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VIA Electronic Delivery

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PJM Interconnection
2750 Monroe Blvd.
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Ryan Augsburger
President, The Ohio Manufacturer's Association
33 N. High Street, FL 6
Columbus, OH 43215-3076

Dear Mr. Augsburger,

Thank you for your correspondence dated Dec. 21, 2023, wherein you discuss concerns related to PJM's report, *Energy Transition in PJM: Resource Retirements, Replacements & Risks*,¹ also known as the "4R Report." We appreciate you raising your concerns and will address many of them in this correspondence. We also appreciate your support of PJM's competitive markets. PJM is a longtime supporter of the power of competition, and we operate one of the largest wholesale markets in the world. Our competitive markets have attracted close to 50,000 MW of new generation since their inception. PJM remains supportive of our markets as we navigate this energy transition.

It is also important to note that PJM serves members who operate in a range of regulatory regimes across 13 states and the District of Columbia. In some parts of PJM, the regulated utility performs integrated resource planning, with those plans approved by the state and subject to PJM's reliability standards. Other jurisdictions rely primarily on PJM's markets for resource adequacy. PJM works hard to ensure that our value proposition is robust for all of the regulatory regimes in which our members operate. As you note, PJM also coordinates the operation of the bulk power system and performs certain transmission planning functions. We believe these services are an important aspect of our value proposition and have every intention of continuing to provide them. We estimate the benefits of PJM's operations, planning and markets at between \$3.2 billion and \$4 billion annually.

PJM's highest priority has been, and continues to be, the safe and reliable operation of the bulk power system. Maintaining an adequate level of generation resources with the right operational and physical characteristics is essential for grid operators' ability to serve electricity demand reliably through the energy transition. PJM has, in our 4R Report and elsewhere, identified several trends that are different from those we have encountered in the past. In our judgment, these trends present increasing reliability risks during the transition due to a potential timing mismatch between resource retirements, load growth and the current pace of new generation entry:

1. The growth rate of electricity demand is likely to continue to increase from electrification coupled with the proliferation of high-demand data centers in the region.
2. Thermal generators are retiring at a rapid pace due to government and private sector policies as well as economics.

¹ See PJM's [report \(PDF\)](#), *Energy Transition in PJM: Resource Retirements, Replacements & Risks* (February 2023).

3. Retirements are at risk of outpacing the construction of new resources due to a combination of industry forces, including siting, permitting and supply chain, whose long-term impacts are not fully known.
4. The interconnection queue is composed primarily of intermittent and limited-duration resources. Given the operating characteristics of these resources, we need multiple megawatts of these resources to replace 1 MW of thermal generation.

To be clear – these reliability risks are not limited to PJM. They are being experienced in different ways in many parts of our nation, regardless of whether a region has organized markets or not. This is evident in the North American Electric Reliability Corporation’s (NERC’s) recent reliability assessment², shown below:

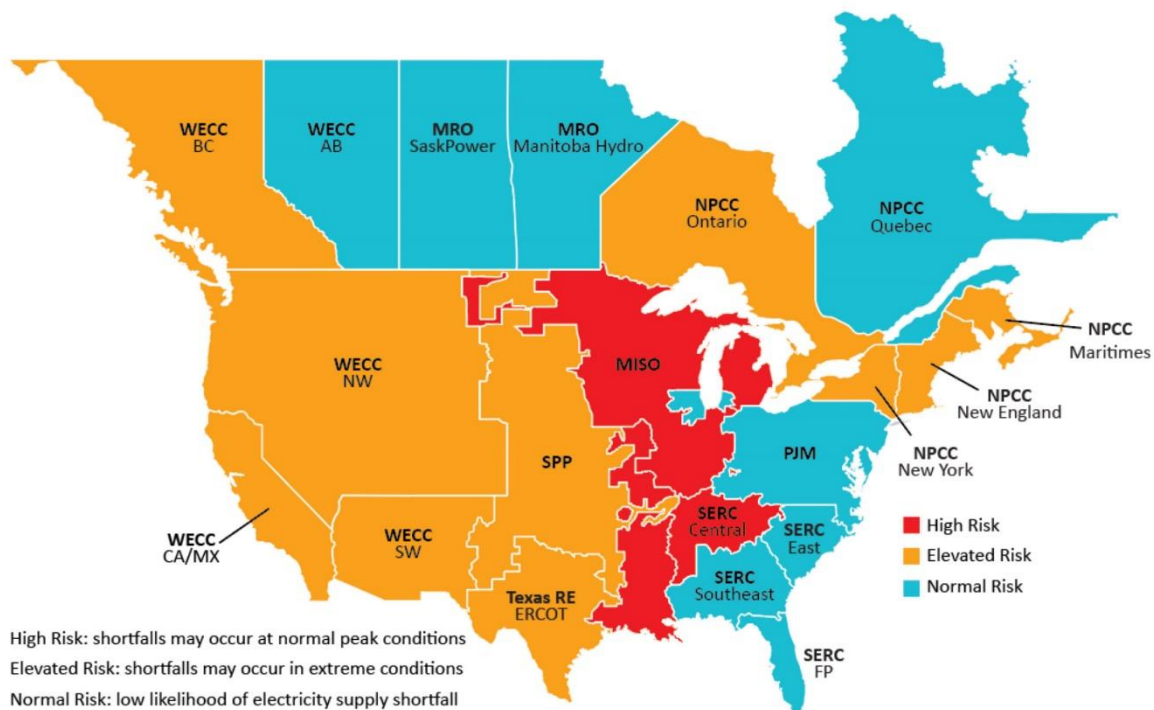


Figure 1: Risk Area Summary 2024–2028

In fact, as reflected in the NERC assessment above, PJM has a robust reserve margin today. However, we are also subject to these risks over time. Our 4R Report identifies 40,000 MW of generation that is at risk of retirement. A relatively small minority of this is at risk for economic reasons. The majority of the remainder is at risk due to policy considerations, and therefore less likely to respond to price signals. The policy pressure for thermal resources to retire appears to be growing as a result of additional rules under consideration, such as the proposed federal Environmental Protection Agency Greenhouse Gas emission rules. At the same time, our most recent long-term load forecast shows an increase in electricity demand over a 10-year planning horizon due to electrification and data center growth. We currently have approximately 40,000 MW of mostly renewable resources that have cleared our generation interconnection queue but are not currently being built at the pace required to replace retiring generation capacity.

² See NERC’s [Dec. 2023 report \(PDF\)](#), 2023 Long-Term Reliability Assessment

PJM has been clear that the 4R Report is not intended as a forecast. Rather, it is a look at certain future resource adequacy scenarios for the purpose of evaluating risk. If reserves tighten enough, other things being equal, our markets will signal the need for new investment. However, in our judgment, there is currently an elevated risk that the response to those signals may be delayed and/or hampered because of policy pressure against thermal generation, supply chain constraints, local siting constraints, increasing cost of capital and other factors. Further, the “Low New Entry” assumption set modeled in the 4R Report does not represent a worst-case scenario. For instance, we see the possibility of load increasing at a faster pace than currently forecast, and we have been clear³ that we believe finalization of the Environmental Protection Agency’s Greenhouse Gas emissions rules as currently proposed has the potential to accelerate generator retirements beyond the levels modeled in 4R.

This growing resource adequacy risk is concerning to PJM, and we and our members have been engaged in an intensive series of efforts to attempt to mitigate it. These efforts include the transition to a new, streamlined generation interconnection process that began last July; two filings in 2023 with the Federal Energy Regulatory Commission (FERC) to enhance our capacity market rules; a filing with FERC to enhance our Regulation Market; ongoing stakeholder work on reserve certainty; gas-electric coordination and generator deactivation rules; further enhancements to generator interconnection processes to help accelerate entry of new generation; long-term regional transmission planning and more. Additionally, our Board has authorized significant investment in regional transmission in 2023 alone. A full list of initiatives underway at PJM to help ensure a reliable energy transition can be found on our website.⁴ These initiatives, as well as others that have already been implemented, are generally aligned with several of NERC’s recommended actions in their 2023 Long-Term Reliability Assessment. The LBNL study you reference is useful, and we consider its recommendations along with the results of various other studies and assessments, including those by PJM experts, in thinking through the roadmap of our future actions.

In addition to these actions, PJM is recommending policymakers avoid rules that cause restriction or retirement of existing generation until an adequate quantity of replacement generation is online and has been shown to be operating. This aspect of risk mitigation is not in PJM’s control, but we are engaged with our states and with the federal government on this topic.

I also wanted to address two additional points from your letter. First, you raise the question of the need for “supplemental rapid-response power resources” as a result of the expansion of renewable generation capacity. This issue is addressed in the 4R Report through the incorporation of the Effective Load Carrying Capability (ELCC) of renewable and storage resources. Further, PJM has made a filing with FERC to move to a marginal ELCC methodology for all generation resources so that our markets can continue to procure a reliable mix of resources in the future. PJM has also published several reports⁵ that examine additional aspects of this question, including the need for primary frequency response, ramping capability, reactive capability and regulation services.

³ See PJM, MISO, SPP, ERCOT joint [comments](#) to EPA.

⁴ See PJM reliability initiative webpage titled [Ensuring a Reliable Energy Transition](#).

⁵ See PJM’s [report \(PDF\)](#) | [addendum \(PDF\)](#), Energy Transition in PJM: Frameworks for Analysis (Dec. 2021) and [report \(PDF\)](#) | [addendum \(PDF\)](#), Energy Transition in PJM: Emerging Characteristics of a Decarbonizing Grid (May 2022).

Second, your letter also references wanting to understand the drivers of the load shed event in June 2022 in central Ohio. There have been several analyses of this event published that we can refer you to, including by PJM,⁶ NERC⁷ and the Public Utilities Commission of Ohio.⁸ Additionally, the Public Utilities Commission of Ohio has held public hearings on this matter. We are happy to meet and answer any questions we can about this event. We can also connect your team with the team that authored NERC's report on this event, if that is helpful.

Ensuring a reliable energy transition will require ongoing collaboration with stakeholders, policymakers and grid operators. I appreciate your input and encourage your active ongoing participation in our stakeholder process where we are working to evolve our market rules and other processes to advance through a reliable energy transition. I am also happy for our technical team to meet with your staff to speak further about these matters. Our Governmental & Member Services Team can help coordinate this interaction.

Please note that we are copying the Ohio Consumers' Counsel (OCC) and the Industrial Energy Consumers of Pennsylvania (IECPA) on this correspondence. We received a letter from the OCC dated Jan. 8, 2024, and one from IECPA dated Jan. 26, 2024, expressing support for your correspondence, and this serves as a response to the OCC and IECPA as well.

Sincerely,

Manu Asthana
President and CEO, PJM Interconnection

cc: Jeffrey J. Oravitz, Chairman, The Ohio Manufacturer's Association Board
Maureen Willis, Ohio Consumers' Counsel
Rod Williamson, Industrial Energy Consumers of Pennsylvania

⁶ See PJM [Lessons Learned Presentation](#) (PPT) on June 2022 outages.

⁷ See also NERC [report](#) (PDF) on June 2022 outages.

⁸ See also PUCO [report](#) (PDF) on June 2022 outages.