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NERC Computational Load Update

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Overview

NERC began Project 2026-02 Computational Loads this year to produce the first set of standards on Computational Load integration to ensure BPS reliability.

- https://www.nerc.com/standards/reliability-standards-under-development/2026-02-computational-loads

On July 16th, FERC ordered NERC to file the following:

- One or more new or modified Reliability Standards to address the reliability risks associated with the integration of computational loads, including any associated Glossary definitions, by December 31, 2026.
- Submit revisions to NERC's Rules of Procedure, expected by December 31, 2026.
- An informational filing detailing its workplan regarding its next steps in the standards development process for additional Reliability Standards pertaining to computational load integration by March 1, 2027.

Takeaway: FERC and the NERC Board of Trustees are closely following the risks posed by Computational Loads. Ride-through requirements have been flagged as a high priority item.

Computational Load Definition

1. **Computational Load Site** - One or more buildings, structures, or installations that:
    1. Primarily contains information technology infrastructure used for:
        - creating, executing, and delivering software applications and services;
        - artificial intelligence training, deployment, and delivery;
        - cryptocurrency mining; or
        - other computational activities at a data center; and
    2. is supplied through electrical equipment that is connected to the BPS.

*Registration only applicable for Computational Load Sites greater than or equal to **50 MW** that is connected at a voltage greater than or equal to **100 kV** from one or more points of connection.

Computational Load Owner (CLO) - The entity that owns and maintains a Computational Load Site.

Computational Load Operator (CLOP) - The entity that operates a Computational Load Site.

Project 2026-02 Computational Loads

Goal: Deliver Reliability Standard Requirements that…

1. Are essential actions that 'move the needle the most'
2. Can be most effectively delivered on the targeted Phase 1 timeline (2026)

Strategy:

1. Set the Foundation:
    - Focus on the core, process-related items in Phase 1 (set the foundation)
2. Don't Start from Scratch
    - Leverage existing process-related frameworks & concepts for integrating elements onto the BPS
3. Enable Industry Flexibility in an Evolving Time
    - Allow flexibility on process specifics, do not include technical specifics that are still evolving and/or may have regional variances

Key Takeaway: These new standards utilize existing language and only make changes where necessary to support Computational Loads. The following represents the latest available drafts.

CLO-001 Computational Load Interconnection, Studies, & Modeling Data

Draws upon FAC-001, FAC-002, MOD-032, MOD-026.

Lays out requirements for interconnection processes and studies along with data provisioning for modeling.

Interconnection Requirements and Processes

- Computational Load specific interconnection requirements shall be developed by Transmission Owners/Distribution Providers/Generation Owners (TO/DP/GOs). This shall cover coordinated studies, and procedures for notification of a new interconnection or qualified change.

Interconnection Studies

- Each Transmission Planner/Planning Coordinator (TP/PC) shall study the interconnection of new Computational Loads, and those seeking to make a qualified change. CLOs shall cooperate with this effort.
    - Studies shall include steady-state, short-circuit, and dynamics studies.
    - TO/GO/DPs shall coordinate on interconnection studies as needed.
- PCs shall define a qualified change and make the definition publicly available.

CLO-001 Computational Load Interconnection, Studies, & Modeling Data

Planning Modeling Data

- PC/TPs shall develop steady-state, dynamics, and short circuit modeling data requirements and reporting procedures for Computational Loads. The data shall include, at a minimum:
  - Parameters, settings, and capabilities related to tripping, Ride-through, and Disturbance recovery;
  - The amount or percentage of information technology infrastructure; and
  - The expected use(s) or behavior(s) of the information technology infrastructure.
- Data updates must occur at least every 13 months, and upon one of the following events (does not reset the 13-month clock).
  - A post-commissioning modeling change corresponding to the as-built Computational Load Site (intended to capture any changes during commissioning.
  - A qualified change as defined by the PC.
- CLOs shall provide documentation of Model Verification for modeling demonstrating that the configurable, site-specific parameters of the model(s) are representative of the design and settings of the in-service equipment for each site to the TP.

CLO-002 Computational Load Operational Data and Communications

Draws upon TOP-003, IRO-010, TOP-001, IRO-001, COM-001, COM-002.

Lays out requirements for operational data provisioning, operational communications, and interpersonal communications.

Operational Data

- Each Transmission Operator/Balancing Authority/Reliability Coordinator (TO/BA/RC) shall maintain documented specification(s) for the data and information for Computational Load Sites necessary for it to perform its Operational Planning Analyses, Real time monitoring, and Real-time Assessments. They shall also provide the data to the entities that need it. CLOs/CLOPs are required to provide to specified data.

Operating Instructions

- CLOs are required to comply with operating instructions from the TO/BA/RC.

Interpersonal Communications

- Each TO/BA shall have Interpersonal Communication capability with CLOPs in its area and vice-versa.
- Detection of Interpersonal Communication capability failure is required by TO/BA/CLOP.
- CLOPs shall do initial training for oral two-party, person-to-person Operating Instructions, and then follow the instructions.

CLO-003 Computational Load Protection Coordination & Disturbance Monitoring

Draws upon language in PRC-028 and PRC-027.

Requires monitoring for Computational Loads and protection coordination.

Monitoring

- Each CLO shall have Sequence of Event Recording (SER) for circuit breakers associated with equipment it owns including bus(es), and, as applicable, the main power transformer(s), on-site generation, shunt static and dynamic reactive device(s).
- Each CLO/TO/DP/GO that owns the main power transformer(s) that supplies a Computational Load Site shall have Fault Recording (FR) on the high-side of the main power transformer or common point of connection – per phase on all three phases. The specifications for the fault recorder are also provided.
- Each CLO/TO/DP/GO that owns the main power transformer(s) that supplies a Computational Load Site shall have Dynamic Disturbance Recording (DDR) on the high-side of the main power transformer or common point of connection – per phase on all three phases. The specifications for the DDR data are also provided.
- The entity responsible for the SER/FR/DDR is responsible for time synchronization and for providing the data to upon request.
- If a SER/FR/DDR device fails, the capability shall be restored and a Corrective Action Plan submitted.

Coordination

- Each Computational Load Owner shall establish a process for developing new and revised Protection System settings for Computational Load Sites,

Proposed Implementation Plan

CLO-001	Applicability	Requirements	Implementation
Interconnection Process & Requirements	TO, DP, GO	R1, R2, R3	Reg Approval → Next Quarter → +6 Months
Qualified Change & Modeling Data Specifications	TP, PC	R7, R8	Reg Approval → Next Quarter → +3 Months
Study Coordination	TP, PC, TO, DP, GO, CLO	R4, R5, R6	Reg Approval → Next Quarter → +9 Months
Provision of Modeling Data & Data Verification	CLO	R9, R10, R11	Reg Approval → Next Quarter → +9 Months

CLO-002	Applicability	Requirements	Implementation
Operational Data Specifications	RC, BA, TOP	R1, R2, R3, R4, R5, R6	Reg Approval → Next Quarter → +6 Months
Provision of Operational Data	CLO, CLOP	R7	Reg Approval → Next Quarter → +12 Months
Adherence to Operating Instructions*	CLOP	R8, R9	Reg Approval → Next Quarter → +12 Months
Interpersonal Communications*	TOP, BA, CLOP	R10, R11, R12, R13	Reg Approval → Next Quarter → +12 Months
Oral Communication Protocol & Training*	CLOP	R14, R15	Reg Approval → Next Quarter → +12 Months

*Deadline extension possible under certain circumstances for R8-R15

CLO-003	Applicability	Requirements	Implementation
Protection Coordination	CLO	R9, R10	Reg Approval → Next Quarter → +9 Months
SER, FR, and DDR Monitoring Equipment**	CLO, TO, GO, DP	R1* – R8	Reg Approval → Next Quarter (Effective Date) Sites In-Service *Prior to* Effective Date → +36 Months Sites In-Service *After* Effective Date → +15 Months

*SER data in R1 is only applicable to CLO

** Deadline extension possible under certain circumstances for R1-R8

NERC Large Load Working Group Update

The NERC LLWG is working in the following items:

- A Disturbance Performance whitepaper which recommends interconnection-specific FRT requirements, and nationwide VRT requirements. The VRT portion recommends adopting the ERCOT VRT requirements with modifications.
- A Studies and Simulation whitepaper (joint with LMWG and EMTWG).
- A Standard Authorization Request (SAR) for Computational Load disturbance performance (FRT/VRT/PFAPR). This item was coordinated with NERC staff who have conveyed that we should move quickly per the desires of the NERC Board and FERC who both want to see this as soon as possible.

Recently Completed:

- A SAR Roadmap to address the gaps and reliability issues identified by the LLWG.

On the horizon:

- Additional SARs, Reliability Guidelines, and Whitepapers following the recommendations in the SAR Roadmap and RSTC direction. Finalized SARs are anticipated by the end of 2026 in coordination with NERC.

Key Takeaway: Standard development work will continue into 2027 with numerous requirements that may impact entities in the ERCOT region.

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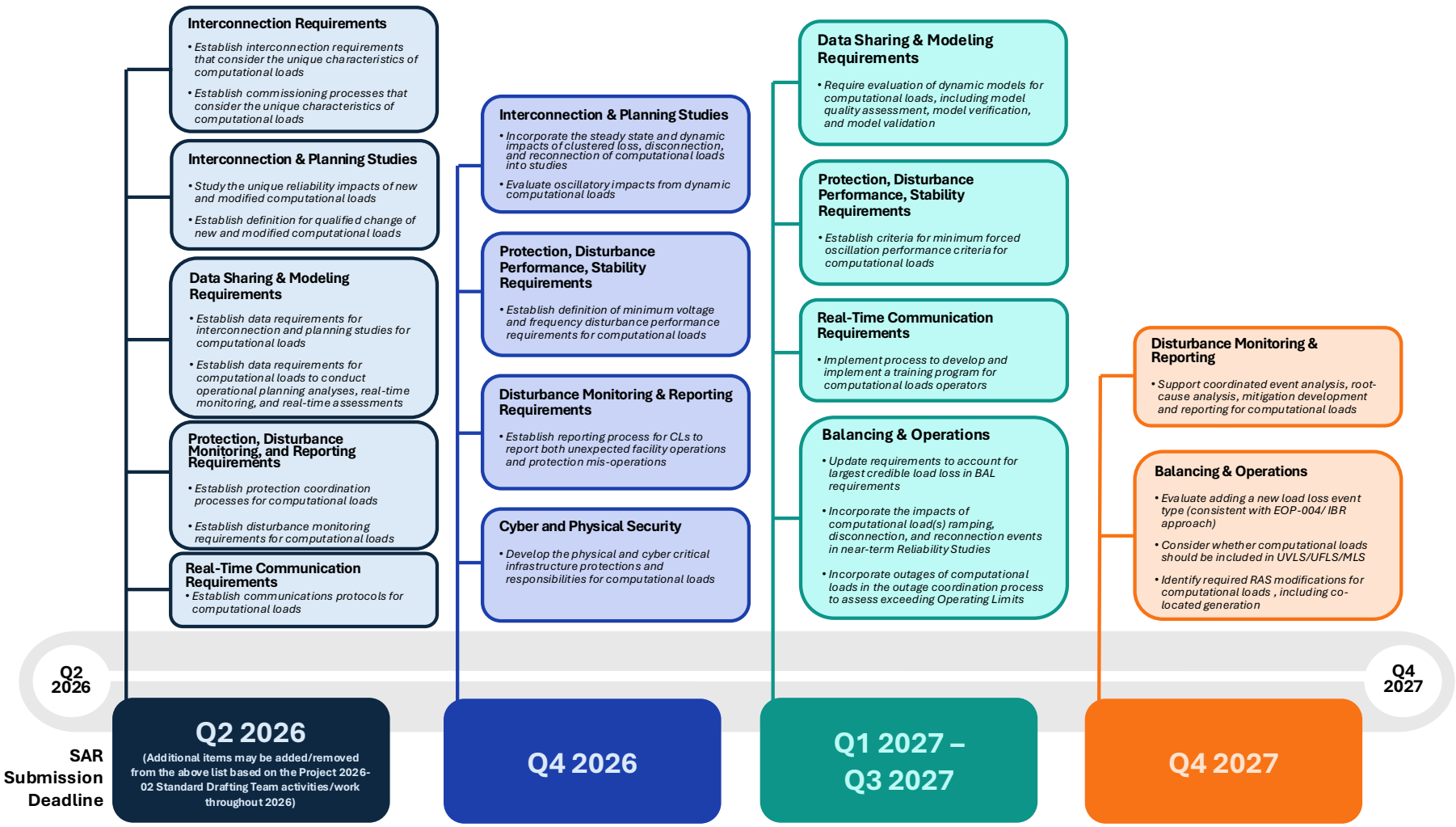
SAR Roadmap

The Computational Load Standard Authorization Request (SAR) Roadmap provides a structured and phased approach to address the standards gaps identified the LWG white paper *Assessment of Gaps in Existing Practices, Requirements, and Reliability Standards for Emerging Large Loads*.

The roadmap builds on the great progress that's been made by Project 2026-02 which focused on key process related items. It is intended to inform RSTC decision making by providing a description of the SARs, their priority, expected delivery to the RSTC, and groups that need to be engaged.



Key Takeaway: Standard development work will continue into 2027 with numerous requirements that may impact entities in the ERCOT region.

SAR Roadmap: https://www.nerc.com/globalassets/who-we-are/standing-committees/rstc/0-rstc-agenda-links/5_llwg-sar-roadmap_final_clean.pdf

Disturbance Performance Standard Authorization Request

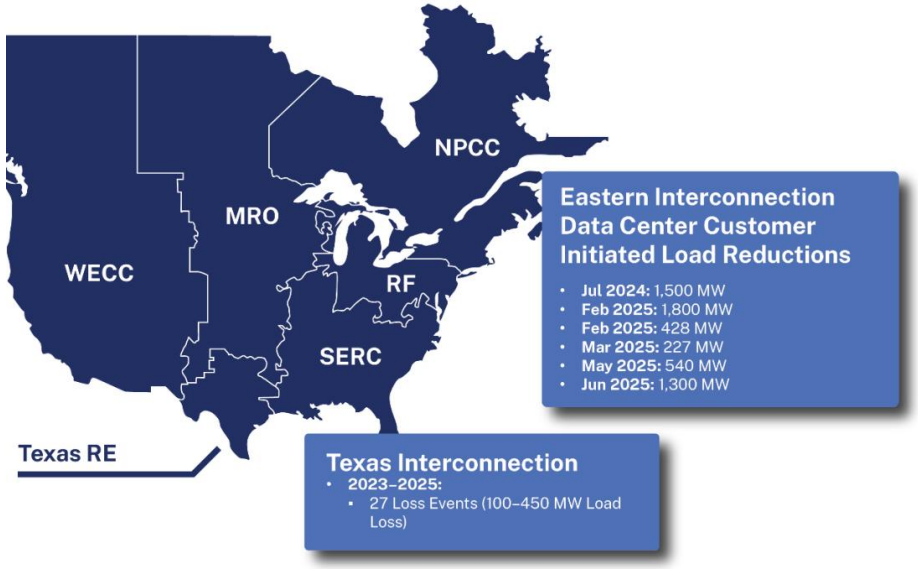
Background

Customer-initiated load reduction (CILR) events have been seen across North America. CILR was identified as a risk in LLWG whitepapers and the Large Load Disturbance Performance – Impact Analysis and Ride-Through Recommendations white paper provides recommendations for disturbance performance requirements. LLWG designated disturbance performance requirements as a high priority mitigation to risks caused by CILR events.

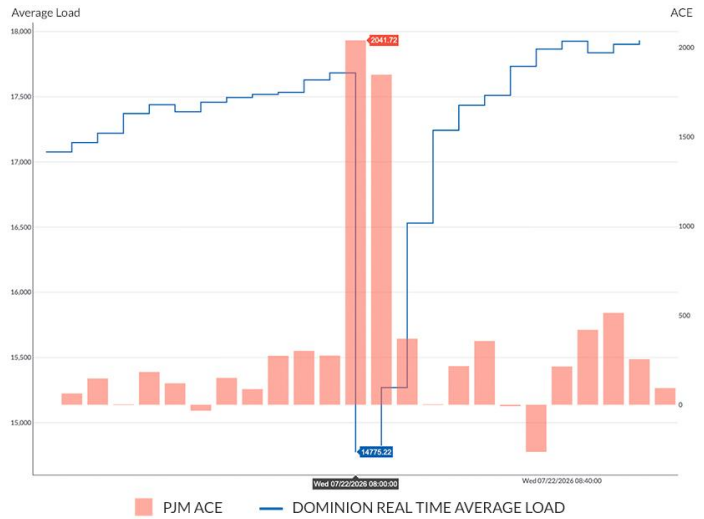
On July 22nd, 2026 roughly 3.8 GW of data center load reduced demand in Dominion following a fault on their system that was cleared as expected.

SAR

This SAR will focus on establishing minimum voltage and frequency, and post-fault active power recovery performance criteria for computational loads during and after defined voltage and frequency disturbances.



July 22, 2026 Dominion Event



Reliability Standards to Address Computational Load Disturbance Performance

The SAR will be going to LLWG for approval on 8/20 to send the draft to the NERC Reliability and Security Technical committee (RSTC) on 8/25. Then the RSTC will be asked to approve it for public comments. Its scope is as follows:

- Develop new or modified Reliability Standards addressing computational load ride-through, PFAPR, RoCoF withstand, and current consumption during disturbances.
- Developing terms and definitions for inclusion in the NERC Glossary of Terms that support those standards.
- Consider the existing disturbance performance criteria while drafting the new requirements.
- Determining applicability, including the point of measurement, the treatment of cooling load, the performance verification and disturbance monitoring data along with a tiered applicability and effective date structure addressing sites that are already operational or that hold executed interconnection agreements
- Addressing the coordination of computational load ride-through obligations with the generation ride-through obligations applicable to co-located generation sharing a point of common coupling (PCC).

Key Takeaway: The scope of the SAR is intended to encompass the most critical aspects of computational load disturbance performance. We are benchmarking the proposed requirements against past events where possible.

Next Steps

To fulfill its obligations under the SAR roadmap the LLWG will be adding two new SARs to its workplan on the 8/20 LLWG meeting. These two SARs combine four items on the roadmap, accelerating one of them based on recent events. The security SAR and whitepaper are being referred to the Security Working Group for their action. These SARs are planned to be delivered to the RSTC by the end of 2026.

Standard Authorization Request: Computational Load Event Reporting, Model Validation, and Model Quality Assessment

A standard authorization request which establishes a reporting process for computational loads to report both unexpected facility operations and protection misoperations, conduct root cause analysis, and develop mitigations along with requirements for the evaluation of dynamic models including model validation, and model quality assessment.

Standard Authorization Request: Studying Computational Load Loss in Planning and Operational Studies

A standard authorization request for requirements to assess the steady state and dynamic impacts of clustered loss, disconnection, and reconnection of computational loads in planning and operational studies.

Key Takeaway: The next round of SARs are intended to address high priority critical reliability gaps around event reporting and model validation, along with the treatment of computational loads in studies. The initiation of these SARs remains uncertain due to the planned retirement of the SC under the MSPP process.

Upcoming Deadlines

The proposed Rules of Procedure changes are for open public comment from August 19, 2026 to September 18, 2026. Comments must be submitted electronically to ROPcomments@nerc.net.

- The draft changes and comment forms can be found here: https://www.nerc.com/who-we-are/rules-of-procedure/proposed-changes-to-rules-of-procedure.

The CLO Standards commenting period are open for public comments from August 19, 2026 to September 18, 2026. Ballot Pools are forming through September 3, 2026. Initial ballots for the Standards, Implementation Plans and non-binding polls of the associated Violation Risk Factors and Violation Severity Levels will be conducted **September 9 - 18, 2026**.

- https://www.nerc.com/standards/reliability-standards-under-development/2026-02-computational-loads

The Disturbance Performance whitepaper comment period is open till August 28th.

- https://www.nerc.com/our-work/white-papers

Prepare for implementation of the CLO standards beginning in 2027.

Key Takeaway: Review the Rules of Procedure changes, CLO standards/technical rationale/implementation plans, and the Disturbance Performance whitepaper and file comments if you organization decides it wishes to do so.

Questions/Comments?

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NERC Modernization of Standards Processes and Procedures Initiative

The MSPP Initiative is intended to review and revise the Reliability Standards development process to reduce timelines and speed standard development as the risk landscape quickly evolves.

What does this mean?

- The Standards Committee will be retired at the end of 2026.
- New standard projects will be prioritized and vetted by NERC in conjunction with the RSTC and RISC.
- Standards development will begin twice a year.
- Standard Authorization Requests (SARs) will be known as Standard Initiation Requests (SIRs).

Takeaway: You may hear about the MSPP and SIRs. Project 2026-02 is piloting some of the MSPP recommendations such as the Short-Term Advisory Group (SAG). In 2027, new standard requests will be referred to as SIRs.