



MEMORANDUM

September 26, 2023

TO: Members of the Subcommittee on Energy, Climate, and Grid Security

FROM: Committee Majority Staff

RE: Hearing entitled “Powering America’s Economy, Security, and our Way of Life: Examining the State of Grid Reliability”

I. INTRODUCTION

On Thursday, September 28, 2023, at 10:30 a.m. (ET) in 2322 Rayburn House Office Building, the Subcommittee on Energy, Climate, and Grid Security will hold a hearing. The title of the hearing is “Powering America’s Economy, Security, and our Way of Life: Examining the State of Grid Reliability.” Witnesses are by invitation only.

II. WITNESSES

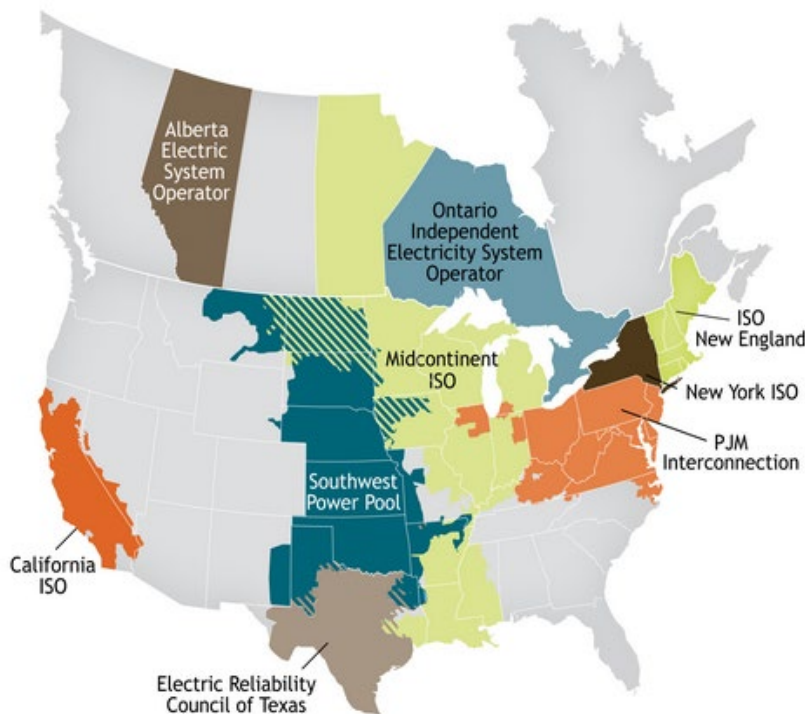
- **Gordon van Welie**, President & Chief Executive Officer, ISO New England;
- **Paul Suskie**, Executive Vice President, Regulatory Policy & General Counsel, Southwest Power Pool;
- **Richard J. Dewey**, President & Chief Executive Officer, New York ISO;
- **Todd Ramey**, Senior Vice President, Markets and Digital Strategy, Midcontinent ISO;
- **Woody Rickerson**, Senior Vice President & Chief Operating Officer, ERCOT;
- **Neil Millar**, Vice President for Infrastructure and Operations Planning, California ISO;
- **Frederick S. Bresler III**, Senior Vice President – Market Services, PJM Interconnection, LLC.

III. BACKGROUND

The nation’s bulk power system is comprised of vast networks of transmission lines, generating resources, and other critical infrastructure to ensure the delivery of adequate and reliable supplies of electricity. In most regions of the country, this system is managed by regional grid operators that oversee the nation’s wholesale electricity markets, managing the day-to-day operations of its respective transmission systems and offering a market to purchase products including energy, capacity, ancillary services, and financial transmission rights. These

markets are important to the nation’s economy, as reliable and affordable electricity are critical to all aspects of the economy.

The electricity system in the United States was originally made up of vertically integrated utilities for all aspects of generation, transmission, and distribution.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 Federal Energy Regulatory Commission (FERC) Orders, the electricity industry, which had operated as vertically integrated companies that owned and controlled access to transmission, opened access to transmission systems to other wholesale power producers. Many regions of the country created competitive markets for wholesale power. This is generally called restructuring or deregulation. These markets are known as Regional Transmission Organizations (RTOs) and Independent System Operators (ISOs) and were established by FERC Order Nos. 888/889 and Order No. 2000 to promote wholesale competition and to ensure transmission access to the regional electricity markets.¹ Deregulation was intended to save consumers money and promote reliability.



Source: ISO/RTO Council

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),

¹ FERC Order Nos. 888/889, 75 FERC ¶ 61,078 and 75 FERC ¶ 61,080, (April 24, 1996); and FERC Order No. 2000, 89 FERC ¶ 61,285, (December 20, 1999).

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. The success of the grid relies on real-time communication and coordination between these grid operators and the many entities that participate in its markets, including generators, transmission owners, energy traders, marketers, and demand response providers, among others. In addition to operating the real-time and day-ahead electricity markets, each of these RTOs and ISOs are responsible for longer-term resource adequacy forecasting and transmission planning to ensure continued reliability. Combined, these organized markets serve two-thirds of the nation's electricity load.

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. These traditionally regulated utilities are primarily regulated by their respective state public utility commissions.

A. Energy Markets and Capacity Markets

For short term grid reliability and resource scheduling in the physical markets, electricity is sold and purchased at a clearing price, generally on a day-ahead or real-time basis. This price is known as a locational marginal price (LMP) and reflects the market price for electricity. It is composed of three elements: an energy charge, a congestion charge, and a charge for transmission system energy losses. The RTOs/ISOs calculate a LMP at each location on its grid to reflect the marginal cost of serving demand (or "load") at the specific location. All resources selling energy receive the LMP and all buyers pay that same market clearing price. Under this pricing mechanism, power sellers that offer prices lower than the clearing price, still receive the highest clearing prices.²

In addition to energy markets, several of the RTOs/ISOs also operate capacity markets to provide longer term revenues for power producers to ensure generation resources will be available, when needed, in the future. There are different designs among regions, but the sale of "capacity" typically provides the buyer with the right to purchase the energy at a capped price to use at some point in the future. When the capacity obligation comes due in the future, the generator is required to make its output available.

B. Reliability, Fuel Assurance and Retail Markets

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 has created reliability challenges. Increasingly, ISOs and RTOs have warned of the potential for electricity disruptions and asked their customers to conserve power.³ Some regions do not have enough reliable, dispatchable generation to produce the electricity required to maintain reliable operation of the bulk power system. The head of the North American Electric Reliability Corporation

² Mark C. Christie, *It's Time to Reconsider Single-Clearing Price Mechanism*, Energy Bar Association, (May 2, 2023), <https://www.eba-net.org/wp-content/uploads/2023/05/3-Commr-Christie1-30-1.pdf>.

³ ERCOT, Energy Emergency Alert 2, (Sept. 6, 2023) <https://www.ercot.com/energyemergtwo>.

(NERC) stated he believes the United States is headed for a reliability crisis.⁴ NERC’s recently published 2023 Summer Reliability Assessment shows that much of North America may experience potential shortfalls in “above-normal conditions.”⁵

NERC’s Long Term Reliability Assessment identified potential electricity supply shortfalls under normal and more severe conditions.⁶ PJM, the nation’s largest wholesale market, has recently warned of decreasing reserve margins PJM CEO, Manu Asthana has said, “PJM needs to slow down the pace of generation retirements to avoid reliability problems by the end of the decade.”⁷ Maintaining adequate reserve margins is an essential function of the RTOs/ISOs. Essentially, operators must meet their obligations to deliver electricity when system disruptions occur, or when peak demand exceeds obligated load. The image below from NERC’s Long-Term Reliability Assessment illustrates the risk status of certain regions between 2023-2027.

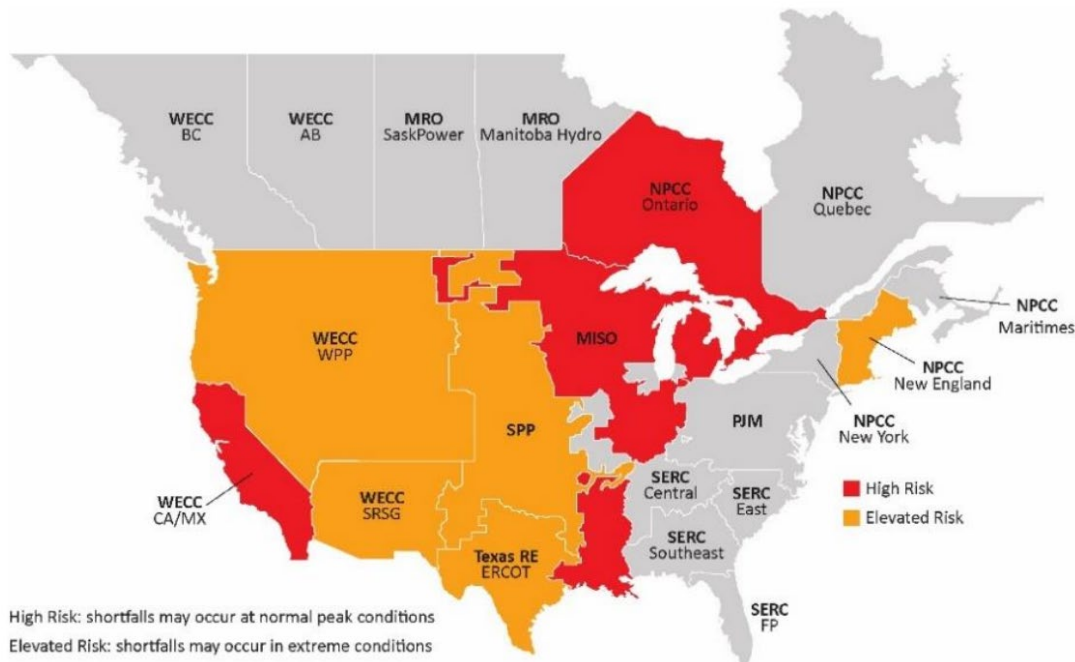


Figure 1: Risk Area Summary 2023–2027

IV. ISSUES

- The current state of the RTO/ISO energy and capacity markets.

⁴ *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).

⁵ NERC, 2023 Summer Reliability Assessment, at 6 (May 2023), https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_SRA_2023.pdf

⁶ NERC, 2022 Long-Term Reliability Assessment, (Dec. 2022), https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_2022.pdf.

⁷ Rich Heidorn Jr., PJM Chief: Retirements Need to Slow Down, RTO INSIDER, (Mar. 27, 2023), <https://www.rtoinsider.com/articles/31899-pjm-chief-retirements-need-to-slowdown#:~:text=Rich%20Heidorn%20Jr.,Power%20Supply%20Association%20last%20week.>

- The impact of federal and state environmental regulations on reliability.
- The impact of price signals and incentives on market formation and the impact on reliability.
- How RTOs and ISOs are adapting to the changing generation mix.
- The state of regional and interregional transmission planning and development across RTOs and ISOs.
- The state of coordination between the RTOs/ISOs and the interstate natural gas pipelines.

V. STAFF CONTACTS

If you have any questions regarding this hearing, please contact Brandon Mooney, Peter Spencer, Elise Krekorian, or Mary Martin of the Committee staff at (202) 225-3641.