



**U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON ENERGY & COMMERCE, SUBCOMMITTEE ON ENERGY**

**Testimony of Manu Asthana
President and CEO, PJM Interconnection**

March 25, 2025

For Public Use

Introduction

Chairman Latta, Ranking Member Castor, Chairman Guthrie, Ranking Member Pallone and Members of the Subcommittee:

Thank you for the opportunity to participate in today's hearing to provide additional detail on a number of recent actions taken by PJM to help preserve electric grid reliability during a period of heavy forecasted demand growth. My name is Manu Asthana, and I serve as President and CEO of PJM Interconnection.

Based in Valley Forge, Pennsylvania, PJM ensures the reliable flow of power to 67 million customers in all or parts of 13 states and the District of Columbia. PJM has no profit motive, as it effectively functions as a not-for-profit entity that is fully regulated by the Federal Energy Regulatory Commission (FERC).

We liken our role to that of an air traffic controller, but for the electric grid. We don't own the high-voltage transmission lines that carry electricity where it is needed most, but we direct and balance the flow of that power throughout our footprint and to neighboring regions when they need it.

In addition to managing reliable operations, PJM also plans necessary enhancements to the grid to ensure reliability into the future and operates electricity markets within its region to competitively procure capacity and to efficiently dispatch resources to meet electricity demand, or load, in real time. The purpose of these electricity markets is to cost-effectively reinforce reliable grid operations.

Earlier this month, PJM's Sr. Vice President of Governmental and Member Services, Asim Z. Haque, provided [testimony](#) to this committee outlining PJM and its role while describing a number of concerning industry issues we have been voicing in recent years.

I will not reiterate every point that my colleague shared but will focus on:

- The significant new demand forecasted to enter the system, due primarily to data center proliferation but also due to expansion of the electric vehicle market, electrification of building heating systems and growth in U.S. manufacturing
- Solution-oriented actions PJM has undertaken to help bring new supply to the system and to continue to appropriately reflect supply/demand fundamentals in our market

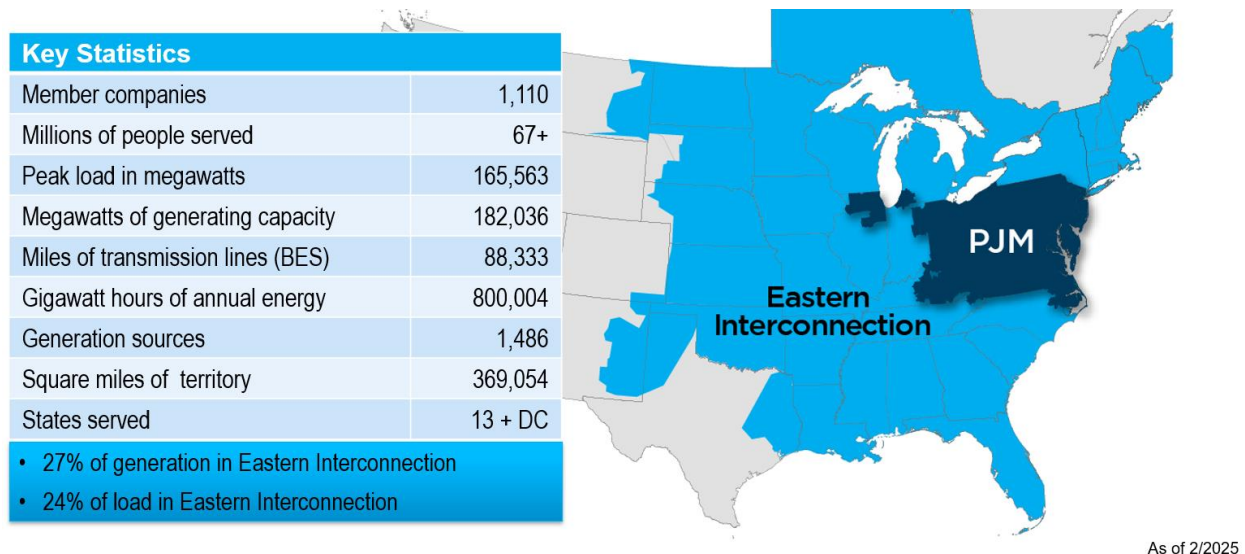
We look forward to our continued work with this Committee and members on both sides of the aisle, and thank you for your attention and collaboration as we address these issues constructively and proactively. In addition, we appreciate the strong leadership provided by our regulator, the Federal Energy Regulatory Commission, as we move forward as an industry.

Testimony

PJM and Its Role

PJM's footprint encompasses all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and Washington, D.C., as shown in **Figure 1**. As such, we are responsible for ensuring reliable and efficient delivery of electricity over the bulk electric system to one-fifth of the nation. We are fuel and technology neutral in carrying out this function, valuing resources using different fuels and technologies based on their reliability value and cost-effectiveness.

Figure 1. PJM Service Territory



PJM's Operations, Markets & System Planning Have Supported Strong System Performance Over a Long History

Founded in 1927, PJM is an independent, federally regulated organization charged with undertaking three core functions:

- Real-time operation of the bulk power grid
- Market operations to ensure the most cost-effective and efficient procurement and dispatch of resources to meet customer demand
- Planning the expansion of the electric transmission system to meet future customer needs

Each of these functions operates in tandem to ensure the reliable and economically efficient delivery of electricity to the 67 million Americans we serve, not just today, but in the future.

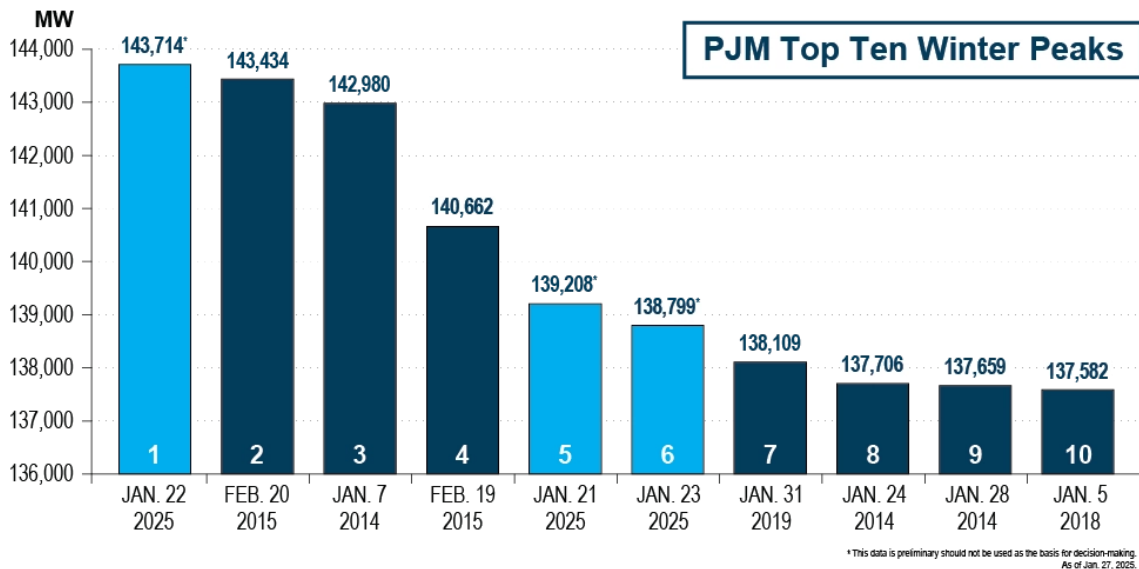
PJM's markets exist to reinforce grid reliability by ensuring that market signals work in tandem with regional reliability requirements and the standards promulgated by the North American Electric Reliability Corporation (NERC). For example, our capacity market is designed to procure resources available to meet projected peak demand and other contingencies ahead of time. Through our Day-Ahead and Real-Time energy markets, we economically dispatch the most cost-effective resources to meet the hour-by-hour demand for electricity within the physical limitations of the transmission system.

In addition, based on economics and needs, in any given hour, PJM facilitates the export or import of power to and from our interconnected neighboring systems, including: those systems to our south, such as Duke Energy in the Carolinas and the Tennessee Valley Authority; the Midcontinent Independent System Operator (MISO) to our west; and the New York Independent System Operator to our north.

Our strong interconnected ties with our neighbors have allowed us to facilitate exports to our neighbors in MISO, TVA, Duke Energy-Carolinas and the Southwest Power Pool (SPP) during tight conditions. On Feb. 21, when some of our neighbors were experiencing record electricity demand, we were exporting approximately 14,000 MW of power.

On Jan. 22, PJM itself reached a preliminary record for winter demand approaching 145,000 MW, also while supporting neighboring systems on all fronts. See **Figure 2** below. At the same time, end-use customers within the PJM region benefit from lower-cost supplies of electricity from our neighbors during other times of the year. These strong ties (which we refer to as "interregional transfer capability") help to support reliable and cost-effective operations throughout the entire Eastern Interconnection and our participation in the Eastern Interconnection also enables us to import energy from our neighbors when our system is stressed.

Figure 2. PJM Top Ten Hourly Winter Peaks

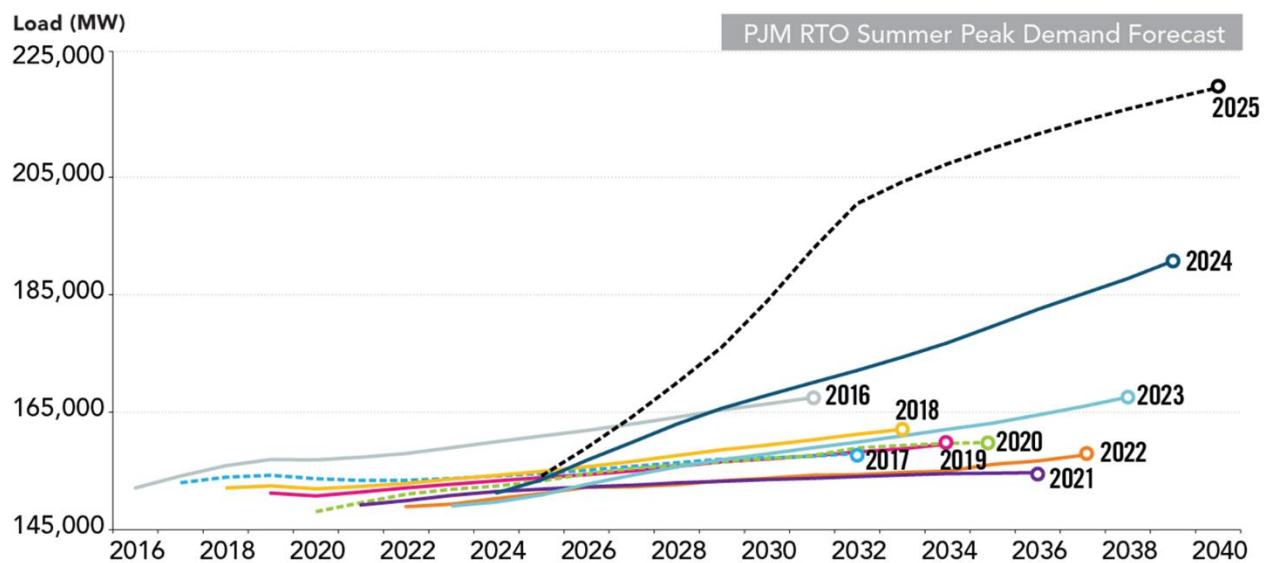


Recent Trends Have Increased Resource Adequacy Risk

PJM has analytically studied and will continue to study the impacts of the quickly changing energy landscape. Based on our analysis, we have observed several trends that, when taken together, create a growing resource adequacy concern. These trends are not limited to PJM's region – they are impacting a significant part of our country.

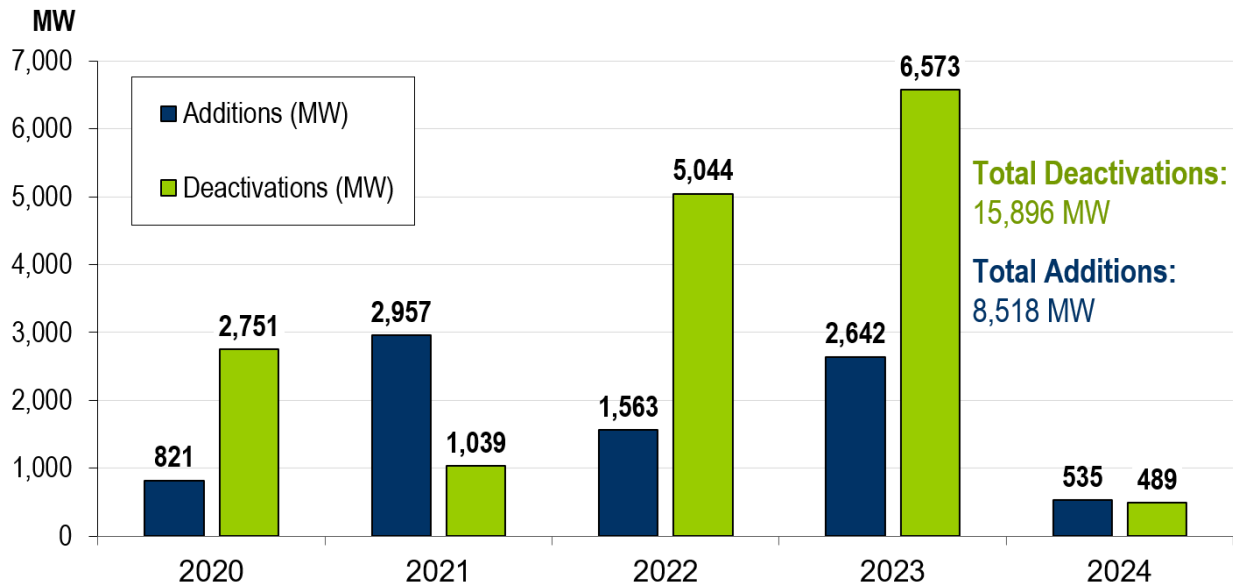
- The rate of electricity demand is anticipated to increase significantly in the future due to the development of large data centers in the PJM service area, shown in **Figure 3**. There have also been increases in demand coming from the electrification of the transportation and heating sectors and from industrial growth. After more than a decade of mostly flat demand growth, these developments are welcome because they represent economic development. PJM is focused on ways to serve this growing demand reliably.

Figure 3. PJM 15-Year Summer Peak Demand Forecast



- Additionally, the pace of retirements of existing dispatchable fossil-based resources, largely due to state and federal policies, is clearly outpacing the rate of construction of new resources, shown in **Figure 4**.

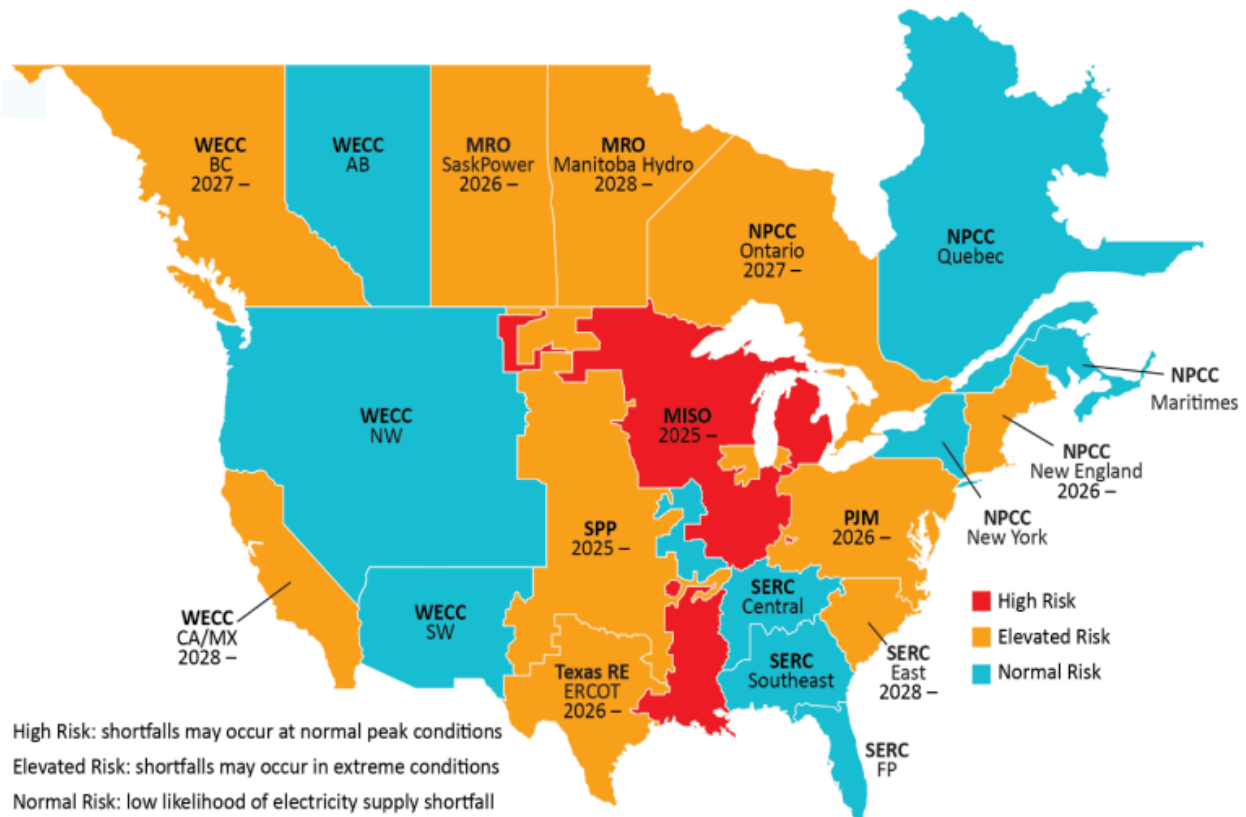
Figure 4. Deactivations and Additions – Estimated Unforced Capacity MW (Based on 2026/2027 BRA ELCC Class Averages)



- Our interconnection queues are composed primarily of intermittent renewable resources that have different operating characteristics than the generation they are replacing. Given these differences, one unit of nameplate capacity of retiring generation requires multiple units of replacement capacity. Longer duration batteries and potentially other technologies could change this equation in the future if they can become more cost-effective and be deployed at scale.

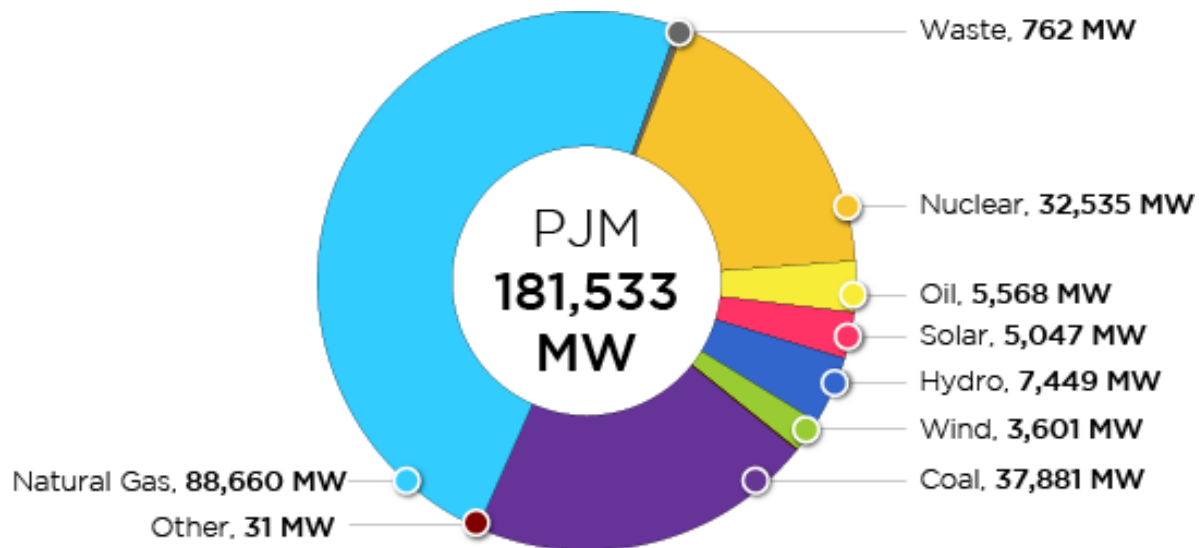
The North American Electric Reliability Corporation (NERC) recently determined in its annual assessment that mounting resource adequacy shortfalls now have the potential to affect two-thirds of the country during peak or extreme system conditions. See **Figure 5** below. NERC's independent analysis also found that while a clear understanding of many challenges facing the industry is needed to address the problem, the risks to reliability are also influenced by government policies, regulations, consumer preferences and economic factors.

Figure 5. NERC 2024 Long-Term Reliability Assessment



Fortunately, PJM has had a diversified portfolio of generation assets that have capably served to maintain grid reliability for many years, as noted in **Figure 6** below. This portfolio has been undergoing significant transition in recent years. Dispatchable generators, i.e., those generators that can quickly respond to directions from PJM operators regardless of weather, are retiring at a rapid, date-certain pace, largely due to state and federal policies. Although today the category of dispatchable generators largely refers to fossil-fuel-based resources, longer-duration batteries and potentially other technologies could also serve in this role in the future to the extent they can become more cost-effective and be deployed at scale.

Figure 6. PJM Existing Installed Capacity Mix (Capacity Interconnection Rights — as of Dec. 31, 2024)



Notably, PJM is resource agnostic and works to facilitate the entry of all resources onto the system. As demand increases, PJM will need not only a substantial amount of this mostly renewable generation currently seeking interconnection, but also additional dispatchable supply to meet our forecasted demand increases in future years.

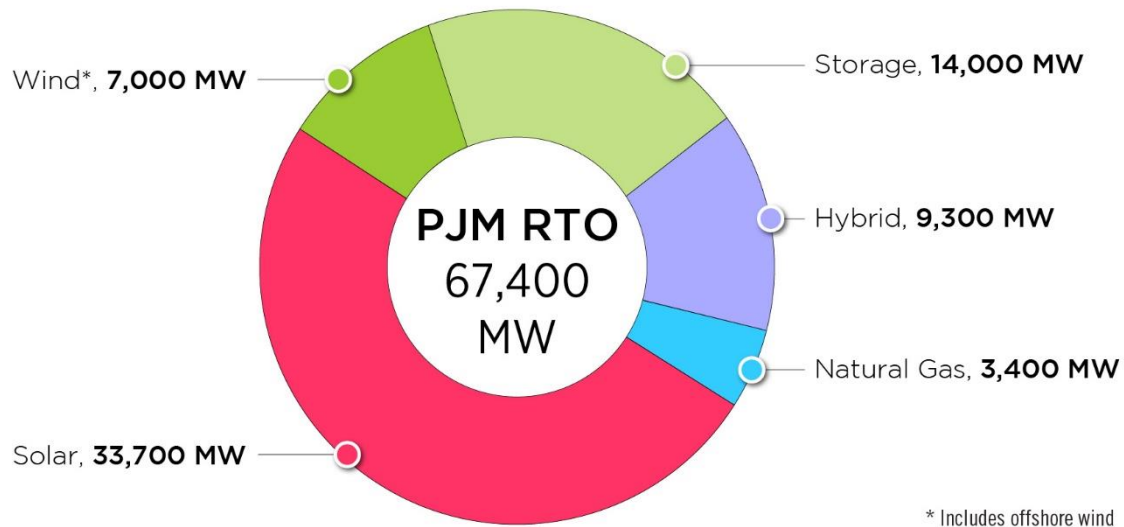
PJM and Our Members Have Taken Significant Actions To Mitigate This Risk

PJM identified this growing resource adequacy risk more than two years ago with the publication of our [Energy Transition in PJM: Resource Retirements, Replacements & Risks study](#) (PDF) and has been focused on actions to mitigate the risk. These actions include:

Significant Interconnection Process Reform: With overwhelming stakeholder support and the approval of PJM’s proposal by FERC in 2022, PJM launched significant reforms that moved the interconnection process from a “first-come, first-served” system of queue management to a “first-ready, first-served” system with progress payments and milestones designed to weed out speculative projects. A current snapshot of PJM’s queued capacity by fuel type is included below (**Figure 7**).

- That transition started in July 2023 and is expected to be completed next year. Currently, approximately 50 GW of generation is through the queue with completed studies, approximately 18 GW is being processed to move to the final study phase for completion this year, and an additional ~50 GW will be through the queue by late 2026. At that point, PJM’s transition to our new interconnection queue process will be complete, and new projects will be studied in 1–2 years in the normal course.

Figure 7. PJM Queued Capacity (Nameplate) by Fuel Type (“Active” Projects Currently Under Study in the PJM Queue as of March 21, 2025)



Reliability Resource Initiative – A queue opened for new, shovel-ready resources that can come online quickly and that most effectively contribute to reliability.

Capacity Interconnection Rights Transfer – A reform package endorsed by PJM stakeholders and currently pending review by FERC that would facilitate an expedited interconnection process for a replacement resource seeking to use the capacity interconnection rights of a deactivating resource. Effectively, this means that a new generation resource can swap in for a deactivating generation resource at the same or similar location and, as a result, would not need to go through the generation interconnection queue (e.g., coal plant retirement and gas conversion or renewables swapping in).

Surplus Interconnection Service – This work aims to streamline the use of the unused portion of interconnection service for a facility that cannot or does not operate continuously, every hour of every day, year-round (e.g., adding battery storage to a renewable site).

Significant Investment in Interconnection Tools & Automation:

- **NextGen** – A PJM planning tool designed to further streamline the generation interconnection process by providing a comprehensive and efficient interface to track projects from application to construction.
- **Queue Scope** – Allows users to visually evaluate the potential impacts of new generation on the power grid. Integrated with the PJM system map, users can visualize how a generator impacts congestion on lines, as well as the potential transmission upgrades that would be needed to interconnect a project.
- **Queue Destination** – this helps planners build models, process generator deliverability results and automate cost allocation and reports.
- **PowerTemplate** – an automation tool that assists in the drafting of generation interconnection agreements and other legal documents.
- **InfraTrack** – a resource for managing project milestones, task tracking and invoice cost allocation.

Capacity Market Reforms To Ensure Market Prices Accurately Reflect Supply – Demand Conditions:

- **Must-Offer Requirements** – Reforms meant to more accurately reflect the actual quantity of existing generation capacity resources, while continuing to safeguard against the potential exercise of market power that may be exerted by the withholding of such resources. The changes should result in additional resources being offered in PJM's upcoming capacity auction.
- **Reliability Must-Run Resources and Cost of New (Generation) Entry** – Reforms designed to recognize the capacity contribution of qualifying Reliability Must-Run units that may be expected to perform during capacity emergencies for the 2026/2027 and 2027/2028 Delivery Years. Reliability Must-Run units are generators that are asked to remain operating for a limited time beyond their intended retirement date to maintain system reliability.

These Actions Are Having an Impact

Collectively, the various proposals and reforms that PJM have pursued are making a difference as they are rolled out and implemented. When our queue reforms were implemented in the middle of 2023, PJM had approximately 253 GW of projects under study. That number has decreased substantially and will continue to decrease with remaining projects processed through the queue by next year. Meanwhile, newly approved programs, including PJM's Reliability Resource Initiative and Surplus Interconnection Service can also serve to add needed generating capacity and transmission capacity on the system.

In fact, PJM's Reliability Resource Initiative has attracted 94 completed applications (47 for updates to existing facilities and 47 for new generation) totaling 19.9 GW of unforced capacity and 26.6 GW of nameplate capacity. PJM will now use a FERC-approved rating process to select up to 50 projects to provide a one-time influx of reliable generation that is needed to meet demand over the next decade as PJM continues to integrate intermittent resources like wind and solar onto the grid.

Additionally, since the beginning of last year, 1,100 MW of existing generation chose to remain as supply resources in PJM after previously submitting a notice to retire. With tightening supply conditions, we encourage all generation owners who have signaled an intent to retire their units to reconsider their decision to support resource adequacy and grid reliability. Moreover, PJM also supports efforts to redevelop new units or restart existing units at the sites of former generating facilities. Examples include the proposal to convert the former coal-fired Homer City Generating Station in Pennsylvania to a new natural gas-fired facility. Similarly, a proposal to reactivate the former Three Mile Island Nuclear Generating Station (Unit 1) in Pennsylvania will contribute more than 800 new megawatts to the grid at a period when demand for electricity is projected to increase dramatically.

Recommended Ongoing Areas of Focus

Looking forward, PJM has identified a number of key areas of focus that will be important to support system reliability and resource adequacy:

1. Keep the resources we have online – We need existing generation to remain in place in support of reliability while we continue to integrate new resources on to our system.
2. Retirement reversals – We have seen a good deal of action on this front in recent months, and we are hopeful that this trend will continue given our market reforms.
3. Continue to automate the interconnection process using new tools with a focus on moving projects to construction and operation more quickly; in the near term, expand the addition of “shovel-ready” projects through the Reliability Resource Initiative.
4. Increase opportunities for demand flexibility, including potentially by finding more ways to access backup generation on site at large loads when the grid needs it most.
5. A continued focus on siting and permitting reforms to expedite the construction of new generation and transmission infrastructure.
6. Support additional investment in natural gas infrastructure (e.g., pipeline infrastructure) to enable more flexible operations of existing and new gas generators.

I thank you for the opportunity to present my testimony today. I look forward to your questions.