NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Large Loads Action Plan Quarterly Update

Addressing an Emerging Reliability Issue
July 2025

Urgency for Our Industry

An increasing number of large commercial and industrial loads are rapidly connecting to the bulk power system (BPS). Emerging large loads—such as data centers (including cryptocurrency and artificial intelligence applications), hydrogen fuel plants, and others—present unique challenges in forecasting and planning for increased demand.

In addition to the rapid growth of emerging large loads, their electrical behavior can be distinctive and often less predictable than that of conventional loads. These unique characteristics pose specific risks to the BPS that need to be understood and managed.

To begin understanding large loads and identifying effective pathways for their integration, NERC established the Large Loads Task Force (LLTF) in August 2024 and developed a work plan; the Member Representatives Committee provided written input and hosted a technical panel session at the February 2025 Board meeting; and NERC's Board issued a resolution in February 2025 directing NERC staff to develop an action plan, which will complement the work of the task force and provide additional structure to NERC's efforts related to large loads integration.

2025 Second Quarter Update

Large Loads Task Force White Paper Series

The LLTF plans to produce two white papers in 2025: The first will identify risks to BPS reliability, while the second will provide a Gap Analysis.

- The first white paper, **Characteristics and Risks of Emerging Loads**, set to publish in July, finds that large loads vary in size—from several megawatts to several gigawatts—presenting unique challenges for the reliability and security of the BPS.
- The second white paper—**Assessment of Gaps in Existing Practices, Requirements, and Reliability Standards for Emerging Large Loads**—is scheduled to publish later this year and will assess potential gaps in current practices, requirements, and Reliability Standards for each risk identified in the first white paper.

Reliability Guideline: Risk Mitigation

Once the white papers are completed, they will be used to develop the Reliability Guideline: Risk Mitigation for Emerging Large Loads. Scheduled for release in the first half of 2026, the guideline will provide recommendations for risk mitigation, including improvements to modeling practices, analyses, coordination, data collection efforts, real-time monitoring, and event analysis.

Workshop Series

An industry workshop took place in June that focused on mitigating risks from emerging large loads in which Dominion Energy highlighted their recent experience with unplanned data center load transfers and the actions being taken to increase BPS reliability. Additionally, American Electric Power shared a potential risk mitigation technique that would ensure that the variability of emerging large loads is accounted for when planning automatic underfrequency load shedding programs.

The next workshop, scheduled for July 24, will focus on mitigating risks from emerging large loads. Audience members will be able to provide input on risk mitigations. The workshop is open to the public and the links to LLTF meetings can be found on the meeting page. To participate in the task force, contact Evan Mickelson.

Load Modeling Working Group (LMWG)

The LMWG drives the advancement and utilization of dynamic load modeling on an interconnection-wide basis. The LMWG is actively engaging stakeholders through technical presentations and discussions focused on modeling large loads. Additionally, the group is developing a technical reference document to inform industry on how to model these emerging loads for dynamic studies. To join the working group, contact Hasala Dharmawardena.

Communications, Engagement, and Outreach

NERC developed and is implementing a strategic engagement and communications plan that sets a cadence for regular updates on large loads efforts, identifies opportunities to expand outreach to large loads entities, and establishes the foundations for collaborative industry sessions. NERC is focused on expanding its engagement with the large loads industry through direct outreach to trade organizations and large load companies.

Additionally, a discussion on large load issues is planned for the August Technical Session in Calgary and will feature representatives from the LLTF and the large loads industry, specifically data centers. Contact Zachary Greene for more information.

External Awareness and Action

NERC continues to monitor large load incidents to develop lessons learned and inform ongoing efforts and recently published Considering Simultaneous Voltage-Sensitive Load Reductions, which examines the risks and challenges posed by the increasing integration of voltage-sensitive large loads. Additionally, NERC is engaging with third-party groups that oversee their own large-loads stakeholder processes and developing plans for successful coordination.

Resources

A recent presentation and video to the Federal Energy Regulatory Commission as well as additional information about the LLTF, including the project scope, FAQs, work plan, and upcoming meetings, is available on NERC's Large Loads Task Force web page.

NERC Action Plan: Large Loads

Q2 2024—2026	Q4 2024—2025	Q4 2024—2025	Q4 2024—2025
Reliability Security Technical Committee's Large Load Task Force (LLTF)	**NERC-led Collaborative Industry Sessions**	**Registration Analysis** • *Legal basis for registration of large users of the bulk power system* • *Consider if Load Serving Entities (LSE) accountable for large load performance* • *Ability to write Reliability Standards large loads or LSEs would follow*	**Complementary Activities** • *Load Modeling Working Group* • *Coordination with EPRI, ESIG, and large load industry groups* • *Industry communications and outreach* • *Continued Incident Analysis and Lessons Learned*