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**TO:** **PJM Pre-CIFP Workshop**
**FROM:** **PJM IMM.**
**SUBJECT:** **Issues for Large Load Additions CIFP**

## Introduction

The CIFP process to address the addition of large new data center loads to PJM markets is timely.

There is a market solution to the issues created by the addition of unprecedented amounts of large data center loads that does not require a massive wealth transfer. That solution is to require large data center loads to bring their own new generation. It is essential to have a pragmatic market solution that is consistent with and sustains efficient and competitive PJM markets rather than to create the conditions for a return to cost of service regulation.

In summary, the current tight conditions in the PJM Capacity Market are almost entirely the result of large data center load additions, both actual historical and forecast. The current supply of capacity in PJM is not adequate to meet the demand from large data center loads and will not be adequate in the foreseeable future. The solution is not to create reliability issues and wealth transfer issues by clearing the capacity market at the maximum price and at a quantity less than the reliability requirement. Status quo, co-location, cost of service, and load that is not load options all ignore the real issue and exacerbate reliability issues and customer cost issues. The market solution is to require new large data center loads to bring their own new generation with locational and temporal characteristics reasonably matched to their load profile. The generation must be able to serve the actual hourly load without transmission constraints. One benefit of being on the grid is that the new data center loads do not have to bring their own reserves.

On June 3, 2025, the Market Monitor published Part G of the analysis of the 2025/2026 BRA and sensitivity analyses related to the implications for the 2026/2027 BRA.[1] The basic conclusion of Part G is that data center load growth is the primary reason for recent and expected capacity market conditions, including total forecast load growth, the tight supply and demand balance, and high prices. But for data center growth, both actual and forecast, the PJM Capacity Market would not have seen the tight supply demand conditions, the high prices observed in the 2025/2026 BRA and 2026/2027 BRA or the high prices expected in subsequent capacity auctions.

[1] See "Analysis of the 2025/2026 RPM Base Residual Auction - Part G Revised," ("Part G") (June 3, 2025) <https://www.monitoringanalytics.com/reports/Reports/2025/IMM_Analysis_of_the_20252026_RPM_Base_Residual_Auction_Part_G_20250603_Revised.pdf>.

Holding aside all the other issues raised by the Market Monitor in parts A through H of this report, data center load by itself resulted in an increase in the 2025/2026 BRA revenues of $9,332,103,858 or 174.3 percent (Scenario 88).[2]

It is misleading to assert that the capacity market results are simply just a reflection of supply and demand. The current conditions are not the result of organic load growth. The current conditions in the capacity market are almost entirely the result of large load additions from data centers, both actual historical and forecast. The growth in data center load and the expected future growth in data center load are unique and unprecedented and uncertain and require a different approach than simply asserting that it is just supply and demand.

It is equally misleading to assert that the PJM Capacity Market does not work as a result of the impact of existing and forecast large data center load additions. Despite all the issues with PJM's changes to the capacity market design, the PJM Capacity Market would have provided for reliability at prices consistent with organic load growth and the cost of new capacity were it not for the paradigm shift represented by the almost inexhaustible demand for power from data centers.

Data center load growth is the core reliability issue facing PJM markets at present. There is still time to address the issue but failure to do so will result in very high costs for other PJM customers and could also result in a switch from competitive markets to cost of service regulation. Customers are already bearing billions of dollars in higher costs as a direct result of existing and forecast data center load as the Market Monitor demonstrated in Part G of the BRA Analysis report.

One of the many issues that have not been addressed to date and would not be addressed by other options is whether Part V (RMR) obligations would be incurred in order to serve large data center loads. Such obligations would not be incurred under the bring your own new generation option. Such obligations would be incurred under the other options. This is another significant subsidy that other load would be required to pay to support large data center load additions.

All of the currently identified options require PJM to plan the transmission system to meet large data center loads consistent with the RTEP and require all customers to pay an allocated share of the transmission upgrades required to serve large data center load additions.

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[2] See Monitoring Analytics, LLC reports on the 2025/2026 RPM BRA, "*Analysis of the 2025/2026 RPM Base Residual Auction,*" Parts A-H. These reports can be found at <https://www.monitoringanalytics.com/reports/Reports/2024.shtml> and <https://www.monitoringanalytics.com/reports/Reports/2025.shtml>.

## *The Role of FERC Regulated Markets*

Some generation owners have asserted that they have the right to sell their generation capacity in PJM to anyone they want, outside the capacity market. While that is a superficially appealing concept in a market economy, it is not correct. FERC established competitive markets as a substitute for cost of service regulation in order to achieve a more efficient path to just and reasonable rates. PJM and other wholesale power markets are not laissez faire markets where all behavior is acceptable. PJM markets remain regulated under the Federal Power Act, which is a customer protection statute. The goal of all the complex PJM market rules is to use competitive markets as a mechanism to establish just and reasonable rates. It is not just and reasonable to permit the addition of massive new data center loads to the PJM markets without generation to meet those loads. It is not just and reasonable to permit generators to remove themselves from the capacity market by selling their output to a large data center load while continuing to provide generators all the benefits of PJM markets.

Generation owners do have the option to sell their generation capacity to anyone they want, provided that they can show that the sale is consistent with the public interest, but that also means that lose the benefits of markets if they choose to operate outside PJM markets and market rules. Such generation owners would have to give up their CIRs because CIRs create a must offer obligation, and thus their deliverability. It is not clear that a generating unit could actually function effectively in PJM without CIRs and deliverability and access to the grid and grid resources.

The market rules exist to ensure that the market results provide reliability at a competitive price and are therefore just and reasonable.

# SOLUTIONS

## *Bring Your Own New Generation.*

The Market Monitor recommends that new data center load be required to bring their own new generation. If that recommendation were adopted, the impact of data center load growth on other customers would be limited, although the existing impact of the already embedded data center load would remain. In addition, the impact of the uncertain forecast of data center load on other customers would be limited or eliminated, and the slower underlying dynamic of organic load growth and incentives would play out.[3] Under this option, data centers would enter into bilateral contracts with developers to build generation with locational and temporal characteristics reasonably matched to their load profile. The capacity would be offered into and

[3] See "Pre Technical Conference Comments of the Independent Market Monitor for PJM," *Meeting the Challenge of Resource Adequacy in Regional Transmission Organization and Independent System Operator Regions*, Docket No. AD25-7.

clear in the PJM Capacity Market. Both the data center load and the associated generation would have an expedited queue option that would permit both the load and the generation to be added without delays.

It has been asserted that requiring large new data center loads to bring their own new generation would be discriminatory. The relevant standard for prohibited discrimination is unduly discriminatory.[4] It is not unduly discriminatory to identify the class of large data centers and impose requirements on that class that match the impact of that class on all other customers. It would be unduly discriminatory to all other customers, from the smallest residential customer to the largest industrial customer, to allow large data centers to add massive amounts of load to the system with resulting price impacts and reliability impacts on those other customers. Preventing undue discrimination requires that data center loads bring their own new generation.

It is not an overstatement to assert that the ongoing addition of large data center loads will put PJM competitive markets at risk unless there is a solution that requires large data center loads to pay for the costs that they would otherwise impose on other customers. This does not mean just the costs of a substation or a large financial commitment to purchase power. Bringing the new generation needed to meet the data center load is a long term investment required for reliable service that signals that data centers are in the markets for the long haul and committed to the competitive market design. The other options put PJM competitive markets at risk.

## *Other Options*

There are a number of other proposed options for addressing the reliability issues that result from the addition of large data center loads, including doing nothing, a return to cost of service regulation, imposing more financial commitments on new data center loads, allowing co-located load for existing generation, allowing bilateral contracts for existing generation, and defining a new category of load that is not load in the capacity market. None of these options includes a mechanism for adding capacity to serve the new load while maintaining competitive markets. Each of the other options creates a risk of ending competitive markets either directly or as a result of the high costs imposed on other customers that would create pressure to leave competitive markets.

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[4] *See* Federal Power Act § 205, 16 U.S.C. § 824d(b) ("No public utility shall, with respect to any transmission or sale subject to the jurisdiction of the Commission, (1) make or grant any undue preference or advantage to any person or subject any person to any undue prejudice or disadvantage, or (2) maintain any unreasonable difference in rates, charges, service, facilities, or in any other respect, either as between localities or as between classes of service.").

## Status Quo.

The option characterized as just letting the markets work is the doing nothing option or the status quo. This option does not directly address the fact that the doing nothing option will result in capacity market prices being at their maximum level for the foreseeable future, recognizing that a specific maximum price and minimum price have been established for the 2026/2027 BRA that occurred in July 2025 and the 2027/2028 BRA scheduled to occur in December 2025. The costs of the doing nothing option for all other customers in PJM will be very high.

The maximum price in the 2025/2026 BRA was $451.61/MW-day for the RTO. The RTO cleared at $269.92/MW-day while the BGE LDA cleared at its maximum price of $466.35/MW-day and the Dominion LDA cleared at its maximum price of $444.26/MW-day. The maximum price in the 2026/2027 BRA was $329.17/MW-day. Currently proposed maximum capacity market prices for the future, after the 2027/2028 BRA, range from $390/MW-day to $959/MW-day.[5]

PJM does not currently study the addition of large data center loads to ensure that the loads can be met reliably.[6] In other words, PJM does not determine whether there is enough capacity with the right attributes and in the right location to serve the load when a new large data center load is proposed by a utility. PJM's studies are limited to the adequacy of the transmission system to deliver energy from either existing generation or generation that is simply assumed to exist in the future. The addition of large data center loads without the assurance that the loads can be met reliably with existing generation puts the reliability of the system for other customers at risk.

If the additional data center load is not matched by increased capacity, PJM will fall short of its required reserve margin. Prices will be at the maximum price defined by the VRR curve with the likely result that billions of dollars of data center related costs will be imposed on other customers. Customers could perceive that they would be better off in an average cost design rather than a marginal cost design and choose to leave PJM markets.

In addition, the tariff provides that the capacity market reliability backstop option will be triggered if PJM falls short of its target reserve margin for three consecutive BRAs.[7] The tariff

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5 See Monitoring Analytics, LLC presentation to the August 22, 2025, MIC- Quadrennial Review meeting. "IMM Gross and Net CONE at 8 <https://www.monitoringanalytics.com/reports/presentations/2025/IMM_MIC_Quadrennial_Review_IMM_Gross_and_Net_CONE_20250822.pdf >.

6 *See*, *e.g.*, OATT § 32.

7 *See* OATT Attachment DD § 16.3.

also triggers the backstop option if PJM is short of "baseload generation" compared to forecasted minimum hourly load for three consecutive BRAs.[8] PJM's consultant proposed an earlier triggering of the backstop auction.[9] The backstop option provides that PJM may sign contracts for capacity resources for up to 15 years at full cost of service rates.

Implementation of such long term cost of service contracts would undermine competitive markets and suppress prices for competitive entrants because the backstop capacity is required to be offered in the capacity auctions at zero price.

## Cost of Service Regulation

The return to cost of service regulation urged by some current regulated utilities would be equivalent to a pay as bid, guaranteed long term cost recovery contract for those regulated utilities. The attractiveness to those utilities of adding to rate base and receiving a guaranteed stream of revenues is clear. The results for customers would include imposing the generation related costs of data center load solely on the customers of the utility that builds the generation and would include customers guaranteeing the payment of the current high cost of building new generation. The cost of service approach would undermine competitive markets by creating subsidized generation, where customers bear the risk, that would compete with market generation, where investors bear the risk.

The cost of service approach would require the customers of the utility to subsidize investors in the data centers by paying for the generation capacity needed to serve the data centers rather than requiring those investors to pay directly for the capacity they need.

Proponents of the cost of service approach explicitly reject the PJM market approach, confusing legitimate issues with the current market design and historical interconnection issues with a failure of PJM markets overall.[10] While many of the specifics of the critique of the market design and implementation are legitimate, the conclusion that competitive markets should be eliminated in favor of a return to cost of service regulation is not supported.

If the utilities assigned the costs of the new generation directly to data centers with no impact on other customers, it would be the equivalent of a bilateral contract with the data centers and

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8 *Id*.

9 See Brattle's presentations to the April 11, 2025 MIC – Quadrennial Review meeting, "Sixth Review of PJM's RPM VRR Curve Parameters," <https://www.pjm.com/-/media/DotCom/committees-groups/committees/mic/2025/20250411-special/item-01-1-cone-and-vrr-curve-final-recommendations.pdf>.

10 See Pre-Conference Statement of Wendy Stark on Behalf of PPL Corporation Panel 2: PJM's Resource Adequacy Challenge Docket No. AD25-7 (May 16, 2025).

qualify as data centers bringing their own new generation. Instead, the utilities' cost of service approach would impose these generation costs on all other customers.

## Financial Commitments.

Some have suggested that the problem can be solved by requiring new large data center loads to enter into contracts requiring the data centers to pay for local transmission upgrades like substations and/or to commit to paying minimum fees to cover the costs of broader transmission system upgrades. Others have proposed additional financial or contractual requirements for data center customers, such as upfront collateral requirements or minimum demand provisions that require a customer to pay for a certain level of service regardless of current demand.[11] None of those proposals have included required payments to hold other customers harmless from the impact on energy and capacity prices that result from the addition of data center loads.

A positive result of this approach would be to reduce some of the speculative load growth from PJM forecasts. That would limit the forecasting excesses but not eliminate the impact on PJM capacity and energy markets. While the uncertainty and excesses included in current forecasts exacerbate the underlying issue, that underlying issue is a result of the real forecasts for real load growth based on the addition of real data centers.

## Co-Located Load.

While it is hoped that the fundamental flaws in the co-located load approach have meant the demise of the co-located approach, the ongoing flood of requests for Necessary Studies and the associated filed Necessary Study Agreements (NSA) mean that some still hold out hope that this option can be pursued.[12]

The co-located load approach is worse than the do nothing approach because it can be implemented more quickly and because it fails to draw clear lines between actual reliance on market capacity resources for backup and on the grid for grid services, and the pretense that

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[11] *See* Pre-Filed Statement of Brian D. George on behalf of Google LLC, Docket No. AD25-7-000 (May 16, 2025) at 3–4.

[12] *See* Answer and Motion for Leave to Answer of the Independent Market Monitor for PJM, Docket No. ER25-1623-000 (April 21, 2025); *see also*, *e.g.*, Dockets Nos. ER25-1089-000, ER25-1226-000, ER24-1377-000, ER25-1385-000, ER25-1520-000, ER25-1754, ER25-1762-000, and ER25-1855-000.

the load is completely disconnected from the grid.[13] The co-located load approach would assign existing generating assets to large data center loads and remove the generating assets from the PJM supply for all other customers. This approach would simply ignore the negative reliability and cost impacts on all other customers. This approach would create significant reliability issues for other customers, significantly increase the cost of capacity and significantly increase the cost of energy and significantly increase the cost of reserves.

The co-located approach, if implemented broadly in PJM, would result in a failure to meet reliability standards, favoring new data center load over reliable service to other customers, and extreme price impacts on other customers in the energy, reserves and capacity markets.[14]

## Bilateral Contracts for Existing Resources.

Bilateral contracts for existing resources have many but not all of the downsides of the co-located load approach. Purely financial bilateral contracts, e.g. contracts for differences, work within the existing market design and have no impact on market outcomes for other participants. Bilateral contracts that provide sole rights to existing resources, effectively removing them from the capacity available to serve all load, would facilitate the short term addition of large data center loads to the system without adding generation. These bilateral contracts have the issues identified for co-located load arrangements. Such data center loads claim, in the case of bilateral contracts with existing nuclear or hydro plants, that they are served with 100 percent clean energy. Those claims are not correct. Such data centers are simply claiming rights to existing nuclear or hydro output while requiring, in fact, the addition of new emitting resources, paid for by other customers, to meet their 8,760 hour load profile. Such data center additions also assert that they do not need regulatory approval for such bilateral

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[13] *See, e.g.*, Comments of the Independent Market Monitor for PJM, Docket No. EL25-49-000 (April 23, 2025); Comments of the Independent Market Monitor for PJM, Docket No. ER24-2888-000, et al. (October 2, 2024); Answer and Motion for Leave to Answer of the Independent Market Monitor for PJM, Docket No. ER24-2172-000 (July 10, 2024).

[14] *See* Monitoring Analytics, LLC, "Potential Impacts to the Creation of Maryland FRRs," (April 16, 2020) <*https://www.monitoringanalytics.com/reports/Reports/2020/IMM_Potential_Impacts_of_the_Creation_of_Maryland_FRRs_20200416.pdf*>; Comments to the Maryland PSC Senate Bill 1 Co-location Study Administrative Docket PC 61 (September 24, 2024) <https://www.monitoringanalytics.com/filings/2024/IMM_Comments_MDPSC_PC61_20240924.pdf> ; Supplemental Comments to the Maryland PSC Senate Bill 1 Co-location Study Administrative Docket PC 61, (December 13, 2024) <*https://www.monitoringanalytics.com/filings/2024/IMM_Supplemental_Comments_re_MDPSC_PC61_Co_Located_Load_20241213.pdf*>.

contracts with existing resources.[15] The bilateral contract approach, unlike the co-located approach, recognizes that the data center load is part of the market and it does not pretend that the load is disconnected from the grid.

The bilateral contract approach is a variant of the do nothing approach but worse because it happens faster and without regulatory oversight and therefore brings negative consequences to the market for other customers.

## Load That Is Not Load In the Capacity Market

PJM proposes that large new data center loads be treated as "non capacity backed load."[16] There is no such thing as non capacity backed load. PJM capacity resources serve all load. The current rules require all loads to pay for capacity under the PJM must buy/must sell capacity market design. The PJM proposal appears to be based on the idea that if do not consume power at peak times then you do not use capacity. That concept is incorrect. Capacity is not a peak only product. Capacity provides energy 8,760 hours per year, whether demand is high or low.

The non capacity backed load is in reality a way to allocate all capacity costs to other customers and none to the large data center loads. This allocation requires all other customers to subsidize the large data center loads. This allocation also requires rules about when the data center load would be interrupted. Should it be interrupted when this load causes prices to increase above a threshold? Should it be interrupted when reserves are below a defined threshold? Should it only be interrupted when the only alternative is to black out other customers? PJM's proposal is to interrupt this load only when PJM cannot otherwise serve load plus exports or relieve transmission constraints. PJM would interrupt this load prior to interrupting pre-emergency or emergency demand response customers. PJM's approach would result in significantly higher energy costs and reserve costs for all other customers as a result of large data center loads without additional generation and without an economic interruption trigger.

It is also hard to image how large data center loads that want 99.999 percent reliability would accept the potential for a significant and growing number of interruptions. If PJM adds 10,000 or 20,000 or 30,000 MW of large data center loads, all without adding matching capacity, the expected frequency of interruptions will increase significantly.

The load that is not load option is not a viable option. It fails to require that large new data center loads have capacity to meet their loads. It allocates the capacity costs needed to serve

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15 *See* Talen Energy Expands Nuclear Energy Relationship with Amazon (June 11, 2025), which can be accessed at: <*https://ir.talenenergy.com/news-releases/news-release-details/talen-energy-expands-nuclear-energy-relationship-amazon with Amazon*>.

16 See PJM presentation at the CIFP-Large Load Additions meeting, "Large Load Additions PJM Conceptual Proposal and Request for Member Feedback," Aug. 18, 2025.

large new data center loads to other customers. It results in decreasing reliability for the large data center loads. It results in increased energy costs for other customers. It results in increased reserves costs for other customers. It results in increased transmission costs for other customers as a result of allocating the transmission costs required to serve large data center loads to other customers.

PJM currently lacks the authority to direct highly specific load shed actions and lacks the ability to implement such load shed actions. Under the current rules, PJM may direct the transmission dispatcher to reduce the aggregate load following emergency actions. Load shed actions have always been at the discretion of the transmission owner. Under the proposed structure, PJM would have to depend entirely on the transmission owners to carry out its targeted interruptions even in the absence of any such authority.

## *PJM's Proposed Two Step Approach to Capacity Market Clearing*

PJM proposes specific rules for triggering the requirement to be load that is not load. PJM proposes a two step approach to clearing the capacity market. In the first step, PJM would clear the Base Residual Auction (BRA) to procure capacity to serve the entire projected load, including the projected large load additions. The reliability requirement, installed reserve margin, marginal ELCC based accredited UCAP factors, LDA reliability requirements and CETL values would be calculated to meet the reliability needs of the full projected load in the delivery year. If the cleared capacity in the auction fails to meet the reliability requirement at the RTO level, PJM would implement the second step of their proposal, under which the specific LDAs that fall short of meeting their reliability requirement would be identified. The proposed rules provide for the voluntary and mandatory removal of load from the LDAs by classifying the load as non capacity backed. After the removal of load, PJM would clear a second auction. In the second auction, the reliability requirement at the RTO and LDAs would be reduced based on the load reduction. However, all other auction parameters and marginal ELCC based accreditation factors would remain the same from the first auction.

If PJM believes voluntary and mandatory load reductions are effective and enforceable as they claim, a correct approach would be recalculate all parameters of the auction that take into account those reductions.

Under PJM's proposed approach, the removal of load is triggered if the cleared capacity in the auction is short of meeting the reliability requirement. Since Point A of the VRR curve is set at 99 percent of the reliability requirement, the removal of load is triggered when the clearing price is below the maximum price. Figure 1 shows the difference between Point A and the reliability requirement in the unrestricted VRR curve used for the 2026/2027 Base Residual Auction (BRA). The difference between Point A (133,174.3 UCAP MW) and the reliability requirement adjusted for FRR (134,519.5 UCAP MW) in the unrestricted VRR curve used for the 2026/2027 BRA was 1,345 UCAP MW. If the reduction of load results in the supply curve

intersecting the demand curve at the reliability requirement, the result would be a de facto maximum price at the intersection of the reliability requirement and the VRR curve. The result would also be that the actual capacity market prices would equal this de facto maximum price for the foreseeable future.

**Figure 1 Reliability Requirement and Point A on the Unrestricted VRR curve used for the 2026/2027 RPM Base Residual Auction**