October 28, 2025
Before the Joint Hearing on "Powering the Mid-Atlantic:
Restoring Energy Affordability and Reliability"
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On behalf of ReliabilityFirst Corporation (RF),[1] we appreciate the opportunity to submit this written statement for the record. We commend lawmakers from across the Mid-Atlantic for focusing on the critical issues of energy reliability, affordability, and regional infrastructure coordination. This statement is a summary of our recent testimonies to Pennsylvania, New Jersey, and Maryland on technical considerations related to key reliability topics. This statement is not intended, and should not be interpreted, as advocating for a specific policy outcome.

Resource Adequacy

As stated in the NERC State of Reliability Report,[2] the Bulk Power System remains highly reliable and resilient. In 2024, the percentage of hours without operator-initiated firm load shedding was over 99.9% and has been over 99% the past five years. However, our studies indicate that the reliability we have grown to know and depend upon will be significantly challenged in the Mid-Atlantic as we approach the end of the decade.

Resource adequacy refers to matching supply with demand to ensure that the grid has adequate resources to supply loads 24 hours per day, 365 days per year, in all operating conditions. NERC annually assesses and reports on the adequacy of the Bulk Electric System in the United State and Canada over a 10-year period. This report, the Long-Term Reliability Assessment (LTRA),[3] projects electricity supply and demand and discusses key issues and trends that could affect reliability. From the 2023 to the 2024 LTRA, the PJM region was raised from normal to elevated risk with the primary concern identified as demand growth. The combined factors of generation retirements, rapid demand growth, and slower-than-anticipated online new generation have elevated reliability risks across the country, including the Mid-Atlantic.

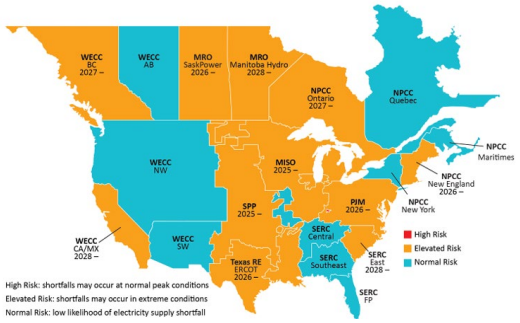

Figure 1: The 2024 LTRA risk map by region (published July 2025)

[1] RF is one of the six North American Electric Reliability Corporation (NERC) Regional Entities responsible for preserving and enhancing the reliability, resilience, and security of the bulk power system (BPS). NERC is a not-for-profit international regulatory authority designed by the Federal Energy Regulatory Commission (FERC) to assure the effective and efficient reduction of risks to the reliability and security of the grid. Our role with states is to serve as an independent, objective, technical resource concerning reliability risks.
[2] NERC State of Reliability Overview and NERC State of Reliability Technical Assessment, p. 7.
[3] See, 2024 LTRA, 2024 LTRA infographic.

Essential Reliability Services

In addition to maintaining a balanced supply and demand of megawatts to serve the load throughout all hours of the day, essential reliability services[4] must be maintained at a sufficient level. These grid attributes are operating features essential for reliability and are typically found in traditional, synchronous machines. Additionally, Grid Enhancing Technologies such as grid-forming inverters and synchronous condensers can help provide these reliability services in systems with a high penetration of Inverter-Based Resources (IBRs).[5]

One essential reliability service is ramping, which refers to generation that system operators can easily call upon that can be reliably turned on, off, increased, and decreased to match the corresponding variability of the load. This ramping capability, generally supplied by dispatchable resources, helps support the frequency and voltage of the system. Overall, a diverse and flexible mix of various types of generation resources supports resource adequacy and reliability across a spectrum of risk landscapes (*e.g.,* energy droughts, supply chain challenges, extreme weather). Resource diversity helps to mitigate the limitations of individual technologies or generation types, enhancing the overall resilience of the power system.

Demand Growth and the Pace of Change

One of the leading risks facing the electric grid is rapid demand growth due to the recent rise in data centers and other large loads. In 2024, PJM forecasted an average 2.3% net energy load growth per year; but in 2025 forecasted 4.8% growth (over double the previous year's estimate).[6] The Lawrence Berkley National Laboratory analyzed a range of future demand scenarios and the findings suggest that data centers could consume up to 12% of the total U.S. electricity consumption by 2028 – nearly triple their 2023 share of 4.4%.[7]

To meet the growing demand from data centers, significant transmission and generation will be needed, and this creates a challenge with managing the pace of change. Data centers can be built within a year or two, as well as IBRs such as wind, solar, and battery. However, transmission lines and infrastructure needed to connect the load and generation can take five to ten years to build with planning, design, siting, and construction. Gas generators can take about five years, while a new nuclear plant can take a decade to build. Technologies such as fusion, hydrogen, geo-thermal, and carbon capture remain in early stages of development, with uncertain timelines for large-scale development. These varying timeframes present a significant challenge as the industry strives to meet rapid load growth (largely driven by data center expansion) and works to anticipate the potential impacts of the Executive Order *America's AI Action Plan*.[8]

Accurate load forecasts are key to maintaining reliability during this time of rapid change, as well as ongoing efforts to study and mitigate the operational challenges seen with large loads such as load-reduction events. The NERC Large Load Task Force (LLTF) is studying the impacts of these installations,[9] plus a recent level 2 NERC Alert and the Department of Energy's Speed to Power[10] initiative have included requests for information (RFIs) sent out to industry to learn more about this risk.

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[4] NERC resource: The Basics of Essential Reliability Services
[5] NERC Introduction to Inverter-Based Resources on the Bulk Power System
[6] https://www.pjm.com/-/media/DotCom/library/reports-notices/load-forecast/2025-load-report.pdf at p.6.
[7] Lawrence Berkeley National Laboratory's 2024 United States Data Center Energy Usage Report
[8] In July 2025, the White House published "Winning the Race America's AI Action Plan."
[9] The NERC LLTF published a summary of their first white paper on interconnecting large loads to the grid.
[10] See Level 2 NERC Alert on Large Loads, plus DOE's Speed to Power initiative RFI.

Risks to the Bulk Power System

The 2025 ERO Reliability Risk Priorities Report[11] summarizes five critical risk profiles: 1) grid transformation, 2) resilience to extreme events, 3) critical infrastructure interdependencies, 4) security, and 5) energy policy. Grid transformation is an overarching driver of the other four risk profiles.[12] The report includes the following recommendations:

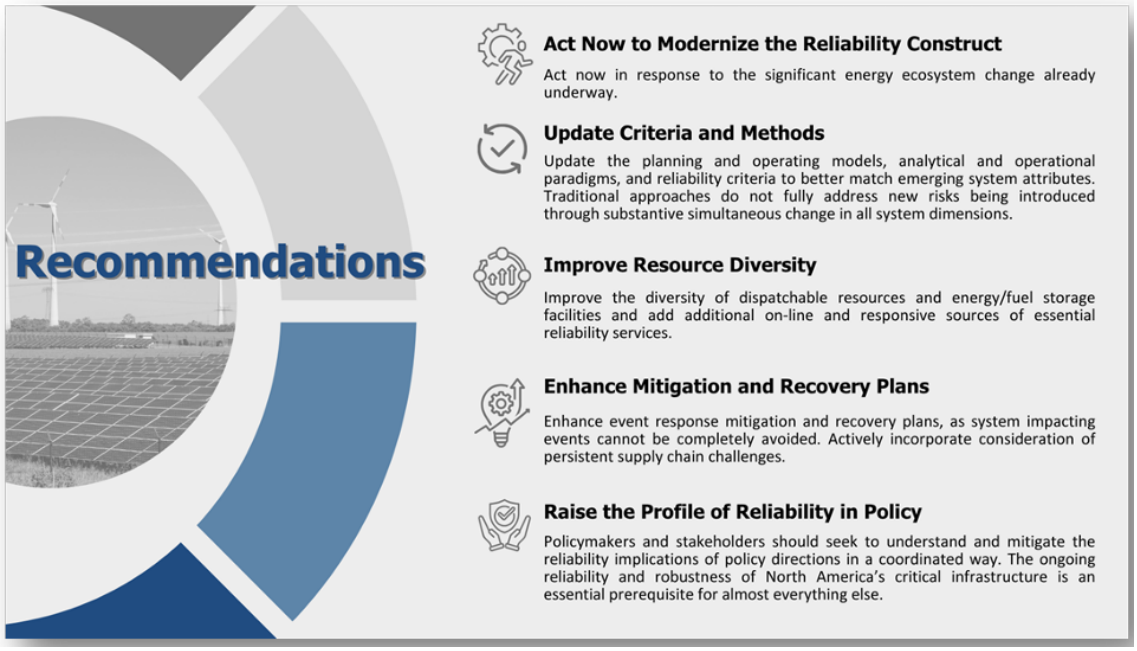

Figure 2: Recommendation themes from the ERO Reliability Risk Priorities Report

In the policy area, the report states that policy volatility and misalignment can be a reliability risk, and that greater alignment and consistency across state regulatory agencies, RTOs, ISOs, and regional transmission planners and operators can help address differing requirements and improve coordination, potentially enhancing reliability. Other policy-related recommendations include balancing the energy trilemma of reliability, cost, and environmental sustainability; and adopting an "all-of-the-above" approach to generation and transmission.

[11] https://www.nerc.com/comm/RISC/Related%20Files%20DL/2025_RISC_ERO_Priorities_Report.pdf
[12] The resource adequacy, essential reliability services, and pace of change topics discussed above are all related to grid transformation.