

# Agenda

## Reliability Issues Steering Committee (RISC)

### Closed Meeting

September 19, 2024 | 8:00 a.m. – 2:00 p.m. Central  
In-Person

Hilton Chicago O'Hare Airport  
Chicago, Illinois, 60666

#### Introduction and Chair's Remarks

#### [NERC Antitrust Compliance Guidelines](#)

#### Agenda Items

1. **RISC Report Inputs and Production Schedule – Review**
  - a. Timeline and changes from prior RISC cycles
2. **RISC Impactful Topics – Informational**
  - a. Please refer to Impactful Topics List – Attachment 1
  - b. Resource
    - i. Generation Retirement – *John Moura, NERC Staff*
    - ii. IBRs – *Alex Shattuck, NERC Staff*
    - iii. EV's and DER's – *JP Skeath, NERC Staff*
  - c. Grid
    - i. RISC volunteers for future meeting presentation
  - d. **RISC Report Input:** Conclusions from Impactful Topics Review
3. **RISC Report Input: RISC Reliability Leadership Summit \* – Review**
  - a. Update on Rescheduling
  - b. Review of the Agenda
4. **RISC Report Input: Emerging Risks Survey – Review**
  - a. Discussion of potential approaches for 2024/2025
5. **RISC Report Preliminary Discussion**
  - a. RISC Report Structure Overview – **Review**

- b. RISC Report Section Subgroups – **Review**
  - i. Discussion – aligning prior subgroups and 2024 Impactful Topics
- 6. Proposed Amendments to the RISC Charter\* – Review**
- 7. 2024 RISC Self-Assessment - Review**
- 8. Other Matters and Adjournment**

## **Impactful Topics Recommendations**

### **Action**

Informational

### **Background**

This document presents valuable insights and recommendations from the RISC members. It focuses on ongoing studies related to transmission, load, and resource management.

# Impactful Topics Recommendations from RISC Members

## Transmission

- New Technologies such as Generative AI and Heimdall Neurons
- Geopolitical Stressors – how do we plan for outages at multiple Generation or transmission sites
- System strength and should this be part of Grid Transformation
- Grid impacts of utility-scale battery deployment
- Dynamic ratings, ambient adjusted ratings
- 1 day in 10 planning,
- Multi-factor Reliability Standards – why we need them
- Development of probabilistic planning techniques and tools to account for inherent risk of intermittent resources.
- Consolidation of Operational and Planning models and their supporting databases
- Supply chain (security and deliverability)
- System planning (expectations versus reality)
- The industry move to dynamic and real-time ratings is a good move and can be a big help to optimize the grid. The essence of it is to not operate so conservatively and be more realistic in real-time as to grid capacity and capability. It results in operating the grid closer to the edge of capability, which should be fine until a significant contingency occurs. I expect we will still operate with N-1 in mind. But when that contingency occurs, we may need to have specific response plans defined and able to be executed rather quickly. Since we will then be in N-1 situation, we may need to be able to quickly shift to N-2 operations. Dynamic ratings will necessitate more dynamic operational capabilities and adaptations. That will require more maturity in operational planning than we had in the past.

## Load

- Emerging loads
  - Some of the emerging loads are very large, and the location, supply mix (capacity and energy) and transmission required for such a load could be challenging. Proximity of load centers and use of renewable/variable supply, might strain operational control flexibility and eat into contingency especially as we attempt to extend operational limits with dynamic adjusted ratings. The utility industry typically does not have much influence over where and when loads emerge, but with very large loads the potential for adverse consequences are more significant.
- Crypto mining and the use of loads as Resources

- Standard development for large loads
- Huge Datacenter loads (GW size) and their impact as single contingencies
- Voltage and ride through performance for large loads
- Generative AI
- Rapid addition of large loads
- Some things on this list could be combined into a very timely “super-session” on load growth:
  - Emerging loads, AI/datacenters, and hydrogen production. In my view, these are the “game changing” topics for this year’s summit. Dealing with this unprecedented rate of growth, ensuring that new large loads participate in the markets and provide grid reliability service, and just keeping these resources connected to the bulk power system rather than going their own way (and potentially taking a large part of our nuclear fleet away from the grid!) are all key topics to include in this session.
- I’m just listening to an excellent workshop of the California Energy Commission from which we could identify some speakers. See <https://www.energy.ca.gov/event/workshop/2024-05/ieprcommissioner-workshop-electricity-load-growth-areas>

## Resources

- IBR standards
- Grid Forming inverters
- Legacy equipment standards
- Hydrogen Tech & Compressed Natural Gas
- Deeper look at Energy Policy
- Defining a reasonable transition (fossil to green) expectation (it may take 20 years)
- Policy changes, SOC accounting, modeling, Planning assumptions
- Effective Energy Storage incorporation
- Retirement of dispatchable generation

## Summit/Report

I think the general format for the summit should mirror the existing RISC profiles as follows:

- Policy
- Grid Transformation
- Resilience to Extreme Events
- Security
- Critical Infrastructure Interdependencies
  - I think the Resilience and Interdependencies topics could be merged as needed.

## **Resources**

### **Action**

Information

### **Summary**

This presentation set will cover three different areas related to changes in the resource mix. These areas include movement in generation capacity (specifically retirement), shifts from conventional to inverter-based generation resources, and changes in generation connections from transmission to distribution. During these presentations, RISC members will receive updates from NERC staff regarding the current state of these changes and will be informed of potential risks in each area. If applicable, NERC staff will also provide details about ongoing risk mitigation efforts from the ERO Enterprise or its committees.

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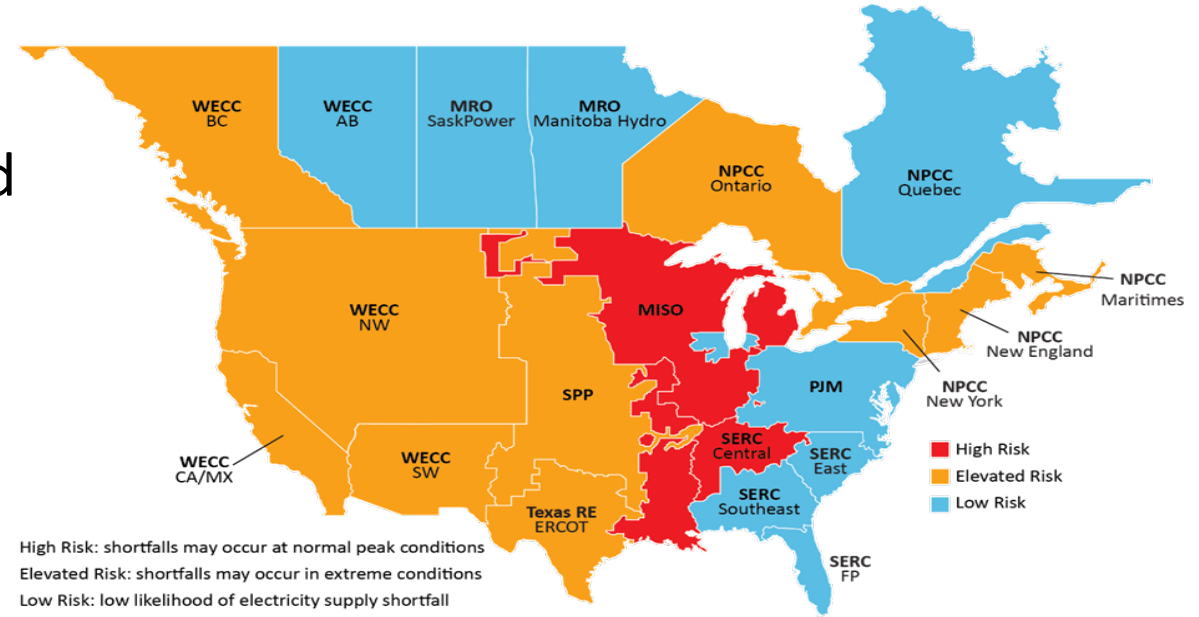
# Generator Retirements

Risk Identification in NERC's Long Term Reliability  
Assessment

John Moura, Director, Reliability Assessment and Performance Analysis  
Reliability Issues Steering Committee Meeting  
September 19, 2024

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- **Resource adequacy risk drivers:** generator retirements, load growth, and pace of resource and transmission development
  - Generator retirements expected before sufficient replacement resources will be in service
  - Energy risks identified in areas where future resource mix is not balanced between dispatchable and variable energy resources

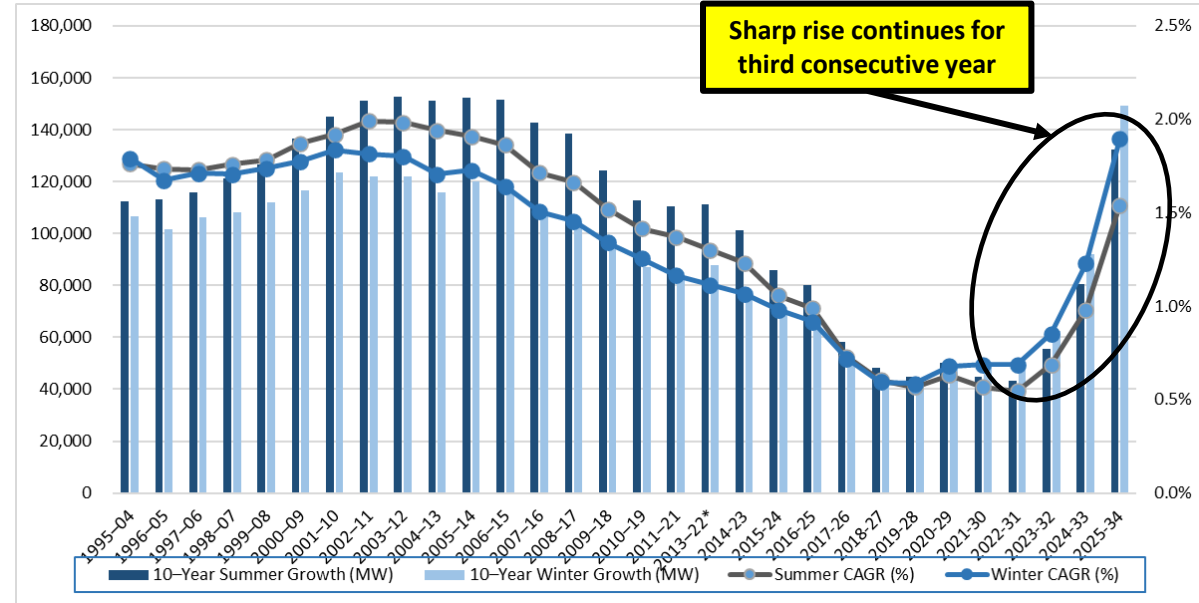


Risk Area Summary 2024-2033

<span style="color: red;">■</span> <b>High Risk</b>	<span style="color: orange;">■</span> <b>Elevated Risk</b>
• Supply shortfall can occur in <b>forecast conditions</b>	• Supply shortfalls are likely in <b>extreme conditions only</b>



- Peak demand growth rate continues to climb reaching the highest level in the last 20 years
- Data centers, large commercial and industrial loads, and electrification are the predominant drivers of demand growth

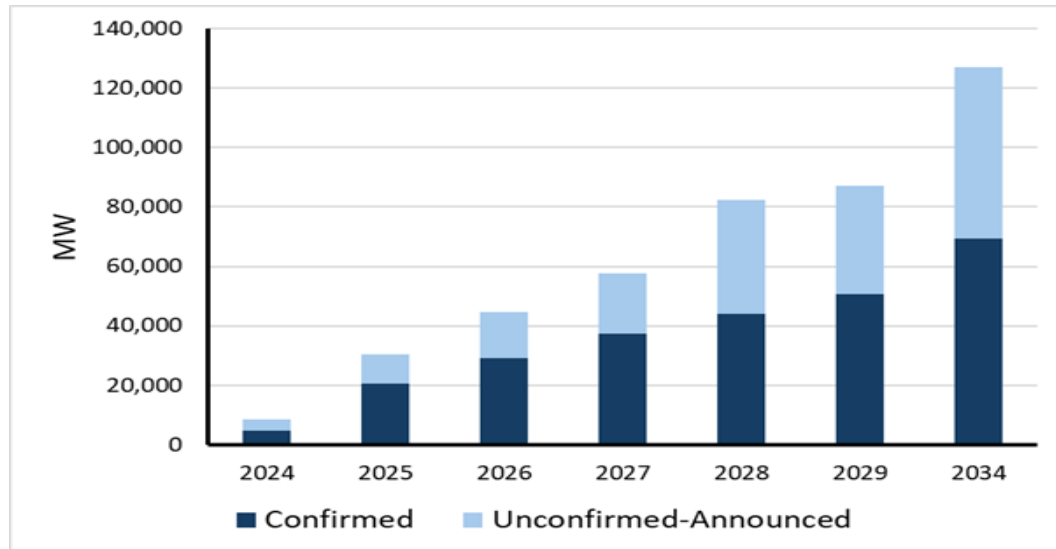


Largest 10-year Winter Peak Demand Growth	
Assessment Area	Demand Change
Texas RE-ERCOT	3.65%
NPCC-New England	3.44%
WECC-CAMX	3.24%
WECC-SW	3.20%
NPCC-New York	2.96%

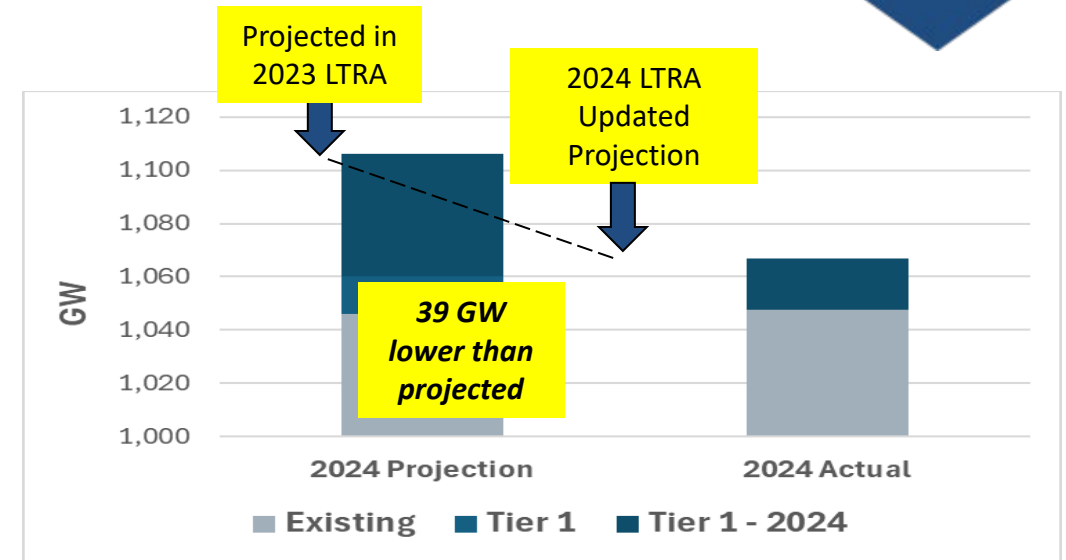
Largest 10-year Summer Peak Demand Growth	
Assessment Area	Demand Change
NPCC-Québec	2.70%
NPCC-Ontario	2.34%
WECC-SW	2.33%
WECC-CAMX	2.23%
Texas RE-ERCOT	2.08%

**2024 LTRA 10-year Summer and Winter Peak Demand Growth - Preliminary**

- Resources are being added slower than anticipated
  - Anticipated resources (existing + Tier 1 – confirmed retirements) are lower than projected in the 2023 LTRA through year 2025



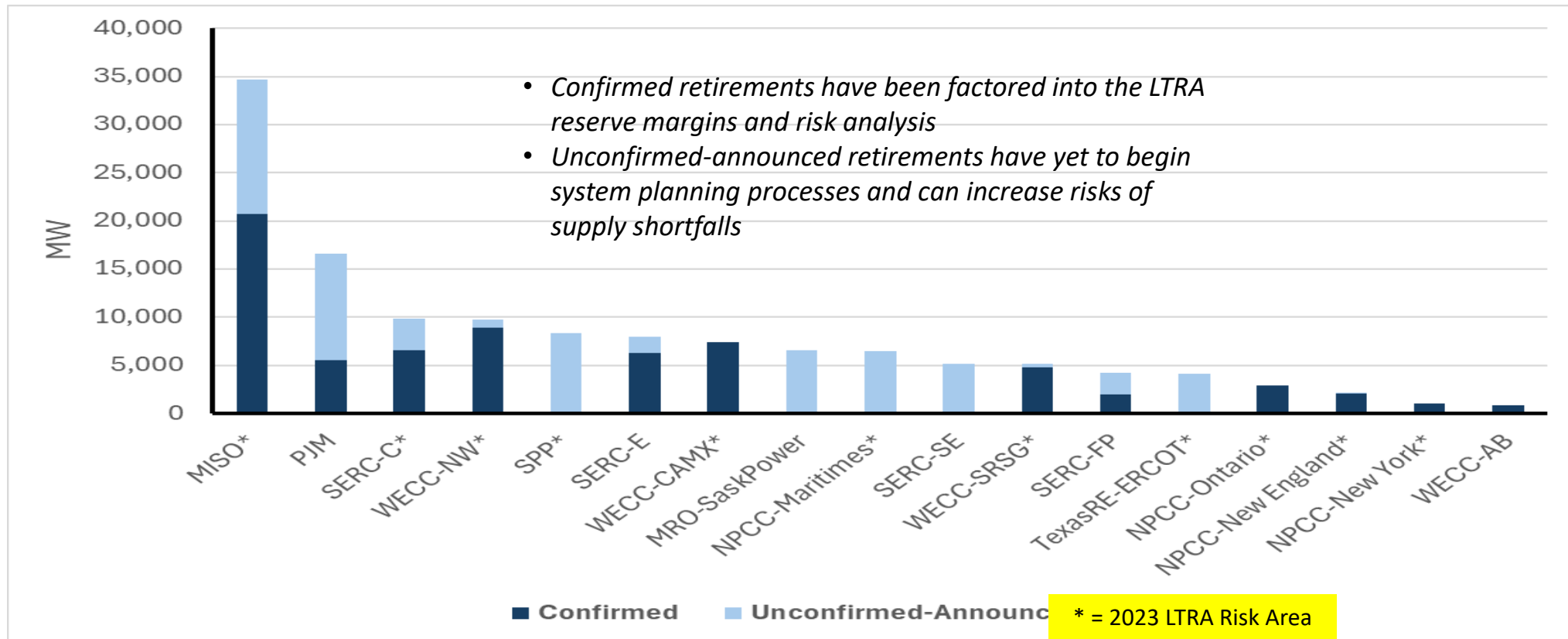
**BPS Fossil and Nuclear Generation Retiring Capacity**



**Total BPS Resource Summer On-Peak Capacity | prior-year projection v. current year actual**

- Total announced thermal retirements in next 10 years have risen to 127 GW (+9 GW) since the 2023 LTRA

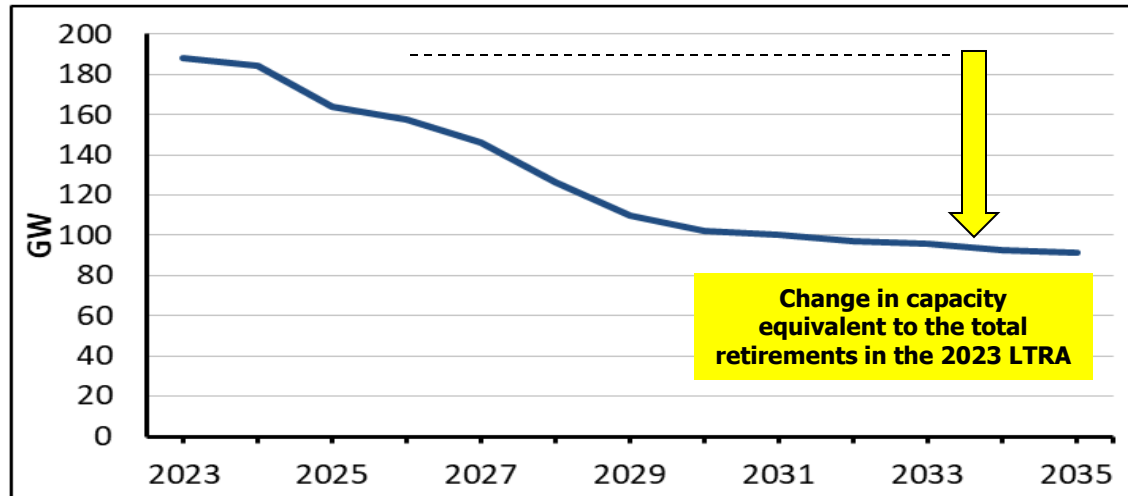
- Many areas where future capacity and energy shortfalls are projected are facing additional generator retirements



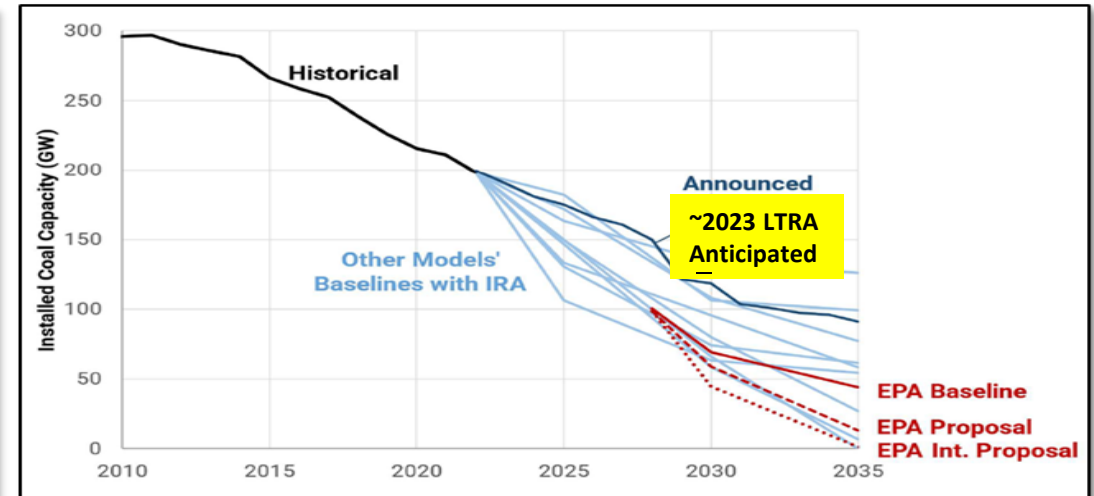
Anticipated and Potential Thermal Generator Retirement Capacity through 2034

2024 LTRA Preliminary

- Recent and Proposed EPA regulations to address carbon emissions from generators are likely to result in retirements that exceed levels assessed in the LTRA
- Provisions are needed to ensure energy, capacity, and grid reliability services can be maintained



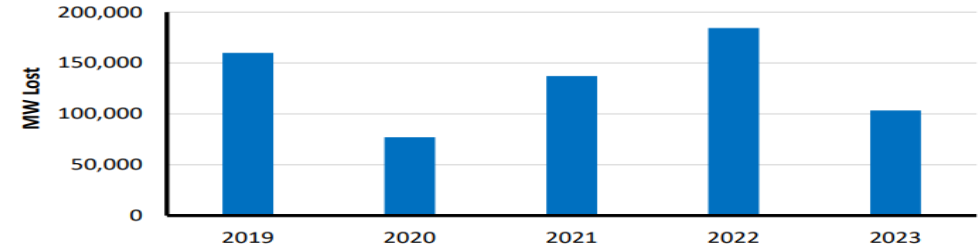
**BPS Coal-Fired Generation Capacity—United States Only**  
(Source: EIA)



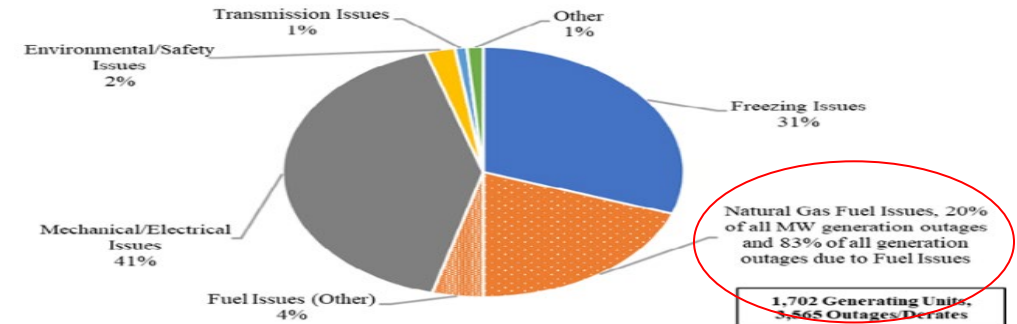
**BPS Coal-Fired Generation Capacity in Various Scenarios—United States Only**  
(Source: EPRI Comments on US EPA GHG Rule, 2023)

- Reliability Must Run Agreements (ISO/RTOs)
  - Retirement studied → Determines unacceptable reliability impact
  - Considered a last resort to be used only when there is no other cost-effective alternative.
  - Not meant to address resource adequacy problems
  - No forcing mechanisms to compel GO to enter into agreement
- Department of Energy's 202(c) Emergency Authority
- EPA 111(d) Reliability Assurance Mechanisms
- Questions remain:
  - Are RMR Agreements an effective way to prevent a large number of coal retirements from causing both resource adequacy and reliability problems?
  - Are changes needed to RMR procedures in order to evaluate the resource adequacy and reliability impacts of a large number of coal retirements?
  - Would a large number of RMR Agreements be harmful to electricity markets?

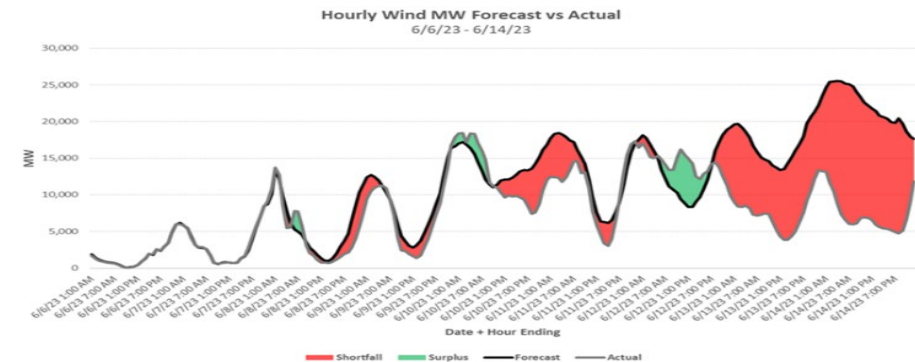
- Natural Gas Replacements
  - Winterization
  - Natural Gas Production during Cold Weather
  - Transportation agreements (Interruptible v. Firm)
  - Dual-fuel challenges during extreme conditions
- Wind and Solar
  - Limitation on providing Essential Reliability Services
  - Wind droughts and cloudy days
- Storage
  - Limited long-duration solution



**Figure 3.6: Natural-Gas-Fired Outages Due to Lack of Fuel**  
Unplanned Generating Unit MW Outages, Derates and Failures to Start, Total Event Area: by Cause



Inquiry into Bulk-Power System Operations During December 2022 Winter Storm Elliott





# Questions and Answers

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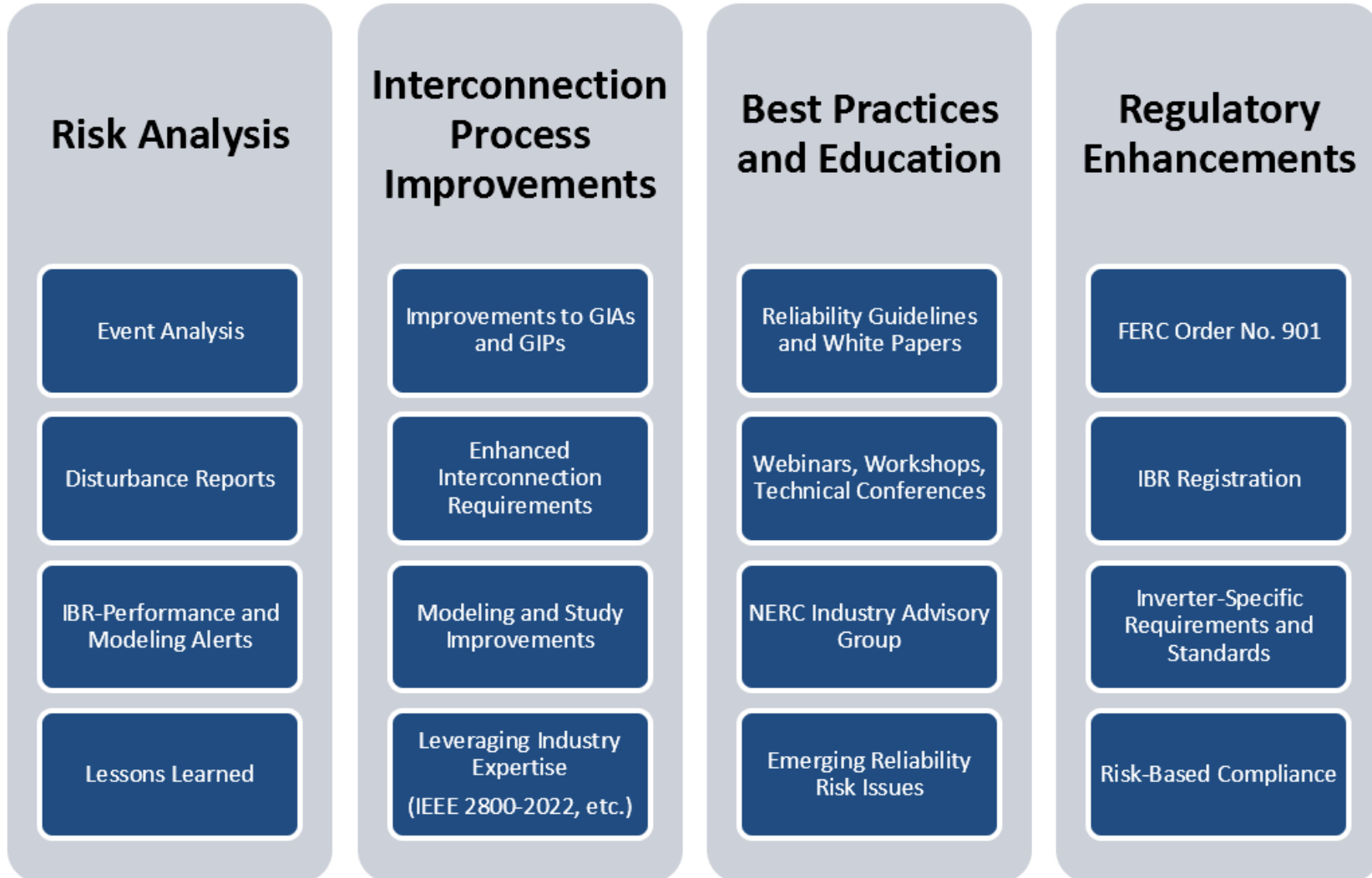
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# Inverter-Based Resource Update

Alex Shattuck, Senior Engineer; NERC  
Reliability Issues Steering Committee Meeting  
September 19, 2024

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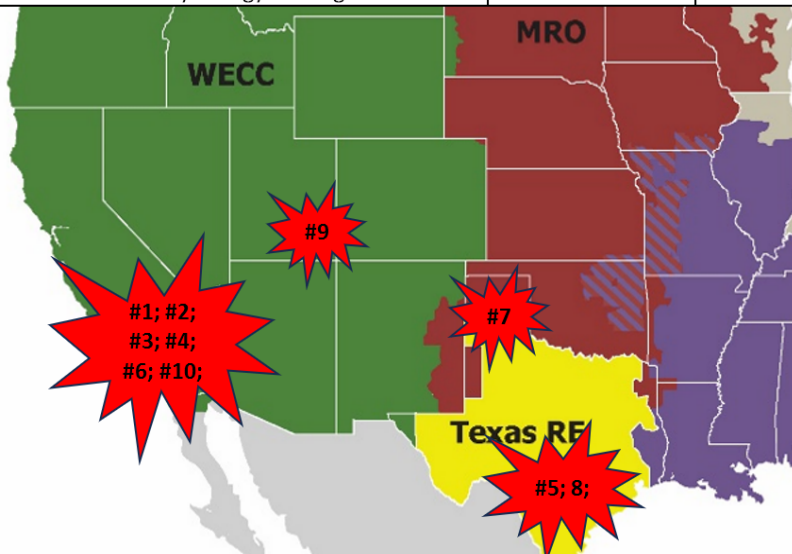




[NERC IBR Strategy](#)



Reference Number	Disturbance	IBR Reduced (MW)	Year
#1	Blue Cut Fire	1,753	2016
#2	Canyon 2 Fire	1,619	2017
#3	Angeles Forest & Palmdale Roost	1,588	2018
#4	San Fernando	1,205	2020
#5	2021 Odessa	1,112	2021
#6	Victorville & Tumbleweed & Windhub & Lytle Creek Fire	2,464	2021
#7	Panhandle Wind	1,222	2022
#8	2022 Odessa	1,711	2022
#9	Southwest Utah	921	2022
#10	California Battery Energy Storage	906	2023



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## Inverter-Based Resource Performance Issues Report

Findings from the Level 2 Alert

November 2023

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3353 Peachtree Road NE  
Suite 600, North Tower  
Atlanta, GA 30326  
404-446-2560 | www.nerc.com

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### Industry Recommendation

Inverter-Based Resource Performance Issues

Initial Distribution: March 14, 2023

NERC analyzed multiple large-scale disturbances on the bulk power system (BPS) involving widespread loss of inverter-based resources (IBRs). In 2021 and 2022, two disturbances in Odessa, Texas, resulted in abnormal performance across several Bulk Electric System (BES) solar photovoltaic (PV) generating resources. These resources have exhibited systemic performance issues that could lead to unexpected losses of BPS-connected generation, with the potential to cause widespread outages. As the penetration of BPS-connected IBRs continues to rapidly increase, it is paramount that any performance deficiencies with existing (and future) generation resources be addressed in an effective and efficient manner.

While this Level 2 alert is being distributed to Generator Owners (GO) of BES solar PV resources, the recommendations should also be reviewed and implemented by owners of all BPS-connected solar PV resources (See Background section for more information). The alert also seeks to gather data from solar PV asset owners to understand whether additional actions are necessary to mitigate possible BPS performance risks. Applicable GOs are strongly encouraged to consult their inverter- and plant-level controller manufacturers, review inverter settings and controls currently installed in the field, and implement the recommendations described herein, and review this information with the associated Generator Operators (GOPS) as applicable.

Note: This alert pertains specifically to solar PV resources, however, the recommendations may be applicable to BPS-connected battery energy storage systems (BESS). This alert does not pertain to wind resources as the observed performance issues are different.

For more information, see the NERC Major Event Analysis Reports [subpage](#). All recipients are strongly encouraged to read the findings from these reports, particularly the 2021 Odessa Disturbance [page](#) and the 2022 Odessa Disturbance [page](#).

[Why am I receiving this? >>](#)  
[About NERC Alerts >>](#)

This alert will gather dynamic modeling data from BPS-connected IBR GOs, TPs, and PCs to understand the extent of conditions necessary to mitigate with their inverter- and plant-level parameters and controls installed. The recommendations described herein will be reviewed with inverter- and plant-level parameters and controls installed. The recommendations described herein will be reviewed with inverter- and plant-level parameters and controls installed. The recommendations described herein will be reviewed with inverter- and plant-level parameters and controls installed.

\* GOs of all BPS-connected solar PV resources are strongly encouraged to adopt the recommendations provided in this alert, including BES resources as well as non-BES resources connected to the BPS. This is to ensure uniformity of performance across all BPS-connected resources.

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### Industry Recommendation

Inverter-Based Resource Model Quality Deficiencies

Initial Distribution: June 4, 2024

NERC has analyzed 10 large-scale disturbances on the bulk power system (BPS) that involved the widespread and unexpected reduction in output of inverter-based resources (IBR) since 2016. These 10 disturbances totaled nearly 15,000 MW of unexpected IBR output reduction with approximately 10,000 MW occurring between 2020 and 2024. The increase of IBR-related events coincides with an increase in IBR penetration across the BPS. Two contributing causes to these events are poor modeling and study practices to assess the performance of these resources.

Performing dynamic simulations of the BPS allows Transmission Planners (TP), in cooperation with Generator Owners (GO), to mitigate reliability risks before they occur. Accurate dynamic models of resources are critical to this analysis and to BPS reliability. Several of NERC's published disturbance reports included analyses of the models for the affected facilities, which revealed systemic dynamic model inaccuracies. These analyses also revealed that the models provided for conducting generator interconnection studies or other system studies failed to accurately reflect the dynamic performance of the plants. Accurate modeling of IBR facilities is critical in performing system studies to assess the reliable operation of the BPS.

This alert is being distributed to all GOs of Bulk Electric System (BES)-connected IBRs as modeling deficiencies, best practices, and recommendations are applicable across all IBR technologies. NERC encourages owners and operators of non-BES and BPS-connected IBRs to review this alert as well.

The significantly higher complexity and software-based nature of IBR modeling when compared to synchronous machine modeling necessitates an improvement in the fundamental principles of dynamic modeling to accurately capture the performance of IBR plants. This alert is also being distributed to TPs and Planning Coordinators (PC) to provide recommendations that can be implemented to strengthen current modeling practices. TPs are encouraged to answer a set of questions in the alert system; however, only GOs of IBRs will be required to submit answers to the Data Submission Worksheet.

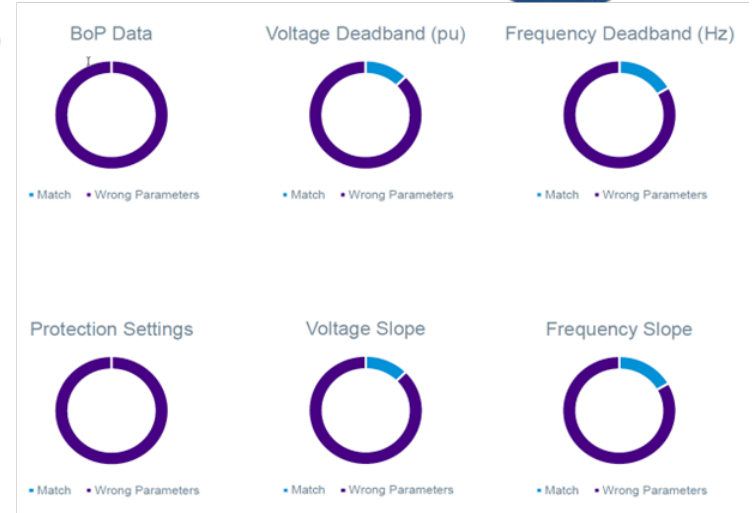
This alert will gather dynamic modeling data from BPS-connected IBR GOs, TPs, and PCs to understand the extent of conditions necessary to mitigate with their inverter- and plant-level parameters and controls installed. The recommendations described herein will be reviewed with inverter- and plant-level parameters and controls installed. The recommendations described herein will be reviewed with inverter- and plant-level parameters and controls installed.

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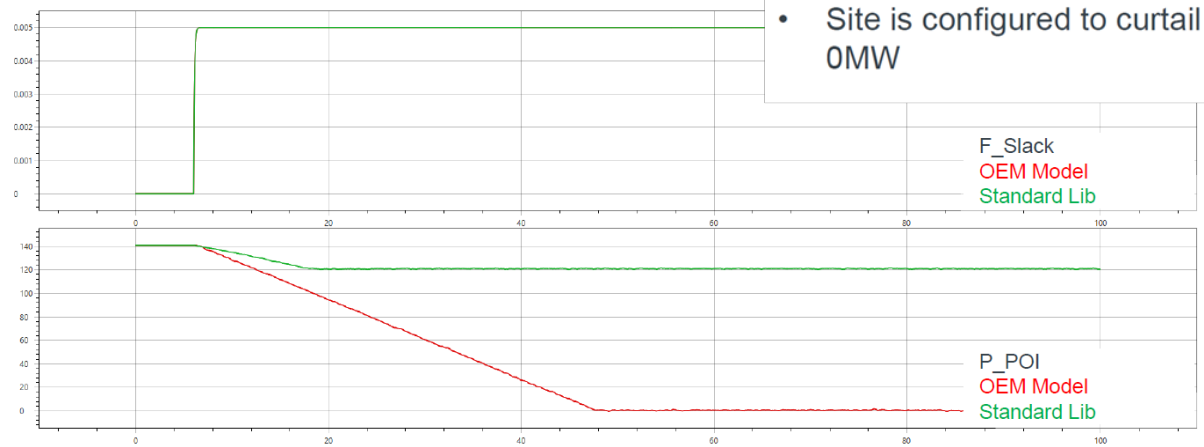
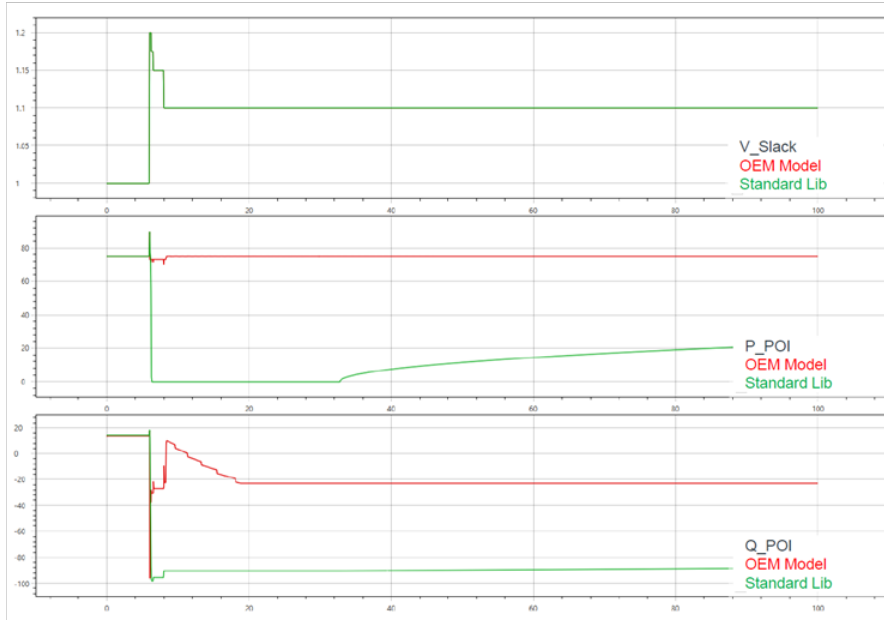


- 15,000 MW of unexpected reduction in IBR resources since 2016
  - Approximately 10,000 MW of unexpected reduction since 2020
  - Analysis of the models of affected facilities revealed systemic model inaccuracies
- Real world case study from a Major Manufacturer also showed systemic model inaccuracies

- Notes:**
- HVRT
  - Plant curtailed
  - P Response unstable and numerical not working in PSSE
  - Q response not matching site response and recovery state



- Notes:**
- Frequency step-up 0.005pu
  - Plant curtailed to 140MW
  - Site is configured to curtail to 0MW



- The voluntary recommendations given by NERC are not being implemented
- The requested data readily available. The requested information is fundamental, and NERC expects this data to be retained and easily accessible
  - NERC issued a first-ever extension on the due to a ~6% **response** rate
- **Preliminary findings of the 2024 level 2 alert on IBR modeling reinforce the above**





- GOs had difficulty populating the worksheet without significant assistance from OEMs or consultants. **Multiple GOs relied entirely on OEMs and/or consultants**
- Consultants had difficulty completing the worksheet due to a **lack of information** from the GOs as well as difficulty obtaining project-specific information from the OEMs.
- OEMs had difficulty supporting the GOs in their alert data submission activities due to the following:
  - OEMs often lose visibility into the facility after the site is commissioned
  - Ongoing facility support is dependent on service agreements with OEMs that vary by project and company
  - Some protection and control settings are configurable by the GOs, so OEMs may not have a record of currently operating parameters

- Sent to all Transmission Planners, Planning Coordinators, and Generator Owners of **all IBR**
- Contains detailed recommendations for model type, quality, accuracy, and use
- Requests similar data to the 2023 alert as well as additional
  - To receive this data from GOs of wind resources
  - To track changes made in response to the 2023 alert
- **The data submission deadline for this alert has been extended to November 1, 2024**

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## Industry Recommendation

### Inverter-Based Resource Model Quality Deficiencies

Initial Distribution: June 4, 2024

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This alert is being distributed to all GOs of Bulk Electric System (BES)-connected IBRs as modeling deficiencies, best practices, and recommendations are applicable across all IBR technologies. NERC encourages owners and operators of non-BES and BPS-connected IBRs to review this alert as well.

The significantly higher complexity and software-based nature of IBR modeling when compared to synchronous machine modeling necessitates an improvement in the fundamental principles of dynamic modeling to accurately capture the performance of IBR plants. This alert is also being distributed to TPs and Planning Coordinators (PC) to provide recommendations that can be implemented to strengthen current modeling practices. TPs and PCs are required to answer a set of questions in the alert system; however, only GOs of IBRs will need to complete the Data Submission Worksheet.

This alert will gather dynamic modeling information from BES-connected IBR GOs, TPs, and PCs to understand the extent of condition of dynamic modeling for IBR, which will inform what additional actions are necessary to mitigate observed deficiencies. These GOs are strongly encouraged to coordinate with their inverter- and plant-level controller manufacturers and third-party consultants to review the parameters and controls installed in the field, review and mitigate modeling deficiencies, and implement the recommendations described in this alert. The information gathered throughout this alert should also be shared and reviewed with the associated GOPs as applicable.

- Planned distribution: Late 2024 pending NERC Board Approval
  - This includes industry review period in accordance with the NERC level 3 alert process
- Shares Essential Actions that if implemented will help increase BPS reliability
- No data is requested through this Alert



- NERC Inverter-based Resource Performance Subcommittee (IRPS) SAR for enhancements to FAC-001 and FAC-002 could potentially be approved in September
- IRPS white paper on commissioning best practices
- Supporting registration activities
- Supporting 901 activities
- EMT Task Force and SPIDERWG continue to produce meaningful technical products





- Significant evidence has been observed that signals systemic deficiencies in the modeling, studying, and performance of IBR
- Implementing voluntary recommendations are a good way to increase BPS reliability until standards and other regulatory mechanisms catch up





# Questions and Answers

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# Resources Changing

DERs and EVs

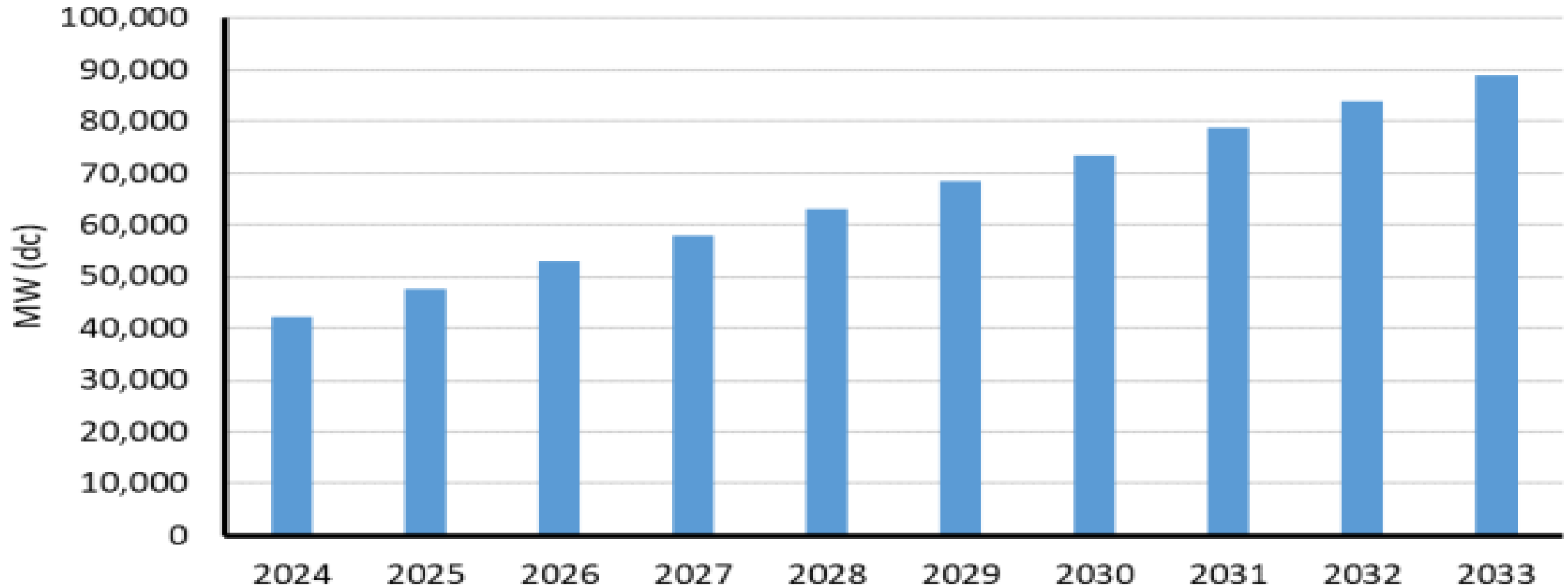
JP Skeath, Senior Engineer, BPS Security and Grid Transformation, NERC  
Reliability Issues Steering Committee Meeting  
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# Aggregate Impacts of Distribution-Connected Energy Resources

*NERC System Planning Impacts of Distributed Energy Resources  
Working Group (SPIDERWG)*





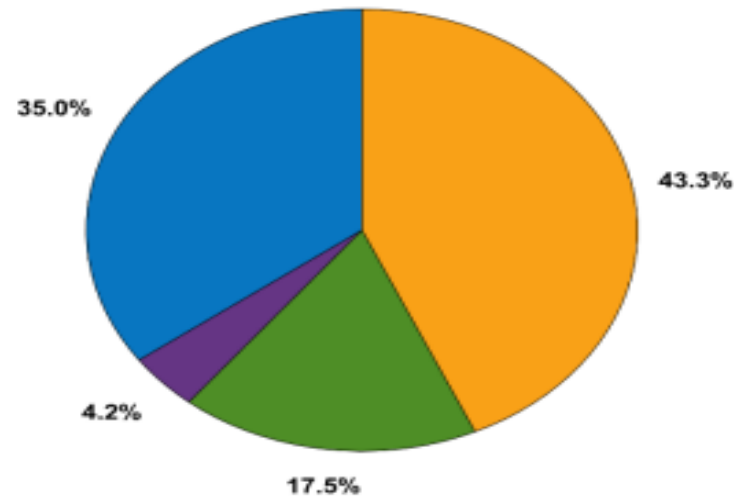
**Figure 20: Cumulative Solar PV DER Capacity in All Assessment Areas**

# Installed PV Capacity as of December 2023

*ISO-NE by Size Class*

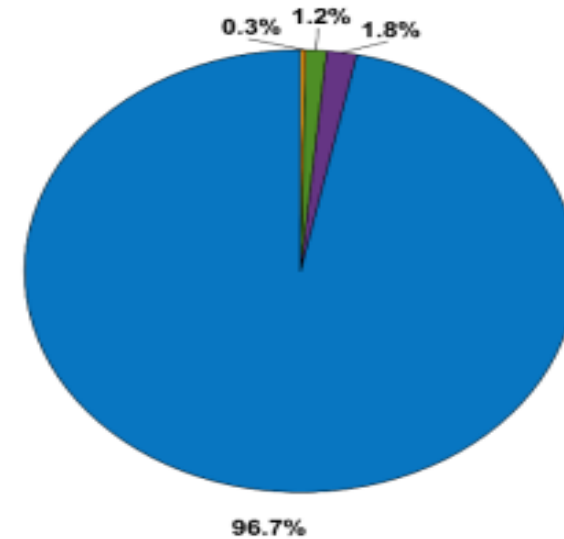
**Installed Capacity (MW<sub>AC</sub>)**

*Total = 6,542 MW<sub>AC</sub>*



**Number of Sites**

*Total = 347,341*



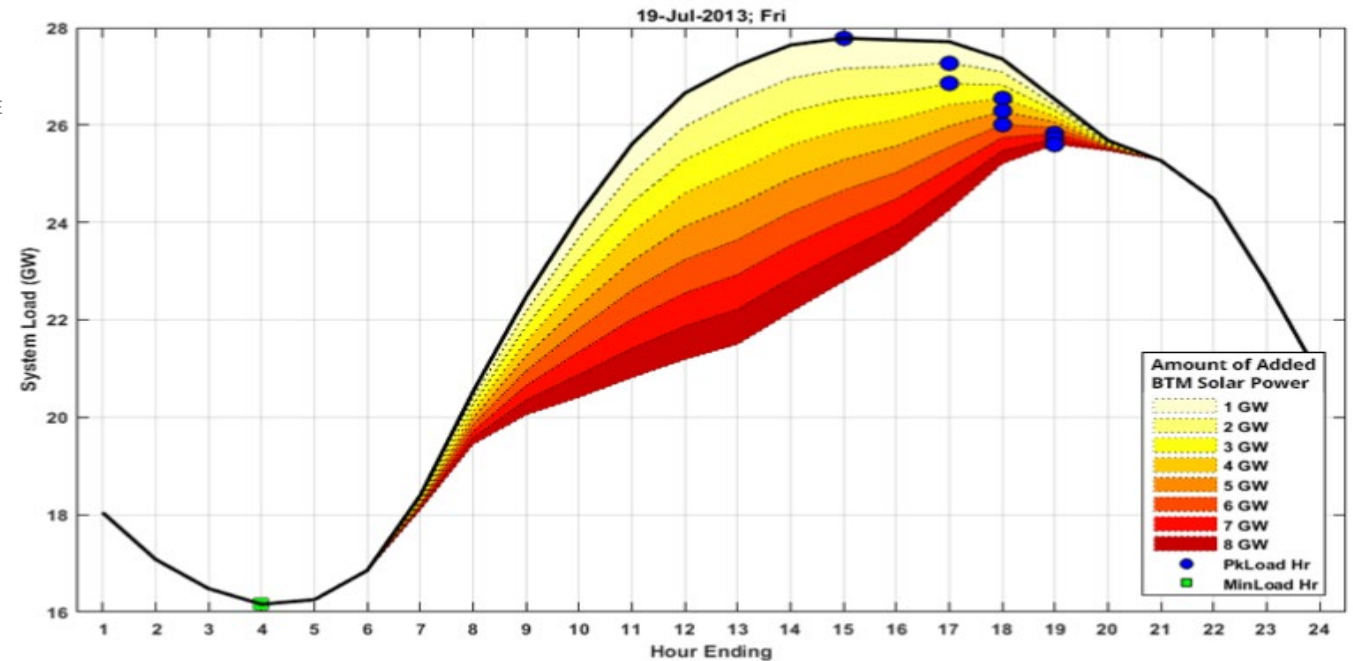
■ <25kW 
 ■ 25kW-<100kW 
 ■ 100kW-<1000kW 
 ■ >=1000kW



Category	States	Cumulative Total MW - Estimated Summer Seasonal Peak Load Reduction										
		2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Behind-the-Meter PV	CT	222.3	217.3	242.5	267.5	288.3	306.6	322.1	336.6	350.4	363.7	375.5
	MA	538.9	554.3	564.1	554.2	543.0	549.1	552.9	555.3	556.9	558.3	559.2
	ME	65.7	80.9	87.5	89.9	91.6	92.8	93.5	94.0	94.4	94.7	94.8
	NH	58.9	65.9	68.4	70.4	71.9	72.7	73.1	73.6	74.1	74.7	75.4
	RI	35.7	39.4	40.9	42.6	42.1	43.4	44.6	45.7	46.8	47.8	48.7
	VT	137.4	138.8	137.5	136.7	135.7	134.0	132.1	130.7	130.0	130.0	130.3
<b>Total</b>	<b>Cumulative</b>	<b>1,059.0</b>	<b>1,096.7</b>	<b>1,140.9</b>	<b>1,161.3</b>	<b>1,172.6</b>	<b>1,198.6</b>	<b>1,218.3</b>	<b>1,235.9</b>	<b>1,252.5</b>	<b>1,269.2</b>	<b>1,283.8</b>

Summer Load Profile with Increasing Behind-the-Meter Solar Power

Source: ISO-NE



*Forecasts are likely underestimated and is across many areas of NERC*

## DER Modeling

Data Collection

Modeling Tools

Verification

Modeling Usage

## Studies Incorporating DER

Planning Studies

Design Criteria

Operations Planning

## Operational Impacts of DER

T-D Impacts

Aggregator

Protection Systems

Decentralization

## Regulatory Considerations

Aggregator

NERC Standards Enhancements

Cybersecurity

Training

Strong Foundation of Coordination between  
Regulatory Agencies: FERC, NARUC, CER  
Industry Stakeholders: SPIDERWG, RSTC, SC, NATF, EEI, ESIG  
Ongoing Research and Design: EPRI, National Labs, Academia

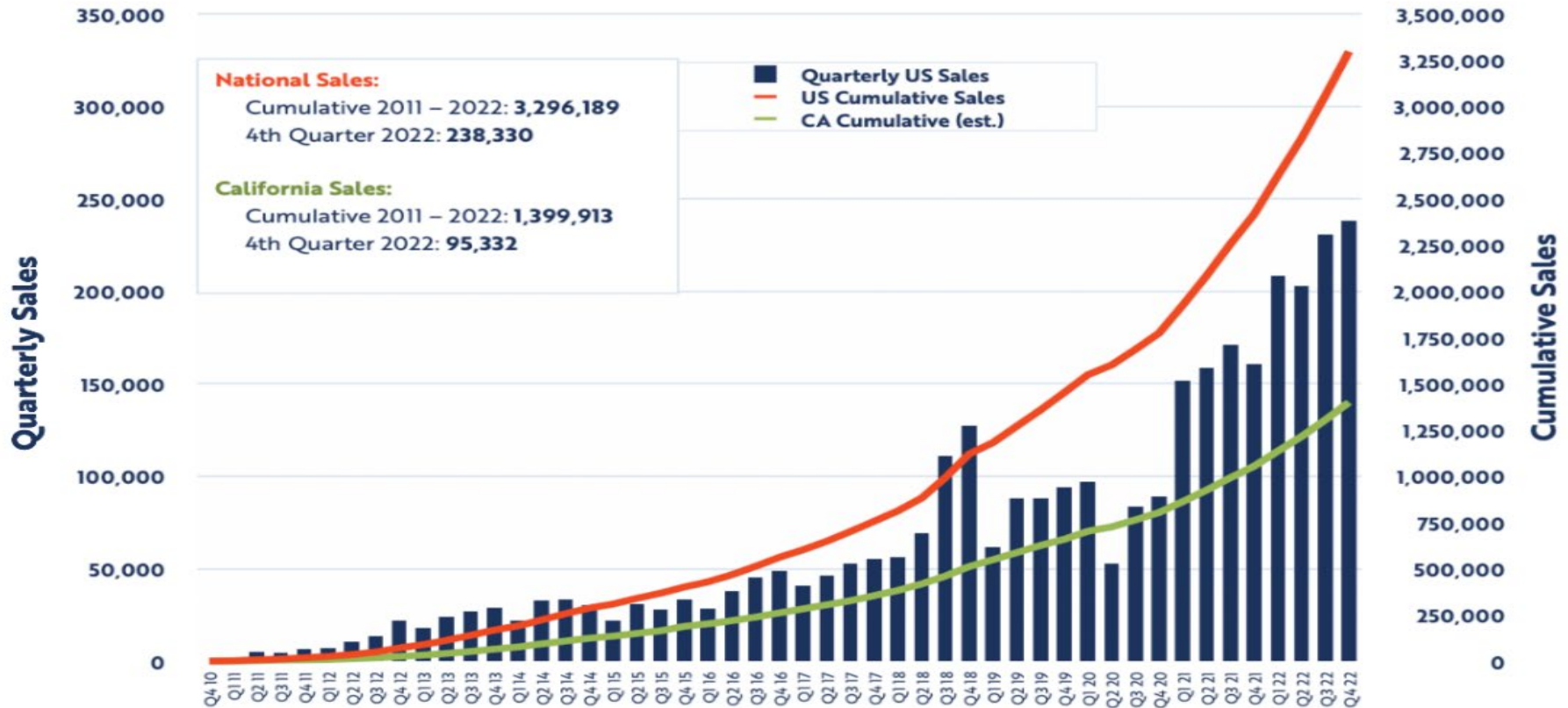


## Aggregate Impacts of Electric Vehicles



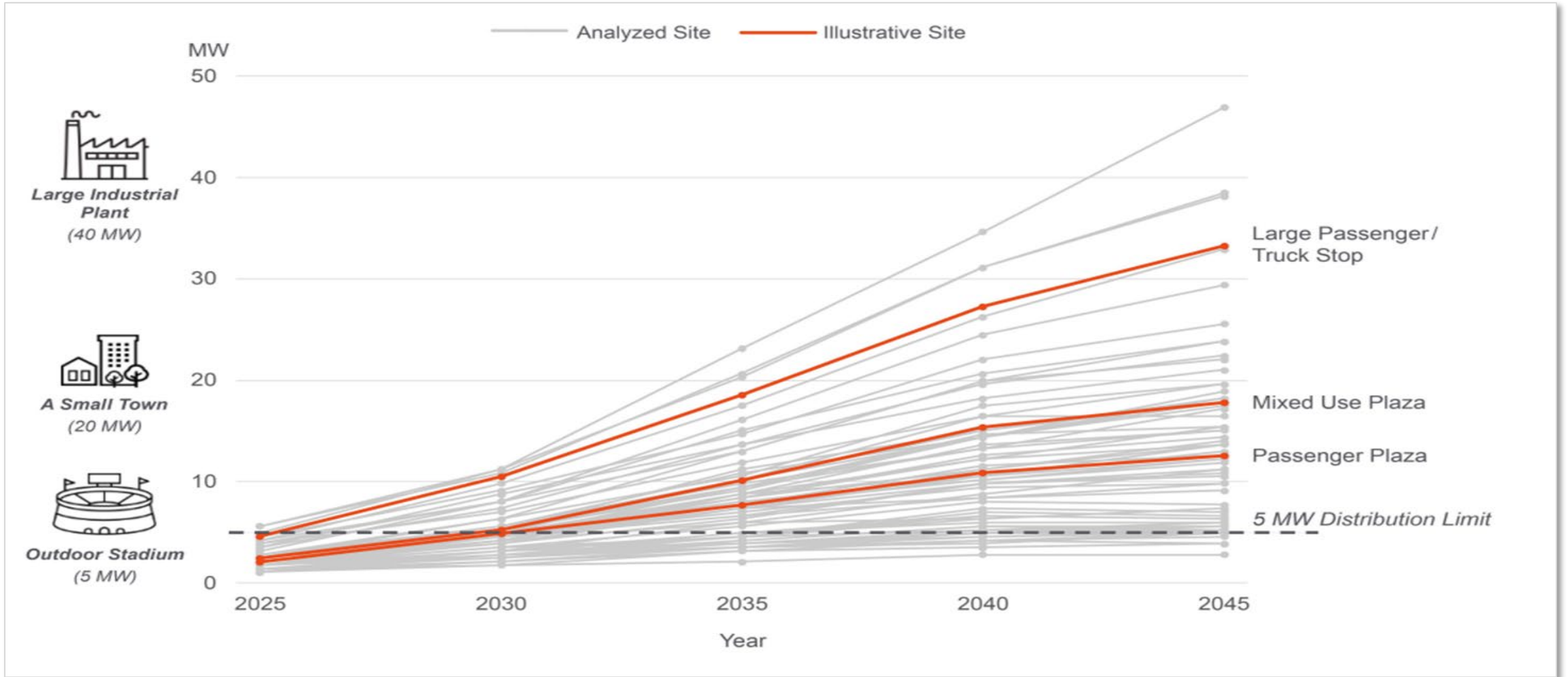


## Electric Vehicle Sales in California and the U.S.



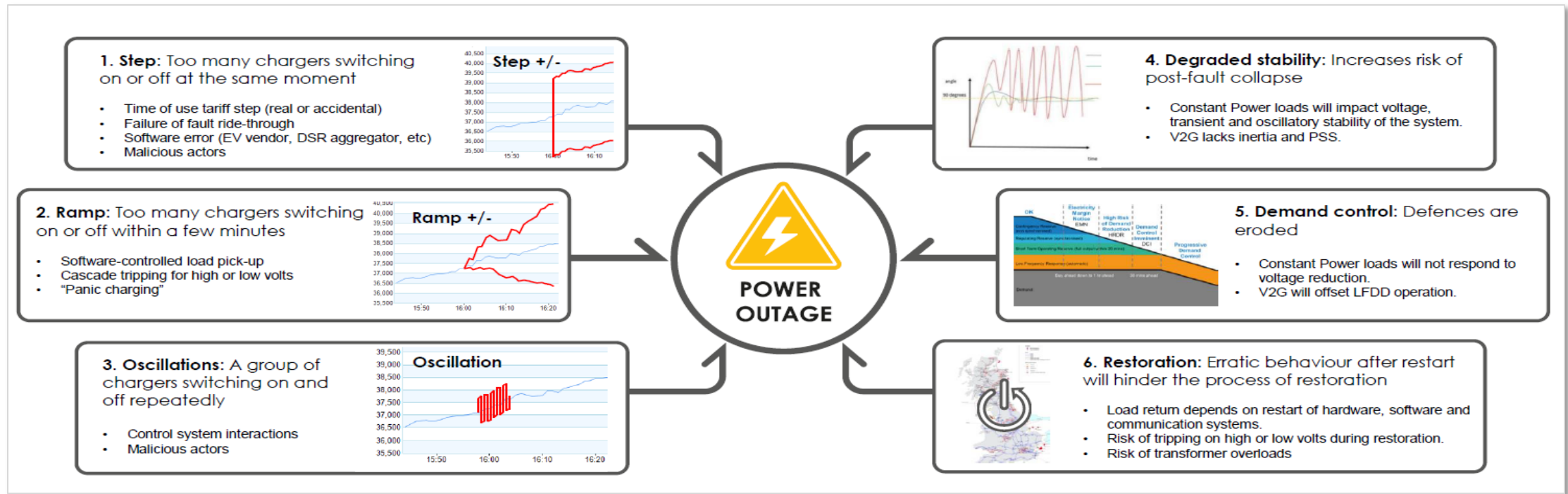
Data source: California Energy Commission (2023). Retrieved January 2023 from [energy.ca.gov/zevstats](http://energy.ca.gov/zevstats).  
Note: According to California Air Resources Board data, California sales are 40% of national sales.

Q4 2022 data update: Cumulative data from 2011 – 2022.



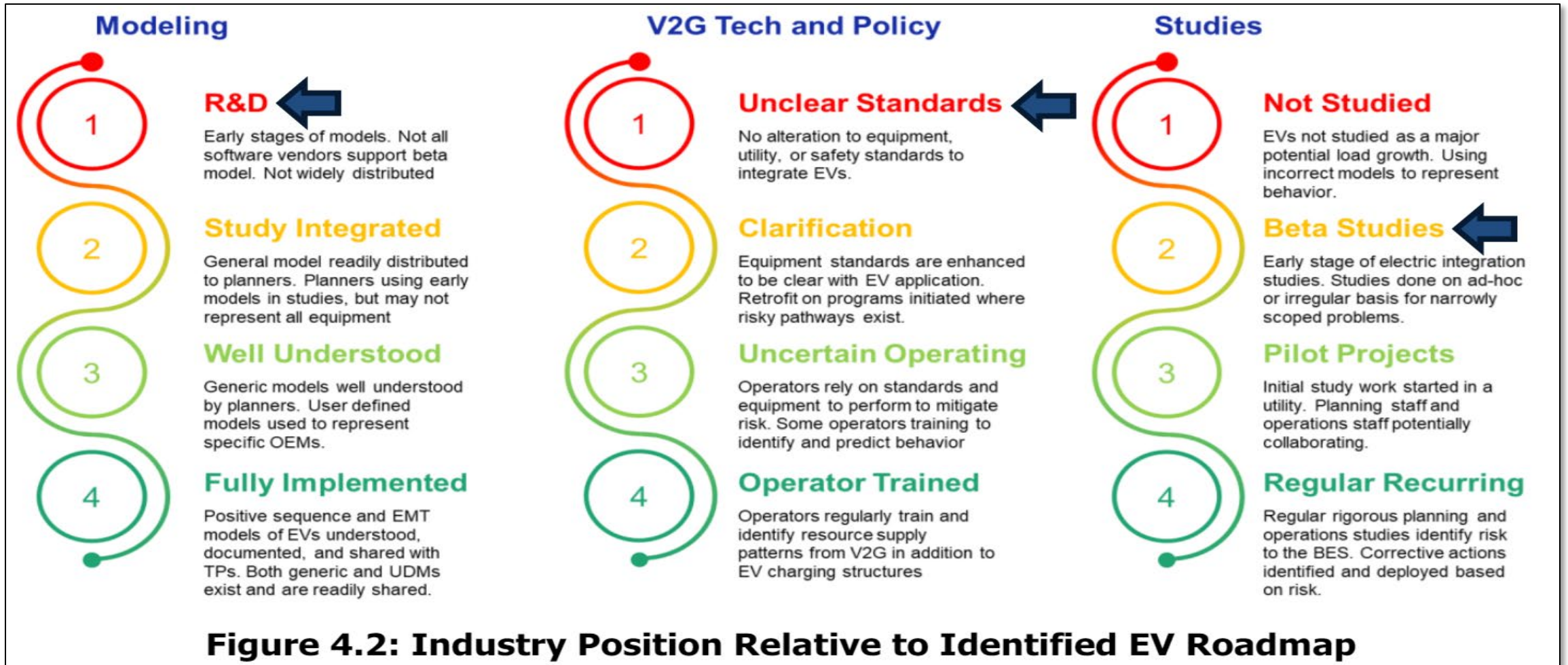
*Electric Highways: Accelerating and Optimizing Fast-Charging Deployment for Carbon-Free Transportation, National Grid, CALSTART, RMI, Stable, GEOTABS, November 2022*

- Conducted a study on beta model for aggregate EV response
  - Beta model is currently best available for this study
- Informed by studies from other groups

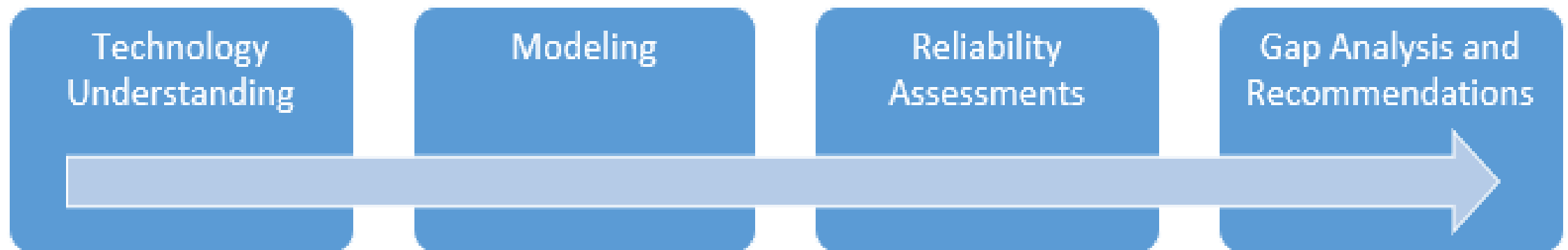


<https://www.sygensys.com/the-impact-of-electric-vehicle-charging-on-grid-stability/>





- EV OEM engagement through the RSTC EVTF
  - RSTC action on in June meeting.
- RSTC task force to:
  - Improve technology understanding (esp. V2X)
  - Recommend prudent improvements
  - Analyze gaps and provide recommended next steps
- Can leverage existing SPIDERWG groundwork



A map of North America is shown in the background, with a blue gradient overlay. The text "Questions and Answers" is centered over the map.

# Questions and Answers

## **RISC Report Input: RISC Reliability Leadership Summit**

### **Action**

Review and discuss.

### **Summary**

Per the public announcement of September 4, 2024, due to the broadly held concerns around security with the election and the Washington, D.C. area and potential impact to travel, the RISC leadership decided to defer the RISC 2024 Reliability Leadership Summit to early 2025. NERC staff have reviewed timing and venue options and are proposing February 26-28, 2025 at the Westin Washington, DC. Remaining with this location and venue will allow us to re-purpose our contract from November 2024 and alleviate the assessment of penalty by the hotel for the November cancellation (equating to a penalty savings of over \$70,000).

The January timeframe did not work due to continued security concerns around the Inauguration and two already scheduled Trade Association conferences. Based on the availability of the Westin the framework of the Summit would be adjusted from a ½ day pm, ½ day am to one full day, and look as follows:

- February 26, 2025 – Welcome Reception | 6:30-8:00 p.m. Eastern
- February 27, 2025 – RISC Reliability Leadership Summit | 8:00 a.m.-5:00 p.m. Eastern
- February 28, 2025 – RISC Closed Meeting | 8:30 a.m.-12:00 p.m. Eastern

On a positive note, in socializing the potential reschedule weeks with the invited panelists, those who have responded have indicated the February timing works better for their schedules than January would have.

The new timing and proposed draft agenda will be reviewed and discussed at the September 19 meeting.



## DRAFT Agenda

# 2024 Reliability Leadership Summit

February 26, 2025 | Welcome Reception: 6:30 p.m. Eastern

February 27, 2025 | Breakfast: 7:00 a.m. | Summit: 8:00 a.m. Eastern

**In-Person Only** (a recording of the Summit will be posted to NERC's website)

Westin – Washington, DC  
999 9 Street NW  
Washington, DC 20001  
Meeting Room:

### February 26, 2025

**Welcome Reception**

6:30-8:00 p.m.

### February 27, 2025

**Breakfast**

7:00-8:00 a.m.

**Welcome Remarks**

8:00-8:15 a.m.

**Teresa Mogensen**, Chair, President and CEO, ATC LLC, and RISC Chair

**Mark Lauby**, Senior Vice President and Chief Engineer, NERC

**Opening Keynote**

8:15-8:45 a.m.

**Willie Phillips**, FERC Chairman, Federal Energy Regulatory Commission

**Panel 1 – Grid Resiliency**

8:45-10:15 a.m.

Potential Panelists

**Kim Green** – Georgia Power CEO

**Patti Poppe** - CEO of PG&E

**John Bear**, MISO or **Clair Moeller**, COO

**Tom Kent**, Nebraska Public Power

**Maria Pope** or **Lisa Grow**, CEO of Idaho Power

Proposed Moderator

**Woody Rickerson** – ERCOT

Summary of Panel

- To be completed

**Break**

**10:15-10:30 a.m.**

**Panel 2 – Security**

**10:30 a.m.-12:00 p.m.**

Proposed Panelists

Tom O'Brien, Sr. VP and CIO, PJM

Michael Ball, Berkshire

Joy Weed – Matt has reached out - is not available

Jonathan Tubb, Director Industrial Cyber Security, Siemens Energy

Adrienne Lotto, APPA

Proposed Moderator

Matt Duncan, E-ISAC

Summary of Panel

- To be completed

**Lunch**

**12:00-1:00 p.m.**

(Keynote Peter Tertzakian 12:00-12:45 p.m.)

**Panel 3 – Energy Policy**

**1:00-2:30 p.m.**

Proposed Panelists

Harneet Panesar – Ontario Energy Board

NARUC Rep – Jim Huston (Indiana), State Commissioners -

Joe Goffman – EPA

Dena Wiggins – NGSA

Gene Rodrigues, Assistant Secretary, Office of Electricity (DOE)

Proposed Moderator

Colette Honorable- Exelon

Summary of Panel

- To be completed

**Break**

**2:30-2:45 p.m.**

**Panel 4 – Open Expert Panel or CEO Panel**

**2:45-4:00 p.m.**

Proposed Panelists

Jackie Flowers, CEO, Tacoma Public Utilities

Calvin Butler CEO – Exelon

Dave Tudor, CEO, Associated Electric Cooperative in Missouri

Manu Asthana, CEO, PJM – invite extended

Mary Kipp, CEO, Puget Sound

Lesley Gallinger, CEO

Proposed Moderator

Teresa Mogensen, RISC Chair – CEO, ATC

Draft Summary of Panel

Define impactful topics to be covered by the Panelists – some suggestions:

- In their industry “what keeps them up at night”
- Discussion on critical emerging topics:
  - IBRs
  - Electrification
- Changes to Utilities based on Election

**Break**

**4:00-4:15 p.m.**

**Panel 5 – Open Discussion/Final Questions**

**4:15-4:45 p.m.**

Proposed Moderators

Morenike Miles, RISC Vice Chair - Dominion Energy

Soo Jin Kim, VP - NERC

**Closing Remarks**

**4:45-5:00 p.m.**

Jim Robb, President and CEO, NERC

## 2024 RISC Self-Assessment

### Action

Review and discuss.

### Summary

On August 14, 2024, the Corporate Governance and Human Resources Committee of the NERC Board of Trustees approved and directed NERC staff to work with Standing Committee leadership to launch a self-assessment process and report back in February 2025.

The self-assessment process supports continuous improvement of governance of Standing Committees, consistent with the following guiding principles established in NERC Rules of Procedure (ROP) and Bylaws as well as issuances and rules from Applicable Governmental Authorities (e.g., Federal Energy Regulatory Commission (FERC)):

- Fair Stakeholder Representation: Membership is representative of NERC members, interested parties, and the public to provide for balanced decision-making (FERC Order No. 672, FERC rule 39.3, Bylaws, and ROP 1302). No two stakeholder Sectors are able to control the vote on any matter, and no single Sector is able to defeat a matter (ROP 1302).
- Open Nomination Process: Members shall be nominated and selected in a manner that is open, inclusive, and fair (ROP 1303).
- Independence: NERC shall ensure its independence from users, owners, and operators of the Bulk Power System in establishing the Standing Committees (FERC rule 39.3.b.2.ii).
- Accountability: Each Standing Committee shall be accountable to the Board for performance of its Board-assigned responsibilities (ROP 1301).

To that end, each Standing Committee, with NERC staff support, shall establish a means to gather feedback (e.g., survey) from all members (and possibly subcommittee members or other key observers). The responses should be anonymous, and only NERC staff and the Standing Committee leadership (chair and vice chair) should see raw responses. While there is some flexibility in how feedback is analyzed (e.g., whether through leadership or through a Standing Committee tiger team or other subgroup), each Standing Committee shall pose the following set of core questions to its members:

1. **Is the organization and structure of the Standing Committee appropriate for effective operation? For example, consider the number of members, how members are selected, number of meetings, quality and timeliness of materials provided in support of the agenda, and the management of the Standing Committee.**
2. **The purpose of the [name of Standing Committee] is to [list purpose or objectives from Standing Committee charter].**
  - a. Is the Standing Committee effectively carrying out its purpose as stated above? Include any specific suggestions regarding where the Standing Committee should focus further effort to address its purpose.

3. Overall what is the Standing Committee doing exceptionally well? What suggestions do you have for improvement?
4. In looking at NERC’s strategy and the challenges facing the industry: What advice/suggestions do you have so the Standing Committee can have the biggest impact?
5. Does the Standing Committee understand its obligations to and relationship with the NERC Board of Trustees (Board) and its committees? Does the Standing Committee effectively communicate with the NERC Board?

Committee leadership can pose additional questions for feedback but should consider no more than 1-2 additional questions to help focus feedback and streamline analysis.

The following is a proposed timeline, although depending on collection method and number of responses received, some Standing Committees may need to finish analysis after the February 2025 report to the NERC Corporate Governance and Human Resources Committee.

Date	Actions
August 2024	Board accepted and directed standing committee self-assessments
September/October 2024	Present at Standing Committee meetings
October 2024	Issue initial annual self-assessment to Standing Committee members
November 2024 – Mid-January 2025	Standing Committee chairs, with support of NERC staff, analyze responses to self-assessment
January/February 2025	Findings can be presented at a Standing Committee meeting or via email
February 2025	Present analysis of self-assessment results at the Corporate Governance and Human Resources Committee Open Meeting

## **Proposed Amendments to the RISC Charter**

### **Action**

Review and discuss.

Attachment 1: REDLINE – RSTC Charter

Attachment 2: CLEAN – RSTC Charter

### **Summary**

RISC has been operating under its current charter since August 2020. As part of the annual process, NERC staff and legal have reviewed the RISC Charter and are proposing the amendments provided in the redline version attached. The proposed amendments look to further enhance the efficiency of the RISC's operations, provide greater clarity in certain areas and as part of the ongoing governance review of all Standing Committees seeks to align wording and provide consistency with other Standing Committee charters.

Committee members will have the opportunity to review and discuss the proposed amendments at the Committee's September 19 meeting and offer additional recommendations for consideration. The charter will be finalized and presented to the Committee at its November 14 meeting for approval.

In February 2025, RISC leadership will present the proposed amended RISC Charter to the Corporate Governance and Human Resources Committee at its open meeting for consideration and approval and recommendation to the Board of Trustees (Board) for approval at its February open meeting.

**NERC**

NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

# Reliability Issues Steering Committee Charter

Approved by the NERC Board of Trustees  
February XX, 2025

**RELIABILITY | RESILIENCE | SECURITY**



**3353 Peachtree Road NE  
Suite 600, North Tower  
Atlanta, GA 30326  
404-446-2560 | [www.nerc.com](http://www.nerc.com)**

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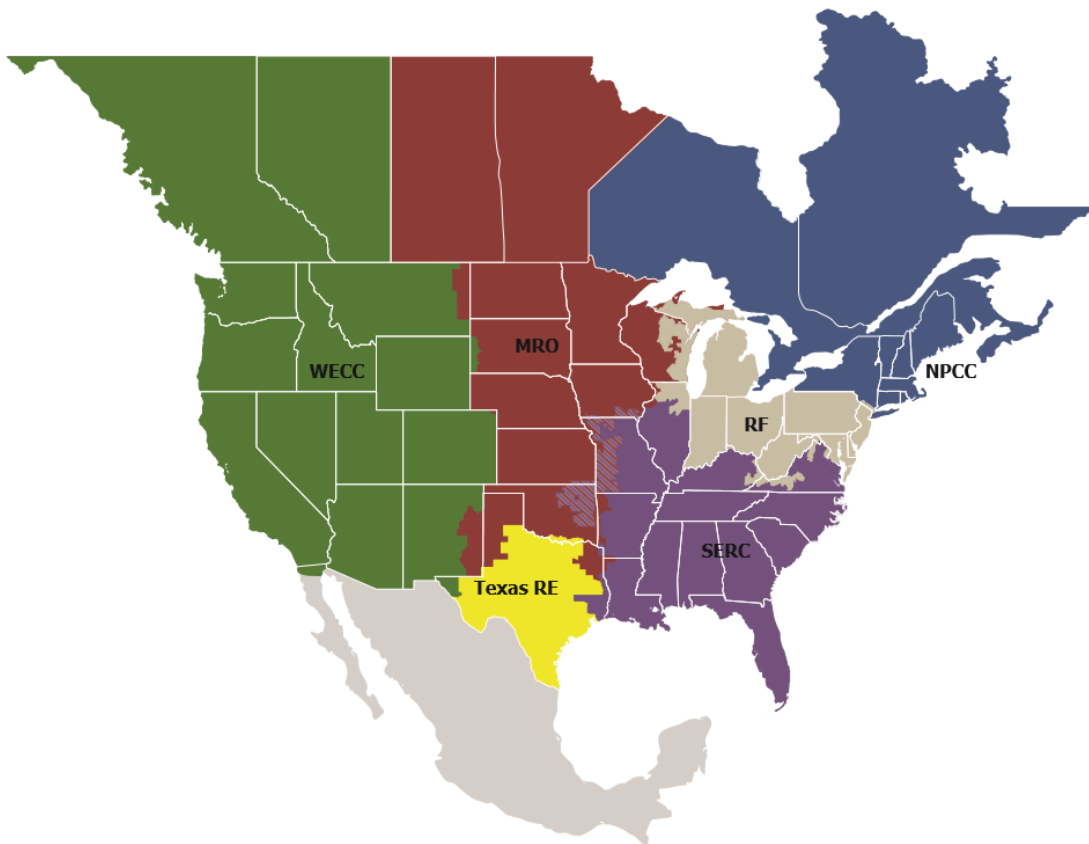
# Preface

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Electricity is a key component of the fabric of modern society and the Electric Reliability Organization (ERO) Enterprise serves to strengthen that fabric. The vision for the ERO Enterprise, which is comprised of the North American Electric Reliability Corporation (NERC) and the six Regional Entities (REs), is a highly reliable and secure North American bulk power system (BPS). Our mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid.

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<b>SERC</b>	SERC Reliability Corporation
<b>Texas RE</b>	Texas Reliability Entity
<b>WECC</b>	WECC

# RISC Charter

---

## Purpose

The Reliability Issues Steering Committee (RISC or Committee) is an advisory committee that triages and provides front-end, high-level leadership for issues of strategic importance to bulk power system (BPS) reliability and offers high-level stakeholder leadership engagement and input on issues that impact bulk-power system reliability. The RISC advises the North American Electric Reliability Corporation (NERC) Board of Trustees (Board), NERC standing committees (including the Standards Committee, Compliance and Certification Committee, and Reliability and Security Technical Committee), NERC staff, regulators, Regional Entities, and industry stakeholders to establish a common understanding of the scope, priority, and goals for the development of solutions to address these issues, including the use of solutions other than the development of new or revised reliability standards. In doing so, the RISC provides a framework for steering, developing, formalizing, and organizing recommendations to help NERC and the industry effectively focus their resources on the critical issues needed to best improve the reliability of the BPS.

## Reporting

The RISC reports directly to the Board. The Board shall approve this Charter and any amendments to this Charter pursuant to Section 1300 of the NERC Rules of Procedure.

## Overview and Functions

The RISC performs two primary functions for the Board.

The first function of the RISC is evaluating BPS reliability issues and risks. The RISC provides strategic leadership and advice to the NERC Board of Trustees and others to triage key reliability risks and propose solutions to manage those risks.

Second, the RISC provides an bi-annual analysis of risks to the BPS, and produces a relative prioritization of the risks. The prioritization is designed to advise:

- Annual ERO action planning, resource allocation, budgeting and strategic planning processes; and
- Standing committee planning, including the development of the Reliability Standards Development Plan and coordination with the Reliability and Security Technical Committee.

In addition, the RISC performs such other functions that may, from time to time, be delegated or assigned by the Board.

## Membership

The RISC has a hybrid representation model consisting of the following types of memberships:

- At-large Members;
- Committee-based members; and
- Non-voting members.

**At-large Members**—Selection of at least ten (10) At-large members who provide a balanced representation on the RISC of the following:

- Geographic and International diversity, including international, such that Eastern, Western, and Texas

Interconnections, along with Canada are represented on the RISC;

- Sector, size, and asset (transmission, distribution, load, generation, etc.) diversity;
  - High-level understanding and perspective on reliability risks;
  - Experience in a leadership role or background in an executive-level position is strongly preferred; and
  - Balanced consideration of these criteria, across the entire membership of the RISC.
- **Committee-based Members**—Selection of four (4) committee-based members—one (1) from each of the standing committees: Standards (SC), Reliability and Security Technical Committee and Compliance and Certification (CCC), as well as one (1) from the Member Representatives Committee (MRC). The Board will be responsible for appointing the committee-based members to the RISC. These members will be the chair or vice chair unless otherwise recommended by the standing committee or MRC leadership and subject to NERC Board approval.
  - **Non-voting members.** The Committee Chair, Nominating Subcommittee Chair or RISC secretary will coordinate with entities entitled to non-voting membership to identify representatives for the non-voting seats.

<b>Non-Voting Membership</b>	
<b>Non-Voting Member</b>	<b>Number of Members</b>
Committee Secretary	1
United States Federal Government	1
Canadian Federal Government	1
Provincial Government	1
Former Chair	1
<b>Total</b>	<b>5</b>

**Nominating Subcommittee**

The Nominating Subcommittee (RISC NS) will consist of seven (7) members (the RISC vice-chair and six (6) members drawing from different at-large representation).

The RISC NS members are nominated by the RISC chair and voted on by the full RISC membership. The term for members of the RISC NS is one (1) year. The RISC NS is responsible for (a) recommending individuals for at-large representative seats, and, (b) managing the process to select the chair and/or vice-chair of the RISC. The RISC vice-chair shall recuse him or herself from this process (a) unless he or she is not seeking re-election, or (b) until the RISC NS has concluded a vote to recommend the vice-chair for subsequent RISC election to the chair position. At-large members on the RISC NS shall recuse themselves from recommendations for at-large representative seats if they are seeking reappointment.

*Vacancies on the Nominating Subcommittee*

The Committee Chair will nominate, and the full Committee will approve, a RISC member to fill a vacancy on the Nominating Subcommittee.

- 1.

The Board is responsible for appointing the committee-based, MRC and At-Large members to the RISC. At the February Board meeting each year (or as needed), the RISC NS shall present to the Board a recommended slate of all RISC member candidates as appropriate for consideration and approval.

All At-Large members will be appointed by the Board to serve for two-year terms, Membership terms will be staggered to ensure continuity. Standing Committee, MRC, and non-voting member appointments will serve a one-year term.

## Officers

1. **Selection of the Chair** - The Board shall appoint a chair of the RISC to serve a two-year term and direct the activities of the RISC, and work toward reaching consensus on all recommendations and actions.
2. **Selection and Duties of the Secretary** - NERC will appoint one senior staff person to serve as a secretary with the responsibility of overseeing the effective management of:
  - a. The day-to-day operations and business of the RISC;
  - b. The preparation, distribution, and posting notices of Committee meetings, recording meeting proceedings, and preparation, distribution, and posting of meeting minutes.
  - c. The facilitation of the election/selection process for RISC members; and,
  - d. The maintenance of Committee membership records.

## Meetings

1. **Open Meetings** - Meetings shall occur at least once every quarter and can be in person or by conference call as determined by the chair. All meetings of the RISC will be open to all interested parties (except as noted in the paragraph below for confidential sessions). Only members may act on items before the Committee. Meeting notices shall be publicly posted on the NERC website on the same day they are distributed to Committee members. Notices shall describe the purpose of meetings and shall identify a readily available source for further information about the meeting.
2. **General Requirements** - The Committee shall hold meetings as needed and may use conference calls or email to conduct its business.
3. **Notice** - The RISC secretary shall announce its regularly scheduled meetings with a written notice (letter or e-mail) to all Committee members not less than ten and no more than sixty calendar days prior to the date of the meeting.
4. **Agenda** - The RISC secretary shall provide an agenda with a written notice (letter, facsimile, or e-mail) for Committee meetings no less than five business days before a proposed meeting.
  - a. The agenda shall include, as necessary, background material for agenda items requiring a decision.
  - b. The agenda shall be posted on the NERC website the same day it is distributed to Committee members.
  - c. Items not in the agenda that require a decision cannot be added at a meeting without the consensus of the members present. If such a matter comes up, it may also be deferred to the next meeting so that Committee members have time to consult with others.
5. **Quorum**. The quorum necessary for the transaction of business (*i.e.*, formal actions) at meetings of the committee is a majority of the members currently on the committee roster (*i.e.*, not including vacancies). The committee may engage in discussions without a quorum present.

6. Voting Procedures for Motions In-Person

- a. The default procedure is a voice vote.
- b. If the chair believes the voice vote is not conclusive, the chair may call for a show of hands.
- c. The chair will not specifically ask those who are abstaining to identify themselves when voting by voice or a show of hands. If the chair desires a roll call, the secretary will call each member's name. Members answer "yes," "no," or "present" if they wish to abstain from voting. As provided above, an abstention does not count as a vote cast.
- d. Conference Call / Virtual
  - i. All voting shall default to being conducted through use of a poll.
  - ii. Where a need to record each member's vote is requested or identified, the RISC may conduct voting via a roll call vote.

7. **Proxies.**

Regular participation at meetings is expected of the approved Committee membership and the need to send a proxy should occur only on rare occasions. A voting member may select a proxy who attends and votes during all or a portion of a Committee meeting in lieu of a voting member, provided that the absent voting representative notifies the RISC chair, vice chair, or secretary of the proxy. A proxy may not be given to another RISC member. A proxy must meet the RISC's membership eligibility requirements, including affiliate restrictions. To permit time to determine a proxy's eligibility, all proxies must be submitted to the secretary in writing at least one week prior to the meeting (electronic transmittal is acceptable) for approval by the chair. Any proxy submitted after that time will be accepted at the chair's discretion.

8. **Observers.** Non-members may observe RISC meetings, either in person or via conference call.

9. **Confidential Sessions.** The chair of the RISC may limit attendance at a meeting or portion of a meeting, based on confidentiality of the information to be disclosed at the meeting. Such limitations will be applied sparingly and on a nondiscriminatory basis as needed to protect critical energy infrastructure information and other information that is sensitive to one or more parties. Confidential Information will only be disclosed as provided by Section 1500 of the NERC Rules of Procedure. Confidentiality agreements may also be applied, as necessary, to protect Confidential Information.

# Reliability Issues Steering Committee Charter

Approved by the NERC Board of Trustees

~~August 20~~ February XX, 2025~~0~~

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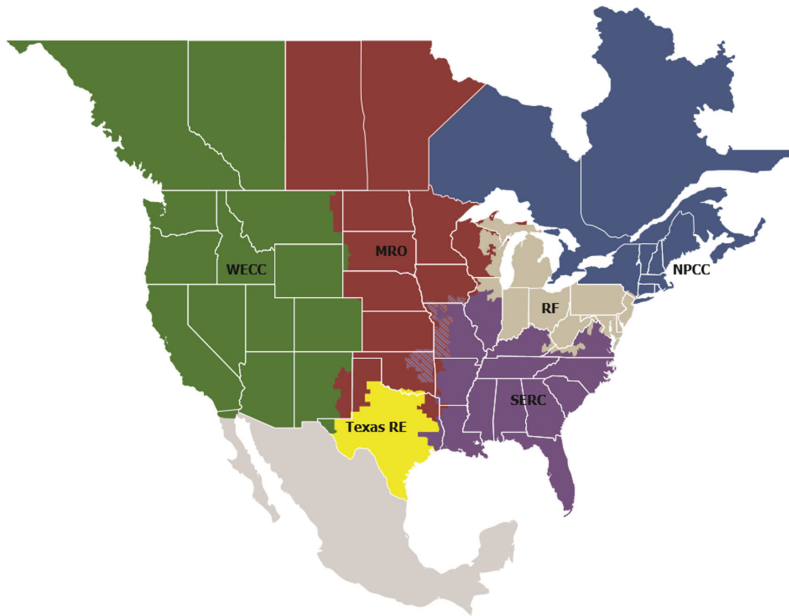
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Commented [TM1]: Moved the specificity around the at-large criteria for selection up in Membership - consistent with RSTC and CCC charters.

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Interconnections, along with Canada are represented on the RISC;

- Sector, size, and asset (transmission, distribution, load, generation, etc.) diversity;
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Commented [TM4]: As discussed move the RISC NC to align with the Nominating Subcommittees structure of the RSTC and CCC, especially with moving the MRC to an annual appointed member that may or may not be the MRC VC.

Should also assist with a more informed review and selection process as stakeholder members have may have more insight to nominations then the MRC VC, NERC CEO, Board VC.

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Vacancies on the Nominating Subcommittee

The Committee Chair will nominate, and the full Committee will approve, a RISC member to fill a vacancy on the Nominating Subcommittee.

In advance of the annual February Board meeting, the RISC Nominating Committee (RISCNC) chaired by the Member Representatives Committee (MRC) vice chair and including the Board vice chair, the NERC President and CEO, and

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~~the Committee chair and vice chair will solicit a pool of candidates, with the goal of meeting the following general criteria:~~

- ~~1. Geographic and International diversity, including international, such that Eastern, Western, and Texas Interconnections, along with Canada are represented on the RISC;~~
- ~~2. Sector, size, and asset (transmission, distribution, load, generation, etc.) diversity;~~
- ~~3. High level understanding and perspective on reliability risks;~~
- ~~4. Experience in a leadership role or background in an executive level position is strongly preferred; and~~
- ~~5.1. Balanced consideration of these criteria, across the entire membership of the RISC.~~

The Board is responsible for appointing the committee-based, MRC and At-Large members to the RISC. At the February Board meeting each year (or as needed), the ~~RISC~~~~RISC NS~~ shall present to the Board a recommended slate of all RISC member candidates as appropriate for consideration and approval.

All ~~MRC and~~ At-Large members will be appointed by the Board to serve for two-year terms, Membership terms will be staggered to ensure continuity. Standing Committee, MRC, and non-voting member appointments will serve a one-year term.

## Officers

1. **Selection of the Chair** - The Board shall appoint a chair of the RISC to serve a two-year term and direct the activities of the RISC, and work toward reaching consensus on all recommendations and actions.
2. **Selection and Duties of the Secretary** - NERC will appoint one senior staff person to serve as a secretary with the responsibility ~~to~~of overseeing the effective management of:
  - a. The day-to-day operations and business of the RISC;
  - ~~a.b. The preparation, distribution, and posting~~ Prepare, distribute and post notices of Committee meetings, recording meeting proceedings, and ~~prepare, distribute and post~~preparation, distribution, and posting of meeting minutes.
  - c. The facilitation of the election/selection process for RISC members; and,
  - ~~b.d. The maintenance of~~ Maintain Committee membership records.

## Meetings

1. **Open Meetings** - Meetings shall occur at least once every quarter and can be in person or by conference call as determined by the chair. All meetings of the RISC will be open to all interested parties (except as noted in the paragraph below for confidential sessions). Only members may act on items before the Committee. Meeting notices shall be publicly posted on the NERC website on the same day they are distributed to Committee members. Notices shall describe the purpose of meetings and shall identify a readily available source for further information about the meeting.
2. **General Requirements** - The Committee shall hold meetings as needed and may use conference calls or email to conduct its business.
3. **Notice** - The RISC secretary shall announce its regularly scheduled meetings with a written notice (letter or e-mail) to all Committee members not less than ten and no more than sixty calendar days prior to the date of the meeting.
4. **Agenda** - The RISC secretary shall provide an agenda with a written notice (letter, facsimile, or e-mail) for Committee meetings no less than five business days before a proposed meeting.

- a. The agenda shall include, as necessary, background material for agenda items requiring a decision.
- b. The agenda shall be posted on the NERC website the same day it is distributed to Committee members.
- c. Items not in the agenda that require a decision cannot be added at a meeting without the consensus of the members present. If such a matter comes up, it may also be deferred to the next meeting so that Committee members have time to consult with others.

5. Quorum. The quorum necessary for the transaction of business (*i.e.*, formal actions) at meetings of the committee is a majority of the members currently on the committee roster (*i.e.*, not including vacancies). The committee may engage in discussions without a quorum present.

6. Voting Procedures for Motions In-Person

- a. The default procedure is a voice vote.
- b. If the chair believes the voice vote is not conclusive, the chair may call for a show of hands.
- c. The chair will not specifically ask those who are abstaining to identify themselves when voting by voice or a show of hands. If the chair desires a roll call, the secretary will call each member's name. Members answer "yes," "no," or "present" if they wish to abstain from voting. As provided above, an abstention does not count as a vote cast.

d. Conference Call / Virtual

- i. All voting shall default to being conducted through use of a poll.
- ii. Where a need to record each member's vote is requested or identified, the RISC may conduct voting via a roll call vote.

~~6-7. Proxies. Proxies are not permitted.~~

Regular participation at meetings is expected of the approved Committee membership and the need to send a proxy should occur only on rare occasions. A voting member may select a proxy who attends and votes during all or a portion of a Committee meeting in lieu of a voting member, provided that the absent voting representative notifies the RISC chair, vice chair, or secretary of the proxy. A proxy may not be given to another RISC member. A proxy must meet the RISC's membership eligibility requirements, including affiliate restrictions. To permit time to determine a proxy's eligibility, all proxies must be submitted to the secretary in writing at least one week prior to the meeting (electronic transmittal is acceptable) for approval by the chair. Any proxy submitted after that time will be accepted at the chair's discretion.

~~7-8. Observers.~~ Non-members may observe RISC meetings, either in person or via conference call.

8-9. Confidential Sessions. The chair of the RISC may limit attendance at a meeting or portion of a meeting, based on confidentiality of the information to be disclosed at the meeting. Such limitations will be applied sparingly and on a nondiscriminatory basis as needed to protect critical energy infrastructure information and other information that is sensitive to one or more parties. Confidential Information will only be disclosed as provided by Section 1500 of the NERC Rules of Procedure. Confidentiality agreements may also be applied, as necessary, to protect Confidential Information.

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Commented [TMS]: No Proxies has been a source of contention in the past with members - propose considering adding proxies for the Committee