

**Responses to Questions for the Record of
Manu Asthana, President and CEO
PJM Interconnection, LLC**

**Energy and Commerce Committee
Subcommittee on Energy's Hearing on March 25, 2025
"Keeping the Lights On: Examining the State of Regional Grid Reliability"**

The Honorable Robert E. Latta

1. As stated in President Trump's Executive Order "Removing Barriers to American Leadership in Artificial Intelligence" (AI EO) on January 23, 2025 "It is the policy of the United States to sustain and enhance America's global AI dominance in order to promote human flourishing, economic competitiveness, and national security." President Trump has made it clear that he wants the US to be the global leader in AI and unleash American energy. How does PJM plan to ensure sufficient supply of energy to meet the needs of data centers in a timely manner?

Response: *For several years, PJM has expressed growing resource adequacy concerns based on the following trends we are seeing play out across many parts of our country; (1) premature, primarily policy-driven retirements of resources continue to outpace the development of new generation; (2) aggressive load growth driven primarily by the advent of AI technology and data centers in our footprint, but also by increasing electrification and industrial development; and (3) rising costs and supply chain challenges associated with construction of new generation. PJM's capacity market serves to send a price signal to attract new supply resources to connect to the grid to ensure that we meet the growing demand we expect to come online over the next few years. Along with the capacity market price signal designed to attract new supply resources, PJM has taken several steps to expedite the interconnection of new resources to meet these growing needs. For example, the Reliability Resource Initiative (RRI) has resulted in the addition of 51 projects totaling over 9,300 MW (UCAP) of generation with commercial in-service dates as early as 2027 to supplement projects already in the interconnection queue.*

2. As you mentioned in your testimony, the PJM region is seeing tremendous growth in demand for energy from data centers and use of artificial intelligence that are of critical importance to our national security. What is PJM doing to ensure that existing customers are not shouldering the costs of data centers and that new customers pay for their fair share of using the transmission system?

Response: *The allocation of costs relating to new transmission facilities necessary to serve data centers and other large customers is determined by the Federal Energy Regulatory Commission (FERC). FERC's policies relating to the cost allocation for high-voltage transmission facilities includes a "beneficiary pays" principle.*

3. PJM recently announced a partnership with Google to utilize artificial intelligence models to optimize interconnection applications. This new innovative approach could greatly streamline the interconnection process to expand access to reliable and affordable electricity.

a. Can you discuss how PJM intends to utilize Google's AI models?

Response: *PJM continually looks for improvements to automate and expedite its interconnection processes. This includes the recently [announced](#) partnership with Google and Tapestry to utilize AI to implement further improvements and automation to our tools and processes. The intent of this effort is to bring multiple grid models together into a unified model so operators and developers can access everything they need to make critical decisions in one place.*

b. How will this cut down on extensive delays in interconnecting new resources to the grid?

Response: *PJM's stakeholder-driven reforms to expedite the review of interconnection applications were approved by FERC in November 2022 and fully implemented in 2023. More recently, these queue reforms have been supplemented by additional efforts to connect resources to the grid more quickly and PJM now expects to eliminate the remaining backlog in the queue by the end of next year. While our collaboration with Google and Tapestry has only recently begun, we expect that automation enhancements that result from this effort will substantially reduce the length of time it takes to conduct some time-consuming interconnection tasks.*

4. Accurate and transparent electricity load forecasting is a linchpin of modern economic development. States rely on these forecasts to plan new industrial parks, data centers, and manufacturing hubs, while utilities use them to schedule grid expansions and major infrastructure investments. Despite the vital role of load forecasts in spurring economic growth, practices vary widely among states, utilities and RTO/ISOs, often leading to inconsistent data, misaligned investment signals, and unnecessary risk for both utilities, and both large and residential customers. Recent inconsistencies underscore how a patchwork of forecasting methodologies can exacerbate speculation in large load interconnection requests, inflate demand projections, and drive-up costs. These issues cross both state and federal jurisdictions and regional differences.

a. What steps is PJM taking to ensure its load forecasting is transparent, predictable and correctly anticipating future capacity and infrastructure needs to power AI infrastructure?

Response: *PJM continually refines its load forecasting processes to ensure that we are most accurately predicting future system needs. We work closely with our electric utilities across our region to gather information regarding where on the grid we expect the AI infrastructure to be developed. Of course, the growth in load to meet the increasing demands of data centers were not anticipated until recently and more developments affecting the growth rate of AI can occur. Notably, PJM's [Long Term Load Forecast Report](#) is released every January and captures any changes that we may expect to alter the forecast.*

b. What, if any, barriers exist to increased transparency on potential load growth from AI?

Response: *The AI industry's substantial growth was not evident until recently and the proprietary nature of many aspects of this industry makes it difficult to predict its trajectory. Advancements in chip technology, cooling mechanisms and other efforts to increase efficiencies and reduce the energy-intensive nature of this industry contribute to the difficulty in predicting exactly how much load growth will be attributed to AI.*

5. How can RTOs accelerate transmission expansion to support load growth without creating excessive costs for ratepayers?

Response: *As you are aware, FERC issued Order No. 1920 last year – a landmark rule that reformed nearly every aspect of regional transmission planning, from the time horizon (i.e., 20 years) to a requirement that transmission planners consider a broad set of benefits when planning new facilities. PJM is currently working towards compliance with this rule. However, while we can plan for the immediate and long-term needs of the system, if developers are unable to construct the necessary transmission infrastructure, having the best planning practices are of no effect. Notably, FERC's rule did not address the impediments relating to speeding up the permitting processes. While Congress has attempted to address the challenges associated with permitting and siting delays, these legislative attempts have been unsuccessful. As for cost, again, the various formulae for cost allocation are determined by the Federal Energy Regulatory Commission.*

6. From a siting and permitting perspective, what do you see as the challenges and barriers to constructing sufficient transmission infrastructure needed for reliable, safe, affordable, and timely delivery of power?

Response: *Building energy infrastructure is extremely challenging, particularly in urban and dense areas including the 13 state territory serviced by PJM. Specifically, transmission developers regularly encounter delays associated with obtaining the necessary permits to construct a transmission line. These delays, at all levels of government (i.e., local, state, federal), often takes years to navigate. PJM has supported efforts to advance permitting reform at the federal level and continually works with its states to advance projects through the state-level siting approval processes. Additionally, grassroots community opposition to transmission infrastructure can add years to the development of a project, or terminate a project entirely. While early input from the community is essential, there should also be a recognition of the immense public benefit that this infrastructure will provide to all utility customers.*

a. What role, if any, should Congress and FERC play in siting and permitting for regional or interregional transmission?

Response: *It is widely known that our Nation has not kept pace with the development of new high-voltage transmission lines necessary to support the growth in electricity usage, connect new generation and maintain grid reliability. Time and again, the inability to obtain the necessary permits in a timely manner is cited as a top factor by developers as to why needed transmission infrastructure projects are not getting built. If left to persist in its current state, this lengthy and cumbersome patchwork of permitting processes will threaten the ability of grid operators like PJM to reliably deliver power to customers. Congress and FERC should consider passing legislation or promulgating rules that ensure that project reviews (e.g., environmental studies) are performed quickly and permitting determinations are made within a specified period.*

7. With current policies, do you think we can build all the generation and transmission needed in time for this AI race?

Response: *It is hard to predict the pace of the AI race, but as noted above, the Nation has not kept pace with the development of energy infrastructure (both generation and transmission). Comparably few miles of transmission lines have been developed in recent years and reserve margins across a large part of our country are declining. This challenge is illustrated in the [2024 NERC Long-Term Reliability Assessment](#) which explains that much of the Eastern Interconnection is at an elevated or high risk of supply shortfalls in the near future.*

8. What would be your top priority or need from states, FERC or Congress to assist you in meeting new demand —especially if we need even more power than projected? Are you equipped today to meet increased future demand at the pace needed and to maintain affordability and competitive rates?

Response: *My immediate priority (to meet demand) is to ensure that we retain the generation that is currently on the system. With demand increasing substantially, we cannot afford additional retirements. Additionally, to the extent we can bring retired generating units back online quickly, we should consider that possibility.*

9. When describing the coordination needed to export power to neighboring ISO's, you mentioned that your systems all impact each other. With that in mind, can premature retirement of baseload generation in one ISO also impact the reliability of the power system in neighboring ISOs?

Response: *Yes. The RTOs and ISOs are connected to each other. Degraded reliability in a neighboring RTO/ISO has the potential to impact PJM's reliability.*

10. The balance of your resource mix is an important component of reliably operating the grid. No matter how much wind and solar you build, you need baseload, dispatchable energy to support the system when the sun doesn't shine and the wind doesn't blow. In your testimony, you highlighted that only 5% of queued generation capacity is natural gas; meanwhile, over 95% of the queue is made up of wind, solar, and storage. Can you describe the impact that losing the balance of resource mix would have on the system? Should the federal government create incentives for the development of reliable, dispatchable power?

Response: *PJM is fuel and technology neutral. We currently have a diverse fuel mix which allows the grid to benefit from the characteristics of many different types of generating resources. As you note, the composition of the interconnection queue is very different than our current portfolio of resources and there will inevitably be increased challenges associated with operating the grid based predominately on intermittent resources. In the absence of the substantial deployment of battery energy storage systems, there will be a continued need to have dispatchable, baseload units on the system.*

11. The rate of investment in natural gas infrastructure is lagging behind the rate of investment in natural gas. In order to unleash the potential of our abundance of natural gas, we need to invest in infrastructure like natural gas pipelines to get the gas where it needs to go. What are the roadblocks we currently face in developing natural gas pipelines and how may they be addressed.

Response: *Similar to the difficulties faced in developing power generation and electric transmission infrastructure, it is exceedingly difficult to construct new natural gas pipeline infrastructure in the United States, particularly in the Northeast. Many existing interstate pipelines are fully subscribed with limited or no available capacity during peak periods. Expediting the permitting processes at the federal and state level will address one of several factors that contribute to the lack of natural gas infrastructure development.*

The Honorable Kathy Castor

1. One of our greatest challenges today is getting new sources of electricity on the grid as quickly as possible in this new era of increasing electricity demand. Interconnection processes – while critical to maintaining the reliability of the grid – can also take far too long under the current framework.

On March 17, FERC Commissioner David Rosner wrote a letter to each of you detailing new opportunities to streamline the interconnection process. In a recent study by the Midcontinent Independent System Operator (MISO), an automated process was able to nearly replicate in ten days the results of an interconnection study that took nearly two years to conduct.

a. Please describe your experience with interconnection automation technologies to date and the prospects for further deploying them going forward.

Response: *PJM continually looks for improvements to automate and expedite its interconnection processes. This includes the recently [announced](#) partnership with Google and Tapestry to utilize AI to implement further improvements and automation to our tools and processes. The intent is to bring multiple grid models together into a unified model so operators and developers can access everything they need to make critical decisions in one place. While our collaboration with Google and Tapestry has only recently begun, we expect that automation enhancements that result from this effort will substantially reduce the length of time it takes to conduct some time-consuming interconnection tasks.*

b. Please describe how FERC and Congress can each support such innovation.

Response: *FERC and Congress can support innovation by ensuring that grid operators have the flexibility to experiment with new methods and processes without adhering to uniform, one-size-fits-all rules (e.g., allow regional variation to suit the needs of a particular grid operator).*

The Honorable Scott Peters

1. Have you experienced permitting delays that this committee should better understand? What are some key/important examples?

Response: *Permitting delays are common in our industry and regularly occur throughout the country. Time and again, the inability to obtain the necessary permits in a timely manner is cited as a top factor by developers as to why needed transmission infrastructure projects are not getting built. If left to persist in its current state, this lengthy and cumbersome patchwork of permitting processes will threaten the ability of grid operators like PJM to reliably deliver power to customers. Congress and FERC should consider passing legislation or promulgating rules that ensure that project reviews (e.g., environmental studies) are performed quickly and permitting determinations are made within a specified period.*

2. What laws (on permitting specifically, but also planning, siting, interconnection, cost allocation, etc.) should be changed/amended/improved with regard to permitting?

Response: *Building energy infrastructure is extremely challenging, particularly in urban and dense areas including the 13 state territory serviced by PJM. Specifically, transmission developers regularly encounter delays associated with obtaining the necessary permits to construct a transmission line. These delays, at all levels of government (i.e., local, state, federal), often takes years to navigate. PJM has supported efforts to advance permitting reform at the federal level and continually works with its states to advance projects through the state-level siting approval processes. At the federal level, all laws relating to the permitting and siting of energy infrastructure should be reviewed and modernized. Additionally, grassroots community opposition to transmission infrastructure can add years to the development of a project, or terminate a project entirely. While early input from the community is essential, there should also be a recognition of the immense public benefit that this infrastructure will provide to all utility customers.*

3. What are your specific challenges when it comes to planning and cost allocating high voltage transmission lines?

Response: *Transmission planning is a complex and challenging assignment and considers many variables. PJM continually plans for transmission both within our footprint and with our neighboring grid operators using a process known as the Regional Transmission Expansion Plan (RTEP). Through the RTEP, PJM identifies emerging needs of the grid, potential reliability violations, areas for market efficiency improvement, and public policy requirements. This process occurs through an open and transparent stakeholder process subject to the oversight and approvals of FERC. Of course, the price tag of transmission solutions are not cheap and the cost of transmission packages could run into the billions of dollars. As for cost, the various formulae for cost allocation are determined by the Federal Energy Regulatory Commission. Allocating the costs of these projects is exceedingly difficult when particular customers (or states) that are expected to pay for a particular project argue that they will not receive benefit from that project. While FERC's Order 1920 reforms are intended to address the complicated issues associated with transmission planning and cost allocation, it is too early to tell whether these new policies will be effective.*