

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

<b>Climate Change, Extreme Weather and Electric System Reliability</b>	) ) ) ) )	<b>Docket AD21-13-000</b>
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**COMMENTS OF THE ELECTRIC POWER SUPPLY ASSOCIATION**

The Electric Power Supply Association (“EPSA”)<sup>1</sup> respectfully submits these comments pursuant to the Notice Inviting Post-Conference Comments<sup>2</sup> issued on August 11, 2021, by the Federal Energy Regulatory Commission (“FERC” or “Commission”) seeking input on the technical conference held on June 1 and 2, 2021, addressing issues surrounding the threat to electric system reliability posed by climate change and extreme weather events (“June technical conference”). As highlighted at that conference and in the record of this proceeding, the Commission needs to consider the impacts of evolving external factors on system reliability and resilience as extreme events occur with greater frequency and duration and climate change poses longer term concerns.

Though specific requirements and steps to be taken may differ by region in order to address different weather and climate conditions geographically, reliance on market-based mechanisms is essential to maintain the integrity of the market and the

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<sup>1</sup> EPSA is the national trade association representing competitive power suppliers in the U.S. EPSA members provide reliable and competitively priced electricity from environmentally responsible facilities using a diverse mix of fuels and technologies. EPSA seeks to bring the benefits of competition to all power customers. This pleading represents the position of EPSA as an organization, but not necessarily the views of any particular member with respect to any issue.

<sup>2</sup> Notice Inviting Post-Technical Conference Comments, *Climate Change, Extreme Weather, and Electric System Reliability*, Docket AD21-13-000, (issued August 11, 2021) (“Notice” or “Notice Inviting Comments”).

investment needed to ensure reliable operation of the system. All resources that provide power and the necessary attributes to keep the lights on during these events require a fair and adequate opportunity to recover their costs and allow them to weatherize as may be needed in order to compete to provide all services that they can offer to preserve reliability and provide resilience.

Preliminary results from the *FERC and NERC Joint Inquiry into 2021 Cold Weather Grid Operations*<sup>3</sup> issued last week include data, findings, and recommendations which indicate the continuing need for existing market mechanisms that ensure reliability like the centralized capacity markets, though there may be market reforms needed to support the investments necessary to meet increasing weather and climate challenges. While the full report is expected to be issued in several months, key preliminary findings include the recommendation that generation owners should have the opportunity to be compensated for the costs of building or retrofitting their units to operate to a specified ambient temperature and weather conditions through markets or through cost recovery approved by state public utility commissions. The recommendation notes that regulators should identify how best to ensure that these entities have the opportunity to be compensated for making these necessary investments.<sup>4</sup> EPSA continues to support cost recovery through market-based mechanisms but notes that in certain circumstances there may be a need for targeted cost-based mechanisms to support required upgrades.

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<sup>3</sup> See news release, *FERC, NERC to Open Joint Inquiry into 2021 Cold Weather Grid Operations*, (Issued Feb 16, 2021), “2021 Cold Weather Event in Texas and the South Central U.S.,” Docket AD21-18-000. News release available here: <https://ferc.gov/news-events/news/ferc-nerc-open-joint-inquiry-2021-cold-weather-grid-operations>

<sup>4</sup> FERC, NERC, and Regional Entity Joint Staff Inquiry, *February 2021 Cold Weather Grid Operations: Preliminary Findings and Recommendations*, Docket AD21-18-000, (September 23, 2021), Staff Presentation, slide 20.

The appropriate next step for the Commission is to work with each ISO/RTO to examine these issues and work with stakeholders to identify and address climate and weather risks in the most effective manner for their region.

## I. **COMMENTS**

### **A. Weather and Climate Conditions Should be Addressed Through Regional Reliability and Resilience Tools**

As the Commission considers how to assess and address the impacts of climate change and extreme weather, it is important to understand that these factors represent evolving challenges to system reliability and resilience. It has been and will be the primary job of the system operator (and those who oversee that operation) to ensure the cost-effective reliability of the bulk power system given any set of circumstances. Extreme weather and climate challenges are growing factors impacting that primary function, and thus it is important to consider how the existing reliability and resilience constructs can and will address them. Market reforms or additional market mechanisms should be considered from that starting point.

For example, at the June technical conference much of the discussion focused on different ways to do forecasting or potential transmission modeling to identify enhancements that may assist in the maintenance of a reliable and resilient system. Certainly, these types of refinements will assist system operators and planners in determining operating conditions and parameters under a new or evolving set of circumstances. However, it will be more fundamental to reliability to ensure that the services which keep the lights on are identified and quantified as needed by market or region and that they are sufficiently valued to ensure that the resources which provide them are available. This will be increasingly challenging as these resources may offer

power to the system on a declining basis, thereby increasing the importance of the imputed value of these services to support availability of the resource to the system.

This challenge is best addressed by the procurement of a capacity product through a centrally organized regional capacity market. Capacity products exist to ensure reliable power is available whenever the electric system needs it and is penalized if it fails to deliver when called. Capacity markets procure some resources that run around the clock, but importantly also procure others that are needed in a few select windows every year – such as during extreme weather events. A regional market leads to a diverse portfolio of well-maintained, available resources which is important for day-to-day system reliability but is critical during an extreme weather event in which certain technology types may be unexpectedly crippled by weather conditions or events of extended duration. While an array of emerging technologies may, and will, assist during these times, lessons from past extreme events show that steel in the ground (in multiple forms) and footprint diversity keeps the lights on or helps them back online more quickly when service disruptions occur.

At the same time that changes to weather patterns, events, and impacts require attention, the system itself is evolving to integrate a much greater amount of renewable intermittent resources to supply power to consumers. As new resources come online, it is critical that the Commission recognize that not all nameplate megawatts represent the same ability to serve. Hence, more precise capacity accreditation methodologies will be vitally important to maintain reliability. For the electric system to perform during stressful conditions, system planners must recognize what the next needed megawatt is going to provide in terms of reliability and where it will come from. As ISO-NE External Market

Monitor Dr. David Patton has noted, “there's just no way we can deliberately over-accredit resources and still expect the market to perform well.”<sup>5</sup> What is necessary to maintain reliability on a routine basis is all the more critical during extreme or challenging conditions.

For example, as extreme weather events increase and the potential for system blackouts increase, the importance of black start units will continue to grow. In such an environment, ISOs/RTOs will need to have more robust black start plans to ensure that wherever the electric system might fail, adequate units capable of starting without electricity from the grid are available to restart and reconnect sections of the grid that are shutdown. This may result in the ISOs/RTOs needing to pay more units that can provide black start services to be available to do so.

In addition to black start resources, as the electric system continues to decarbonize and adds a greater share of intermittent resources, flexibility and dispatchability will be increasingly needed and therefore must be defined, valued, and procured.<sup>6</sup> In order to enhance reliability, the Commission should act to ensure that resources that provide these attributes are properly valued and procured via technology-neutral market-based mechanisms. Again, this is true for extreme events just as it is true for routine reliability maintenance and is appropriately being addressed by the Commission in a concurrent proceeding, *Modernizing Electricity Market Design*.<sup>7</sup>

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<sup>5</sup> *Modernizing Electricity Market Design*, Technical Conference on Resource Adequacy in the Evolving Electricity Sector: ISO New England, Docket AD21-10-000, (May 25, 2021), Technical Conference Transcript, p. 170.

<sup>6</sup> FERC Staff White Paper, *Energy and Ancillary Services Market Reforms to Address Changing System Needs*, (September 2021), pp.7-16.

<sup>7</sup> See generally, *Modernizing Electricity Market Design*, Docket AD21-10-000; also, Technical Conference on Modernizing Electricity Market Design: Energy and Ancillary Services in the Evolving Electricity Sector, Docket AD21-10-000, Panel 1: Understanding the Need for Additional Operational Flexibility in RTO/ISO Energy and Ancillary Services Markets (September 14, 2021).

The goal is to rely on market design to ensure that reliability and resilience requirements are met. The best way to achieve this is for the Commission to ensure the right balance between incentives and penalties is in place so that adequate investment in development, planning, and operational capabilities will occur.

**B. ISO/RTO Markets and Market-Based Mechanisms Ensure Reliability**

The attention now focused on the challenges posed by extreme weather events and climate change is intricately tied to the evaluation of resilience in the ISOs/RTOs over the past several years, and in fact represents a continuation of that discussion. In a 2018 proceeding opened by the Commission to address changes to electric markets which pose a host of new opportunities and challenges, each ISO/RTO was directed to submit specific information on the resilience of its respective region.<sup>8</sup> The Commission recognized that the ISO/RTO market operators are responsible for the reliable, safe, efficient, and resilient operation of the system and are best positioned to identify whether and what market improvements can be developed and implemented to resolve regional risks. The same holds true to address weather and climate concerns.

Not only are weather and climate issues directly tied to the reliability and resilience of the system, but they also vary by region in a similar manner – in fact, it is the variation of weather patterns that in part leads to the regionality of resilience and reliability needs and approaches. Hence, the Commission should approach weather and climate issues in a similar manner – looking to the ISOs/RTOs for assessment, evaluation, and recommendation.

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<sup>8</sup> Order Terminating Rulemaking Proceeding, Initiating New Proceeding, and Establishing Additional Procedures, *Grid Resilience in Regional Transmission Organizations and Independent System Operators*, Docket No. AD18-7-000. (January 8, 2018).

It is also worth noting that organized wholesale markets are a valuable tool in preserving reliability and resilience due to their very nature. A single market which spans a region gives that grid operator the ability to access resources over a larger geographic area – broad footprint diversity<sup>9</sup> – which allows them to rely on a more technologically and geographically diverse set of generation resources. This is valuable during normal periods, but especially so should certain resources be impacted by a weather event locally. The ISO/RTO grid operators may have the ability to source and send power to impacted areas from those that may not be as affected by the event either geographically or due to technological differences.

### **C. Metrics, Assessments, and Weather-Related Requirements Should be Addressed by NERC**

The North American Electric Reliability Corporation (NERC) has a critical role in assessing the overall reliability, adequacy, and associated risks to the electric system that are analyzed on a winter and summer seasonal basis each year as well as over the long-term going out 10-years forward. In addition, NERC will often respond to changing dynamics as they occur as it recently did in issuing its Level 2 Alert on Extreme Cold Weather Events.<sup>10</sup> NERC also provides extensive and detailed reports on extreme weather events, as exemplified in the current Joint Inquiry with FERC into the February 2021 cold weather event that resulted in blackouts in Texas.

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<sup>9</sup> MISO 2020 Value Proposition, (Published Feb 16, 2021), slide 11, “Regional rather than localized use of the electrical system allows more efficient and effective operation of generation assets while reducing the planning reserve margin needed for reliability.”

<sup>10</sup> North American Electric Reliability Corporation, *Recommendation to Industry Cold Weather Preparations for Extreme Weather Events*, Issued August 18, 2021. Available at: <https://www.nerc.com/pa/rrm/bpsa/Alerts%20DL/NERC%20Alert%20R-2021-08-18-01%20Extreme%20Cold%20Weather%20Events.pdf>

Regulators and system planners can make use of NERC data, metrics, and resulting reports to inform future policy choices. Additionally, NERC itself may identify a risk to the electric system and deem it necessary to develop a new standard responding to that risk. NERC's evidence-based stakeholder process takes into account what is necessary to maintain reliable electric service while allowing for both regional and operator flexibility wherever possible and whenever necessary. For example, NERC's recently approved Cold Weather Reliability Standards<sup>11</sup> recognized that what is necessary to enhance the cold weather capabilities of a generation station in New England may differ greatly from what is required of a similar station in California. This distinction is critical to ensure the system is sufficiently hardened to address clear risks while protecting against expenditures that do not yield results or adequate protection. NERC's results-driven approach, steeped in an extensive deliberative process, allows for the identification of these factors, and thus heightens the chances of these standards being maximally effective and efficient.

While NERC collects, assesses, and processes the data which establishes the standards to ensure a reliable electricity system, the Commission must oversee the results and ensure that there are mechanisms in place to support the investment needed to meet those standards. As noted above, the most efficient and cost-effective way to do so is to rely on competitive market-based mechanisms that value the attributes and services deemed necessary and pay them either on delivery or as a capacity product. This cost recovery piece must be addressed – if we are facing a different level or type of threat to the system, we must ensure that the investment

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<sup>11</sup> *North American Electric Reliability Corporation*, 176 FERC ¶ 61,119, (August 24, 2021).



required to maintain reliability and resilience is supported by the market. In most cases, this should be addressed by allowing resources to compete to offer these products and services based on reasonable, transparent market values – either through the energy, ancillary services, or capacity markets. However, there may be instances in which there are facility upgrade costs that cannot reasonably be recovered through the market. In these circumstances the Commission should explore additional revenue streams or recovery mechanisms to finance required reliability protections.

#### **D. Infrastructure Needs Include Both Transmission and Generation Options**

As the power system evolution progresses and policies continue to drive for a cleaner generation mix, transmission policy will play a critical role in enabling the grid of the future. While additional infrastructure buildout will be necessary, it is important to optimize the use of the existing transmission infrastructure. Transmission planning and the array of issues involved in optimizing operation, management, coordination, and cost allocation for transmission are currently under discussion in an extensive rulemaking proceeding before the Commission, *Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection*.<sup>12</sup> How to plan and build for future generation resources is a central question in the Advanced NOPR out for comment. EPSA commends the Commission on this holistic review and looks to those discussions for reforms or approaches to address system reliability in light of the evolving resource mix and changing risks posed by weather and

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<sup>12</sup> Advanced Notice of Proposed Rulemaking, *Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection*, Docket No. RM21-17, (July 15, 2021).

climate concerns. As noted above, the critical issue is to gird the system for reliable operations at all times – which includes extreme events as outlined in this proceeding.

To aid in this mission, the Commission should continue to assess usage of the current transmission system and encourage the use of technological advances that improve how the system is operated. As an example, EPSA commends the Commission for examining how line ratings can be improved to support more efficient, transparent, and cost-effective utilization of the existing transmission system in its NOPR on *Managing Transmission Line Ratings*.<sup>13</sup> EPSA supports the Commission's proposal to require transmission owners to share transmission line ratings and transmission line rating data and methodologies with their transmission provider(s) and, in regions served by an ISO/RTO, also with the market monitor(s) of that ISO/RTO – all of which will increase the efficiency and utilization of existing transmission lines.

Given the costs and logistical challenges of building new transmission, optimizing the existing network is essential. And yet, expansion and new build will be required. In order to plan for the most reliable and resilient system, even under limited but extreme conditions, all alternatives and options should be considered to resolve reliability constraints, resilience concerns, or to facilitate the addition of resources to the grid. This includes assessing generation as an alternative to transmission whenever feasible. In fact, in certain circumstances the ability to site generation locally may offer a far more targeted, affordable, and reliable solution to localized threats or risks. For example, lines that are vulnerable to wildfires can be rendered unusable and may therefore strand a

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<sup>13</sup> Notice of Proposed Rulemaking, *Managing Transmission Line Ratings*, Docket RM20-16-000, (November 19, 2020); See also, Comments of the Electric Power Supply Association, (Filed on March 22, 2021), Available at: [www.epsa.org](http://www.epsa.org).

local area by disabling imports of emergency power supplies from other areas. In such circumstances, a local generation asset can be an alternative or offer redundancy to keep the lights on during that event or bring the lights back on as soon as possible thereafter. Further, a generation solution may be more affordable, more easily permitted, and more quickly built than a transmission option.

In addition, studies have shown that the vast majority of outages take place on or are caused by the transmission and distribution system.<sup>14</sup> The distribution system, in particular, is extremely vulnerable to weather events.<sup>15</sup> These facts further highlight the limitations of what can be accomplished via a transmission-focused approach to reliability. In order for planning efforts to be robust and truly beneficial to consumers, it is important to consider all solutions to an identified transmission constraint or expansion. Sometimes transmission is the least cost option and sometimes it is not. In an open, collaborative planning process, new transmission builds should be required to compete against alternatives, including generation solutions.

## II. CONCLUSION

EPSA respectfully submits these comments to support a holistic assessment of the reliability issues affected by changes to extreme weather events and climate change. Importantly, the more reliable the Bulk Power System is on a daily basis, the better armed the system is to address extreme events. Hence, it is incumbent on the

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<sup>14</sup> The Rhodium Group, *The Real Electricity Reliability Crisis*, (October 2017) Available at: <https://rhg.com/research/the-real-electricity-reliability-crisis-doe-nopr/>

<sup>15</sup> “Based on historic events, however, the vast majority of outage events arise at the distribution and transmission levels from weather events. The Rhodium Group finds that the bulk of outage events are due to routine causes (local storms, vegetation, squirrels, equipment problems), and the Department of Energy reported that 90% of electric power interruptions arise on the distribution system, mostly weather-related.” *A Customer-focused Framework for Electric System Resilience*, Report by Grid Strategies, LLC, Docket AD18-7-000 (Filed May 8, 2018), p. 3. Available at: <https://gridprogress.files.wordpress.com/2018/05/customer-focused-resilience-final-050118.pdf>

Commission to support the market-based reliability mechanisms in place, including centrally organized regional capacity markets where they exist. While there may be revisions necessary to certain reliability mechanisms or new tools added to better protect the system, the Commission should look to the ISOs/RTOs for an assessment of whether and what reforms would address the risks posed in their regions. EPSA further urges the Commission to ensure that all resources that provide necessary attributes to keep the lights on during extreme weather events have a fair opportunity to recover their costs.

Respectfully submitted,

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