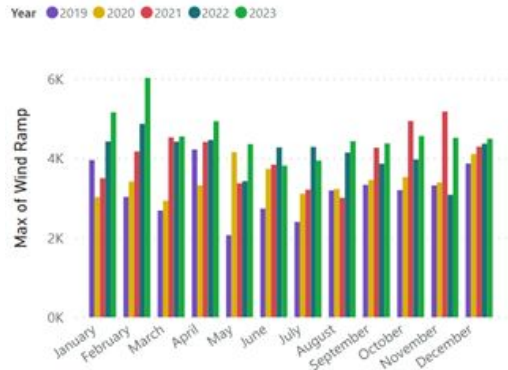
Max of Hourly Solar Down Ramp by Month and Year



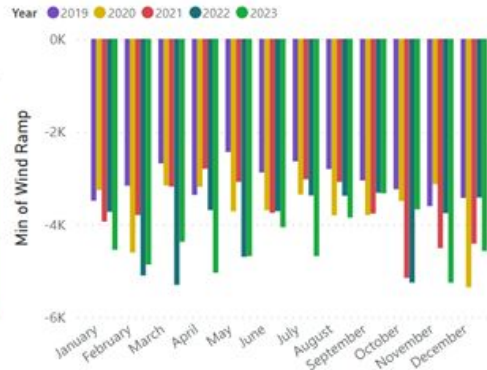
Max of Net Load Ramp by Month and Year



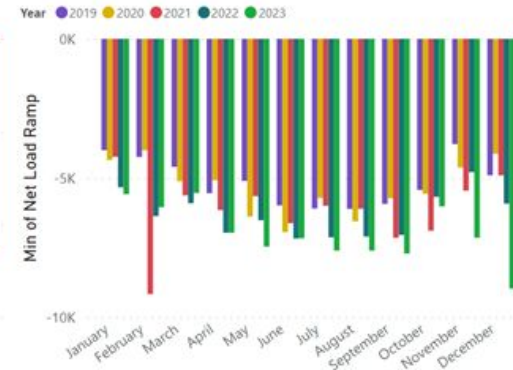
Max of Hourly Wind Up-Ramp by Month and Year



Max of Hourly Wind Down Ramp by Month and Year

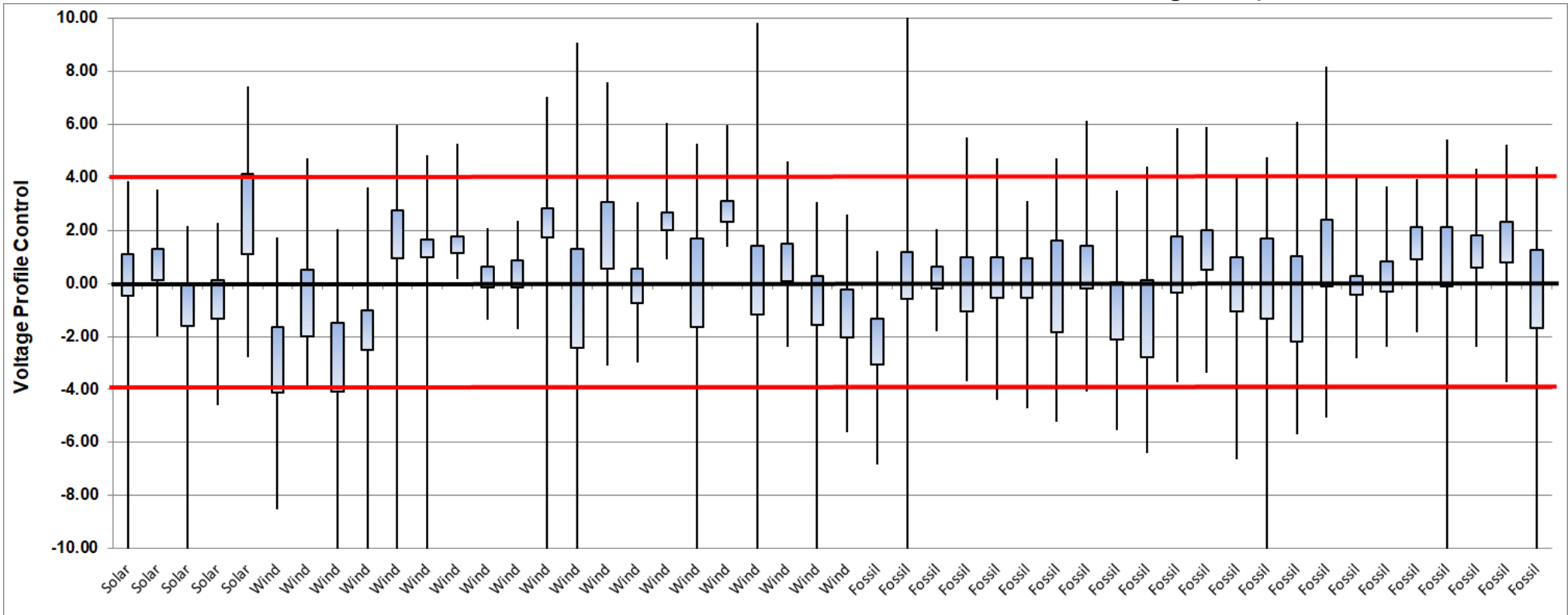


Min of Net Load Ramp by Month and Year

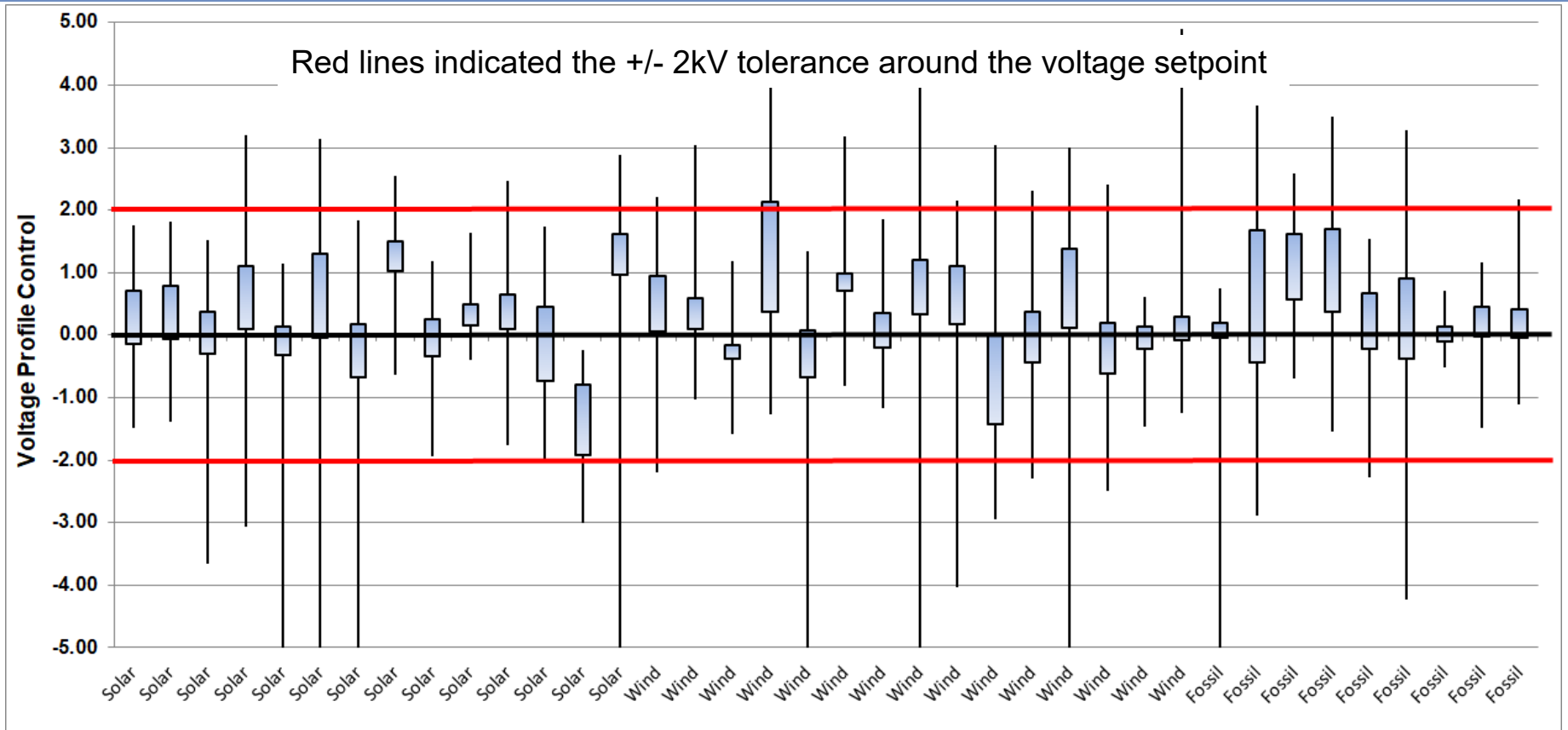


Voltage Control Metrics – 345kV Units for Oct-Dec 2024

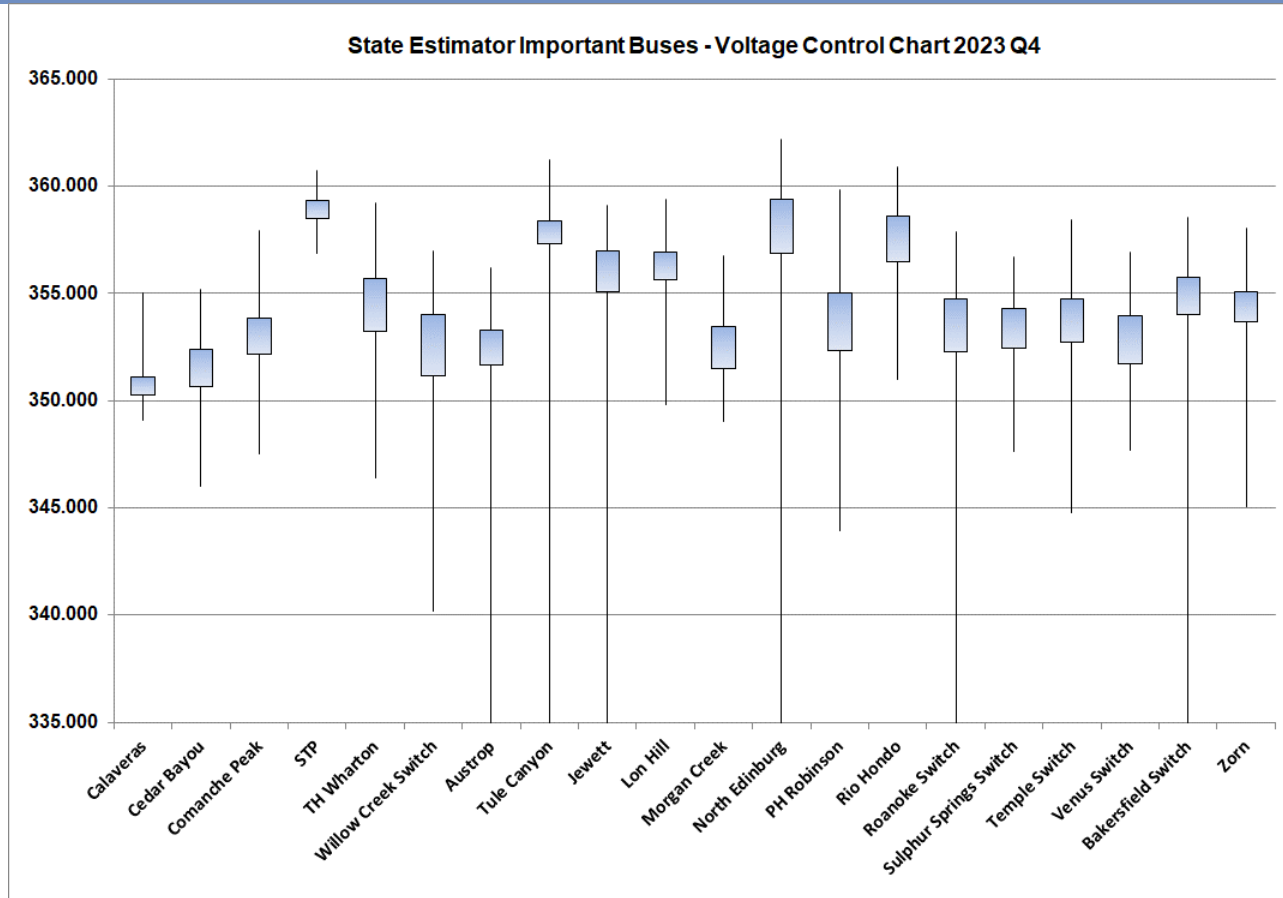
Red lines indicated the +/- 4kV tolerance around the voltage setpoint



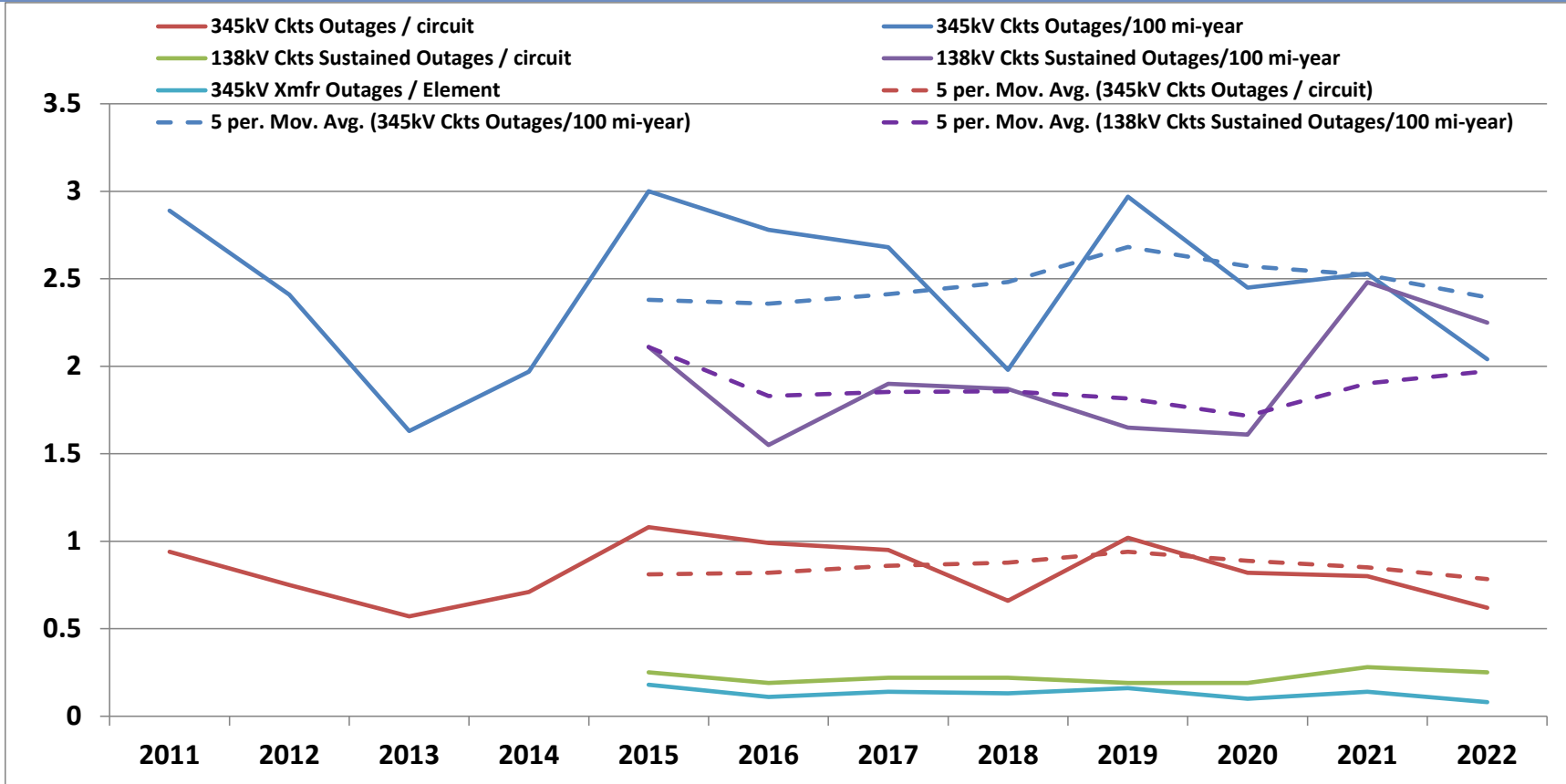
Voltage Control Metrics – 138kV Units for Oct-Dec 2024



Voltage Control Metrics – State Estimator Important Buses

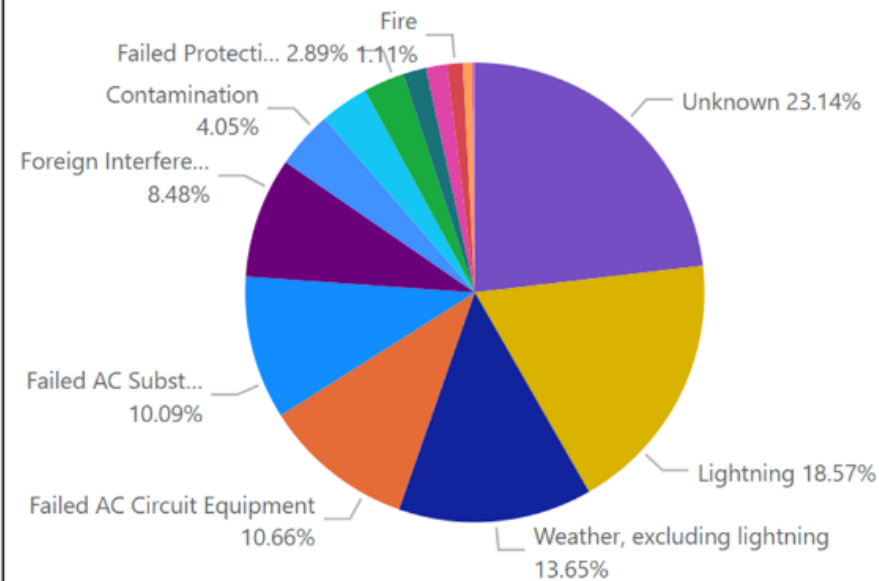


Transmission Outage Rate Trends – Available Data

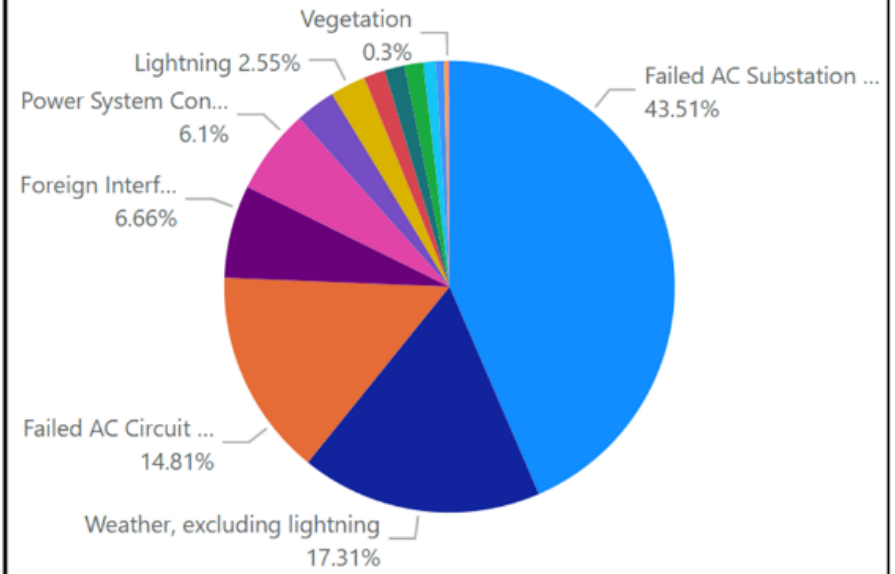


Transmission Outage Rate Trends – Available Data

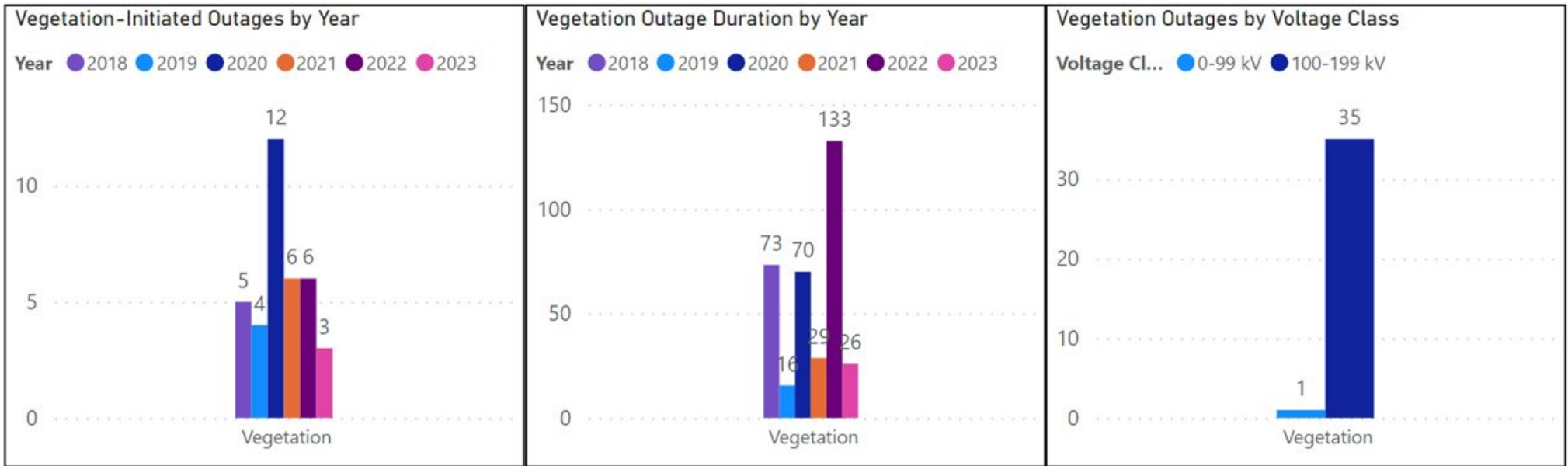
Initiating Cause Code



Duration (hrs) by Initiating Cause Code



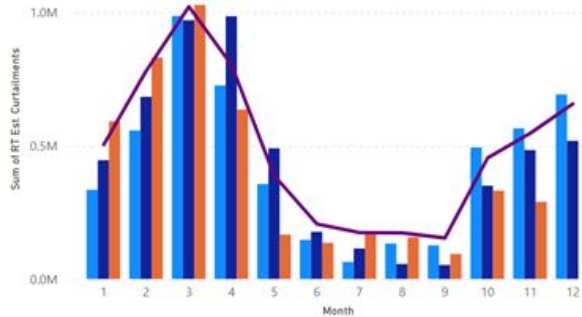
Vegetation Outage Trends – Available Data



Curtailments (as of 11/30/2023)

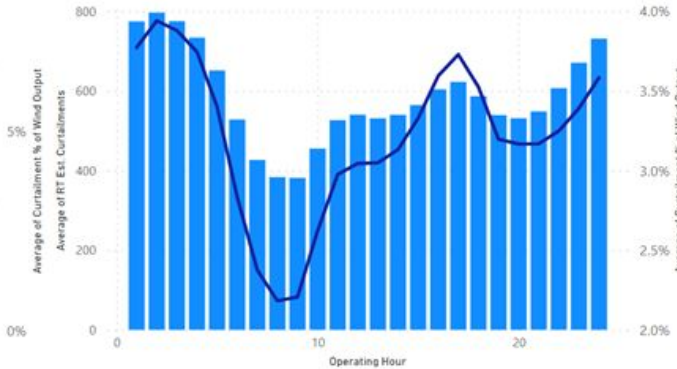
Wind Curtailments by Year and Month

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



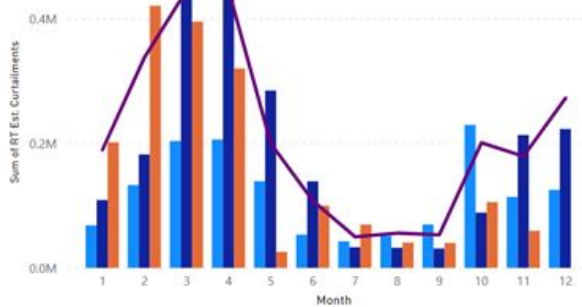
Wind Curtailments by Operating Hour

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



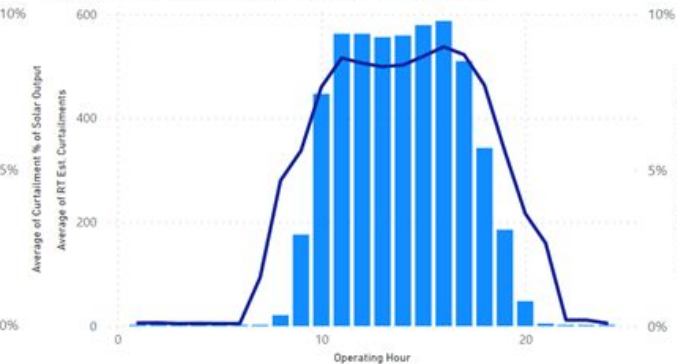
Solar Curtailments by Year and Month

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



Solar Curtailments by Operating Hour

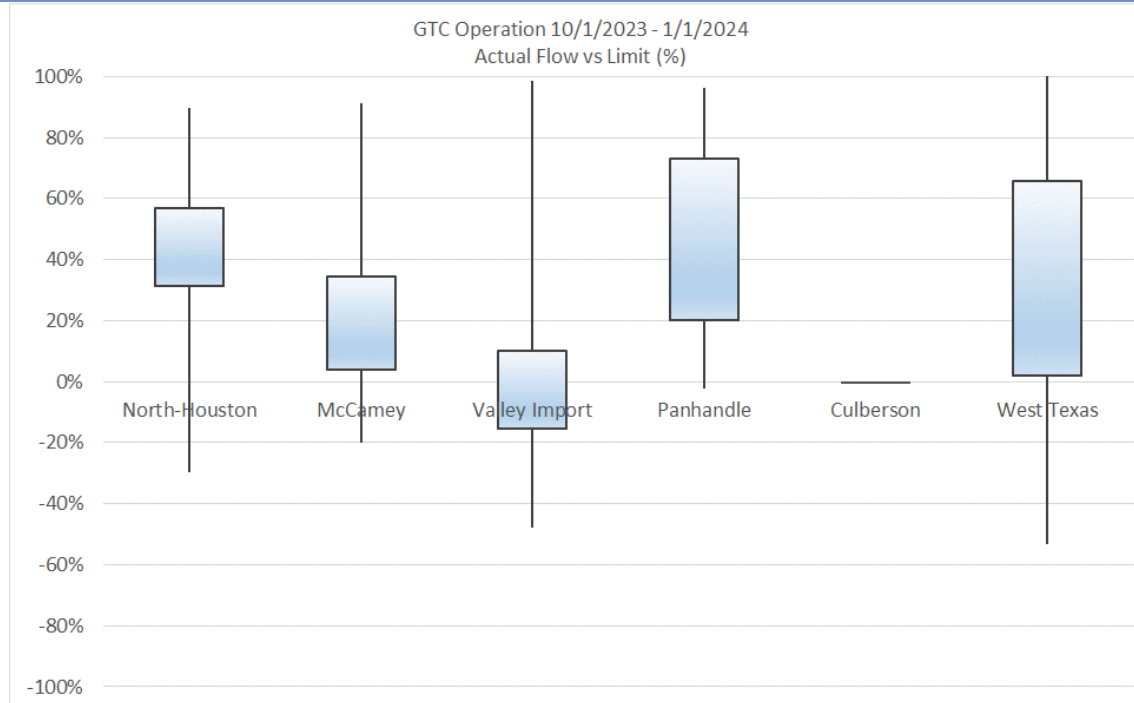
● Average of RT Est. Curtailments ● Average of Curtailment % of Solar Output



2023 YTD	Wind	Solar
GWHrs	4,427.4	1,777.8
Max Hourly MW Curtailment	8403	6738
Avg % of Uncurtailed Output	4.3%	5.7%



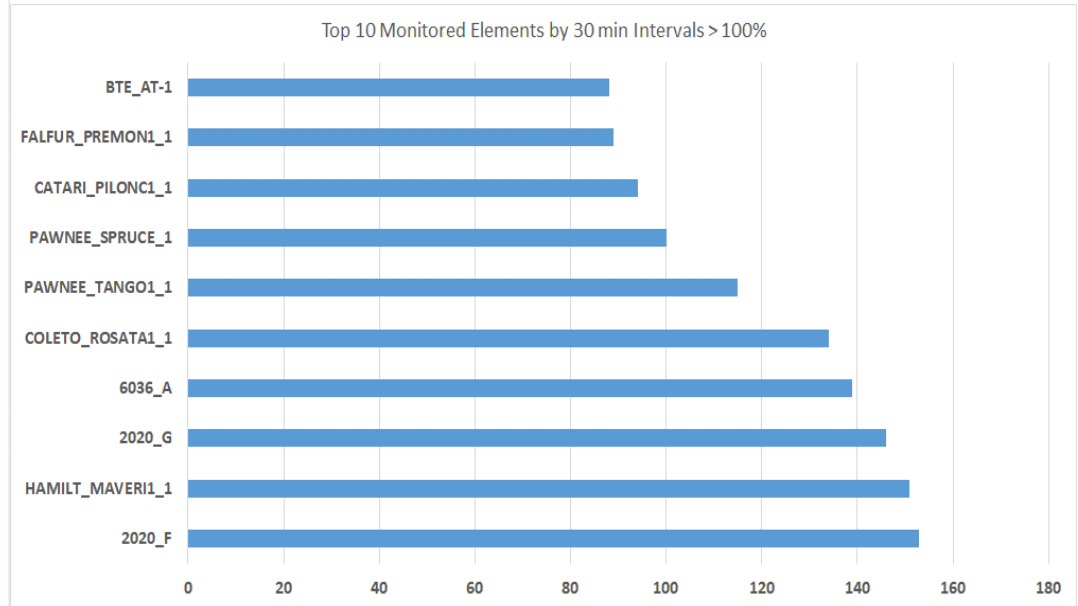
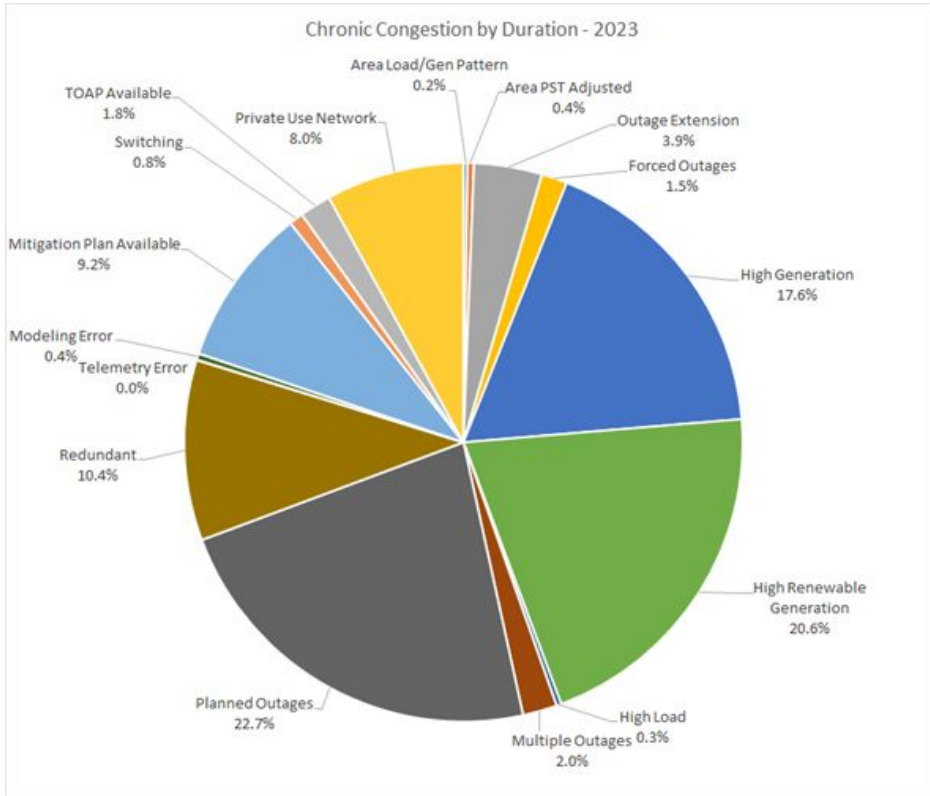
Generic Transmission Constraints



	North-Houston	McCamey	Valley Import	Panhandle	Culberson	West Texas
# Minutes > 90%	0	3	13	487	0	2466
# Minutes > 100%	0	0	0	0	0	0



Transmission Congestion – 2023 (as of 1/1/2024)



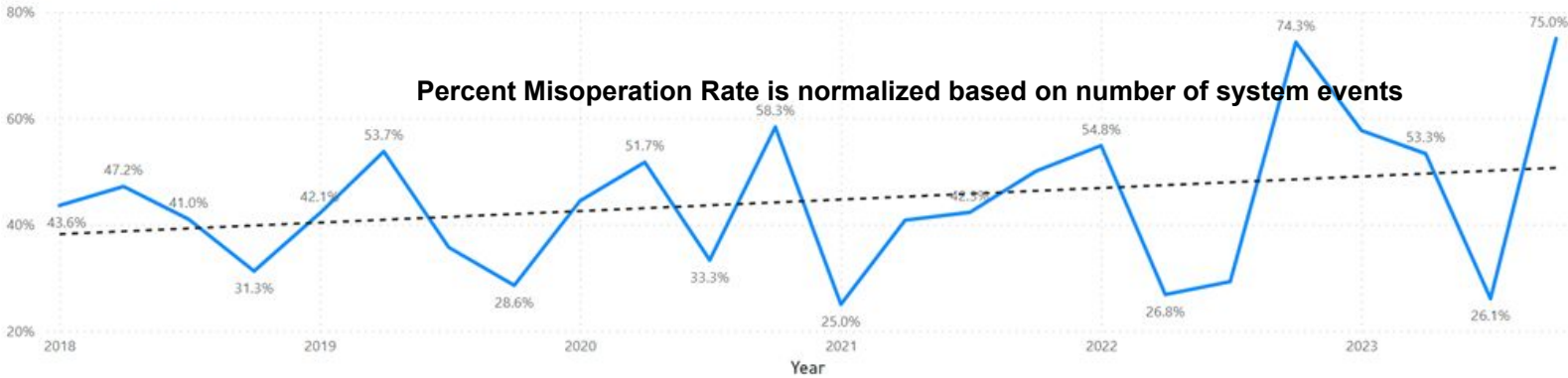
Protection System Misoperations

138kV Percent Misoperations and 345kV Percent Misoperations by Quarter

● 138kV Percent Misoperations ● 345kV Percent Misoperations ● Total % Misoperations

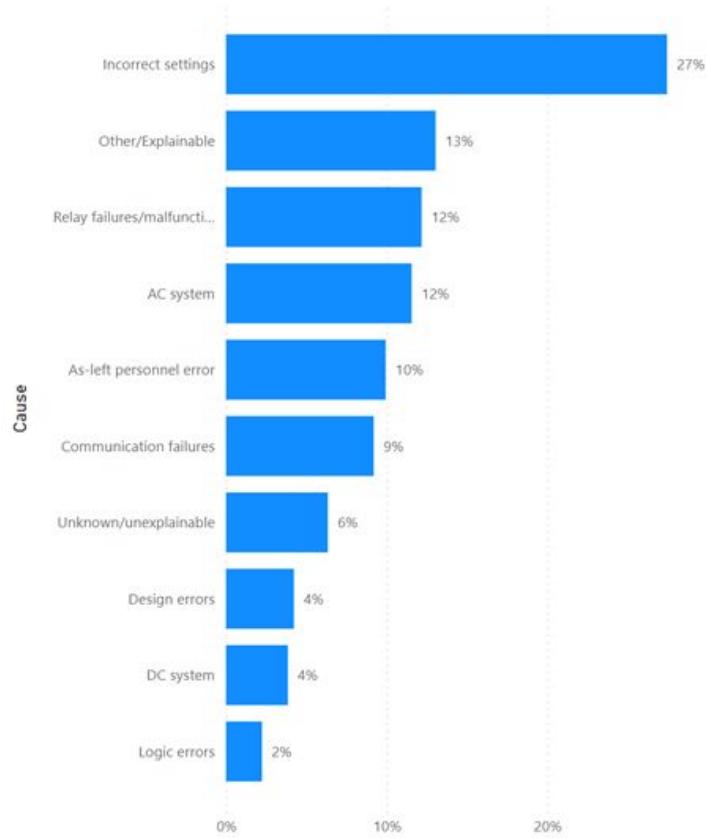


Human Performance Misoperation Rate

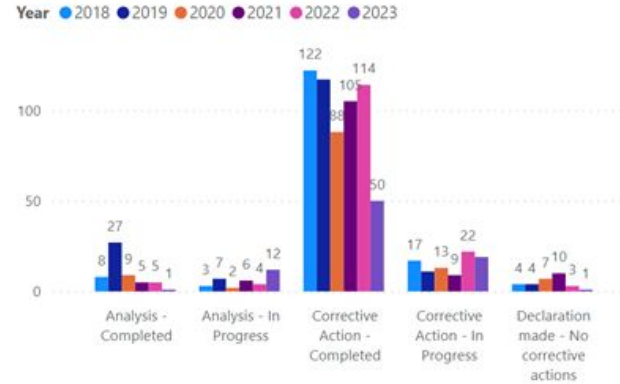


Protection System Misoperations

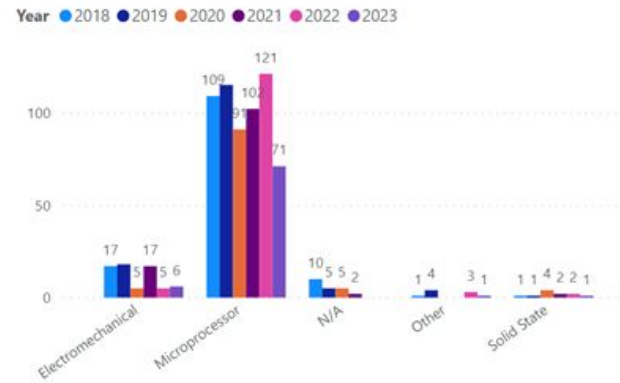
% of Total Misoperations by Cause



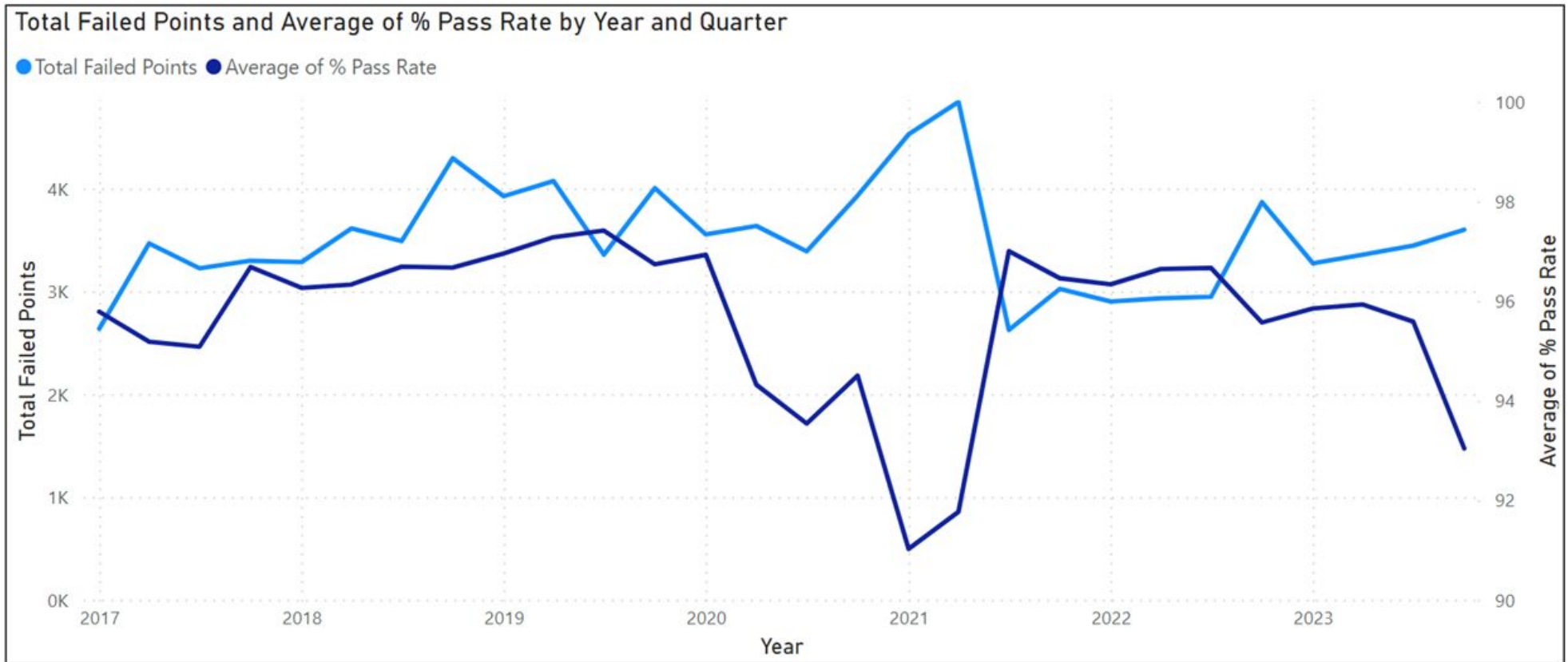
Corrective Action Status by Year



Count of Relay Technology by Year

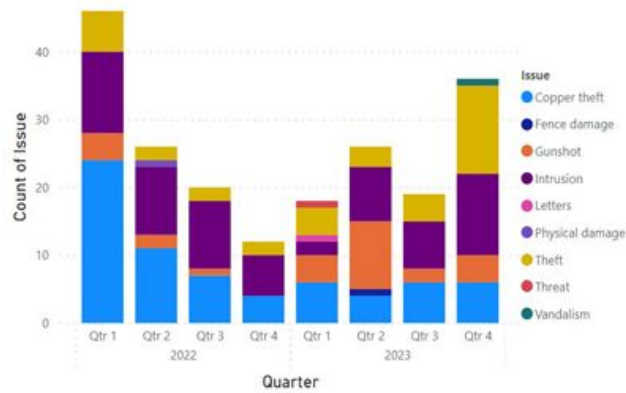


Telemetry Availability

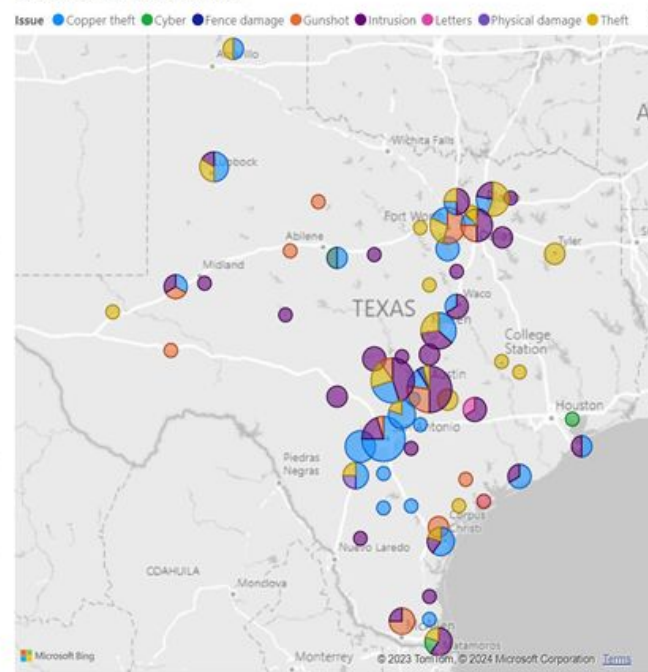


Infrastructure Protection – 2022/2023

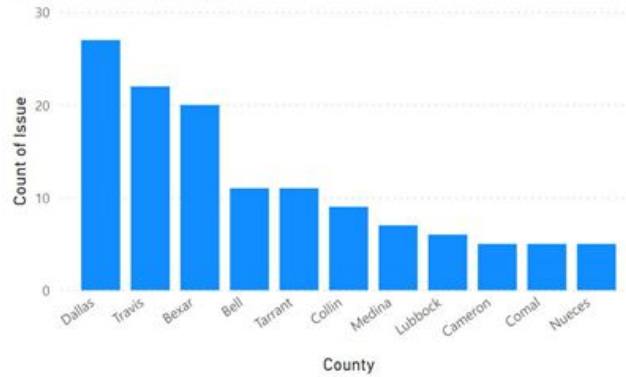
Count of Issue by Year, Quarter



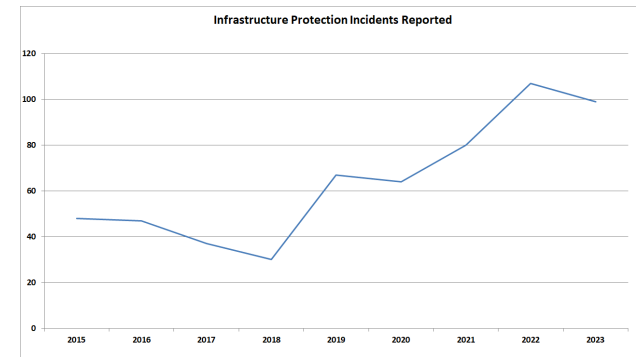
Count of Issue by Location



Count of Issue by County



Incidents reported to System Security Response Group (SSRG) since 1/1/2022





TEXAS RE

Enforcement Report

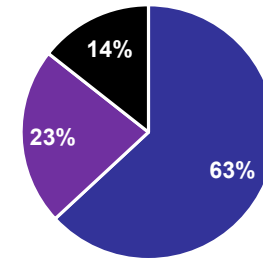
**Member Representatives Committee
Meeting
February 21, 2024**

Enforcement Discovery Dashboard

Top Standards Discovered 2023	
Standard	Number Discovered
CIP-003	25
MOD-025	21
FAC-008	20
CIP-007	17
CIP-010	17
MOD-026	12
CIP-004	12
CIP-005	11
VAR-002	11
MOD-027	10

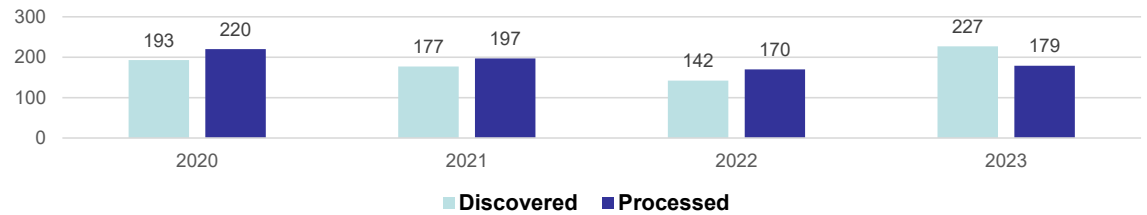
Inventory End of 2023:
271

Aging of Noncompliance in Inventory



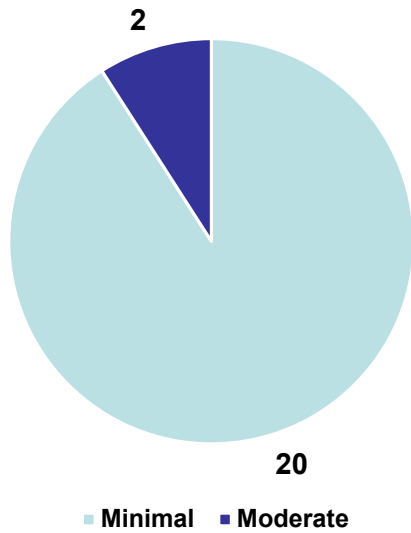
■ Less than One Year ■ Over 1 Year, Less Than 2 ■ Over 2 Years

Noncompliance Discovered and Processed by Year

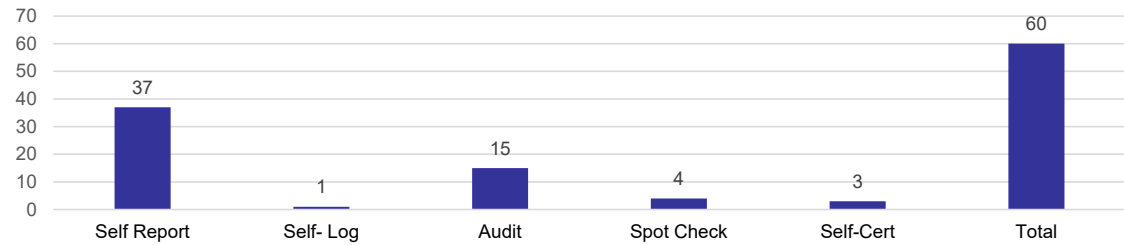


Enforcement Quarterly Dashboard

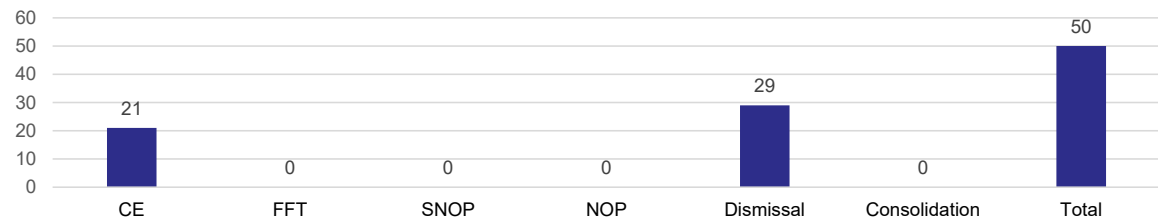
Q4 2023 Processed by Risk



Q4 2023 Noncompliance Discovered by Type



Q4 2023 Processed by Disposition Type



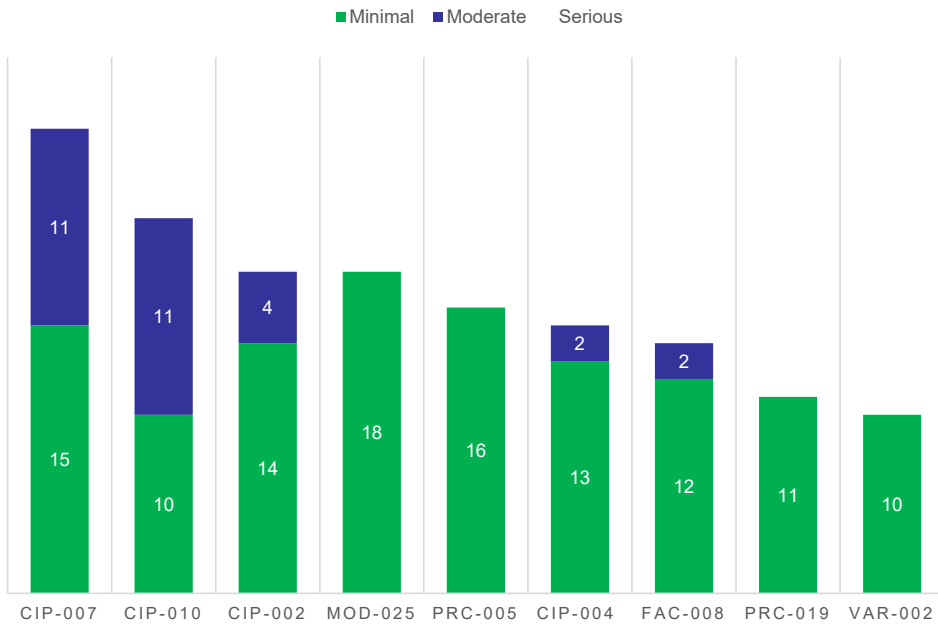
3

Member Representatives Committee Meeting

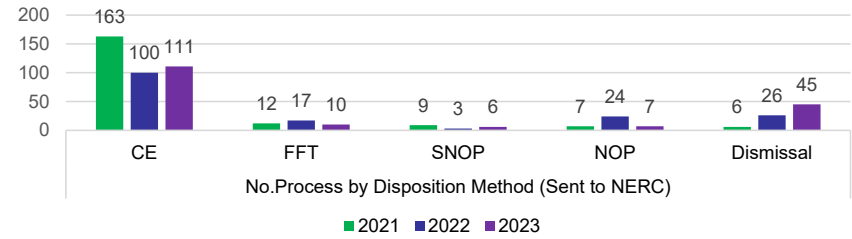


Enforcement Year-to-Date Dashboard

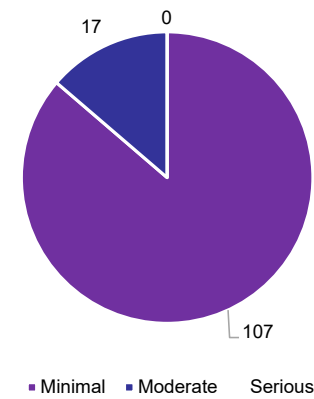
TEXAS RE TOP 10 MOST VIOLATED STANDARDS BY ASSESSED RISK SUBMITTED TO NERC 2022-2023



Issues Processed by Disposition Method



2023 Processed by Risk





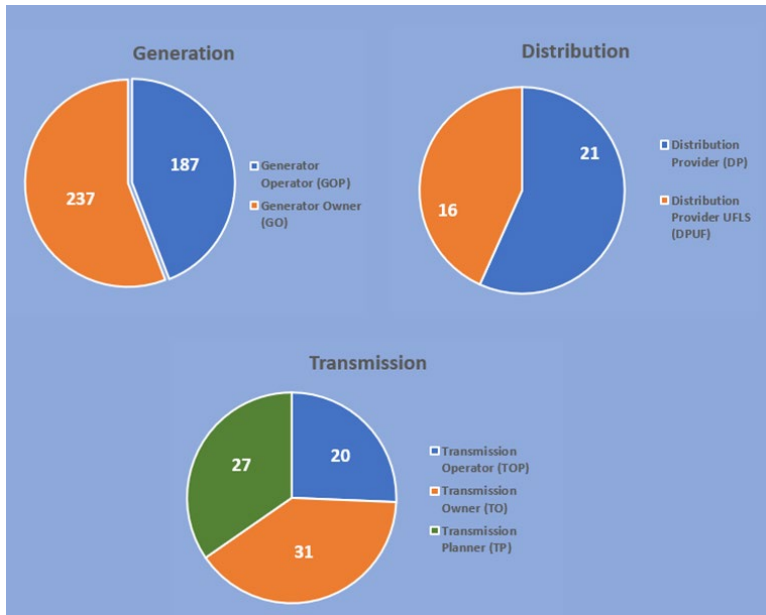
TEXAS RE

Registration Report

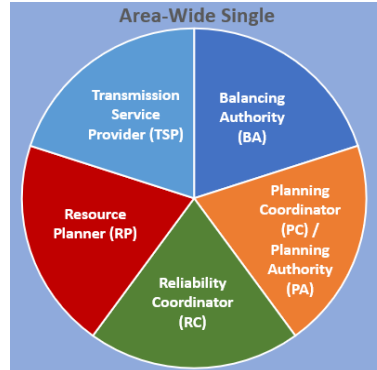
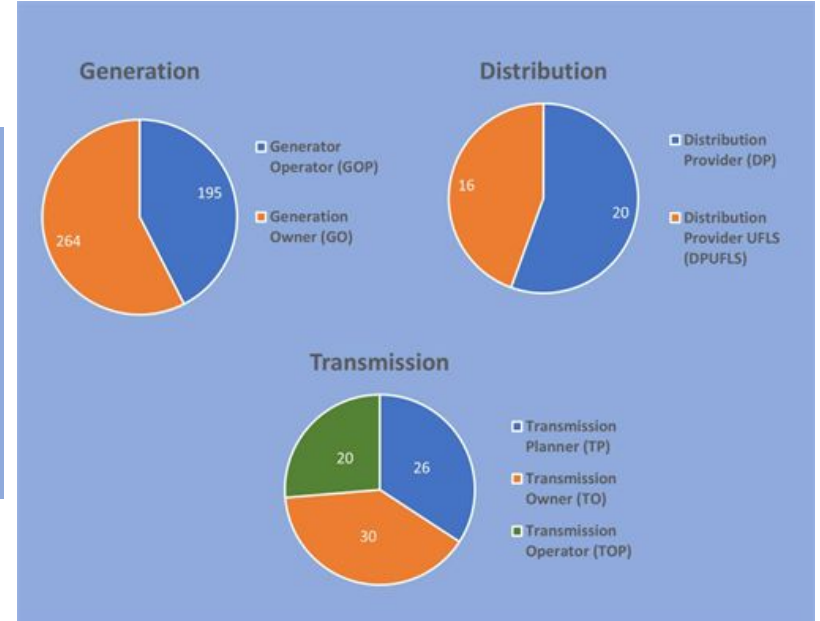
**Member Representatives Committee
Meeting
February 21, 2024**

Number of Registered Entities by Function – Texas RE Region

310 Registered Entities | 544 Functions
As of January 1, 2023



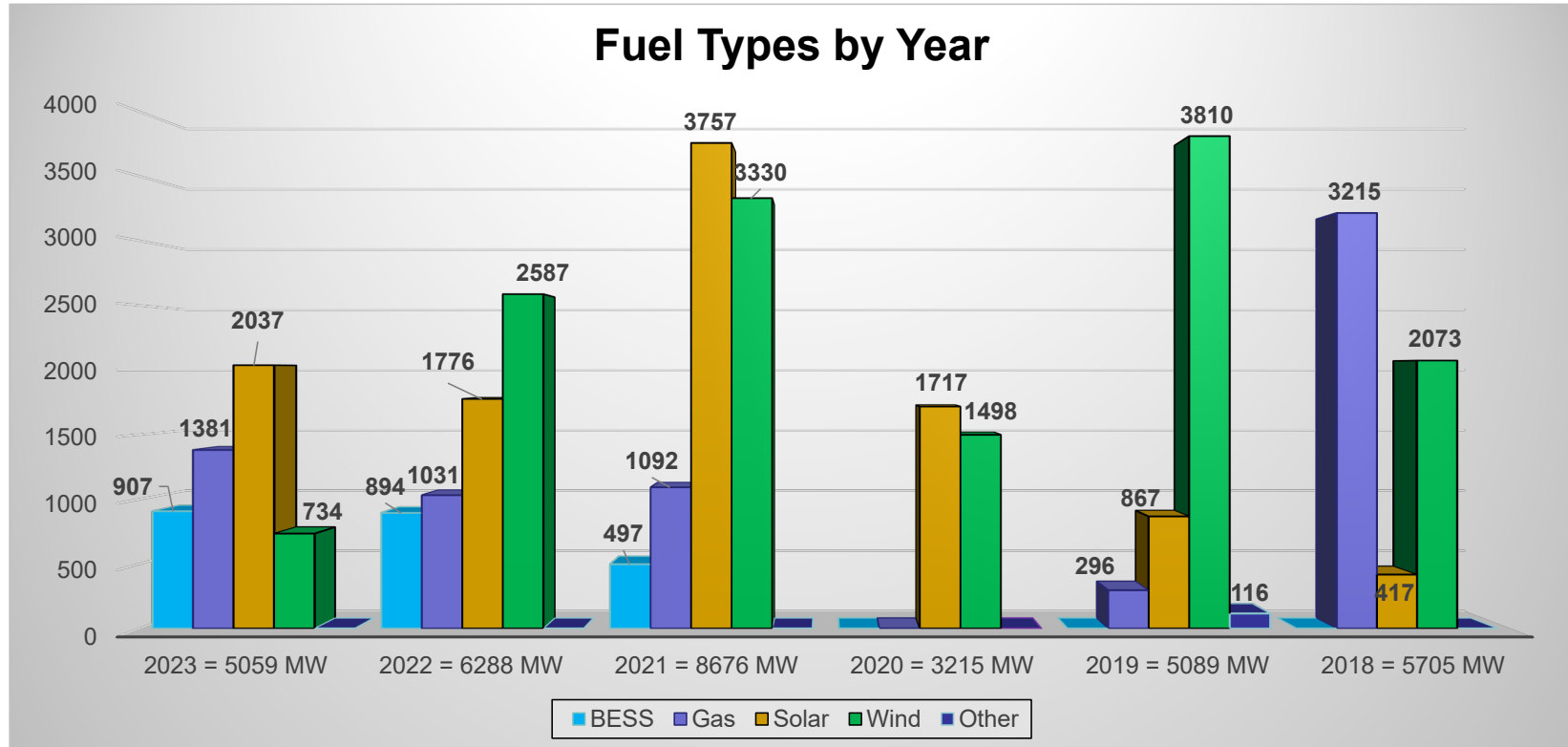
335 Registered Entities | 571 Functions
As of December 31, 2023



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 9 active CFRs
 - 1 GO CFR (MRO is the lead region)
 - 5 GOP CFRs
 - 3 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



FERC Order-Docket RD22-4-00 | NERC Work Plan

FERC Order-Docket RD22-4-00



(1) Complete **modifications** to its registration process within 12 months of Commission approval of the work plan



(2) Complete **identification** 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



(3) 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

NERC Inverter Based Resources (IBR) Three-Year Work Plan

Update filed November 14, 2023

1. **Modifications** to the registration process:
 - NERC ROP Redlines posted on January 23, 2024
 - Present to the NERC Board at February meeting
2. **Identification** of owners and operators of IBRs
 - Energy Information Administration (DOE-EIA) 860 data
3. **Registration** of “unregistered IBRs” (>20 MVA & <75 MVA)

*GO-IBR – Generation Owner-Invertor Based Resource
 **GOP-IBR – Generation Operator-Invertor Based Resource



Additional Information

Work Plan Phases



References

[FERC Order RD22-4](#)

[NERC](#)

[February 15, 2023 Work Plan](#)

[Amended Work Plan March 2023](#)

[Order](#)

[Approving Work Plan May 2023](#)

[Work Plan Progress Update](#)

[November 2023](#)

[Inverter-Based Resource Quick Reference Guide](#)





TEXAS RE

O&P Compliance Monitoring Report

**Member Representatives Committee
Meeting
February 21, 2024**

Q4 2023 Highlights

Talk with Texas RE

- 2024 SOL Standards



Talk with Texas RE

- O&P Practice Guide Review



Talk with Texas RE

- 2024 Implementation Plan



Q4 2023 Highlights

Industry Webinar

- New Entity & Primary Compliance Contact Meetings



GCPA

- emPOWERing Women



Fall Standards, Security, & Reliability Workshop

- Change Management Controls



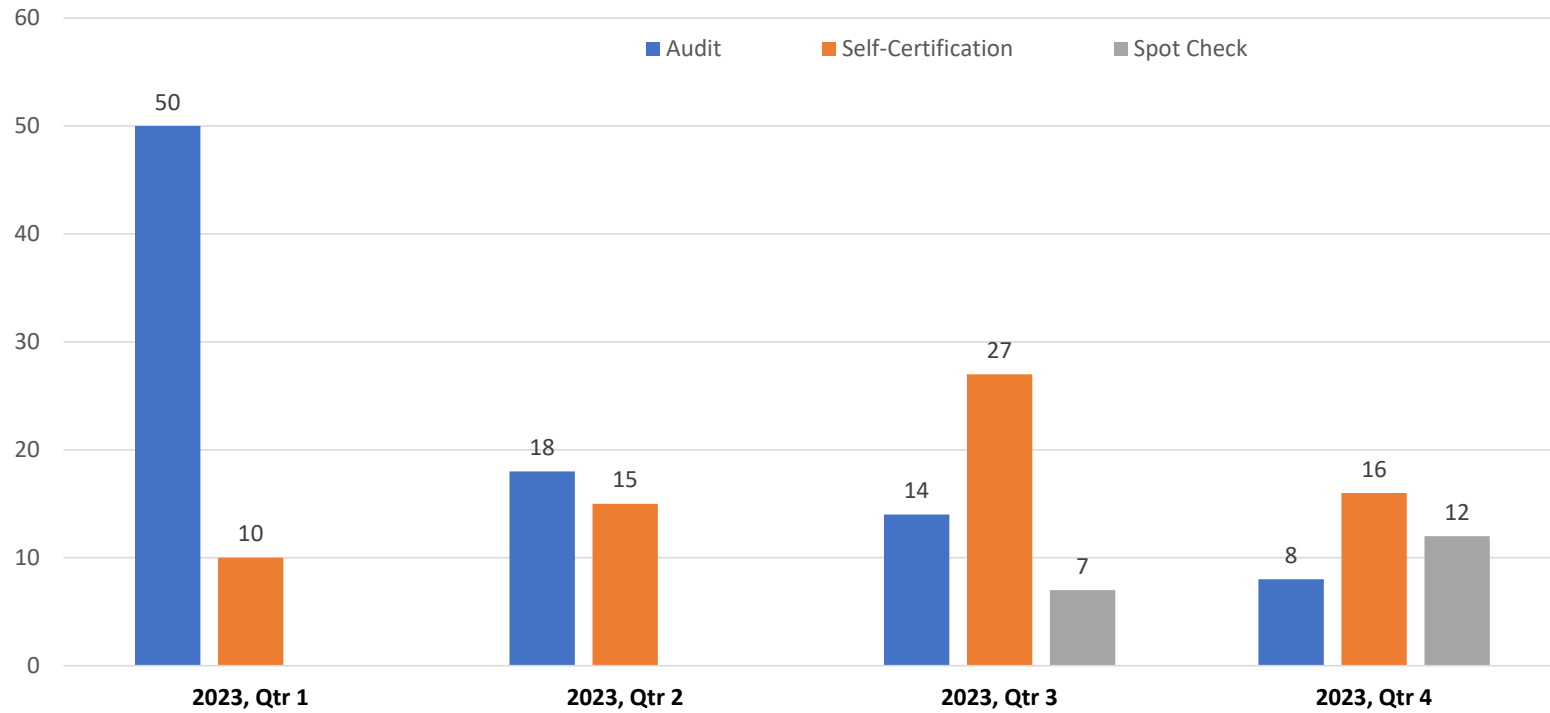
NSRF

- FAC-008: Facility Rating Methodology Recommendations
- PRC-027-1 Internal Controls

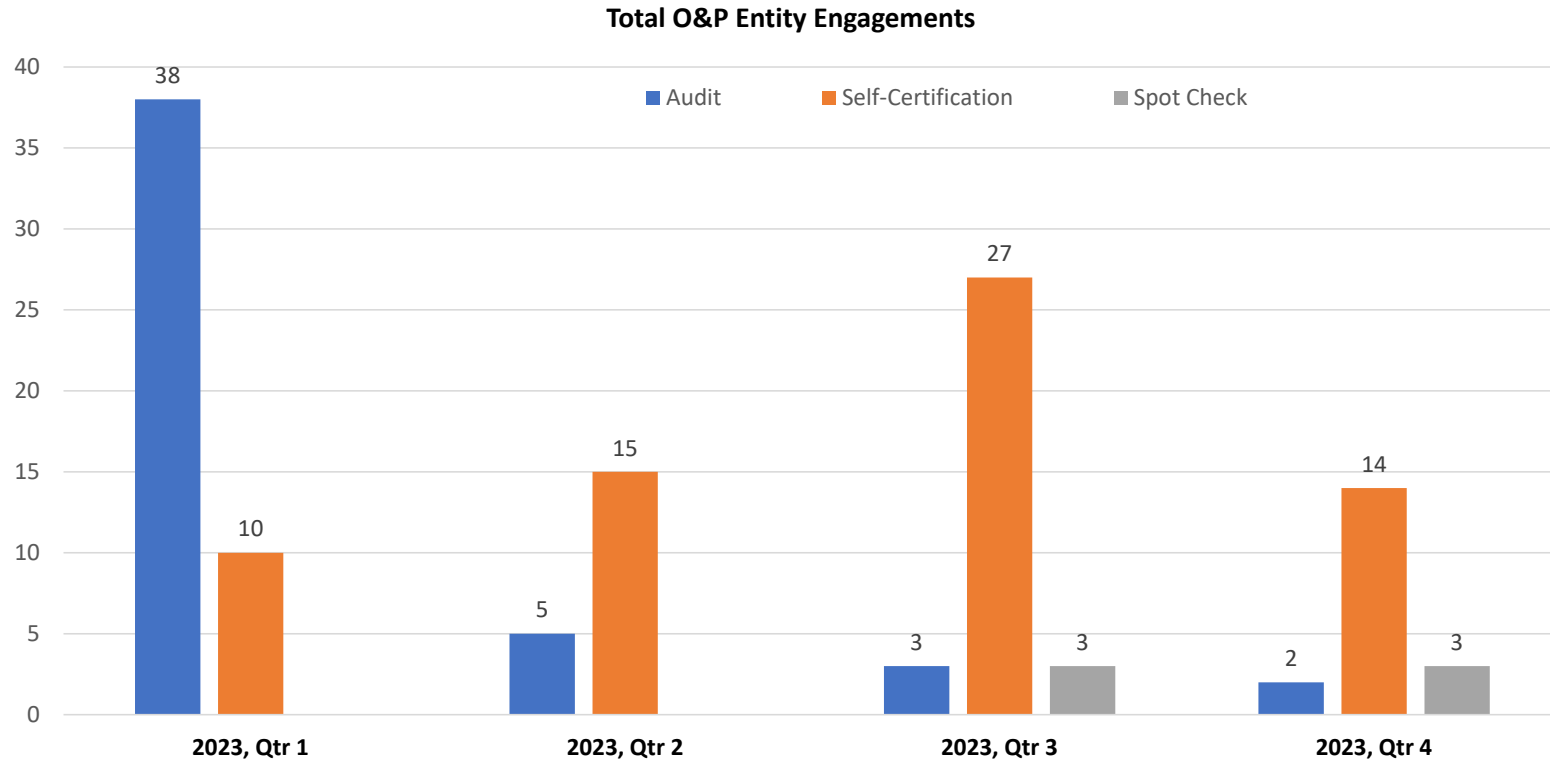


Total O&P Requirements: Q1 2023 – Q4 2023

O&P Standard-Requirements by Engagement Type

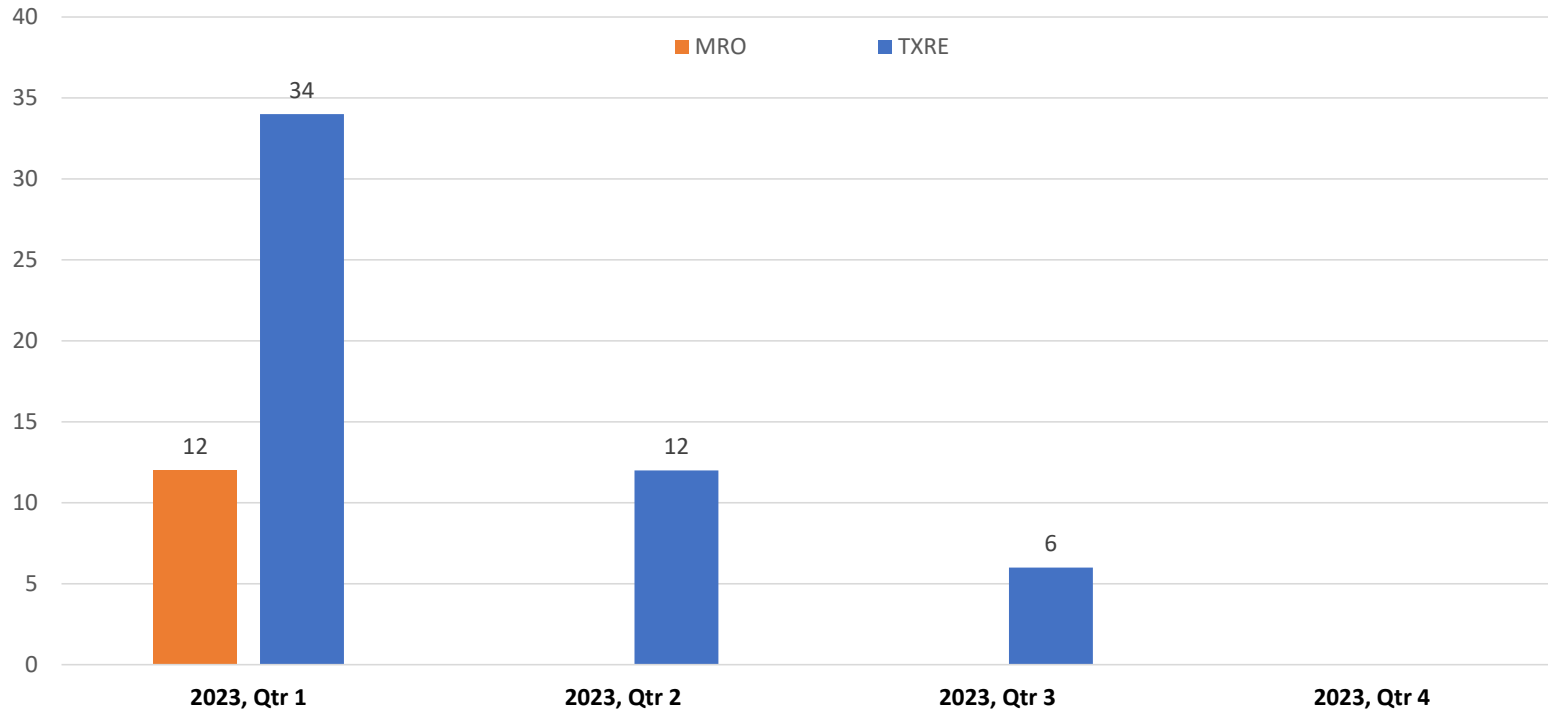


Total O&P Engagements: Q1 2023 – Q4 2023



Total O&P Requirements CO: Q1 2023 – Q4 2023

Total O&P Standard-Requirements in Coordinated Oversight



6

Member Representatives Committee Meeting





TEXAS RE

CIP Compliance Monitoring Report

**Member Representatives Committee
Meeting
February 21, 2024**

Q4 2023 Highlights

Talk with Texas RE

- Protecting BCSI



Talk with Texas RE

- Supply Chain Risk Management Best Practices



Talk with Texas RE

- 2024 Implementation Plan



Q4 2023 Highlights

Talk with Texas RE

- Asset Management, the Foundation of a Solid Cybersecurity Program



2023 Annual Compliance Conference GENERating Reliability and Resiliency

- CIP-003-9 Considerations



Fall Standards, Security, & Reliability Workshop

- New BCSI in the Cloud Standards



Q4 2023 Highlights

Industry Webinar

- New Entity & Primary Compliance Contact Meetings



GCPA

- emPOWERing Women



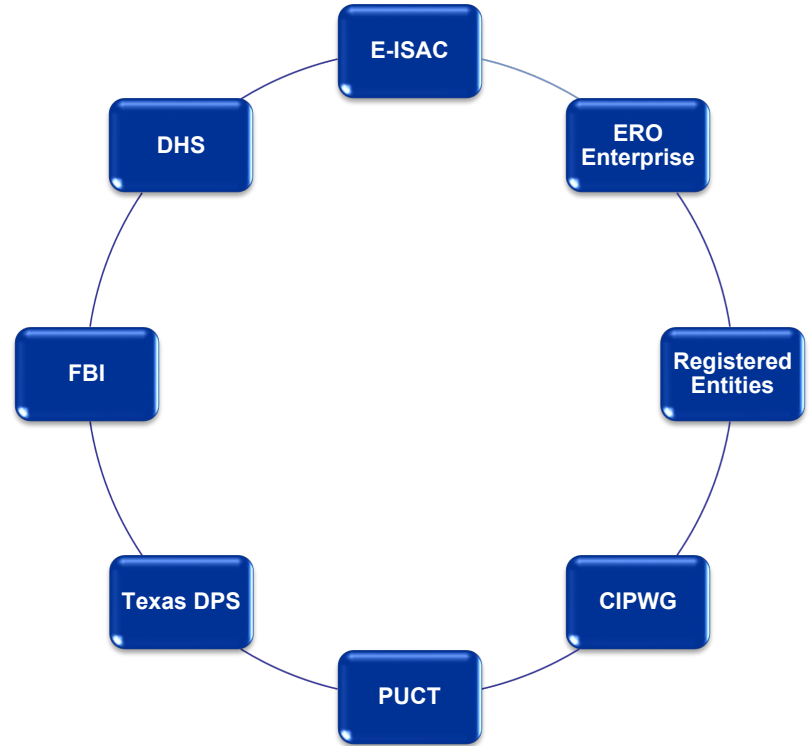
MRC Meeting

- Data in the Cloud: An Overview

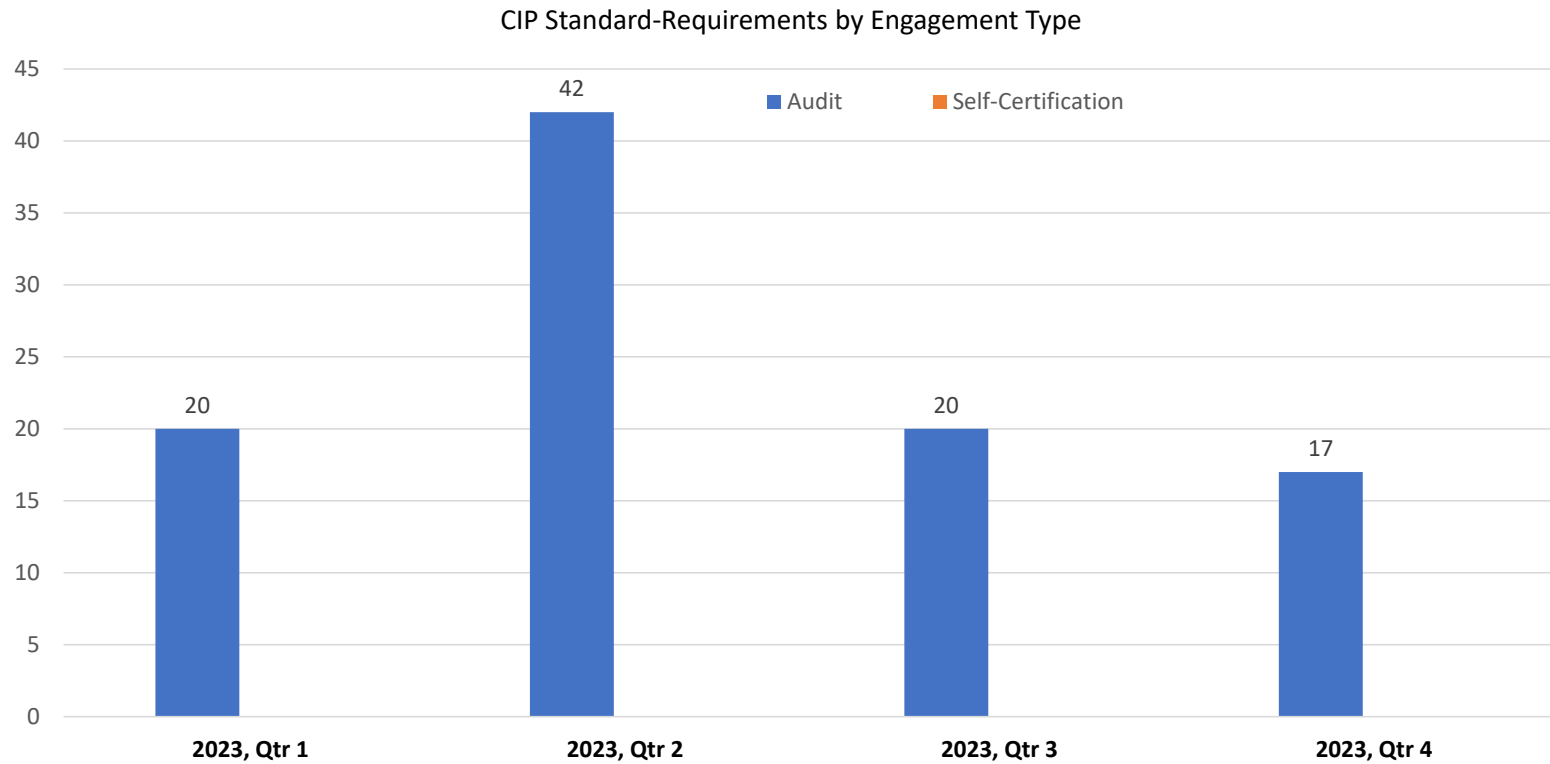


Q4 2023 Highlights

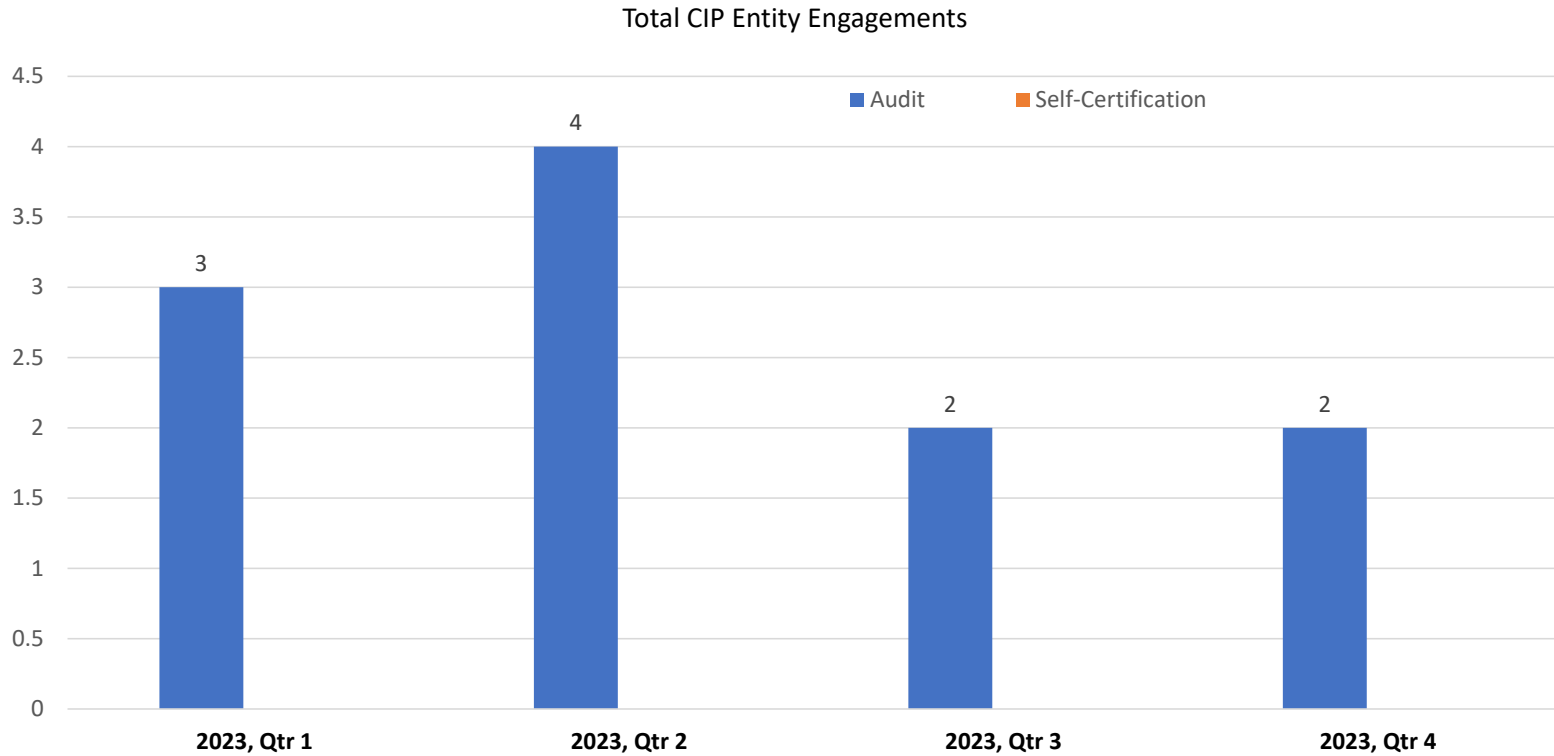
Collaboration



Total CIP Requirements: Q1 2023 – Q4 2023

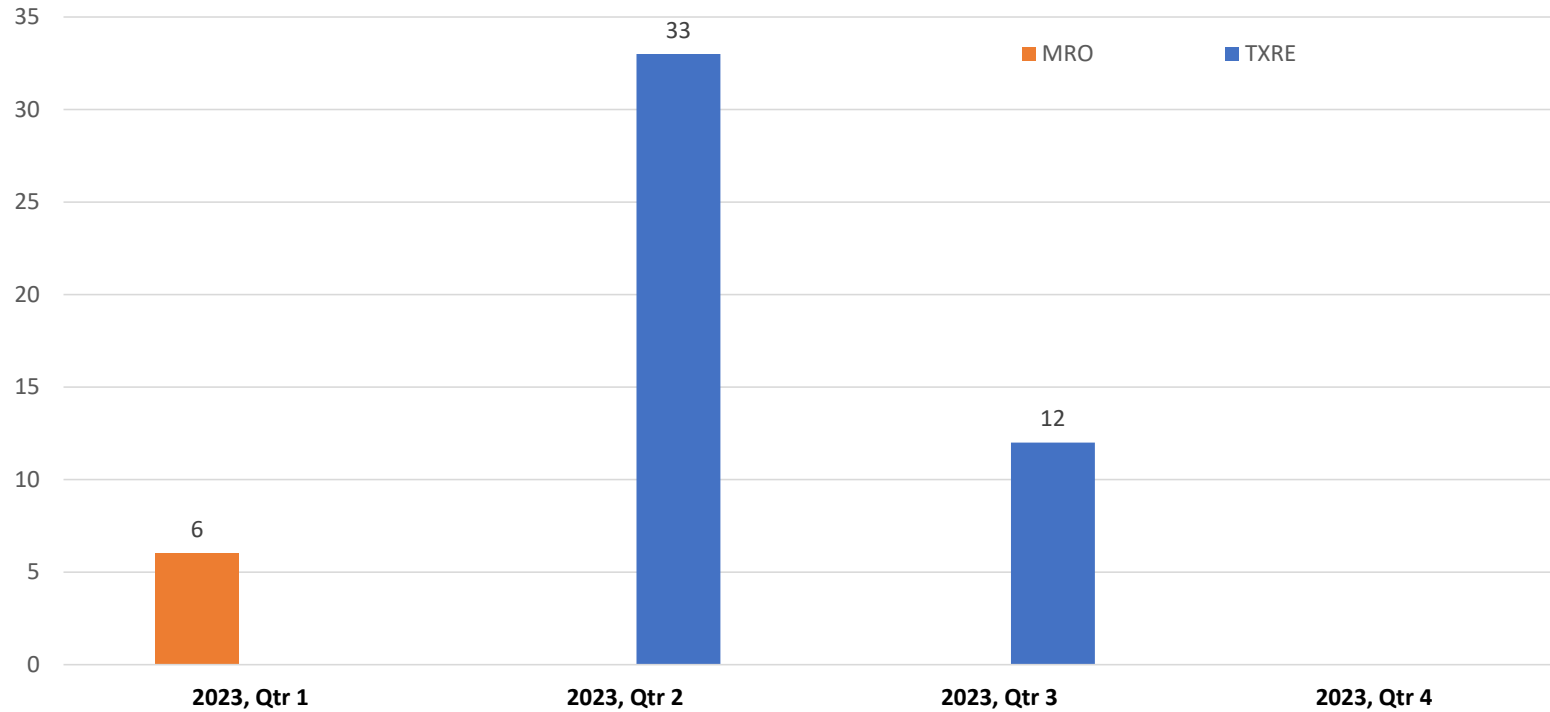


Total CIP Engagements: Q1 2023 – Q4 2023



Total CIP Requirements CO: Q1 2023 – Q4 2023

Total CIP Standard-Requirements in Coordinated Oversight



8

Member Representatives Committee Meeting

