

ONE HUNDRED NINETEENTH CONGRESS

Congress of the United States

House of Representatives

COMMITTEE ON ENERGY AND COMMERCE

2125 RAYBURN HOUSE OFFICE BUILDING

WASHINGTON, DC 20515-6115

Majority (202) 225-3641

Minority (202) 225-2927

MEMORANDUM

March 5, 2025

TO: Members of the Subcommittee on Energy
FROM: Committee Majority Staff
RE: Hearing titled “Scaling for Growth: Meeting the Demand for Reliable, Affordable Electricity”

I. INTRODUCTION

The Subcommittee on Energy has scheduled a hearing on Wednesday, March 5, 2025, at 10:00 a.m. (ET) in 2123 Rayburn House Office Building. The title of the hearing is “Scaling for Growth: Meeting the Demand for Reliable, Affordable Electricity.” This hearing will explore the challenges faced by utilities and grid operators to deliver reliable, affordable electricity to meet the growing demand for power across the nation.

II. WITNESSES

- **Todd Brickhouse**, CEO and General Manager of Basin Electric Power Cooperative
- **Asim Z. Haque**, Senior Vice President for Governmental and Member Services, PJM
- **Noel W. Black**, Senior VP of Regulatory Affairs, Southern Company
- **Tyler H. Norris**, James B. Duke Fellow, Duke University (*Minority*)

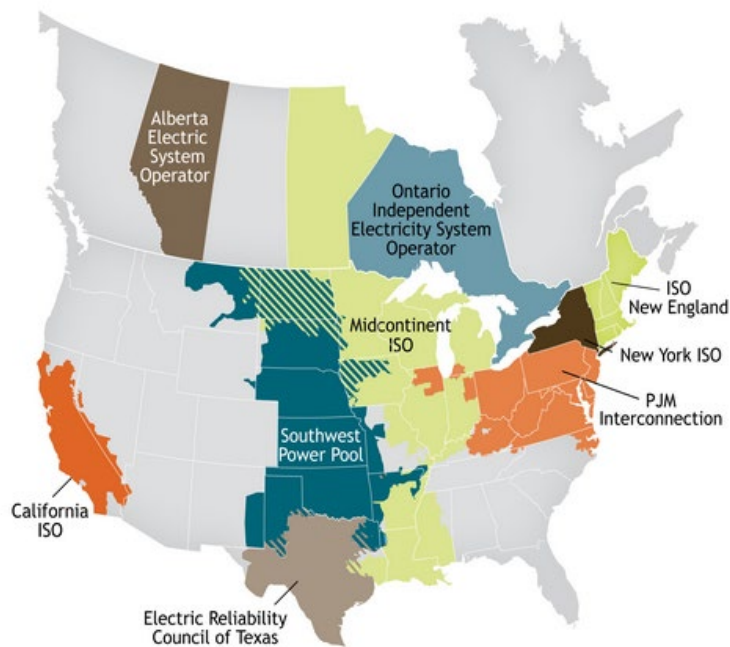
III. BACKGROUND

The nation’s electric power system is comprised of vast networks of high voltage transmission lines, generating resources, local distribution lines, and other critical infrastructure to ensure the delivery of adequate and reliable supplies of electricity. These networks are owned and operated by utilities with varying ownership structures and in different regulatory regimes depending on the region. Both governmental and non-governmental entities are charged with ensuring the reliability of the nation’s bulk power system—the interconnected electricity transmission network—through standards and regulations. The Federal Energy Regulatory Commission (FERC) and the North American Electric Reliability Corporation (NERC) each have unique roles in maintaining reliability across the bulk power system.¹

¹ See Reliability explainer, FERC (last updated Aug. 16, 2023) <https://www.ferc.gov/reliability-explainer>.

The electricity system in the United States was originally made up of vertically integrated utilities for all aspects of generation, transmission, and distribution. Following the passage of the Energy Policy Act of 1992 and subsequent FERC Orders, the electricity industry opened transmission access to other wholesale power producers and many regions of the country created competitive markets for wholesale power, which is generally called restructuring or deregulation. These markets, known as Regional Transmission Operators (RTOs) or Independent System Operators (ISOs), cover two thirds of the country and consist of various wholesale electricity markets where utilities, electric co-operatives, or municipal power agencies can purchase wholesale electricity from power producers.

Each RTO and ISO operates with varying degrees of similarity and are charged with overseeing the wholesale electricity markets, managing the day-to-day operations of their respective transmission systems, and conducting long-term transmission planning in coordination with state Public Utilities Commissions (PUCs). There are currently seven ISO/RTOs in the United States. FERC exercises exclusive jurisdiction over six of these: PJM Interconnection (PJM), New York ISO (NYISO), Midcontinent ISO (MISO), ISO-New England, California ISO (CAISO), and the Southwest Power Pool (SPP). The Electric Reliability Council of Texas (ERCOT) manages wholesale transactions solely within the state of Texas.



Source: ISO/RTO Council

The regions that are not in RTOs/ISOs—the Southeast, Southwest, and Northwest—have remained in traditional wholesale electricity markets where utilities are responsible for grid

operations and management as well as providing electricity to consumers.² These traditionally regulated utilities are primarily regulated by their respective state PUCs.

Investor-Owned Utilities (IOUs) are private companies that operate on a for-profit basis and, when operating in traditional wholesale markets, are authorized by their respective PUC to act as vertically integrated monopolies in their service territory, providing transmission, generation, and distribution of power. As part of this structure, IOUs are subject to rate regulation and oversight by their state PUCs. IOUs serve over 160 million customers.³

Electric Co-operatives, which predominantly serve rural and small communities, are not-for-profit member-owned organizations that serve over 40 million Americans and more than 22 million businesses, homes, schools, and farms across 48 states.⁴ Electric co-operatives are generally not regulated by PUCs and are instead governed through self-regulation, typically by elected board members. As part of the member-driven ownership structure of co-operatives, earnings of the organization are re-invested to upgrade and improve their systems. Publicly owned utilities, such as municipal utilities, are owned by local governments and also operate on a not-for-profit basis, serving over 24 million customers across the country.⁵

Growing Electricity Demand

Following decades of modest, predictable growth in electricity consumption, the next five years could see upwards of 128 GW of new power demand growth.⁶ At the end of 2023, total utility scale generation capacity was 1,189 GW.⁷ Over the next three years, the United States' electricity demand could increase by the total electricity consumption of the state of California.⁸ Much of this growth is expected to come from expanded manufacturing, general economy-wide electrification, and data centers powering the increasing use of AI.

Data centers house servers and other computing infrastructure required to store, process, and share data used for digital applications and services. Expanded use of AI, machine learning, and

² The Southwest Power Pool (SPP) is developing Markets +, a day-ahead and real-time wholesale bulk power market across a Western collective of utilities, generators, and municipalities that span both organized and non-organized states. These voluntary markets, which build off the previously implemented Western Energy Imbalance Market, are intended to lower costs, mitigate transmission congestion, and increase price transparency through enhanced market operations. In 2025, FERC conditionally approved SPP's tariff for Markets + and are scheduled to begin by 2027.

³ See Edison Electric Institute – Industry Data, (last accessed Feb. 28, 2025) <https://www.eei.org/resources-and-media/industry-data>.

⁴ National Rural Electric Cooperatives Association– Electric Co-op Facts & Figures (April 2024) <https://www.electric.coop/electric-cooperative-fact-sheet>.

⁵ See Ashley J. Lawson, *Electricity: Overview and Issues for Congress*, CONGRESSIONAL RESEARCH SERVICE, February 14, 2025 (R47521), <https://www.crs.gov/reports/pdf/R47521/R47521.pdf>.

⁶ John D. Wilson, Zach Zimmerman, and Rob Gramlich, *Strategic Industries Surging: Driving US Power Demand*, CLEAN GRID INITIATIVE (Dec. 2024) <https://gridstrategiesllc.com/wp-content/uploads/National-Load-Growth-Report-2024.pdf>.

⁷ See Energy Information Administration, *Electricity Explained*, <https://www.eia.gov/energyexplained/electricity/electricity-in-the-us-generation-capacity-and-sales.php>.

⁸ International Energy Agency, *Electricity 2025 Analysis and Forecast to 2027*, (Feb. 14, 2025) <https://www.iea.org/news/growth-in-global-electricity-demand-is-set-to-accelerate-in-the-coming-years-as-power-hungry-sectors-expand>.

cloud services by data centers drives up electricity demand as these processes continuously perform energy intensive applications.

In addition, data centers require significant electricity to power cooling systems to preserve the integrity of the servers. As an example, one ChatGPT query consumes ten times the electricity compared to one query of Google's search engine.⁹ Currently, data centers consume 4 percent of U.S. electricity generation and could consume as much as 9 percent by the end of the decade.¹⁰

This rate of growth is expected to continue as companies compete on a domestic and international level in the race to capture the AI market and expand digital services into all manner of industry and manufacturing.

Expanding Threats to Reliability

The United States' electricity system has been undergoing a significant period of transformation and uncertainty, driven by an accelerated rate of premature retirements of baseload generation and increasing demand for power. Reliability is generally defined as the ability of the electric system to deliver expected service through planned and unplanned events.

To maintain reliable operation, power systems must have the ability to respond to sudden changes in generation and consumption, and balance the system in real time. The ability of our nation's electric grid to respond in times of peak demand, extreme weather, or other unforeseen circumstances requires dispatchable, on-demand resources that are generally understood to include baseload power generation or energy storage facilities in limited circumstances and timespans.

Over the next 10 years, 115 GW of generation is announced to be retired.¹¹ In 2025 alone, electric generators plan to retire 12.3 GW of coal capacity, a 65% increase in retirements compared to 2024.¹² The retirement of dispatchable generating sources (e.g., coal, natural gas, and nuclear) and the relative increase in intermittent generation from wind and solar resources have created reliability challenges.

Increasingly, ISOs and RTOs have warned of the potential for electricity disruptions and asked their customers to conserve power.¹³ Some regions do not have enough reliable, dispatchable

⁹ Energy Policy Research Institute, *Powering Intelligence: Analyzing Artificial Intelligence and Data Center Energy Consumption* (last accessed Feb. 28, 2025) <https://www.epri.com/research/products/3002028905>.

¹⁰ *Id.*

¹¹ North American Electric Reliability Corporation, *2024 Long-Term Reliability Assessment*, (Dec. 2024) https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_Long%20Term%20Reliability%20Assessment_2024.pdf.

¹² Energy Information Administration, *Planned retirements of U.S. coal-fired electric-generating capacity to increase in 2025* (February 2025) https://www.eia.gov/todayinenergy/detail.php?id=64604&utm_medium=email.

¹³ See, e.g., ERCOT, Energy Emergency Alert 2 (Sept. 6, 2023) (CAISO, SPP, MISO, and PJM have all issued alerts to conserve power in recent years) <https://www.ercot.com/energyemergtwo>.

generation to produce the electricity required to maintain reliable operation of the bulk power system. The head of NERC stated he believes the United States is headed for a reliability crisis.¹⁴

PJM, the nation's largest wholesale market, recently warned that the RTO could see a capacity shortage as early as 2026/2027 and identified public policies, permitting constraints, and supply chain challenges as key trends that are tightening supply-demand balance within the system.¹⁵ PJM CEO, Manu Asthana also stated, "PJM needs to slow down the pace of generation retirements to avoid reliability problems by the end of the decade."¹⁶ Maintaining adequate reserve margins is an essential function of the RTOs/ISOs. Essentially, grid operators must meet their obligations to deliver electricity when system disruptions occur, or when peak demand exceeds the obligated load.

The following image from NERC's Long-Term Reliability Assessment, issued in December 2024, illustrates the risk status of certain regions between 2025-2029.

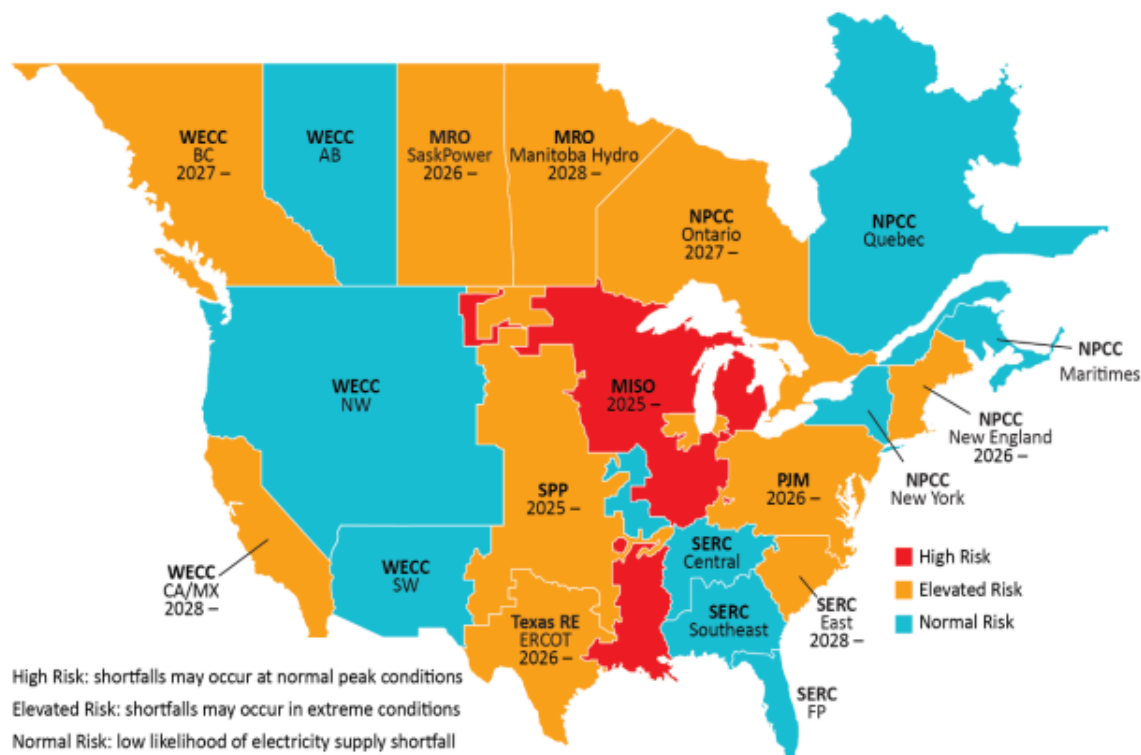


Figure 1: Risk Area Summary 2025–2029

Source: 2024 NERC Long-Term Reliability Assessment

¹⁴ *The Reliability and Resiliency of Electric Service in the United States in Light of Recent Reliability Assessments and Alerts Before the Senate Comm. on Energy and Natural Resources*, 118th Cong. (2023) (statement of James B. Robb, President and CEO of the North American Electric Reliability Corporation).

¹⁵ Mark Takahashi, PJM Letter to Stakeholders, (Dec. 9, 2024) <https://www.pjm.com/-/media/DotCom/about-pjm/who-we-are/public-disclosures/2024/20241209-board-letter-outlining-action-on-capacity-market-adjustments-rri-and-sis.pdf>.

¹⁶ Rich Heidorn Jr., *PJM Chief: Retirements Need to Slow Down*, RTO INSIDER, (Mar. 27, 2023) <https://www.rtoinsider.com/31899-pjm-chief-retirements-need-to-slow-down/>.

In addition, federal, state, and local public policies outside of FERC's jurisdiction that incentivize preferred types of generation, such as renewable sources, influence the economics of baseload electricity generation and the efficient planning and operation of organized wholesale electricity markets and traditional vertically integrated utilities.

In the 118th Congress, the Energy and Commerce Committee held several hearings examining the impact of policies of the Biden-Harris Administration impacting the reliability and affordability of electric power.¹⁷ Over the past five years, residential electricity prices have increased 30 percent.¹⁸

The accelerated pace of premature retirement of baseload generating resources are compounded by ongoing supply chain constraints for critical materials, components, and equipment that are necessary to both upgrade and expand the transmission system, as well as generating resources. The electricity sector also must continue to modernize the grid to account for the evolving threat landscape and protect critical infrastructure from physical and cyber-attacks.

III. ISSUES

- How to meet the growing demand for power by AI, manufacturing, and electrification.
- How to address reliability risks from the premature retirement of dispatchable electricity generation.
- How to protect ratepayers, particularly residential ones, from unnecessary rate increases.
- How is generation and transmission planning coordinated between utilities, states, and regions to meet demand and reliability challenges.

IV. STAFF CONTACTS

If you have any questions regarding this hearing, please contact Peter Spencer, Andrew Furman, Clara Cargile, or Mary Martin of the Committee staff at (202) 225-3641.

¹⁷ See Energy and Commerce Subcommittee on Energy hearings in the 118th Congress: "Keeping the Lights On: Enhancing Reliability and Efficiency to Power American Homes" on September 13, 2023, linked [here](#); "Powering America's Economy, Security, and Our Way of Life: Examining the State of Grid Reliability" (Sept. 28, 2023) <https://energycommerce.house.gov/events/energy-climate-and-grid-security-hearing-powering-america-s-economy-security-and-our-way-of-life-examining-the-state-of-grid-reliability>; "Powered Up: State Utility Regulators on Challenges to Reliable, Affordable Electricity" (Feb. 14, 2024) <https://energycommerce.house.gov/events/energy-climate-and-grid-security-subcommittee-hearing-powered-up-state-utility-regulators-on-challenges-to-reliable-affordable-electricity>; "From Gas to Groceries: Americans Pay the Price of the Biden-Harris Energy Agenda" (Sept. 11, 2024) <https://energycommerce.house.gov/events/energy-climate-and-grid-security-subcommittee-hearing-from-gas-to-groceries-americans-pay-the-price-of-the-biden-harris-energy-agenda>.

¹⁸ See U.S. Energy Information Administration, Electricity Data Browser, linked [here](#).