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Prefiled Statement of Adam Keech on Behalf of PJM Interconnection, L.L.C.

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Adam Keech Statement

My name is Adam Keech. I serve as the Vice President of Market Design and Economics at PJM, overseeing the design of PJM's markets. I am pleased to share PJM's perspective on resource adequacy challenges unique to our region.

PJM's Market Construct

Before diving into further discussion, I would like to address an important point. The panel's topic raises the possibility of exploring "potential alternatives to the existing mandatory capacity market construct." To clarify, PJM does not operate a mandatory capacity market. Load Serving Entities always have the option to hedge against market clearing prices by self-supplying resources to meet their obligations, either through direct ownership or by contracting for capacity outside of PJM's capacity market. Any resources that are self-supplied or contracted bilaterally can be offered into the RPM auctions as price takers by Load Serving Entities, so such resources will be used to count as capacity to meet the overall system loads. Additionally, qualified utilities may also explicitly opt out of purchasing capacity through the market entirely by selecting the Fixed Resource Requirement (FRR) alternative and meeting their obligation entirely outside of the market. Under the FRR alternative, which accounts for about 11,000 MW of load in the PJM service area, the load associated with the FRR election and associated resources are completely removed from the market.

As noted in the statement of CEO Manu Asthana, the Reliability Pricing Model (RPM) has always been designed as a residual market [as explicitly referenced by the Base **Residual** Auction (BRA)] – not as a mandatory market Load Serving Entity to secure resource adequacy. It is intended to procure capacity for those entities that do not fully self-supply their needs and to provide clear price signals that are designed to transparently inform self-supply and bilateral contracting decisions in the form of contracts for differences or other similar price risk allocation agreements. Accommodating self-supply ensures that all options are available to Load Serving Entities to manage their obligations and the risk associated with their supply arrangements. High reliance on the RPM, especially when supply tightens, can expose many customers directly to higher market clearing prices. In light of this, while the capacity market performs a critical function, it remains essential for Load Serving Entities to engage in prudent risk management by diversifying their procurement strategies beyond relying solely on the spot market provided by the RPM if they wish to avoid high prices. This is analogous to the hedging done in the energy market to avoid exposure to scarcity prices during reserve shortages.

The Challenge of Ensuring Competitive Pricing and Resource Adequacy

Secondly, I want to affirm that to date, the RPM has largely met its designed purpose – generating competitive pricing and supporting investment to secure resource adequacy. Nonetheless, the challenge we face currently is a complex one.

That said, PJM needs investment in capacity to meet the anticipated load growth. Current projections show approximately 5,000 MW per year of load growth for the foreseeable future. While much of this increase is due to

large load additions for which PJM has presented a strategy[1] to manage, additional generation is still needed to meet conventional load growth as well, particularly in the face of continuing projected resource retirements. Large load additions in the PJM service area act as an accelerant to the longer-term resource adequacy concerns in the region that were highlighted in the February 2023 report, Energy Transition in PJM: Resource Retirements, Replacements & Risks.[2]

The reaction from consumers and policymakers to the $269.92/MW-day clearing price from the 2025/2026 BRA has made it evident that there are likely a significant number of customers in retail states that are directly exposed to the wholesale capacity market price. There may be a number of factors that have led to this outcome, including delays in PJM auctions and historically low market clearing prices. The primary takeaway for PJM is that many consumers are not insulated from these prices as was originally theorized in the RPM design.

PJM has been working with The Brattle Group to update its estimate on the Cost of New Entry (CONE). This work has demonstrated that the $269.92/MW-day clearing price from the 2025/2026 BRA falls well short of updated estimates of CONE. As a result, for the capacity market to adequately support new entry past the 2028/2029 Delivery Year, prices need to be significantly higher than what was produced by the 2025/2026 BRA.

The combination of these factors creates an environment where it will be challenging for the capacity market to continue to demonstrate its prior successes without further legal challenges and instability in the rules. The recently observed high prices, while markedly lower than recent estimates of CONE, have already been met with complaints at FERC to change market rules and cap prices. Further, for the market to have an opportunity to incentivize new entry, prices need to move in a direction that will be viewed as even less acceptable to consumers and policymakers.

Addressing Key Barriers to Investment

Third, as Manu Asthana noted in the first panel, the fundamental role of PJM's capacity market is to secure sufficient power supplies three years in advance to maintain resource adequacy. While the market has supported meeting this objective, several growing challenges now impede its effectiveness:

- **Insufficient Market Revenues:** Limited revenues constrain the level of investment needed for new capacity.
- **Regulatory Uncertainty:** Issues stemming from tariffs, tax credits and related supply chain challenges create an unpredictable environment.
- **Environmental Policy Challenges:** Both state and federal policies can hinder the development of new thermal resources, require costly retrofits to existing capacity and cause delays in siting and permitting – factors largely beyond PJM's control.
- **Departure from the Three-Year-Forward Feature:** As a result of delays in regulatory issues in the past, PJM has had to catch up in the timing of its auctions in order to be able to return to the original three-year-forward capacity market design. Although one can debate whether a prompt auction is preferable to a three-year-forward auction, rather than an intentional review with stakeholders of whether or not to depart from the original

[1] PJM Large Load Additions Workshop, presentation (PDF) by Tim Horger, Sr. Director – Forward Market Operations & Performance Compliance, May 9, 2025.

[2] Energy Transition in PJM: Resource Retirements, Replacements & Risks (PDF), Feb. 24, 2023.

three-year-forward feature of the PJM capacity market, PJM has found itself in this unfortunate position as a result of past circumstances. Further complicating this is that typical construction timelines on generation now exceed three years, calling into question the benefits of getting back on schedule.

Despite these barriers, it remains critical that the capacity market sends price signals that are consistent with PJM's resource adequacy needs. As it stands currently, PJM believes continued investment in generation and demand response are needed to meet the resource adequacy needs of today and the future. States can also help encourage the development of new generation with equivalent grid attributes to those units retiring. In this way, states can help provide a more balanced portfolio of resources being entered into the capacity market.

Invitation for Feedback

Long-term stability and a clear market direction are vital for our region to continue attracting the investments needed to address today's challenges and to secure a reliable future energy supply. We view this forum as an opportunity to gather your feedback and insights. We are keen to learn about additional mechanisms or enhancements that could help the capacity market better maintain resource adequacy without sacrificing affordability, especially under current regulatory constraints and anticipated load growth. Moreover, we welcome your input on whether the direction of our ongoing enhancements align with the long-term goals that the Commission has upheld over many years, regardless of changes in leadership or administration. To assist in this effort, PJM is providing responses to certain of the Commission's questions in this testimony.

Thank you for your time and thoughtful consideration.

Responses to Commission Questions for this Panel:

1 | What is the state of resource adequacy in PJM in the near term (e.g., over the next five years) and over the longer term (e.g., ten years and beyond)?

Resource adequacy has and continues to be the focus of PJM's RPM. The RPM continues to provide transparent price signals that incentivize continued investment and participation in PJM despite increasing challenges due to increased retirements, a changing resource mix and the rapid addition of large load to the system.

That said, the 2025/2026 Base Residual Auction cleared just enough resources to meet the reliability criteria for resource adequacy. This tight situation has created cost pressures for unhedged load entities resulting in a series of complaints to address various capacity market topics. These changes include PJM's Section 205 filings to account for resources with qualifying Reliability Must-Run agreements in the auction[3] as well as PJM's application of the capacity market must-offer requirement to all existing generation capacity resources,[4] which is expected to reflect a significant amount of additional supply in the upcoming auctions.

While those changes will have the effect of adding supply and limiting cost impacts to customers, it is not clear if that alone will be effective in maintaining resource adequacy in the PJM footprint, given the nearly 5,000 MW increase in the 50/50 peak load forecast that is anticipated through at least 2030. Additionally, while PJM's negotiation of a $325/MW-day price cap successfully resolved Pennsylvania's complaint and avoided further delay of the auction,[5] recent estimates from the ongoing work with The Brattle Group on the upcoming quadrennial review indicate that the net cost to build a new natural gas-fired resource may be significantly higher after the 2027/2028 Delivery Year. Those anticipated high-net costs are further consistent with the recent demand curve reset process in the New York Independent System Operator (NY-ISO) region.[6]

PJM will continue all efforts to meet the resource adequacy challenges, including, but not limited to, facilitating the development of new resources, retaining existing resources, further enhancing the ELCC model to accurately account for supply during the hours of highest risk, and exploring opportunities to increase the participation of demand resources. While all of these efforts may help to alleviate some issues on the supply side, increases in the load forecast are likely to continue over the next several auctions and pose a challenge to meet the growing demands. It is for this reason that we intend to also engage with stakeholders, regulators and state policymakers on the larger issues outlined in Manu's testimony.

Finally, it is important to note the role of demand response in maintaining resource adequacy both currently and in the future. In the 2025/2026 BRA, demand response accounted for approximately 4.5% of capacity that

[3] PJM Interconnection, L.L.C., Revisions to Reliability Pricing Model, Docket No. ER25-682-000, (Dec. 9, 2024).

[4] PJM Interconnection, L.L.C., Extending the Capacity Must-Offer Requirement to All Generation Capacity Resources, Docket No. ER25-785-000, (Dec. 20, 2024).

[5] PJM Interconnection, L.L.C., 191 FERC ¶ 61,066 at P 51 (2025) (finding that PJM's proposal to establish a price cap of $325/MW-day and a price floor of $175/MW-day for all RPM auctions for the limited timeframe of the 2026/2027 and 2027/2028 delivery years was just and reasonable and will reduce price volatility).

[6] New York Independent System Operator, Inc., ICAP Demand Curve Reset Proposal, Docket No. ER25-596-000 (Nov. 19, 2024).

cleared. If generation resources are unable to be developed economically to meet anticipated load growth in PJM, it will be critical to have flexible demand that is willing to curtail in order to maintain reliability.

2 | Going forward, what steps will PJM need to take to ensure resource adequacy? Is PJM's resource adequacy construct adequate to determine resource adequacy needs given changing circumstances (e.g., unforeseen load growth, changes in state public policy requirements, faster-than-anticipated retirement of resources)?

While PJM is the North American Electric Reliability Corporation (NERC)-registered entity, PJM cannot "ensure resource adequacy" on its own, as PJM does not have the authority to require new generation to be built. Instead, PJM's only tool to support investment needed to maintain resource adequacy is to incentivize the rational entry and exit of capacity through its markets.[7]

PJM can and will continue to take steps to refine its risk modeling and design of its capacity market. More broadly, PJM's markets reflect the best design at the time a particular proposal was filed. However, there can always be improvements to the design of the markets, and we will continue our work in that area. For example, PJM is pursuing options to provide incentives for large loads to participate in demand response programs and/or a new type of flexible service.

More specifically to current conditions, PJM intends to work with stakeholders to identify what in the current market design or circumstances has not led to the bilateral contracting and other risk management approaches originally theorized in the RPM design. PJM believed that the RPM would be used primarily to inform prices for bilateral contracts that would create revenue stability for suppliers to invest and protect consumers during periods where supply is tight and prices are high. The current market design and results have not produced this activity. We need to figure out why it has not and what changes, if any, will encourage more bilateral contracting.

3 | How does PJM establish its load and resource forecasts?

A. Have the assumptions driving load and capacity resource forecasts changed over time? If so, how?

B. How do the forecast models weight different inputs? Are some assumptions more uncertain, important or impactful than others?

PJM's Load Forecast Model produces 15-year monthly forecasts of unrestricted peaks assuming a range of weather conditions for each PJM zone, Locational Deliverability Area (LDA) and the RTO. The model uses trends in equipment and appliance usage, anticipated economic growth, distributed solar

[7] Notwithstanding, PJM notes that there currently is a reliability backstop auction mechanism to resolve reliability criteria violations caused by: (a) lack of sufficient capacity committed through the Reliability Pricing Model auctions or (b) near-term transmission deliverability violations identified after the Base Residual Auction is conducted. These backstop mechanisms are intended to guarantee that sufficient generation, transmission and demand response solutions will be available to preserve system reliability. The backstop mechanisms are based on specific triggers that signal a need for a targeted solution to a reliability problem that was not resolved by the long-term commitment of Capacity Resources through Self-Supply or the Reliability Pricing Model auctions.

generation and battery storage, plug-in electric vehicles, and historical weather patterns to estimate growth in peak load and energy use.

These statistical models capture economic, end-use and demographic factors, and include adjustments to layer in new and evolving technologies, such as behind-the-meter solar, storage and electric vehicles. PJM conducts outreach to Transmission Owners, Electric Distribution Companies and Load Serving Entities to identify significant load additions or subtractions, such as data centers, that aren't captured by historical trends. PJM further forecasts supply by tracking the capability of existing and planned resources and netting any forecasted deactivations that are preceded by notices of intent.

PJM continuously improves upon the assumptions used in developing load forecasts. Through the 2010s, forecasting challenges were largely focused on capturing the "decoupling" of historic load trends from demand-side enhancements, such as end-use energy efficiency improvements and behind-the-meter solar generation.

The predominant new driver of changing assumptions in load forecasts are large loads like data centers, which dwarf the impact of other outliers on the accuracy of load forecasting. Recent trends have also put increased emphasis on all hours instead of just peak hours, as assumptions regarding peak timing have evolved. Now, risk hours are occurring more frequently than just during the peaks, as was the assumption and observation historically.

Assumptions have varying levels of certainty and impact, and the forecast model weighs different inputs accordingly. For example, any technology that is early in its development cycle is uncertain. Data centers are still relatively new, and there's uncertainty on how big their demand might be, and there's added uncertainty as to where they might ultimately be developed. Compounding this is the rapid speed at which they can potentially develop and the challenge with timing for identifying appropriate market signals and developing necessary transmission enhancements.

Public policy can also have a significant impact on these inputs and assumptions. From the load side, one of the key things to watch for is electrification, as policies incentivizing electric vehicle adoption, for example, can drive changes in seasonal risk patterns. From a resource side, policy is also heavily influential in determining both the megawatts available as well as the type and even seasonal reliability of those megawatts.

PJM is provided with information on new loads that are expected to come onto the system, primarily based on data that is reported by Transmission Owners. PJM also utilizes an enhanced load adjustment process, which results in a more granular load forecast and a more accurate allocation of capacity obligations for large load centers. In fact, PJM has already successfully integrated this process during the 2024 Load Analysis Subcommittee meetings. These large loads are presented as load adjustments in a stakeholder forum where stakeholder review and commentary can be provided before the adjustments are ultimately reviewed by PJM's load forecasting team, which ultimately determines whether the adjustments are appropriate to consider. That said, load forecasts are, by definition, a forecast of what is currently expected in the future. As a result, no load forecast can be entirely accurate, particularly the longer-term load forecasts, as we enter a landscape of increased uncertainty driven by unprecedented load growth, regulatory volatility and supply chain concerns. Notwithstanding,

there have been notable efforts at the state level to require deposits and other commitments from large loads before their loads are added to a load forecast. These developments are encouraging to promote certainty in load forecasting, at least in the near term.

C. How have the forecasts performed historically, and are you considering any changes to forecasting models or processes? For example, are you considering requiring demonstration of commercial readiness from prospective new large load additions?

Forecast models are under constant development. During the 2010s, the forecast models resulted in over-forecasting, and development was focused on identifying improvements to address that by accounting for changes driven by demand-side enhancements, such as energy efficiency and behind-the-meter generation. In more recent years, loads have been under-forecasted. However, it is still too early to tell if that is a trend, especially as PJM continues to adapt to the new arrival of rapid and concentrated large load additions. There is considerable growth expected in at least the next five years, which inherently creates greater risk of error in the forecast, both in terms of under- or over-forecasting. A recent report from the Department of Energy's Lawrence Berkeley National Laboratory put the potential range of energy use at "6.7% to 12.0% of total U.S. electricity consumption forecasted for 2028," which it translated to "a total power demand for data centers between 74 and 132 GW."[8] Just considering that data point alone, for PJM, that would signify a 10 GW range in the expected forecast only three years out, and that is only the portion of the forecast related to data centers alone.

As large loads are retail loads, their interconnection is within the authority of the states. PJM is encouraged by efforts to prevent stranded costs or double counting through some of the efforts to provide more tangible commitments from data centers before the data center load is added to the forecast. However, this is not a panacea, as it is important to ensure that the region sends signals that allow for the development of artificial intelligence and other enabling infrastructure while, at the same time, protecting remaining customers from cost shifts or stranded costs.

4 | To what extent are barriers to entry (e.g., the interconnection queue backlog, supply chain limitations, siting and permitting delays, etc.) impeding the ability of the capacity market to achieve resource adequacy at just and reasonable rates? What opportunities are there to address these barriers to entry?

The prime barriers to entry impeding the ability of the capacity market to achieve resource adequacy are: (1) insufficient market revenues to support investment, as evidenced by the Brattle Group analysis demonstrating that the current price caps are likely insufficient to spur new investment for the 2028/2029 Delivery Year and subsequent delivery years while the cost to build generation continues to increase;[9] (2) regulatory uncertainty from tariffs and tax credits, including supply chain issues exacerbated by the current environment; (3) regulatory uncertainty stemming from state and federal environmental policies that challenge the new build of

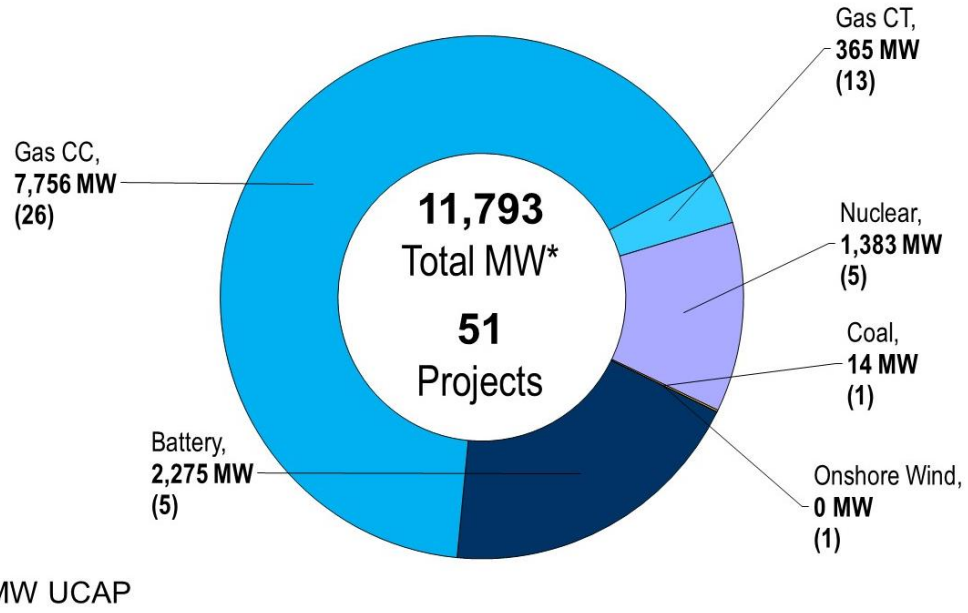
[8] Department of Energy, Lawrence Berkeley National Laboratory, Energy Analysis & Environmental Impacts Division, 2024 United States Data Center Energy Usage Report at 6 (Dec. 2024) (PDF)

[9] The Brattle Group, Sixth Review of PJM's Variable Resource Requirement Curve For Planning Years 2028/29 Through 2031/32 (April 9, 2025) (PDF) (Estimating that "[t]o provide sufficient economic incentives to attract net imports (and avoid net exports) to address any near-term capacity shortfalls, the PJM price cap would need to be in" the $524-$631/MW-day range)

thermal resources, force costly retrofitting of existing resources, and create siting and permitting delays at the state level that PJM cannot adequately mitigate.

As for the interconnection queue, PJM filed, and FERC accepted, the Reliability Resource Initiative (RRI), which re-opens Transition Cycle 2 to certain projects targeted at addressing resource adequacy concerns. This will enable certain resources to be interconnected approximately 18 months sooner than they would have otherwise had to wait, which has attracted over 9 GW (UCAP) of reliable resources for the PJM region.[10] This initiative, in addition to the approval of PJM's most recent queue reform process,[11] will serve to expedite future interconnection requests. PJM's RRI has resulted in a mix of new generation with near-term in-service dates and relatively high ELCC values to be included in Transition Cycle 2. The following is a breakdown of those projects that were selected through the RRI:

Figure 1. Breakdown of Projects Selected Through the Reliability Resource Initiative



5 | How does PJM consider electric-gas coordination issues in the context of resource adequacy planning and capacity resource accreditation?

A. To what extent do uncertainties pertaining to natural gas fuel supplies or infrastructure constraints affect resource adequacy planning in PJM? How can PJM better address those uncertainties?

B. Does PJM need additional natural gas pipeline infrastructure for the future or is existing infrastructure sufficient?

PJM's accreditation model uses marginal Effective Load Carrying Capability (ELCC). While PJM's ELCC model does not explicitly account for gas-electric coordination issues, those issues are implicitly

[10] PJM Interconnection, L.L.C., Reliability Resource Initiative Summary Results (PDF)
[11] PJM Interconnection, L.L.C., 181 FERC ¶ 61,162 (Nov. 29, 2022)

accounted for in the historical generator performance used by the ELCC model, which reflects any impacts resulting from gas-electric coordination issues. Specifically, PJM incorporates historical performance data in the ELCC model, which lowers the expected resource adequacy contribution of resources and resource types that have previously been on forced outages as a result of such issues. That is, the ELCC model incorporates the correlation between observed historical forced outage rates and colder winter weather, driven in part by the gas-electric coordination issues. Given the historic electric-gas coordination issues, the ELCC model appropriately accounts for additional winter reliability risks associated with gas-fired resources by producing lower accreditation values as more gas-fired resources are added to the system. As new weather events and generator performance are rolled into PJM's resource adequacy analysis over time, improvements in gas-electric coordination or demonstrated changes in performance of these resources will be captured in the ELCC model.

PJM strongly believes that incremental gas transportation and storage capacity is critically needed to accommodate not only the rapid growth in gas and electricity demand, but also to address intraday gas generator flexibility requirements associated with the increased penetration of intermittent energy resources. PJM already observes instances today where certain generation resources become unavailable or inflexible due to pipeline restrictions. Moving forward, gas delivery systems will be even more heavily relied upon and in new ways that can only be accomplished through the strategic build-out of pipeline and storage assets. Today, most of the interstate pipelines serving the PJM generation fleet are fully subscribed. Therefore, even if a generator wanted to acquire firm capacity, it is generally unavailable except through capacity release when the primary contract holder is not utilizing that capacity. It is for this reason that PJM has intervened in certain pipeline certificate applications to support infrastructure improvements that would have a direct tangible benefit in the PJM region.[12]

In sum, more is needed at the regulatory level to improve gas-electric coordination. I note that on Feb. 21, 2024, PJM, MISO, SPP and ISO-NE jointly published a paper entitled Strategies for Enhanced Gas-Electric Coordination: A Blueprint for National Progress, which detailed 14 specific recommendations that could be implemented by federal and state regulators to improve this coordination.[13]

6 | To what extent does the availability of regional and interregional transmission capability affect resource adequacy planning in PJM? How can PJM better address the effect of transmission capability on resource adequacy?

Regional transmission capability can have significant impacts on resource adequacy planning in PJM. Interregional transmission capability is also taken into account for purposes of resource adequacy planning in PJM. PJM cleared 1,485.2 MW of Installed Capacity (ICAP), or about 1268.5 MW of Unforced Capacity (UCAP), of pseudo-tied capacity imports in the 2025/2026 BRA.[14] Notwithstanding their physical location,

[12] Eastern Gas Transmission and Storage, Inc., PJM Comments In Support Of The Application Of Eastern Gas Transmission And Storage, Inc.'s Capital Area Project, Docket No. CP25-29-000 (April 15, 2025); Transcontinental Gas Pipe Line Company, LLC, PJM Comments in Support of the Application of Transcontinental Gas Pipe Line Company, LLC for a Temporary Emergency Certificate, Docket No. CP21-94-004 (Oct. 7, 2024).

[13] Strategies for Enhanced Gas-Electric Coordination: A Blueprint for National Progress (April 21, 2022) (PDF)

[14] PJM 2025/2026 Base Residual Auction Report, Table 4 (July 30, 2024) (PDF)

these resources must meet all other requirements of a capacity resource physically located in the PJM footprint to be considered for purposes of resource adequacy.

PJM also offsets 1.5% of its Installed Reserve Margin (IRM) in consideration of the Capacity Benefit of Ties (CBOT). The CBOT essentially represents non-firm energy that is expected to be deliverable over tie lines when PJM is in an emergency. CBOT does not conform to the unit-specific definition of capacity in PJM, as neighboring regions only deliver this non-firm energy to the extent they can do so. As a result, the assumptions underlying the current CBOT may be revisited given its nonconformance with the definition and obligations of capacity in PJM, and also because supply and demand conditions in PJM's neighboring systems all show signs of tightening.

More generally, additional transmission capability is only valuable when there are megawatts available to be delivered using that transmission capability. PJM's concern, as illustrated in NERC's Long-Term Resource Adequacy Report,[15] is that half of North America is experiencing capacity shortages, and that there are therefore fewer megawatts to be delivered via regional or interregional transmission. Given that, and the capacity and load growth dynamic in the PJM service area, PJM believes it is more beneficial to focus on ways to expedite getting additional supply to the system in the form of generation or demand response capability, as well as maintaining supply through the retention of existing resources.

7 | Is the PJM capacity market adequately designed to provide correct signals for needed capacity additions? Given the degree to which the capacity market rules have changed in recent years, is the PJM capacity market producing stable investment signals? How have these frequent rule changes affected market participants and consumers? How has PJM sought to maintain stable investment signals in the face of these changes?

PJM's capacity market is adequately designed to produce price signals consistent with the modeled supply and demand for any given auction year. As an example, the 2025/2026 BRA cleared at roughly the estimate of Net CONE applicable for that auction, indicating the need for investment in PJM. PJM believes that the signal is accurate for the current conditions. It is true that over time there have been a significant number of changes to the market rules driven by PJM, stakeholders and FERC, and those changes have impacted the auction results in different ways that have contributed to movement in capacity prices in PJM. But that does not mean those changes were not appropriate.

Stability in the capacity market is a challenging objective for a number of reasons. First, at the macro level, there are competing objectives between getting the supply-demand fundamentals right in any given year and stability over the long term. For example, and notwithstanding any specific rule change, the PJM system is changing dramatically as thermal generation retires in chunks (approximately 5,700 MW between the 2024/2025 and 2025/2026 BRAs) and large load additions enter the load forecast leading to increases in the 50/50 peak load forecast of about 5,000 MW per year. Getting these changes correct in any given year can result in a step change in prices that can be viewed as instability over the long term.

[15] North American Electric Reliability Corporation (NERC), 2024 Long-Term Reliability Assessment December 2024 (PDF), at 21, 39 (Dec. 31, 2024)

Second, the recent changes in risk modeling and accreditation have impacted market outcomes, which have, in turn, led to changes to supply in the capacity market. For example, PJM's recent risk modeling enhancements have shown that the PJM system is at increased risk of load shed events in the winter. This finding, combined with the outcome of the 2025/2026 BRA, has prompted changes to the definition of the demand response product in PJM and also discussion regarding how winter capability on thermal units can be considered. In both cases, these are changes to longstanding rules of what we consider as capacity supply that, in isolation, are rational changes given changes in our view of resource adequacy risk. However, they can be viewed as a market rule change detracting from a long-term, stable investment signal. Additionally, the 2025/2026 BRA results motivated changes to include a capacity contribution from qualifying Reliability Must-Run units. Historically, these resources were never assumed to be capacity in PJM but had the option to offer into the capacity market and take on a commitment should they have chosen to do so. Following the 2025/2026 BRA and resulting increases in capacity costs, it was generally viewed as unacceptable by load interests to not include some capacity contribution from these resources. This resulted in another change to a longstanding rule that is viewed by supporting stakeholders to be necessary.

More broadly, there continues to be a disagreement between some parties in PJM over the product being sold and what supply is eligible to be offered. This is most easily evident in the continued debate in PJM over the use of marginal ELCC as the mechanism to accredit resources. The use of marginal ELCC leads to a product definition that focuses on performance during risk periods (consistent with Capacity Performance in general). Some stakeholders fundamentally disagree with this approach and have made statements and proposals that focus on a product that values availability and performance on average. This debate continues in PJM's stakeholder discussions despite the Commission's acceptance of marginal ELCC in PJM and other ISOs/RTOs. The lack of consensus on the product definition inevitably leads to the desire to make rule changes when the market outcomes do not align with one group's view of what "should be."

As noted in Manu Asthana's testimony, we are looking to engage stakeholders in the larger issues of encouraging bilateral contracting, the role of the states (and particularly restructured states) and other fundamental market design enhancements. High reliance on the capacity market results in direct exposure to the impacts of various market rule changes and changes in capacity market prices for both supply and demand, which may be difficult to manage. PJM's view is that the capacity market's optimal role is to inform bilateral contracting, which should support the vast majority of investment needed to maintain resource adequacy. We hope to work with stakeholders on ways to cultivate that behavior.

8 | Are there alternatives to a mandatory capacity market construct that should be considered, such as a residual capacity market construct (e.g., MISO), enhanced use of self-supply mechanisms such as Fixed Resource Requirement (FRR), or other mechanisms, including allowing load-serving utilities to own generation, increased long-term contracting by load-serving utilities, or other alternatives? To what extent do the current PJM market rules allow for these alternatives?

To be clear, PJM does not operate a mandatory capacity market construct and does not intend to at this time. Rather, the RPM is and always has been designed to be a residual market to support Load Serving Entities in maintaining resource adequacy, which they are able to do achieve through self-supply arrangements including bilateral contracting outside of the RPM auctions. As evidence of this, currently about 11,000 MW of load opts out of the PJM capacity market to be explicitly self-supply under PJM's Fixed Resource

Requirement mechanisms. The RPM auctions, most significantly the Base Residual Auction, exists as a spot market for capacity. Like any spot market, however, Load Serving Entities that rely heavily on the spot market will be more exposed to cost fluctuations in the wholesale market.

Further, self-supply, whether through bilateral transactions or direct ownership, is also accommodated by the market by contracting for resources that can then be self-scheduled in the market (offered at $0/MW-day) or carved out of the market altogether as an FRR Entity. When a Load Serving Entity bilaterally contracts for capacity and offers the resource into the capacity auctions as price takers, that capacity will count toward the total resources needed to meet the load. Any revenues received for such resources can then be passed back to the Load Serving Entity to help offset the cost of the bilateral transaction. Alternatively, certain self-supply Load Serving Entities can elect to become an FRR Entity and be carved out of the market altogether by submitting FRR plans that demonstrate they have sufficient capacity to meet the Load Serving Entity's expected loads.

While the FRR alternative already provides flexibility today, PJM is open to feedback on how to make the FRR alternative more accessible for entities interested in self-supplying, as well as exploring alternatives to further incent longer-term bilateral contracting. The combination of the market construct, regulatory constructs of some states, low auction prices for many years, delayed auctions, market uncertainty, etc., have resulted in an environment where it appears many Load Serving Entities are directly exposed to market clearing prices that are rising due to a tightening of the PJM system, unprecedented load growth, and significant increases in the cost to build new generators.

9 | Several states in PJM have public policy requirements that drive resource entry and exit decisions. How does PJM work with the states and the District of Columbia to identify and meet the region's resource adequacy needs at just and reasonable rates? Has PJM studied the effects of state public policy on either resource adequacy or capacity market outcomes? What are the effects of state policies on resource adequacy in PJM?

PJM's work with states typically takes two forms. First, when invited, PJM can provide education to state policymakers on the potential impact of state policies on reliability. PJM has also studied the effects of various state laws, such as Illinois' Climate and Equitable Jobs Act, which will result in the mandatory retirement of thermal generation by set dates. PJM's Resource Retirements, Replacements & Risks (4R) report also studies the effects of state public policies, on resource adequacy, identifying over 40 GW of generation that are likely to retire by 2030 due to state and federal policies.[16] As shown in that report, which does not yet include the significant load growth now anticipated to be added to the forecast in that time, these retirements will have a detrimental impact on resource adequacy.

To the extent feasible, PJM seeks to adjust market rules to accommodate state policy objectives. For example, to allow states that elect to promote certain resource technologies, PJM modified the Minimum Offer Price Rule so that resources that receive financial incentives outside of the wholesale market would not be subject to the Minimum Offer Price Rule so long as there is no intent to exercise buyer-side market power. In

[16] See PJM Interconnection, L.L.C., Addendum to Energy Transition in PJM: Flexibility for the Future, at 4 (Aug. 8, 2024) (PDF). See also PJM Interconnection, L.L.C., Energy Transition in PJM: Resource Retirements, Replacements & Risks, at 2 (Feb. 24, 2023) (PDF)

this way, under the current Minimum Offer Price Rule, state policy objectives can be achieved because resources that are provided with financial incentives outside the wholesale market are no longer at risk of not clearing the capacity market. Additionally, PJM added another CONE Area in its Tariff to accommodate policy changes in the ComEd Zone resulting from the Illinois Climate and Equitable Jobs Act.