RELIABILITY | RESILIENCE | SECURITY

POWERING TODAY. PROTECTING TOMORROW.

NERC

Large Loads Action Plan

The Real Estate Roundtable - Sustainability Policy Advisory Committee Meeting

Camilo Serna
Senior Vice President, Strategy and External Engagement

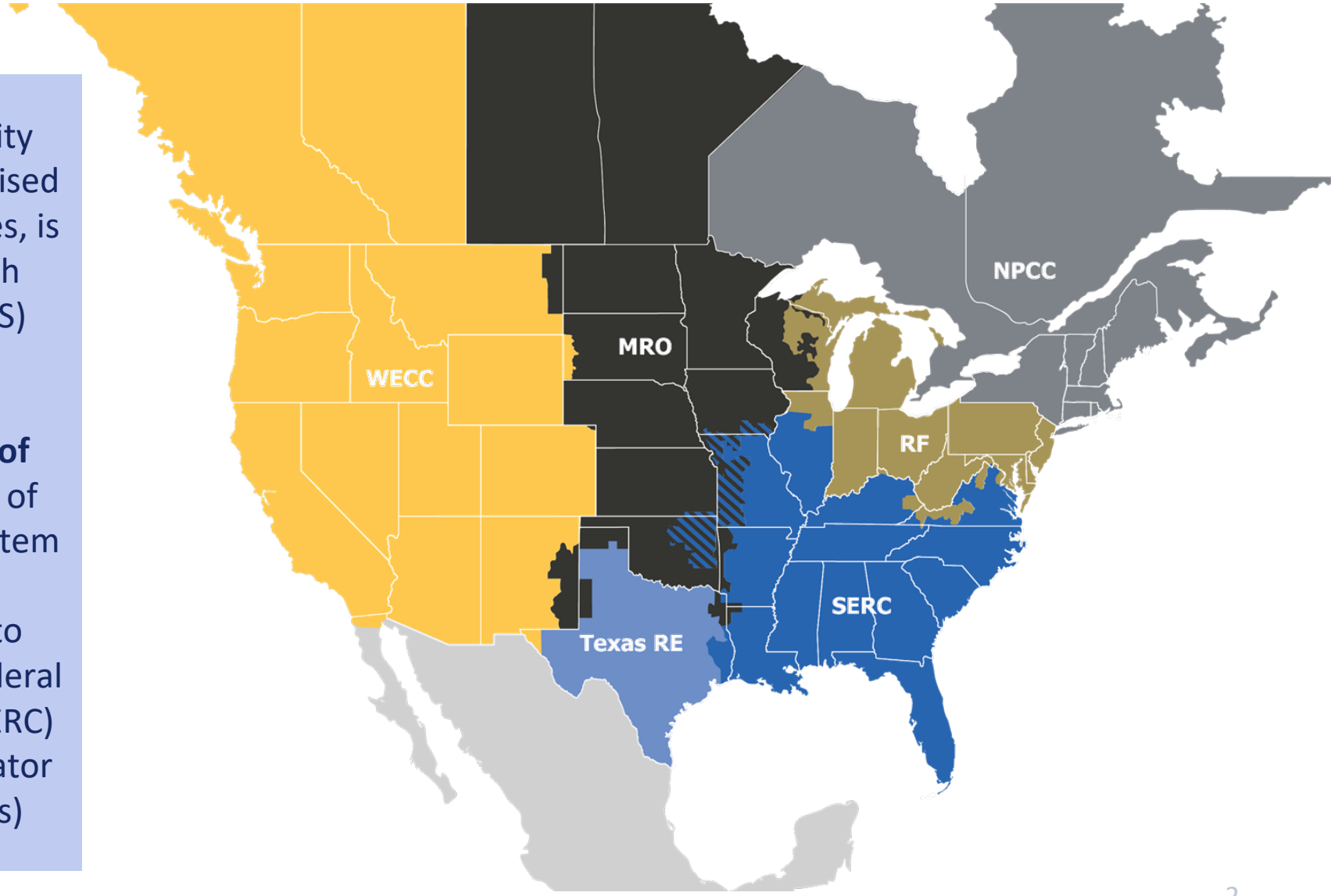
June 10, 2026

NERC's Vision and Structure

The **vision** for the Electric Reliability Organization (ERO), which is comprised of NERC and the six Regional Entities, is a **highly reliable and secure** North American Bulk Power System (BPS)

NERC's **mission** is to **assure the effective and efficient reduction of risks** to the reliability and security of the North American bulk power system

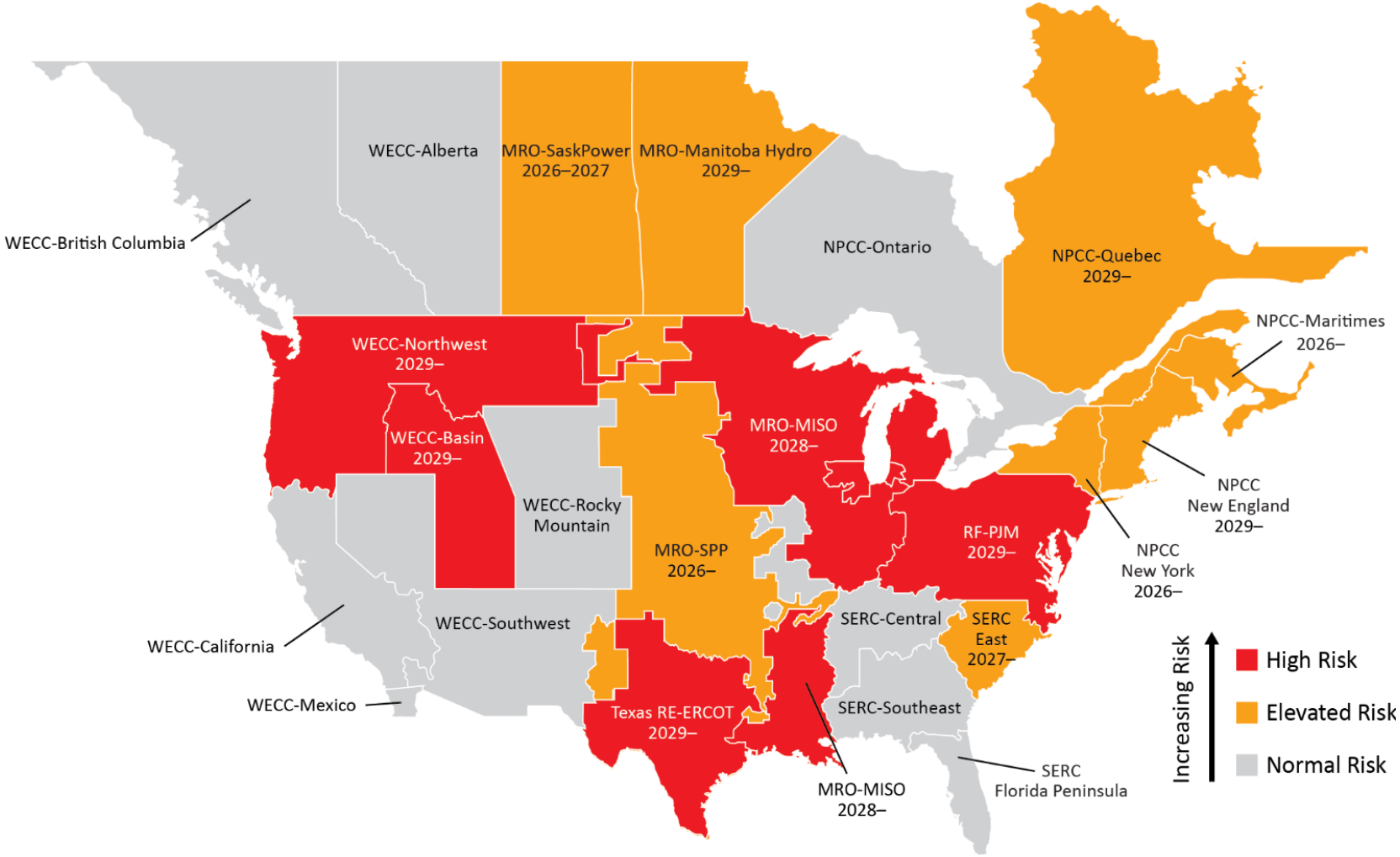
As the ERO, we are accountable to regulators in the **United States** (Federal Energy Regulatory Commission - FERC) and **Canada** (Canada Energy Regulator (CER) and provincial governments)



Resource and Energy Adequacy Risks Intensify

2025 Long-Term Reliability Assessment Risk Area Summary: 2026 – 2030

Shows highest risk category in the 5-year period and the year it occurs



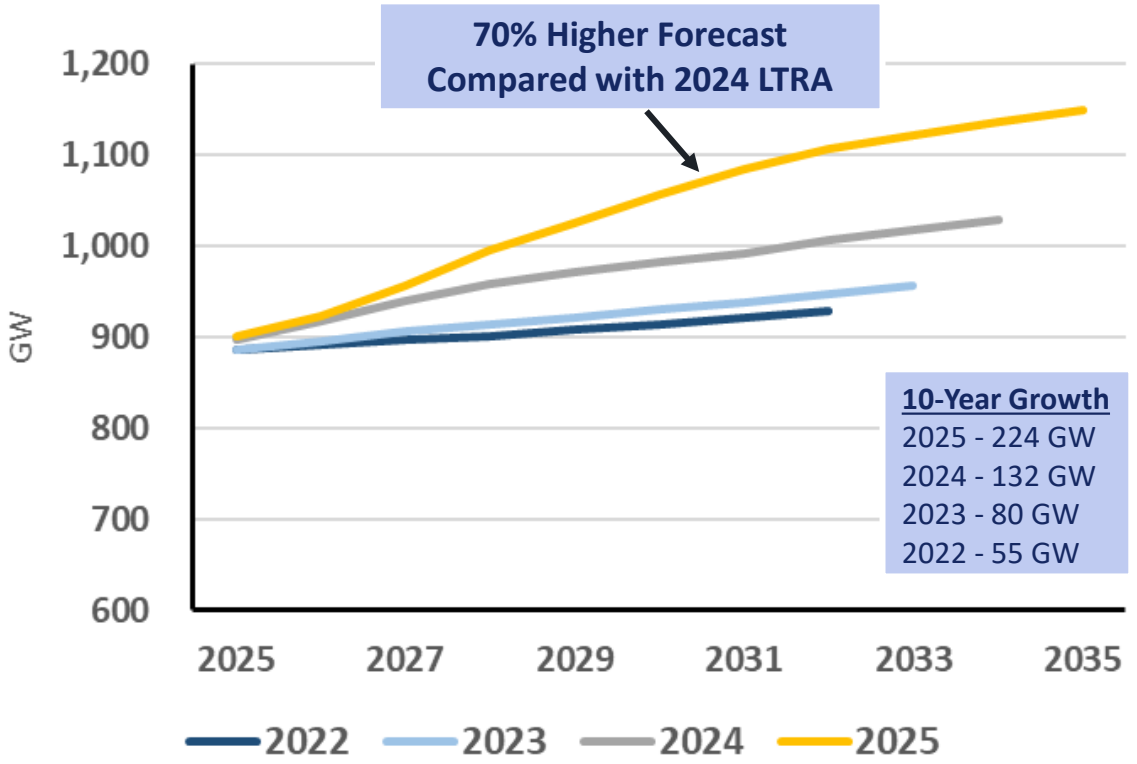
Full LTRA Report

Note: Assessment inputs include: 1) Probabilistic assessment (studied years 2027 and 2029) and planning reserve margins (2026 through 2030). Risk determination based on established resource adequacy criteria (1-day-in-10 years) and NERC-National Academy of Engineering Workshop Report criteria for load-loss and unserved energy

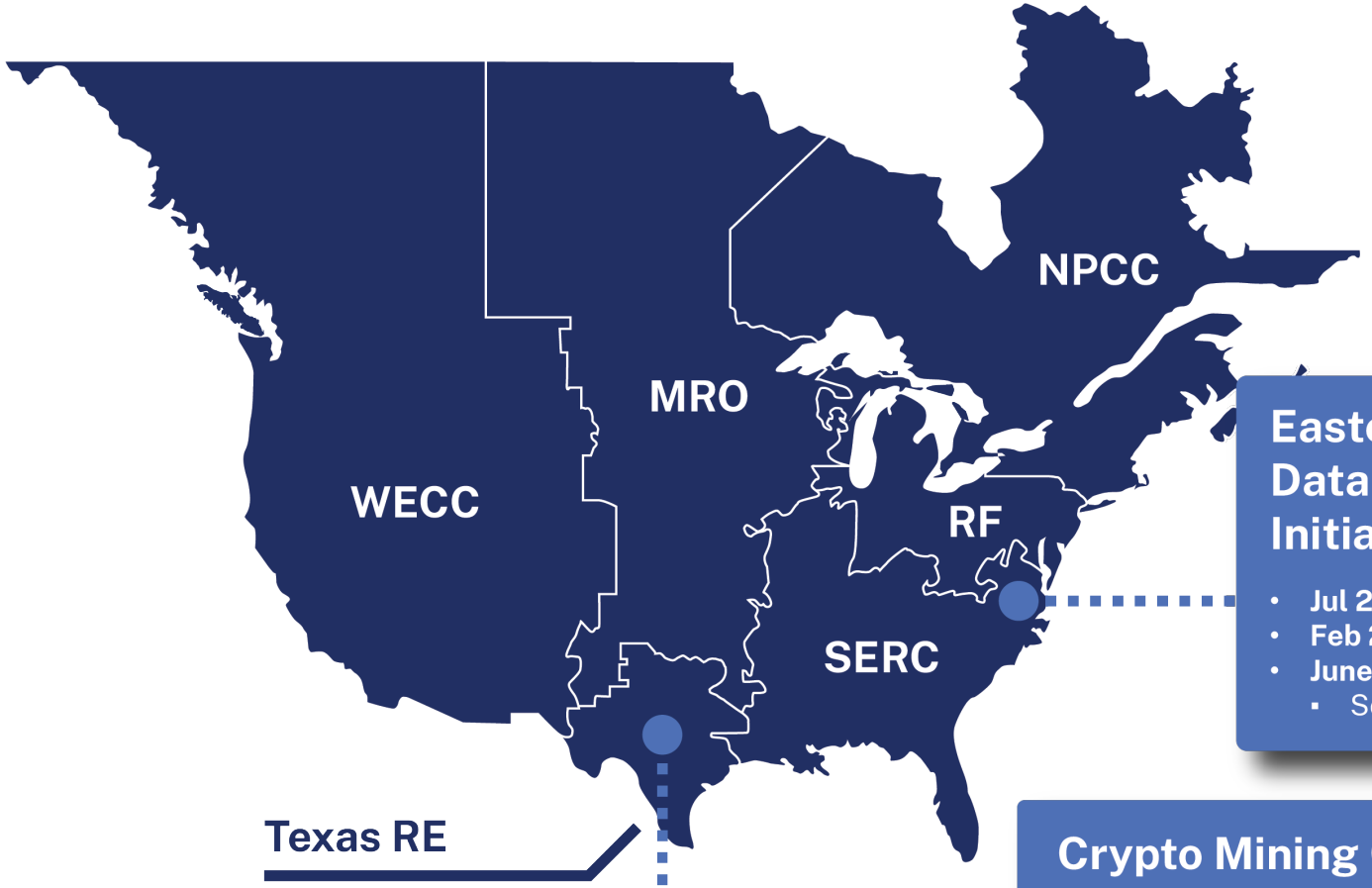
Demand Growth is Rising Rapidly

- Assessment area summer peak demand is forecast to rise by over 224 GW (24% increase from 2025 peak demand)
- Winter peak demand growth continues to exceed summer growth (rising 245 GW over 10 years)
- New data centers are the main source of load growth followed by other large industrial loads and electrification
  - Data centers demand forecast increase forecast volatility

10-year BPS Summer Peak Demand Growth



Recent Incidents: Voltage Sensitive Customer Initiated Load Reductions



Eastern Interconnection Data Center Customer Initiated Load Reductions

- **Jul 2024:** 1,500 MW
- **Feb 2025:** 1,800 MW
- **June 2025:** 1,300 MW
  - Source: ESIG

Crypto Mining Customer Initiated Load Reductions

- **Jan 2023 - Apr 2026:**
  - 28 Loss Events (100-450 MW Load Loss)

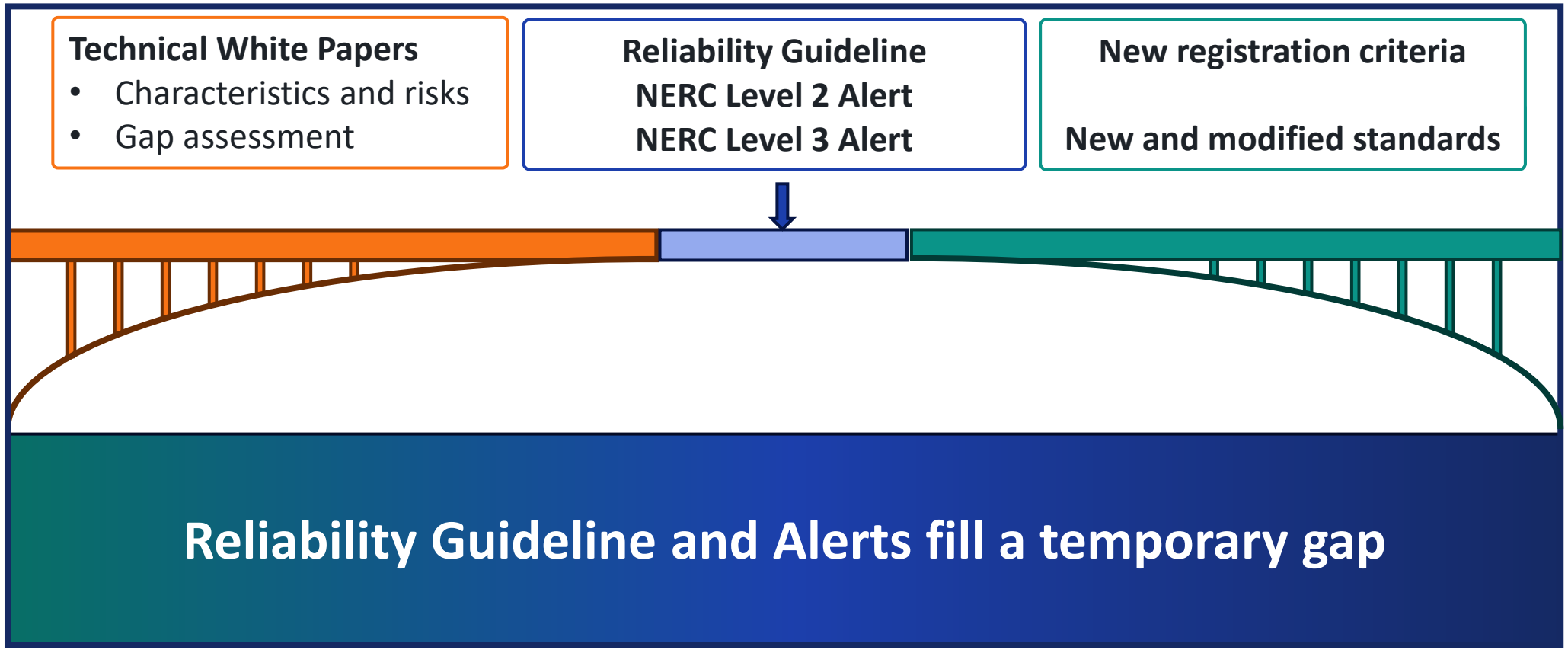
Integrating Large Computational Loads

Our challenge: Integrate large computational loads onto the bulk power system while ensuring reliability and security

- Large commercial and industrial loads—specifically “computational loads” such as data centers—present unique factors for consideration to the electric grid.

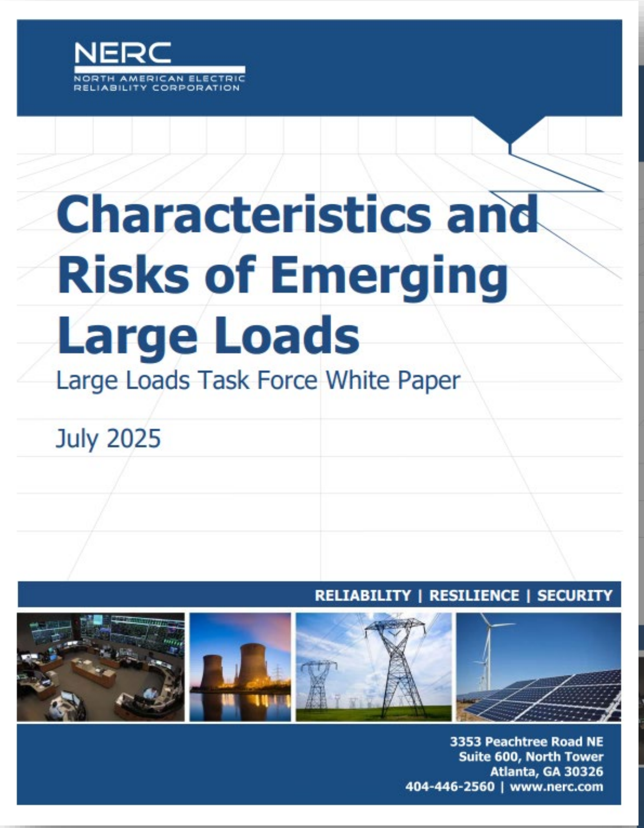
- NERC is working alongside the electric power and data center industries to enhance understanding and implement necessary mitigation measures for computational loads.

Building the Bridge



White Papers - Large Loads Working Group

Understand the reliability impact(s) of emerging large loads on the BPS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Characteristics and Risks of Emerging Large Loads

Large Loads Task Force White Paper

July 2025

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Atlanta, GA 30326
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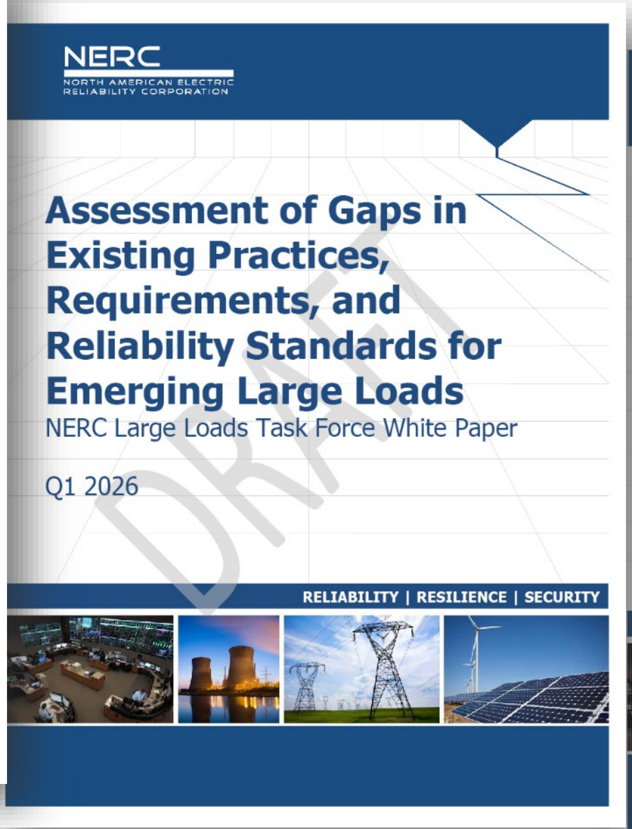
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Assessment of Gaps in Existing Practices, Requirements, and Reliability Standards for Emerging Large Loads

NERC Large Loads Task Force White Paper

Q1 2026

DRAFT

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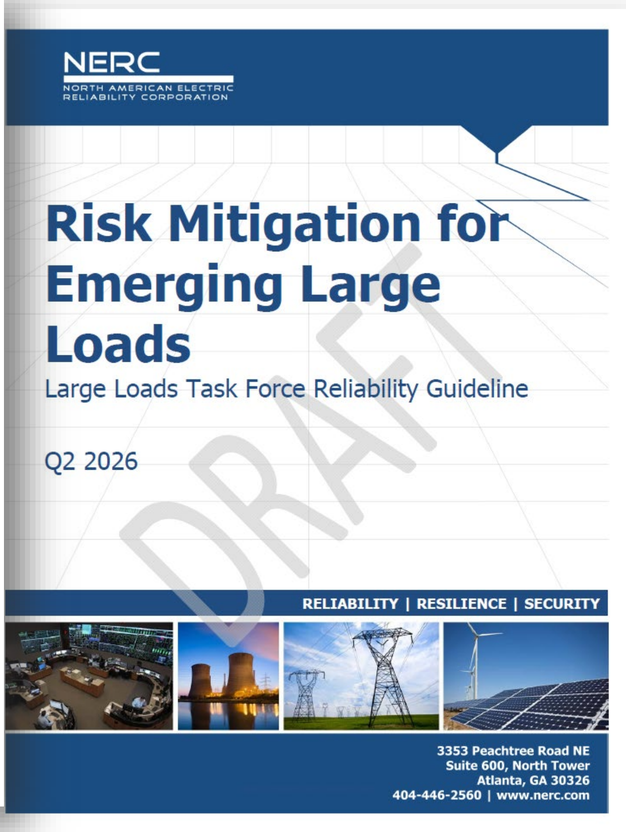
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Risk Mitigation for Emerging Large Loads

Large Loads Task Force Reliability Guideline

Q2 2026

DRAFT

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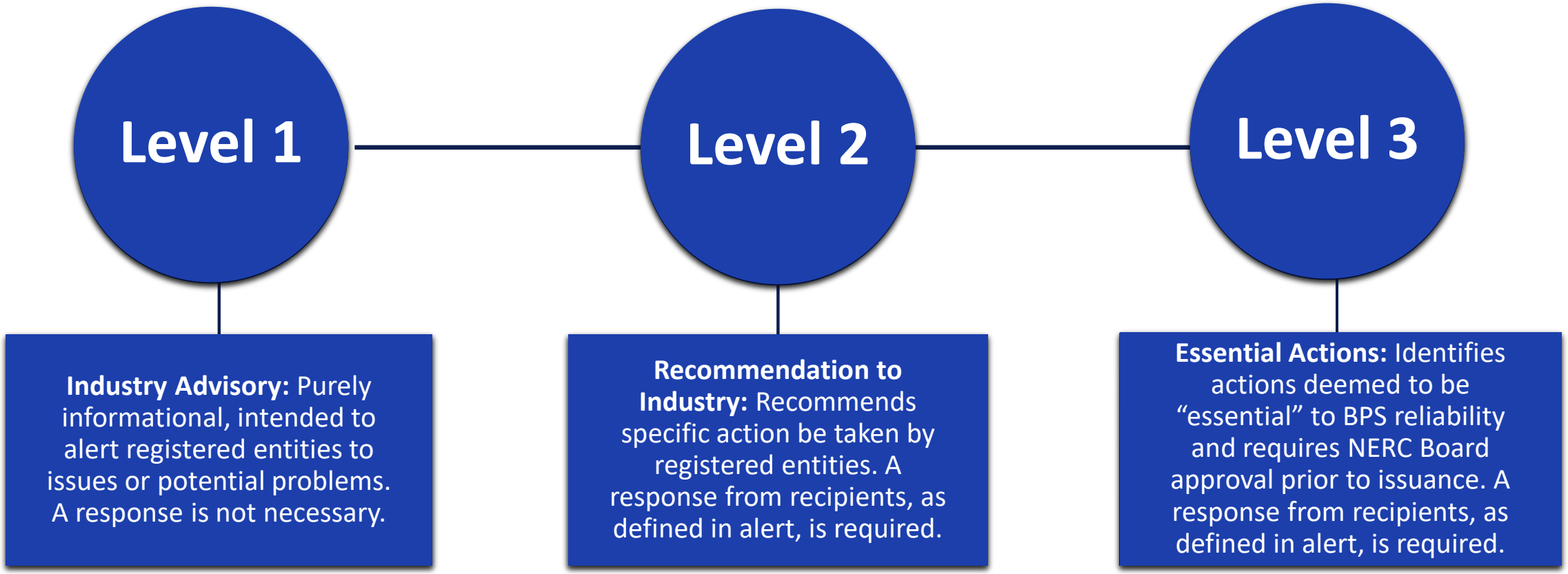
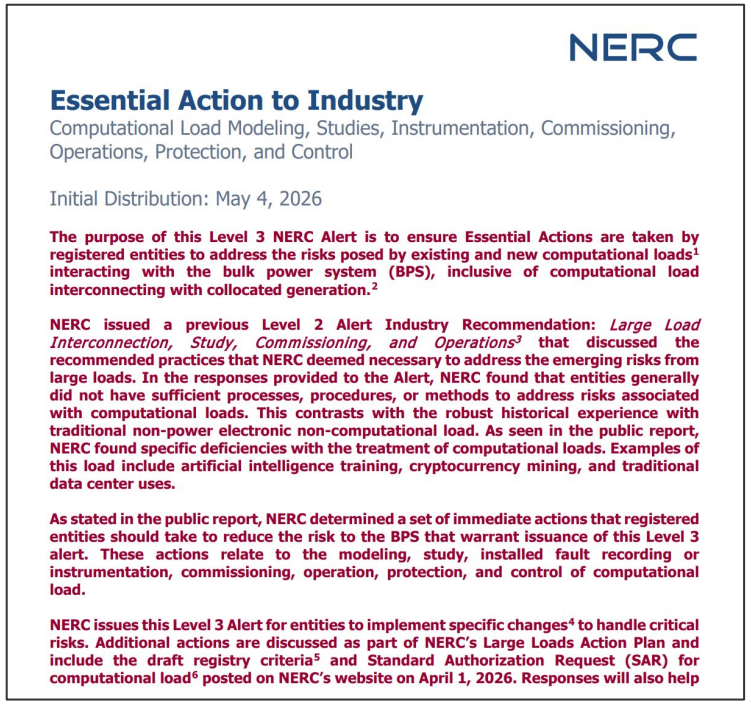
Large Loads Working Group

NERC Alerts


Level 1
Level 2
Level 3
Industry Advisory: Purely informational, intended to alert registered entities to issues or potential problems. A response is not necessary.
Recommendation to Industry: Recommends specific action be taken by registered entities. A response from recipients, as defined in alert, is required.
Essential Actions: Identifies actions deemed to be "essential" to BPS reliability and requires NERC Board approval prior to issuance. A response from recipients, as defined in alert, is required.

NERC Level 3 Alert

- A Level 3 Essential Actions Alert, released May 4, 2026, recommends seven near-term mitigation actions that current registered entities are urged to take to address critical reliability risks.
- The deadline for registered entities to submit their responses is August 3, 2026.
- Focus areas:
  - Modeling
  - Studies
  - Fault recording instrumentation
  - Commissioning
  - Operations
  - Protection and Control



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Essential Action to Industry

Computational Load Modeling, Studies, Instrumentation, Commissioning, Operations, Protection, and Control

Initial Distribution: May 4, 2026

The purpose of this Level 3 NERC Alert is to ensure Essential Actions are taken by registered entities to address the risks posed by existing and new computational loads[1] interacting with the bulk power system (BPS), inclusive of computational load interconnecting with collocated generation.[2]

NERC issued a previous Level 2 Alert Industry Recommendation: *Large Load Interconnection, Study, Commissioning, and Operations*[3] that discussed the recommended practices that NERC deemed necessary to address the emerging risks from large loads. In the responses provided to the Alert, NERC found that entities generally did not have sufficient processes, procedures, or methods to address risks associated with computational loads. This contrasts with the robust historical experience with traditional non-power electronic non-computational load. As seen in the public report, NERC found specific deficiencies with the treatment of computational loads. Examples of this load include artificial intelligence training, cryptocurrency mining, and traditional data center uses.

As stated in the public report, NERC determined a set of immediate actions that registered entities should take to reduce the risk to the BPS that warrant issuance of this Level 3 alert. These actions relate to the modeling, study, installed fault recording or instrumentation, commissioning, operation, protection, and control of computational load.

NERC issues this Level 3 Alert for entities to implement specific changes[4] to handle critical risks. Additional actions are discussed as part of NERC's Large Loads Action Plan and include the draft registry criteria[5] and Standard Authorization Request (SAR) for computational load[6] posted on NERC's website on April 1, 2026. Responses will also help

Level 3 Alert

Registration Basics

Why?	• Identify entities that impact reliability • Notify those that must comply • After registration, Reliability Standards apply
Who?	• Criteria to be determined • Exception process available
When?	• After criteria developed in NERC Rules of Procedure • After approval by FERC in the United States
How?	• Day-to-day delegated to Regional Entities

Draft Registry Criteria

Computational Load Entity that:

- contributes to an aggregate connected Load capability greater than or equal to 20 MW;
- at a single point of interconnection to the Bulk Power System at a voltage greater than or equal to 60 kV; and
- hosts 1 MW or greater of Computational Load

Summary of Comments:

- 43 responding entities, including data center community
- Supportive of addressing risk
- 20 MW/60 kV threshold is low or NERC needs to provide more technical justification
- Urge NERC to focus criteria on operational characteristics of impactful load and not only target certain industries or load use

Draft Registry Criteria

Standards Framework

Framework

- Mandatory and enforceable to registered entities
- Define requirements for reliable planning and operation of the North American bulk power system
- Assure consistency while maintaining flexibility
- Reflect a results-based approach that focuses on performance, risk management, and entity capabilities
- Process includes regional variances where necessary
- Are routinely audited using a risk-based approach
- Fair, open, and balanced process that depends on stakeholder input and participation

Topics

- Reliability Coordination
- Real-time Operations
- Transmission Planning
- Transmission Operations
- Generation Operations
- System Protection and Maintenance
- Training
- Critical Infrastructure Protection
- Emergency Operations and System Restoration

Reliability Standards

Computational Loads - Standards Approach

Phase 1 "Essential Actions"

Data Sharing

- **CL** Data → **Owners, Planners, Operators**

Interconnection Process & Requirements

- **TOs** have interconnection requirements specific to **CLs**
- **TOs** incorporate requirements from Planners & **Operators**

Protection & Monitoring (High-Resolution)

- Ensure protection is coordinated between **CLs & Owners**
- Ensure high-resolution monitoring for **CLs**

Commissioning

- **TOs** have a commissioning process (coordinated with **Planners** & **Operators**) specific to **CLs**

Interconnection Study & Modeling

- **Planners** have interconnection study process for **CLs**
- **Planners** ensure appropriate dynamic modeling for **CLs**

Operations Communication & Response

- **CLs** have communication protocols with **Operators**
- **CLs** respond to **Operator** Emergency Instructions

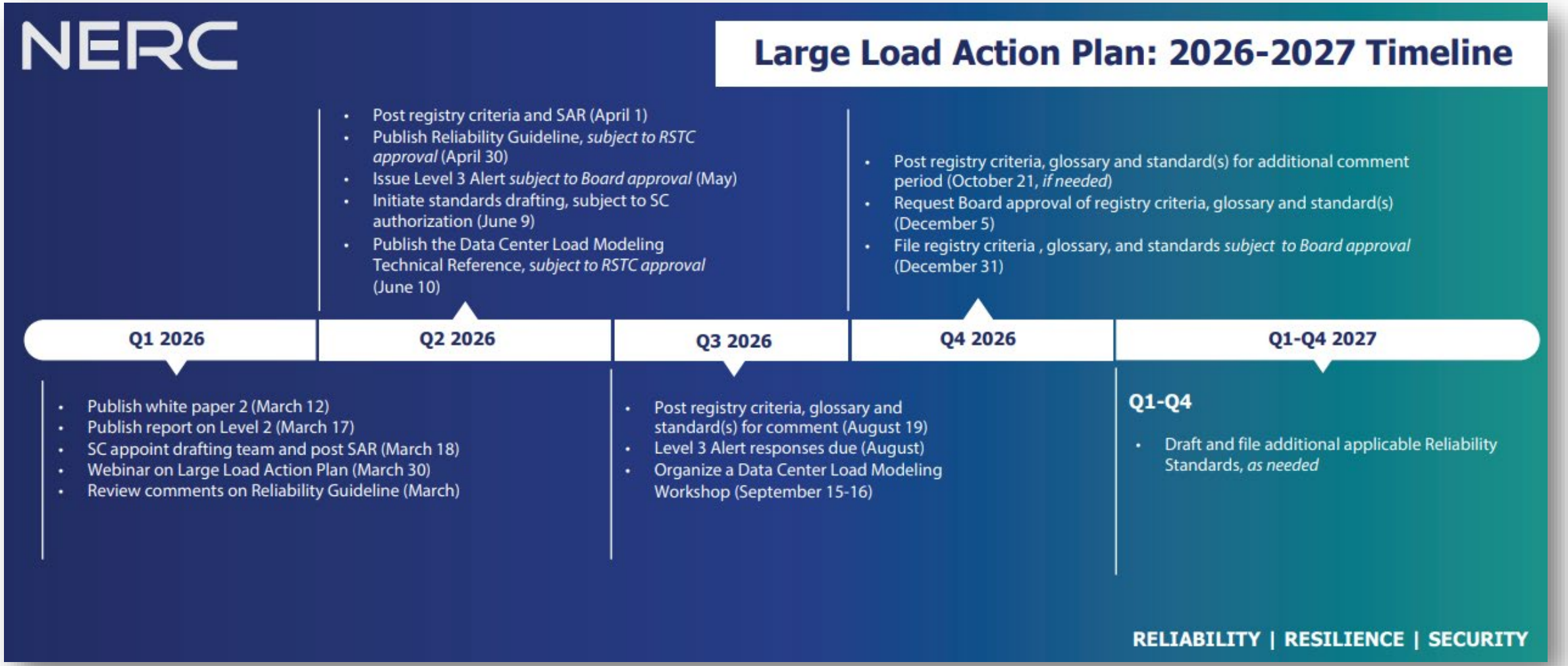
Phase 2 & Beyond

Other Important Gaps

(can build upon the foundational process-related requirements)

- Dynamic Model Validation
- Voltage & Frequency Ride-Through
- Annual Transmission Planning
- UVLS, UFLS, MLS
- Nuclear Coordination
- Balancing
- Critical Infrastructure Protection
- EMT Modeling
- Others

Timeline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Large Load Action Plan: 2026-2027 Timeline
Q1 2026
Q2 2026
Q3 2026
Q4 2026
Q1-Q4 2027
Post registry criteria and SAR (April 1)
Publish Reliability Guideline, subject to RSTC approval (April 30)
Issue Level 3 Alert subject to Board approval (May)
Initiate standards drafting, subject to SC authorization (June 9)
Publish the Data Center Load Modeling Technical Reference, subject to RSTC approval (June 10)
Post registry criteria, glossary and standard(s) for additional comment period (October 21, if needed)
Request Board approval of registry criteria, glossary and standard(s) (December 5)
File registry criteria , glossary, and standards subject to Board approval (December 31)
Publish white paper 2 (March 12)
Publish report on Level 2 (March 17)
SC appoint drafting team and post SAR (March 18)
Webinar on Large Load Action Plan (March 30)
Review comments on Reliability Guideline (March)
Post registry criteria, glossary and standard(s) for comment (August 19)
Level 3 Alert responses due (August)
Organize a Data Center Load Modeling Workshop (September 15-16)
Q1-Q4
Draft and file additional applicable Reliability Standards, as needed
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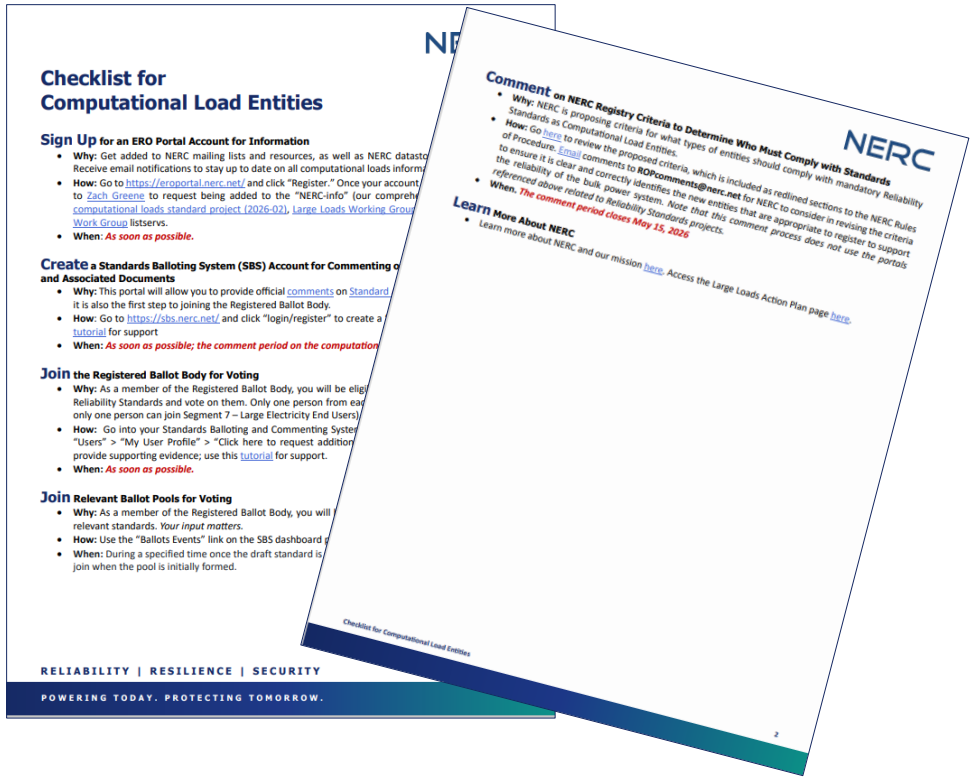
Make Your Voice Heard at NERC

- Review our Computational Loads Checklist to find actions to take right now.
- Contact us to learn more and join the NERC listserv for updates.
- Get in touch if you are interested in joining a working group.
  - Large Loads Working Group
  - Load Modeling Working Group



Checklist

Contact NERC

Discussion