

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

Transmission System Planning Performance)
Requirements for Extreme Weather.) Docket No. RM22-10-000

**COMMENTS OF THE PUBLIC UTILITIES COMMISSION OF OHIO’S
OFFICE OF THE FEDERAL ENERGY ADVOCATE**

In June 2022, the Federal Energy Regulatory Commission (“FERC” or the “Commission”) issued a Notice of Proposed Rulemaking (“NOPR”) that would charge the North American Electric Reliability Corporation (“NERC”) with amending its regulations to require a more sophisticated level of planning for and addressing extreme heat and cold weather events.

The Commission enumerated seven extreme heat and cold weather emergencies since 2011, the most recent in the South Central and Texas regions in February 2021 when extreme cold weather led to the largest controlled load shed in U.S. history – 23,418 MW of firm load.¹ Generating unit outages and power import limitations affected 4.5 million people and led to 210 deaths.² Within months, the Commission convened a technical conference on extreme weather events. But no regulations have been enacted that would better prepare system operators to deal with extreme heat and cold weather emergencies’ impact on the grid.

The Commission proposes requirements that would mandate planning scenarios more definitively than what is now the practice. FERC would also require examination of generation resources that may be more prone to outages to ensure sufficient alternate resources are available to maintain system reliability. In addition, mitigating the duration and extent of outages deserves more prescriptive attention.

¹ NOPR at § 4.

² NOPR at § 32.

The Federal Energy Advocate (“Ohio FEA”) for the Public Utilities Commission of Ohio (“PUCO”) supports institution of a stronger backbone for the nation’s grid to withstand the ravages of Mother Nature. We see a role for FERC to more forcefully act on a matter that affects reliability.

I. BACKGROUND

Ohio’s most severe extreme cold weather emergency in recent history was the Polar Vortex of January 2014.³ Temperatures dropped as much as 35 degrees Fahrenheit below normal and natural-gas fired generators took a back seat to natural-gas heating customers, leaving generators largely unable to access natural gas for electricity.

It was among several instances when the regional grid was taxed to its limit. More than 35,000 MW of power had gone out. If it had been any more, the region could have suffered cascading outages that could have swept beyond the Midwest.

Reliability is a core tenet for FERC as well as the PUCO. Yet neither the Polar Vortex here nor the other extreme weather events documented in the NOPR have been enough for NERC to establish standards to require that grid operators study extreme heat and cold weather scenarios. NERC has issued advisories about the potential benefits of planning but falls short of speaking in any specifics to the special circumstances created by extreme weather. As it is, uncertainty remains about what exactly is extreme weather. Should it be heat and cold only, or should droughts be part of the equation? What about hurricanes, tornadoes, or severe storms?

After its technical conference and soliciting comments about possible approaches to weather event preparedness, the Commission put forward a NOPR that, pursuant to Section 215(d)(5) of the Federal Power Act, proposes to direct NERC to modify Reliability Standard

³ NOPR at § 28.

TPL-001-5.1 to require: (1) development of benchmark planning cases based on information such as major prior extreme heat and cold weather events or future meteorological projections; (2) planning for extreme heat and cold events using steady state and transient stability analyses expanded to consider a range of extreme heat and cold weather scenarios (i.e., sensitivities to be applied to the benchmark base case(s)), including the expected resource mix's availability during extreme heat and cold weather conditions, and including the broad area impacts of extreme heat and cold weather; and (3) corrective action plans that include mitigation for any instances where performance requirements for extreme heat and cold events are not met.⁴

Within the NOPR are questions about seams, information exchange, and interregional planning possibilities. What is abundantly clear is that FERC wants a stronger, required commitment to extreme weather event preparedness and recovery.

II. COMMENTS

The Ohio FEA recognizes the crucial role played by both FERC and NERC in ensuring the reliable operation of the Bulk-Power System and offers the following comments for the Commission's consideration.

A. Customer expectations for reliability are high and must be met even in extreme circumstances.

It would be hard to overstate the importance of safe, reliable, and affordable electricity service in modern life. This essential service must be maintained, as unexpected or prolonged outages can have serious, even deadly, consequences. Ohio is no stranger to recent severe weather. In June 2022, strong storms, including a derecho, damaged transmission and

⁴ NOPR at § 47.

distribution systems throughout the state, causing over 150,000 customers to lose service. These storms were followed by near record temperatures.

The combination of a weakened transmission system and high demand for electricity forced PJM Interconnection, LLC (“PJM”) to issue emergency load shed directives to AEP Ohio. The utility responded to PJM’s orders by interrupting service to approximately 110,000 customers in central Ohio. Although cascading outages and further damage to the transmission system may have been avoided by implementing the emergency load shed directives, outages to affected customers persisted over a period of multiple days with extreme heat. The PUCO is currently reviewing why and where the outages occurred, the impact on vulnerable populations, communication efforts, the decision-making surrounding the forced outages, the timeline of events, and what can be done to better protect or assist customers in the future.

B. Modeling assumptions must recognize that asset performance during extreme weather events is likely to be correlated.

Asset performance is often modeled stochastically in traditional planning analysis methods. It is important to recognize and explicitly account for the fact that asset performance or failure is not random, but rather is likely to be highly correlated with the performance of nearby or related infrastructure. For example, the above referenced storms affected thirty-four 69 kV lines, twenty-nine 138 kV lines, and one 345 kV line on AEP’s transmission system.⁵ Generator availability and output may also be correlated due to weather affecting station equipment or impacting fuel availability, such as multiple gas generators that are dependent on the same pipeline for fuel. The availability of certain resources, including wind, solar, and hydro, is likely to be highly correlated due to their dependency on prevailing meteorological conditions.

⁵ AEP Ohio June 2022 Weather and Emergency Forced Outages, July 13, 2022, at 5, available at https://puco.ohio.gov/static/empliblibrary/files/Power+outage+review/AEP+Ohio_July+13+PUCO+Presentation.pdf.

NERC reliability standards, including the N-1-1 planning criteria, must incorporate asset correlations and interdependencies, and consider the extent to which they can be obviated or mitigated. The electricity system is increasingly interdependent on other sets of infrastructure, including the natural gas system and the water system. These relationships should not be ignored from a planning perspective.

C. Minimum transfer capability and increased interregional coordination should be studied and implemented where they are cost effective.

FERC should direct NERC to work with regional transmission operators, their neighboring planning counterparts, and affected asset owners to evaluate the extent to which a minimum transfer capability could cost effectively increase the reliability and resilience of the system and avoid system instability and cascading outages. Increased interregional coordination in both planning and operations may help to mitigate stressed system conditions, as there may be variation in the impact of weather-related events from one region to another. Any NERC standard must not be overly prescriptive and should allow regions to work with transmission owners to identify methods and approaches to meet the Commission’s directive.

D. Assets that offer reliability value must be preserved.

One of the initial findings of PJM’s renewable integration study was that “thermal generators provide essential reliability services and an adequate supply will be needed until a substitute is deployed at scale.”⁶ PJM acknowledged that its “qualitative assessment revealed that, absent any reform, as the penetration of renewable resources increases, there is an overall decline in essential reliability services” and that “PJM and stakeholders must ensure that the

⁶ Energy Transition in PJM: Frameworks for Analysis, Dec. 15, 2021, at 2, available at <https://pjm.com/-/media/library/reports-notice/special-reports/2021/20211215-energy-transition-in-pjm-frameworks-for-analysis.ashx?adlt=strict>.

market structure provides the right incentives to maintain an adequate supply of these services.”⁷

Any sober analysis will reach the same inevitable conclusion that it is impossible to operate a reliable system on intermittent inverter-based resources alone. Any planning process must account for reliability attributes such as system inertia, reactive power capability, ramping, regulation, and dispatchability. Without recognizing these essential characteristics of our ever-evolving generation mix, the electric system reliability that Ohioans have come to expect will be impossible to maintain.

III. CONCLUSION

Hot and cold weather emergencies exert uncertainties on the Bulk-Power System. What is certain is that better planning before such episodes is needed. As the nation’s generation mix continues to evolve, the best mitigation practices also keep changing, and must reflect the system’s commitment to reliability. FERC’s initiative to address this matter is a needed first step.

Respectfully submitted,

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On Behalf of the Federal Energy Advocate
The Public Utilities Commission of Ohio

August 26, 2022

⁷ *Ibid.*

CERTIFICATE OF SERVICE

I hereby certify that I have on this date caused a copy of the foregoing document to be served on each person included on the official service list maintained for this proceeding by the Commission's Secretary, by electronic mail or such other means as a party may have requested, in accordance with Rule 2010 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.2010. Dated this the 26th day of August 2022, at Columbus, Ohio.

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