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NERC Computational Load Update

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NERC Rules of Procedure Update

NERC has filed the Rules of Procedure update to define and register Computational Loads with FERC.

The NERC Board of Trustees approved the ability to develop a data request designed to support computational load registration on an expedited timeline. The data request will be presented at NERC's December Board meeting for the Board to authorize NERC to issue the request.

Takeaways: Expect registration to begin in 2027.

Project 2026-02 Computational Loads

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

The NERC Board of Trustees has approved the standards, and they will now be sent to FERC.

Takeaways: We are waiting for NERC to submit the filing to FERC with the standards and see what action FERC takes.

Project 2026-03 Computational Loads Disturbance Performance

This project will address the risks posed to the BPS due to the emergence of new large computational loads (e.g., data centers, crypto mining) that are connecting to the grid at an unprecedented scale and speed. The goal of this project will be developing Reliability Standards addressing reliability issues associated with computational load disturbance performance.

To mitigate the risks, two actions are needed: (1) revisions to the NERC Glossary of Terms Used in NERC Reliability Standards (NERC Glossary of Terms) to define load ride-through and PFAPR, consistent with the computational load and Computational Load Entity definitions under development in Project 2026-02; and (2) the development of one or more Reliability Standards establishing minimum voltage ride-through (VRT), frequency ride-through (FRT), RoCoF withstand, and PFAPR performance requirements for computational loads."

NERC is aiming to conduct a virtual technical conference session in December 2026 to make progress with the industry sessions and gain early feedback directly prior to formal development.

The project is targeting a quick timeline similar to Project 2026-02 with Board adoption in June.

Takeaways: NERC is moving as quickly as it can with Project 2026-03. The requirements targeted by 2026-03 already primarily exist in ERCOT.

Project 2026-03 Timeline

2026-03 Disturbance Performance Project Timeline

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Oct 21:
– Project 2026-03 Initiated

Nov 2:
– Project Kick-off

Dec 16:
– Standards Committee

Mid-Dec:
– Formal Development
– Tech Conference

February:
– Quality Review
– In-person meeting (Tent. Feb 3-5)
– Prepare for initial posting

May:
– SDT review comments

June:
– Board Adoption

2026 Oct Nov Dec 2027 Jan Feb Mar Apr May June

Extensive Industry Outreach

Oct 22:
– Project 2026-03 SAR Posted for Comment
– Drafting team nominations

Nov 13:
– Supplemental DT Due

Nov 20:
– SAR Comments Due
– Deadline to apply Short-Term Advisory Group

January:
– In-person meeting (Tent. Jan 12-14)
– Initial Draft

March 18:
– Post for industry comment

May/June:
– Final Ballot

Notable Upcoming Milestones

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NERC Large Load Working Group Update

The NERC LLWG has advanced two Standard Authorization Requests (SARs) to the Reliability and Security Technical Committee (RSTC):

- Computational Load Event Reporting, Model Validation, and Model Quality Assessment
- Studying Computational Load Loss in Planning and Operational Studies

The LLWG is also working in the following items:

- White Paper: Large Load Disturbance Performance – Impact Analysis and Ride-Through Recommendations
  - LLWG has advanced this white paper to the RSTC for approval.
- White Paper: Simulation and Study Considerations for Large Loads
  - Currently out for LLWG, LMWG, and EMTWG comments till November 29th.
- Reliability Guideline: Computational Load Commissioning
  - Kickoff meeting is next week.

Takeaways: The LLWG is moving along with its two additional Standard Authorization Requests and with its additional work products that will provide further guidance to the industry.

Upcoming Deadlines and Next Steps

Upcoming Deadlines

- The “Simulation and Study Considerations for Large Loads” white paper is open for LLWG/LMWG/EMTWG comments till November 29th, 2026.

Preparation for Next Steps

- Prepare to respond to the NERC data request if necessary.
- Prepare to register with your Regional Entity – Texas Reliability Entity (TRE) if you meet the registration criteria.
- Prepare for implementation of the CLO standards beginning in 2027. If FERC approves the CLO Standards in early Q1 2027, then the effective date will likely be 4/1/2027 which would then imply a 7/1/27 compliance date for the very first CLO requirements (CLO-001 R7 & R8, which address the definition of a qualified change and modeling-data specifications for Computational Load Sites).

Takeaways: Review the white paper open for comments and file comments if your organization decides it wishes to do so. Prepare to register with TRE and to meet your obligations under the CLO Standards as applicable.

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Questions/Comments?

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Computational Load Definition

- **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.

Appendix

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 the 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 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

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Computational Loads Standard Authorization Request Roadmap Status

