

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

PJM INTERCONNECTION, L.L.C.

DOCKET NO. ER26-455-000

**PROTEST OF THE MARYLAND OFFICE OF PEOPLE'S COUNSEL OF PJM'S
SIXTH PERIODIC REVIEW OF THE VARIABLE RESOURCE REQUIREMENT
CURVE SHAPE AND KEY PARAMETERS**

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Pursuant to Rules 211 and 212 of the Federal Energy Regulatory Commission’s Rules of Practice and Procedure,¹ 18 CFR §§ 385.211 and 385.212, the Maryland Office of People’s Counsel (“MdOPC”) respectfully submits the following protest regarding PJM Interconnection, L.L.C.’s (“PJM”) filing in Docket No. ER26-455-000 reviewing and proposing to adjust key parameters of the Variable Resource Requirement (“VRR”) curve, including the Reference Resource, and the Cost of New Entry for the Reference Resource.²

INTRODUCTION

PJM’s proposal for a price cap of approximately \$550/MW-day is unjust and unreasonable because current and forecasted market conditions prevent new supply from entering the capacity market in response to capacity market price signals. As a result, PJM’s capacity market construct is not competitive. If the Commission accepts PJM’s proposed VRR curve parameters, PJM’s Base Residual Auction (“BRA”) for each year the VRR curve applies is nearly certain to clear at the price cap, imposing unjust and unreasonable capacity costs unless there are reductions to the price cap to reflect the inability of competitive new entry to constrain the exercise of market power. Without those reductions, customers will be unlawfully harmed in future capacity auctions beginning delivery year 2028/2029.

¹ 18 C.F.R. §§ 385.211 and 385.212 (2025).

² 16 U.S.C. §§ 824e, 825e (2025).

PJM’s proposed revisions to the VRR curve are the first to address the price cap for capacity in the 2028/2029 delivery year and would create an estimated cap of \$550/MW-day, compared to the \$325/MW-day cap PJM adopted for the 2026/2027 and 2027/2028 delivery year auctions. The Commission accepted the current price cap on April 21, 2025 through the settlement of a complaint filed by the Pennsylvania governor. That complaint argued that a cap on capacity market prices was needed to address a confluence of events—the compressed auction schedule; increasing load growth; increasing numbers of resource retirements; the interconnection queue backlog; and siting, permitting, and supply chain constraints that slow down new resource entry—all extraordinary circumstances that continue to adversely impact the resource mix in the region. Those circumstances create conditions of shortage in which, without a similar price cap, each seller could demand whatever price the seller wishes. The Commission should reject PJM’s current proposal as unjust and unreasonable because the same market conditions continue today, less than a year later, and are unlikely to be remedied any time in the near future. Indeed, PJM forecasts for data center loads have only grown in the year since the complaint that led to the price-cap settlement.

Put simply, over the time frame that the rules proposed in this Sixth Quadrennial Review will be in place, the absence of sufficient new generation to meet the reliability requirement is the defining characteristic of the market. Because new generation will not meet the projected increases in load, a meaningful, competitive response in the BRA is precluded.

Given the patent inability of PJM's proposed VRR curve to enable a workably competitive response from market participants over this period, the Commission should: (a) reject PJM's filing as unjust and unreasonable; (b) initiate a Section 206 proceeding³ directing PJM to show cause as to whether competitive market conditions exist for any upcoming BRA and ensure that the PJM capacity market is just and reasonable under the Federal Power Act ("FPA"); and (c) extend the existing VRR price cap arrangement as set forth in PJM's Tariff to subsequent BRAs beginning with delivery year 2028/2029, until PJM satisfies show cause conditions set forth by the Commission, demonstrating that market conditions for future BRAs using PJM's proposed parameters are competitive and just and reasonable, and the Section 206 proceeding concludes.

BACKGROUND

PJM's Tariff contains a procedure for ongoing review of the VRR curve. No later than every four years, PJM must perform a review and analysis of the shape of the VRR curve, "based on simulation of market conditions to quantify the ability of the market to invest in new Capacity Resources and to meet the applicable reliability requirements on a probabilistic basis."⁴ Based on the results of such review, PJM is required to prepare a

³ A rate proposal proceeding may be transformed into a Commission-initiated complaint proceeding when the record indicates that is necessary or appropriate. *See, e.g., Western Resources, Inc. v. FERC*, 9 F.3d 1568, 1579 (D.C. Cir 1993); *Pub. Serv. Comm'n of State of N.Y. v. FERC*, 866 F.2d 487, 491 (D.C. Cir. 1989). Section 206 of the FPA gives the Commission the authority to revise any existing rate or charge, or any practice affecting an existing or charge, upon a showing that (1) the existing rate, charge, or practice is unjust and unreasonable or unduly discriminatory or preferential and (2) the Commission's preferred replacement rate is just and reasonable and not unduly discriminatory or preferential. 16 U.S.C. § 824e.

⁴ PJM, Intra-PJM Tariffs, Tariff, Attach. DD, § 5.10 (Auction Clearing Requirements) (10.0.0), §5.10(a)(iii) (Procedure for ongoing review of Variable Resource Requirement Curve shape).

recommendation to either modify or retain the existing VRR curve shape.⁵ If a modification is recommended, PJM staff propose a new VRR curve shape that proceeds through a stakeholder process before the PJM Board of Managers considers the resulting proposals and files approved modifications with the Commission.⁶ Prior periodic reviews were filed in Docket Nos. ER08-516-000, ER12-513-000, ER14-2940-000, ER19-105, and ER22-2984-000 (hereinafter, “Fifth Quadrennial Review”).

The instant filing is the sixth such periodic or quadrennial review (hereinafter “Sixth Quadrennial Review” or “filing”). It establishes, for the 2028/2029 delivery year and onward, parameters determining the shape of the VRR curve. Most notably, it proposes to change “Point 1,” which determines the price cap if the capacity market clears at or below 99% of the reliability requirement, from \$325/MW-day to approximately \$550/MW-day.⁷ Over the past year, PJM has submitted several filings with the Commission documenting a confluence of recent and unexpected market conditions that occurred since PJM’s Fifth Quadrennial Review. These market conditions led to tight supply and demand conditions and soaring clearing prices in PJM’s capacity auction. PJM’s most recent BRA and up-to-date load forecasts show that PJM’s reserve margins have now been depleted. New supply is unable to enter the market in time to respond to pricing signals due to supply chain issues and compressed auction schedules.⁸

⁵ *Id.*

⁶ *Id.* at §5.10(a)(iii)(A)-(D).

⁷ See PJM Transmittal at 21.

⁸ Although PJM’s Tariff states that “The Base Residual Auction shall be conducted in the month of May that is three years prior to the start of such Delivery Year,” the scheduled has been modified such that the BRA for the 2026/2027 delivery year was conducted in July 2025; the BRA for the 2027/2028 delivery

In ER25-682-000, PJM explained that this tightening of supply and demand is the result of “recent load growth at a pace substantially exceeding historical experience” combined with the slow pace of arrival of replacement resources, and changes to capacity accreditation and other modeling practices.⁹ These circumstances are ongoing—supply chain issues continue to prevent new entrants from responding in a timely manner to high price signals, and new load growth exceeds prior projections. Without Commission intervention each BRA affected by PJM’s filing will be an uncompetitive outcome and clear at the price cap.

The Commission previously intervened with respect to this precise issue earlier this year when it accepted a settlement between Pennsylvania Governor Josh Shapiro, the Commonwealth of Pennsylvania (“Pennsylvania”), and PJM establishing the current price cap of \$325/MW-day in Docket No. ER25-1357-000 for the BRA for delivery year 2026/2027 and pending BRA for delivery year 2027/2028. A complaint by Pennsylvania in Docket No. EL25-46-000 citing the inability of capacity sellers to respond to the BRA clearing price due to interconnection queue delays, compressed auction schedules, and unprecedented, rapid load growth—primarily due to large data centers—led to the current price cap.

year is in December 2025 (currently in progress as of the date of this filing); the BRA for delivery year 2028/2029 will be conducted in June 2026; and the BRA for delivery year 2029/2030 will be conducted in December 2026. PJM, Intra-PJM Tariffs, Tariff, Attach. DD, § 5.4 (Reliability Pricing Model Auctions) (9.0.0), § 5.4(a) (Base Residual Auction). PJM’s filing in this docket would apply to the four BRAs for delivery years from 2028/2029 through 2031/2032.

⁹ PJM, Transmittal, Docket No. ER25-682-0001 at 4-5 (filed Dec. 9, 2024).

In accepting the current cap, the Commission reasoned that PJM's capacity auctions are designed to signal new capacity investment is needed or that retirements should be delayed at times when the system is short of capacity or is approaching a shortage.¹⁰ The Commission determined that the proposed price cap of \$325/MW-day was 52% higher than the estimated Net CONE at that time of \$214/MW-day and found it to be just and reasonable.¹¹

The market conditions that existed less than a year ago when the Commission approved the current cap remain today. Recent results of the 2026/2027 BRA show even tighter market conditions than those that existed when the Commission accepted the \$325/MW-day price cap as just and reasonable. Going forward, market conditions indicate that the RPM will settle quantity offers at or below the price cap trigger-quantity of 99% of the reliability requirement, resulting in the cap being reached for the next several auctions during the period when the proposed VRR curve is slated to be in effect.

PROTEST

I. FERC should reject PJM's filing and institute a Section 206 investigation to address the uncompetitive BRA outcomes that will result from PJM's proposal under current and projected market conditions.

Competition is the underlying condition for market-based rates—such as rates resulting from sellers' participation in regional transmission organizations—to be just and

¹⁰ *PJM Interconnection, L.L.C.*, 191 FERC ¶ 61,066 at P 54 (2025).

¹¹ *Id.*

reasonable.¹² The Commission must continually perform ongoing oversight of market conditions to guard against potential abuses of market power.¹³ The data submitted in PJM's filing in this case must be actively reviewed by the Commission to assess whether the market remains competitive.¹⁴ Where data reported on market conditions by PJM are inconsistent with the data expected of a competitive market, the Commission has a duty to ensure that the mechanisms employed by PJM to determine the BRA clearing price yield rates that are just and reasonable.¹⁵

Although the current cap of \$325/MW-day is set to expire after the BRA for the 2027/2028 delivery year, the Commission should institute a Section 206 investigation¹⁶ to ensure that the PJM capacity market is just and reasonable, require the current cap to continue for the 2028/2029 delivery year and until the Commission finds that new entry imposes constraints on the potential exercise of market power. The confluence of the market conditions that the Commission considered when accepting the cap of \$325/MW-

¹² See *Public Citizen v. FERC*, 7 F. 4th 1177, 1184 (D.C. Cir 2021) (“[I]n a ‘competitive market, where neither buyer nor seller has significant market power, it is rational to assume that the terms of their voluntary exchange are reasonable, and specifically to infer that price is close to marginal cost, such that the seller makes only a normal return on its investment.’”) citing *Tejas Power Corp. v. FERC*, 908 F.2d 998, 1004 (D.C. Cir. 1990).

¹³ *Public Citizen*, 7 F. 4th at 1185.

¹⁴ See *id.* at 1185–86.

¹⁵ See *PJM Interconnection, L.L.C. PJM Power Providers Group v. PJM Interconnection, L.L.C.*, 135 FERC P 61,022 at P 143 (“[I]t is [the Commission’s] duty under the FPA to assure just and reasonable rates in wholesale markets.”); See also *New Jersey Bd. of Public Utilities v. F.E.R.C.*, 744 F.3d 74 (2014) at 97 (explaining the Commission’s duty to ensure the mechanisms employed by ISO-NE to determine clearing prices would yield just and reasonable rates).

¹⁶ 16 U.S.C. § 824e (2025). See, e.g., *So. Cal. Edison Co.*, 161 FERC ¶ 61,309 (2017) (instituting an investigation under Section 206 of the FPA to determine whether the rate proposed in a utility’s transmission revenue requirement filing is just and reasonable or if further decreases may be warranted).

day remains today.¹⁷ Capacity sellers still cannot respond to the BRA clearing price due to supply-side barriers, such as interconnection queue delays and the compressed auction schedule.¹⁸

If PJM's proposed VRR curve is accepted, current market conditions would force the capacity market for the 2028/2029 delivery year to almost certainly clear at the price cap, ballooning the clearing price to approximately \$550/MW-day from the current cap of \$325/MW-day.¹⁹ PJM forecasts capacity shortages out to delivery year 2035/2036, where there will be insufficient new entry to drop the price below the price cap.²⁰ PJM's projections imply that in each such year the BRA clears at the price cap, suppliers will receive almost double their costs.²¹

However, new entry cannot possibly respond to those price signals.²² New entry cannot respond to price signals in a timely manner, resulting in the lack of competition. The \$550/MW-day clearing price that is the projected result of PJM's proposal only provides a wealth transfer from load to existing capacity resources without any corresponding benefits to ratepayers.²³ The proposed price cap of \$550/MW-day is 190% of the Net CONE or \$289/MW-day, which will result in each supplier receiving excess profits of at least \$261/MW-day.²⁴ PJM offers no explanation for why the Commission

¹⁷ See Mario S. DePillis Jr. Aff. at 8-9 (attached).

¹⁸ *Id.*

¹⁹ *Id.* at 4-8.

²⁰ *Id.* at 8.

²¹ *Id.*

²² *Id.* at 8-10.

²³ *Id.* at 15.

²⁴ *Id.* at 17.

should accept that result as just and reasonable, compared to the previous price accepted by the Commission earlier this year being only 52% higher than Net CONE, resulting in a profit of \$111/MW-day.²⁵

In sum, PJM’s proposed modifications to the VRR curve are unjust and unreasonable because the BRA is simply not providing the market signaling function it was designed to provide. By failing to provide the intended market signal, point 1 of the VRR curve—which would set the cap at approximately \$550/MW-day—burdens ratepayers with arbitrary and excessively high costs during the expected capacity shortage conditions. The Commission accepted the \$325/MW-day cap as just and reasonable less than a year ago; that cap is the best reference for what the just and reasonable cap should be, since it was negotiated under the very same market conditions involving rapid load growth, lack of sufficient new entry, and inability of supply to respond in a timely manner to BRA signals, that are presented by the instant filing. The Commission should reject PJM’s filing, exercise its Section 206 authority to determine whether PJM’s quadrennial review process is just and reasonable given the unprecedented state of market conditions, and reinstitute the current cap as a just and reasonable replacement rate.

- A. It is impossible for new resources to respond to high BRA signals and enter PJM’s marketplace in time for the 2028/2029 delivery year because of delays in the queue, compressed auction schedules, and supply chain issues.**

²⁵ *Id.* at 8; *See also PJM Interconnection, L.L.C.*, 191 FERC ¶ 61,066 at P 47 (2025) (“The [current] price cap is \$111/MW-day above Net CONE.”).

New projects entering the queue would be unlikely to enter service before the end of the decade. Most resources chosen through PJM’s Reliability Resource Initiative will likely not be operational until the early after 2030s.²⁶ In other words, even a project in PJM’s “fast track” Reliability Resource Initiative will not be operational for the 2028/2029 BRA, when PJM’s proposed rules become effective. Any new resource attempting to enter the queue in response to high capacity market prices achieved by point A of the VRR curve is unlikely to be online until several years *after* the 2028/2029 delivery year.

Additionally, although PJM’s OATT requires that PJM conduct its BRA three years in advance of a delivery year to procure resource commitments sufficient to meet reliability requirements in the PJM region,²⁷ PJM is still operating on a compressed auction schedule. For example, the BRA for the 2028/2029 delivery year, currently scheduled for June 2026, is only two years prior to the delivery year. The first delivery year that will recover the three-year lead time will be delivery year 2030/2031.²⁸

Furthermore, supply chain issues have been documented nationally and internationally. Lead times to acquire key components for new capacity including large power transformers can take up to five years. Reports indicate gas turbine supply delays of seven to eight years internationally. National reports indicate original equipment

²⁶ DePillis Aff. at 6.

²⁷ PJM, Intra-PJM Tariffs, Tariff, Attach. DD, § 5.4 (Reliability Pricing Model Auctions) (9.0.0), § 5.4(a) (Base Residual Auction) (“The [BRA] shall be conducted in the month of May that is three years prior to the start of such Delivery Year.”).

²⁸ DePillis Aff. at 7.

manufacturers are quoting upwards of five to seven years for a gas-fired turbine, as of February 2025.²⁹

These supply chain issues, in addition to compressed auction schedules, and interconnection queue bottlenecks and, further reduce any possibility of the clearing price for the 2028/2029 delivery year functioning as an intentional market signal to induce timely new entry.

B. Market conditions continue to demonstrate a capacity shortage for upcoming delivery years.

In April, the Commission found that the current cap was just and reasonable, citing PJM's projected capacity shortage or near capacity shortage conditions for the 2026/2027 and 2027/2028 delivery years, due to expected growth in demand of 4 GW and 10 GW respectively for those delivery years.³⁰ In practice, the two most recently completed capacity market auctions—the BRA in July 2024 for delivery year 2025/2026, and the BRA in July 2025 for delivery year 2026/2027—have cleared at the price cap.³¹ The BRA for delivery year 2027/2028 is in progress as of the date of this filing; however, it is also likely to clear at the cap given the market conditions described in the Commission's April order accepting the settlement cap between PJM and Pennsylvania. Recent reports predict this trend to continue and become a persistent actual shortfall for the eight delivery years from 2028/2029 through 2035/2036.³²

²⁹ *Id.* at 9-10.

³⁰ *PJM Interconnection, L.L.C.*, 191 FERC ¶ 61,066 at PP 52–53.

³¹ DePillis Aff. at 2.

³² *Id.* at 3.

Thus, the specific facts and circumstances on the record before the Commission in the settlement cap filing continue to exist with respect to the instant filing. There are no intervening facts that change the trajectory of supply and demand away from a persistent shortage over each year to which this Sixth Quadrennial Review filing would apply.

C. The current demand conditions continue to not be modeled in PJM’s proposed VRR curve.

As explained by PJM in its filing in February establishing the current price reached through settlement with Pennsylvania, the current market conditions were not modeled in PJM’s Fifth Quadrennial Review.³³ Thus, PJM promised a more “holistic” review as part of the Sixth Quadrennial Review, including a “comprehensive analysis of the recent, unprecedented market conditions.”³⁴

However, ultimately the Brattle simulations on which PJM relied to support the instant Sixth Quadrennial Review filing do not incorporate forecasts of supply or demand. Rather, the simulation iterates around values from the most recent BRA of 2025/2026.³⁵ PJM’s supporting affidavit makes clear that the simulations relied upon do not account for expected conditions:

... this simulation modeling approach... [uses] assumed conditions with unconstrained, rational entry and exit... This Monte Carlo simulation does not attempt to predict the near-term pricing or quantity outcomes that may prevail in any particular year, especially not in a near-term year for which most entry decisions have already been made and further entry is constrained.³⁶

³³ PJM, Transmittal, Docket No. ER25-1357-000 at 2-3 (filed Feb. 20, 2025).

³⁴ *Id.* at 2.

³⁵ DePillis Aff. at 8.

³⁶ DePillis Aff. at 13 (citing *Affidavit of Dr. Kathleen Spees, Dr. Samuel A. Newell, and Dr. Andrew W. Thompson* Exhibit No. 2, 2025 VRR Curve Study, p. 87).

The authors emphasize that the simulations used for their analysis assumed unconstrained entry—conditions they recognize are not met in the current market:

As explained in our 2025 VRR Curve Study... this simulation modeling approach is useful to inform the distribution of potential outcomes... This Monte Carlo simulation does not attempt to predict the near-term pricing or quantity outcomes that may prevail in any particular year, especially not in a near-term year for which most entry decisions have already been made and further entry is constrained.

Without analysis of the current market conditions, PJM's proposal would recreate the same circumstances that led Pennsylvania to file the complaint leading to the existing price. The limited market conditions PJM studied to develop the proposed VRR curve wholly fail to meet the moment. Because PJM's Sixth Quadrennial Review did not study current market conditions, the existing current cap should be extended until any proposed VRR curve properly reflects current market conditions and is determined through a Section 206 proceeding to be just and reasonable by the Commission.

D. PJM's proposed price-cap is overstated because it underestimates the importance of energy and ancillary service revenue.

The almost certain capacity shortage in PJM means that energy and ancillary prices ("E&AS") will rise due to reserve shortages and scarcity pricing, thereby increasing the Net E&AS Offset and decreasing Net CONE.³⁷ However, PJM's proposal lowers the weight of Net E&AS by using only 75% of Net E&AS to calculate the price cap.³⁸ By underestimating the Net E&AS in this manner, PJM's proposal increases the

³⁷ *Id.* at 18.

³⁸ PJM's proposal calculates the price cap as the maximum of $1.15 * \text{Gross CONE} - .75 * \text{Net E\&AS}$, or $.2 * \text{Gross CONE}$. PJM Transmittal at 21.

probability that there will be the equivalent of double payment to suppliers. First, consumers would pay for the capacity as if energy prices will be low, and second, in real-time consumers pay the higher energy prices.³⁹ The result is that customers would pay higher energy and reserve prices while paying higher capacity prices, an unjust and unreasonable outcome contrary to foundational market principles regarding scarcity pricing of reserve and energy.⁴⁰

II. The existing price cap remains just and reasonable because it reflects current market conditions.

Under PJM's Tariff, PJM may choose, based on its analysis of simulation of market conditions, whether to modify or retain the existing VRR curve shape through the quadrennial review process.⁴¹ In this case, where PJM's proposed modification is unjust and unreasonable and requires Commission action under Section 206 of the FPA, the just and reasonable alternative to PJM's proposal is to retain the existing VRR curve shape with respect to the price cap, as described in PJM's Tariff.⁴²

In April the Commission accepted the existing price cap of \$325/MW-day as just and reasonable, explaining that it was 52% higher than Net CONE of \$214/MW-day, and appropriately accounted for the uncertainty of the Net CONE estimate, consistent with

³⁹ DePillis Aff. at 19.

⁴⁰ *Id.*

⁴¹ PJM, Intra-PJM Tariffs, Tariff, Attach. DD, § 5.10 (Auction Clearing Requirements) (10.0.0), § 5.10(a)(iii) (Procedure for ongoing review of Variable Resource Requirement Curve shape) ("Based on the results of such review, PJM shall prepare a recommendation to either modify or retain the existing Variable Resource Requirement Curve shape.").

⁴² PJM, Intra-PJM Tariffs, Tariff, Attach. DD, § 5.10 (Auction Clearing Requirements) (10.0.0), § 5.10(a)(i) (Methodology to Establish the Variable Resource Requirement Curve).

Commission precedent accepting similar market price caps in other RTOs/ISOs.⁴³ Market conditions less than a year ago when the Commission accepted the existing price cap remain the same, and the existing price cap remains just and reasonable. PJM provides no information on whether the \$550/MW-day proposed price cap, which is 90% higher than the current Net CONE of \$289/MW-day, appropriately accounts for Net CONE uncertainty by properly weighing the cost to consumers against possible reliability problems.⁴⁴

CONCLUSION

The Commission should reject PJM's current proposal as unjust and unreasonable because the same market conditions underlying the Commission's acceptance of the expiring price cap of \$325/MW-day for the 2026/2027 and 2027/2028 delivery year auctions continue today. Those conditions are likely to persist into the future when the proposal is intended to become effective. These conditions critically include the absence of new entry with sufficient accredited capacity to come even close to meeting the projected huge increases in new load over the time frames during which the VRR curve will be in effect, meaning an absence of any meaningful competitive response. Given the patent inability of PJM's proposed VRR curve to enable a workably competitive response from market participants over this period, the Commission should: (a) reject PJM's filing as unjust and unreasonable or unduly discriminatory or preferential; (b) initiate a Section

⁴³ *PJM Interconnection, L.L.C.*, 191 FERC ¶ 61,066 at P 54 (2025).

⁴⁴ DePillis Aff. at 18.

206 proceeding directing PJM to show cause as to whether competitive market conditions exist for any upcoming BRA that would ensure that the PJM capacity market is just and reasonable under the Federal Power Act (“FPA”); and (c) until it concludes its Section 206 proceeding, extend the VRR price cap arrangement as set forth in PJM’s Tariff for the 2026/2027 delivery year auction until PJM satisfies show cause conditions set forth by the Commission demonstrating that market conditions for future BRAs that use PJM’s proposed parameters are competitive and therefore just and reasonable.

Respectfully submitted,

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/electronic signature/
Mark S. Byrd
Assistant People’s Counsel

CERTIFICATE OF SERVICE

I hereby certify that I have this day caused the foregoing pleading to be served upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated this 8th day of December, 2025.

/s/ electronic signature

Mark S. Byrd

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

PJM INTERCONNECTION, L.L.C.

DOCKET NO. ER26-455-000

AFFIDAVIT OF MARIO S. DEPILLIS JR. ON BEHALF OF MARYLAND
OFFICE OF PEOPLE’S COUNSEL

December 8, 2025

My name is Mario S. DePillis Jr. I am an Executive Consultant for DHInfrastructure. My business address is 9 ½ Market Street, Northampton, Massachusetts 01060. I am submitting this affidavit on behalf of the Maryland Office of People’s Counsel to protest the PJM 2025 Periodic Review filing by:

- a. Demonstrating that the auctions that will occur under the proposed Variable Resource Requirement (VRR) curve will occur under conditions that are almost certainly non-competitive, and
- b. The appropriate remedy under conditions that are known to be non-competitive ex-ante is a price cap that closely approximates the competitive equilibrium price of Net Cost of New Entry (Net CONE).

I. Qualifications

I currently provide economic consulting services in the area of wholesale electric markets to international and domestic clients. My projects have covered developing and evaluating wholesale markets from South America to Vietnam and California. From 2021 to 2022, I participated in a US Dept. of Energy research project evaluating stochastic optimization and the use of grid-edge technology. Prior to 2021, I served as Director of the Independent Market Monitor (IMM) for Mexico’s national wholesale electricity market for four years. The IMM of

Mexico reviewed all aspects of the nodal energy market, ancillary services markets, and capacity market. Prior to that I worked for sixteen years at ISO-New England in market monitoring and market design. My original work in wholesale electricity markets was for the Public Utility Commission of Texas.

I hold a Ph.D. in Economics from the University of Texas at Austin and a BA in Philosophy from Carleton College.

II. Introduction

In *Public Citizen, Inc. v. FERC (Public Citizen)*,¹ the United States Court of Appeals for the D.C. Circuit overturned a Federal Energy Regulatory Commission (FERC or the Commission) finding that a 2015 capacity market auction administered by the Mid-Continent System Operator was just and reasonable.² The court emphasized the need for the Commission to assure *ex-ante* an absence of market power, and *ex-post* analysis of results to assure properly working markets, not distorted by the exercise of market power. The PJM capacity market, the Reliability Pricing Model (RPM), currently faces a forecast of an unusual shortage of capacity that will enable the exercise of market power by all suppliers. The future capacity shortage and consequent market power will be discussed below in section III. There is a credible condition of market power known *ex-ante* in the RPM. As will be discussed in further sections, the evidence indicates that this condition will be in place for at least the first two and possibly more of the years during which the proposed VRR curve pending before FERC in docket ER26-455 will be in place.

In *Maryland Public Service v. FERC*, 632 F.3d 1283 (D.C. Cir. 2011) the court found that the PJM RPM included key market power mitigation tools, pertinent to FERC's finding at the time that the RPM was consistent with the Commission's obligation to ensure that wholesale electric sales are just and reasonable consistent with the Federal Power Act. First, PJM's RPM

¹ *Pub. Citizen, Inc. v. FERC*, 7 F.4th 1177 (D.C. Cir. 2021).

² See discussion in Sotheby M. Shedeck, "A Clarification on FERC's Discretion in Finding Just And Reasonable Rates in the Electricity Market: *Public Citizen, Inc. v. FERC*," *Energy Law Journal* 44, no. 1 (2023): 20.

construct limits the market power strategy of physical withholding by imposing a must-offer requirement.

Second, it limits the market power strategy of economic withholding by capping offers at the Market Seller Offer Cap (MSOC), which is designed to represent the offer that would be made by a supplier in a competitive market.

The third tool, and most relevant to the condition of shortage, is the three-year lead time to encourage new entry, assumed in and anchoring the RPM design:³ The RPM's annual auction, which sets capacity prices, is intended to occur three years in advance of the delivery period—a schedule that encourages the entry of new suppliers. For example, the May 2008 auction set the rate for the delivery year beginning in May 2011. This lag time allows competition from new suppliers that lack the capacity to deliver electricity now but could develop that capacity within three years of winning a bid.

Sections V - VII discuss the current entry lag time in PJM for new supply. It is approximately five to six years which exceeds the three-year lead time anticipated by the Commission. This is due to an unusual confluence of events including supply chain constraints triggered by increases in load growth nationally as well as internationally, leading to long lead times in the international supply chain.

The demand for breakers to transformers to turbines simply outstrips the ability of suppliers to respond in a timely fashion. Thus, in present circumstances, the RPM is missing the key market power mitigation tool of new entry which is critical to complying with the Commission's findings for establishing the RPM; without competitive new entry, the price will not be set at a competitive level.

PJM justifies the proposed VRR curve on the basis of simulations, conducted by its consultant, Brattle, that found that over the long run the average price equals Net CONE. Since Net CONE is the equilibrium price in a competitive market, this would support the proposed VRR curve. However, as Brattle warns, the simulations do not account for the current unusual

³ *Maryland Public Service Commission v. FERC*, 632 F.3d 1283 (D.C. Circuit Court of Appeals, February 8, 2011), 3, <https://law.justia.com/cases/federal/appellate-courts/cadc/09-1296/09-1296-1292189-2011-02-28.html>.

conditions affecting the PJM capacity market.⁴ There is a conflict between Brattle’s assumptions and current conditions. Brattle assumes free entry of new supply and as result in their simulations the price cap is only triggered 4% of the time. In contrast, PJM forecasts shortages that would trigger the price cap in all four years that the VRR curve will be in effect as proposed (or 100% of the time).⁵ This is discussed in sections VIII and IX.

The price cap is the fail-safe mechanism when there is insufficient supply. The question then becomes whether the price cap is a reasonable payment, given the certainty that shortages have a very high probability of occurring during the time the proposed VRR curve will be in place. The price cap and Net CONE are discussed in sections X-XII. Given the very high probability that at least the first two auctions will be conducted in non-competitive conditions—market power known *ex-ante*—the Commission should set the price cap of the VRR curve to Net CONE to prevent super-normal profits. Any margin of error should be minimal and based on evidence or measurement error. The margin-of-error value should stay in place until such time as the Commission determines that both (a) new entry sufficient to alleviate a shortage is feasible within the lead time of the annual Base Residual Auction (BRA) and (b) the market will be reasonably competitive. This is discussed in section XIII.

Section XIV discusses the need for more timely forecasts of UCAP shortfalls by PJM. The stakeholders should have sufficient data to replicate the UCAP calculations and make adjustments to their investments or public policy if shortfalls appear likely. Neither PJM, nor stakeholders, nor the Commission itself should be exposed to unforeseen shortages such as the industry is experiencing today.

III. Increasing Tightness of Capacity Market and Forecasted Capacity Shortages

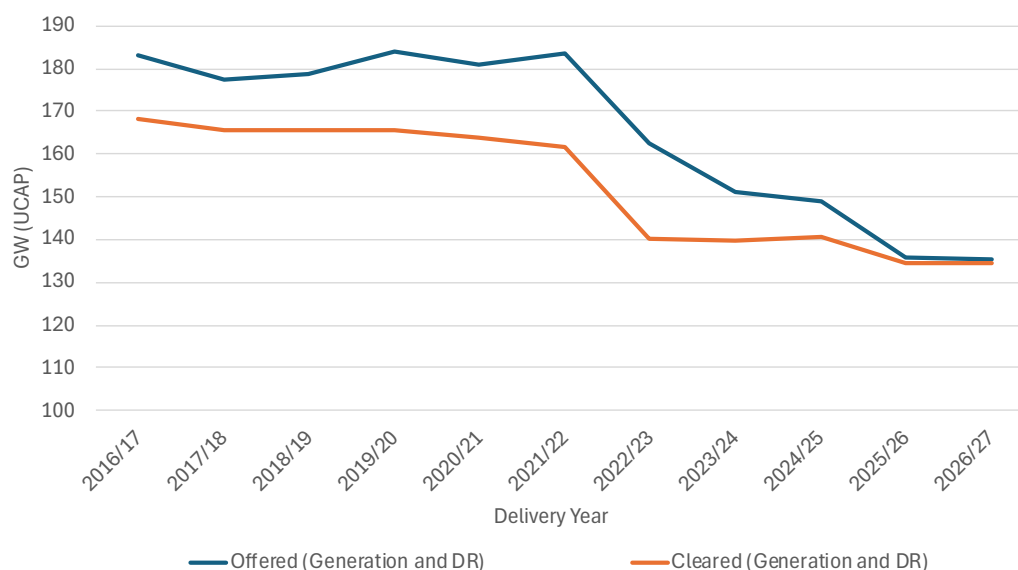
The PJM capacity market (Reliability Pricing Model or RPM) has grown tighter in recent years as measured by the amount supply offers exceed offers cleared. There was a dramatic change in spare capacity (offers greater than cleared offers) between the annual auction, the BRA, for delivery year 2024/2025 and the BRA for delivery year 2025/2026, anchoring this

⁴ Kathleen Spees et al., *Affidavit of Dr. Kathleen Spees, Dr. Samuel A. Newell, and Dr. Andrew W. Thompson*, FERC Docket No. ER26-455-000 (2025), 16, www.ferc.gov P 14.

⁵ Spees et al., *Affidavit of Dr. Kathleen Spees, Dr. Samuel A. Newell, and Dr. Andrew W. Thompson*, P 16.

change. This is illustrated below in Figure 1. In the two most recent auctions, BRA 2025/2026 and BRA 2026/2027, the market cleared at the price cap. In BRA 2025/2026 two sub-regions (Locational Deliverability Areas, LDAs) cleared at the cap while in BRA 2026/2027 the entire RTO-wide market cleared at the price cap.⁶

Figure 1: RTO-Wide Capacity (UCAP) Offered and Cleared



Source: PJM Base Residual Auction Reports and Base Residual Auction Planning Parameters spreadsheets

(<https://www.pjm.com/markets-and-operations/rpm>).

Note: The term “Pool-Wide Average UCAP Factor” represents Pool-Wide Average (1-EFORd) prior to 2025/26 and Average UCAP (AUCAP) for Delivery Year 2025/26 and thereafter. UCAP, or Unforced Capacity, is capacity that is available in all hours of the year.

The current capacity tightness is forecasted to become persistent actual shortage. The PJM’s Draft 2025 PJM Effective Load Carrying Capability and Reserve Requirement Study (ELCC/RRS) predicts a capacity shortfall as measured in Unforced Capacity (UCAP) for the eight delivery years from 2028/2029 through 2035/2036.⁷ This is illustrated below in Table 1.

⁶ In the most recent auction for delivery year 2026/2027 Independent Market Monitor, *2024 State of the Market Report for PJM* (2025), 331, Table 5-36 of Section 5, https://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2024.shtml. the market cleared at the price cap of \$329.17/MW-Day. In the previous auction for delivery year 2025/2026 the auction cleared at the price cap in two sub-regions (Locational Deliverability Area or “LDA”). The two LDAs in Virginia and Maryland correspond to the transmission owners of Dominion Energy in Virginia and Baltimore General Electric (BGE) in Maryland. These faced prices of \$444.26/MW-Day and \$466.35/MW-Day before transmission rights credits

⁷ The draft of this report is dated October 22, 2025. A final version of this report is not available at the time of this affidavit.

Table 1: PJM Estimates of Capacity Shortage

Delivery Year	Total ICAP (MW)	Total UCAP (MW)	Forecasted Peak Load (MW)	Total UCAP Requirement (MW)	ICAP Surplus (MW)	UCAP Surplus (MW)*	Distance Above (Below) Price Cap Point A
2026/2027	193,738	149,149	158,937	145,745	4,444	3,404**	4,861
2027/2028	198,379	153,095	164,186	152,036	2,177	1,059	2,579
2028/2029	199,676	152,075	169,981	156,264	-5,491	-4,189	-2,626
2029/2030	198,586	148,375	176,094	161,179	-17,129	-12,804	-11,192
2030/2031	205,022	150,552	183,883	168,382	-24,280	-17,830	-16,146
2031/2032	214,423	154,315	192,647	175,251	-29,083	-20,936	-19,183
2032/2033	221,659	155,497	200,507	179,193	-33,787	-23,696	-21,904
2033/2034	228,227	158,039	204,197	182,409	-35,187	-24,370	-22,546
2034/2035	233,588	158,396	207,253	184,103	-37,913	-25,707	-23,866
2035/2036	238,525	159,258	209,923	185,992	-40,043	-26,734	-24,874

Source: PJM Interconnection, *Draft 2025 PJM Effective Load Carrying Capability and Reserve Requirement Study (ELCC/RRS)* (2025), <https://www.pjm.com/-/media/DotCom/planning/res-adeq/elcc/2025-pjm-elcc-rrs.pdf>, Table 4. Last column is calculated by the author from table values. PJM notes “The UCAP Surplus does not account for the fact that in RPM the offers of resources are capped at CIRs. CIRs can be lower than the Accredited UCAP of resources. This means that, in RPM, the UCAP Surplus can be lower than in the table above.”

** BRA 2026/2027 cleared at the cap despite this calculated surplus. Supply was only 139 MW above the reliability requirement and only if one includes supply from the companies choosing to self-supply via the Fixed Resource Requirement.

By PJM’s own admission the surplus here is overestimated because it does not account for the limits on injection for each plant known as the Capacity Interconnection Rights (CIR). Thus, for example, the most recent auction, BRA 2026/2027 supply was only 139 MW above the RTO Reliability Requirement. The table above projects a surplus of 3,404 MW above the RTO Reliability Requirement.

Thus, based on the results of the BRA for the 2026/2027 delivery year, we can assume that the actual surplus is lower by about 3,000 MW and the shortages (negative surplus) are correspondingly worse. The capacity market cannot be competitive in the years beyond Delivery Year 2027/2028, the years that the proposed VRR curve would be in effect, since PJM predicts shortages in all those future years and the shortages will be severe enough to trigger cap pricing. The price cap is triggered when the supply falls below 99% of the RTO Reliability

Requirement. Our calculation of the cap price point in the last column indicates that, if the PJM projections are correct, the price cap will apply in *all* years beyond 2027/2028.

Section V below addresses the potential new entry resulting from PJM's Reliability Resource Initiative (RRI), which does not appear to be included in the above PJM estimates. Even with that new entry included, the PJM capacity market will still face shortage conditions over an extended period (see discussion below in section V).

The data above presented by PJM in its Reserve Requirement Study is the only source for forecasts of UCAP—the relevant product for the auction. Stakeholders cannot replicate it or verify it from interconnection queue data since that data is reported as Installed Capability (ICAP). For example, batteries and hybrid project queue information does not include storage amounts or open/closed loop information which prevents accurate estimates of UCAP. PJM should provide frequent assessments of its future UCAP supply and provide sufficient information for stakeholders—and the Commission—to verify the future UCAP supply conditions.

IV. Continual Clearing Below The Quantity Triggering The Price Cap Confirms The Market Is Not Competitive

Under the conditions under which the proposed VRR curve is expected to apply as shown in Table 1, there will be a MW shortage such that the total supply will fall below the point at which the price cap is triggered (99% of the RTO Reliability Requirement).

The PJM analysis supports the conclusion that the market will be short, and the price cap will apply, in all future annual BRAs procuring capacity beyond delivery year 2027/2028. The VRR curve proposed by PJM will be effective for BRA 2028/2029 through BRA 2031/2032. Thus, in all years that the proposed VRR curve will be in place according to the PJM projections the price will be at the price cap.

The price cap that will be triggered is estimated to have a value of “...\$550/MW-day UCAP or 190% of the CT Net CONE.”⁸ The estimated Net CONE is \$289/MW-day. Thus, each

⁸ Spees et al., *Affidavit of Dr. Kathleen Spees, Dr. Samuel A. Newell, and Dr. Andrew W. Thompson*, P 21.

supplier is expected to receive a supra-normal profit of \$261/MW Day, or 90% of its competitive cost.

This is not just for a single year but, according to PJM forecasts of capacity shortages, out to delivery year 2035/2036. In each year, there will be insufficient new entry to drop the price below the price cap and to the competitive equilibrium price of Net CONE. PJM projections of capacity shortages imply that each year the suppliers will receive almost double their cost.

The persistence of insufficient new entry and non-competitive pricing are strong arguments that the RPM market will not be competitive during the effective period of PJM's proposed VRR curve under review in this proceeding.

In *Public Citizen, Inc. v. FERC (Public Citizen)*,⁹ the court emphasized the need for the Commission to assure *ex ante* an absence of market power. The current data support a finding contrary to this requirement.

V. Given Recent Supply Chain Delays, New Entry Cannot Happen in the Three-Year Lead Time Envisioned for the PJM Capacity Market

The original design of the RPM required the auction to be held three years in advance of the delivery year. This was to allow sufficient time for competitive new entry generation that clears in the auction to be built in time for the delivery year. In other words, the supply curve should have some elasticity allowing for expansion in supply by the start of the delivery year in response to the RPM's annual auction.

This lead-time became compressed due to decisions to post-pone the auctions, a backlog in processing interconnection requests and supply chain delays. The lack of the appropriate lead-time was one reason FERC accepted the price cap portion of the price collar.¹⁰

As noted by PJM's expert, Samuel Newell:¹¹

⁹ *Pub. Citizen, Inc. v. FERC*, 7 F.4th 1177 (D.C. Cir. 2021).

¹⁰ FERC, *Order Addressing Arguments Raised on Rehearing and Requests For Clarification*, FERC Dockets ER25-1357-001 and EL25-46-001 (2025), 42, https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20250930-307 P 30.

¹¹ Samuel Newell, *Affidavit of Samuel Newell*, FERC Docket ER25-682-000 (2024), https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20241209-5207 P 12.

Barriers to Entry and Timely Supply-Side Response: The rapid and unexpected tightening of net supply coincided with a period of slowed entry corresponding to at least three factors that have plagued the entire industry to varying degrees, not just PJM. One is interconnection backlogs. Yet that has not been the only barrier, as evidenced by the 38 GW of projects with signed interconnection agreements that have not proceeded to construction. Other barriers have included siting challenges, as well as supply chain delays and cost increases that rendered many projects with fixed-priced contracts uneconomic. These barriers cannot be addressed overnight by the marketplace or by policy solutions and may persist through the next several auctions until supply interest can manifest as new steel in the ground in sufficient volumes to mitigate tight supply conditions.

Supply chain delays have been documented both nationally and internationally. The International Energy Agency (IEA) noted, “An IEA survey of leading industry players conducted for this report finds that it now takes two to three years to procure cables and up to four years to secure large power transformers. Average lead times for cables and large power transformers [LPTs] have almost doubled since 2021.” The US Dept. of Energy reported in 2024, “...lead times for acquisition of an LPT have become exceptionally long, with 36-month lead times being commonly quoted and maximum lead times reaching as much as 60 months [five years].”¹²

Gas turbines supply delays are even greater. An IEEFA report estimates a seven to eight year planning period internationally: “...major gas turbine manufacturers are reporting extensive production backlogs and advising project developers to plan seven to eight years ahead for turbine procurement.”¹³ Nationally reports are similar: “As of February [2025], original equipment manufacturers, or OEMs, ‘are quoting upwards of five to seven years if you are trying to order [a gas-fired turbine] right now,’ [reports] Bobby Noble, senior program manager for Gas Turbine Research and Development at EPRI.”

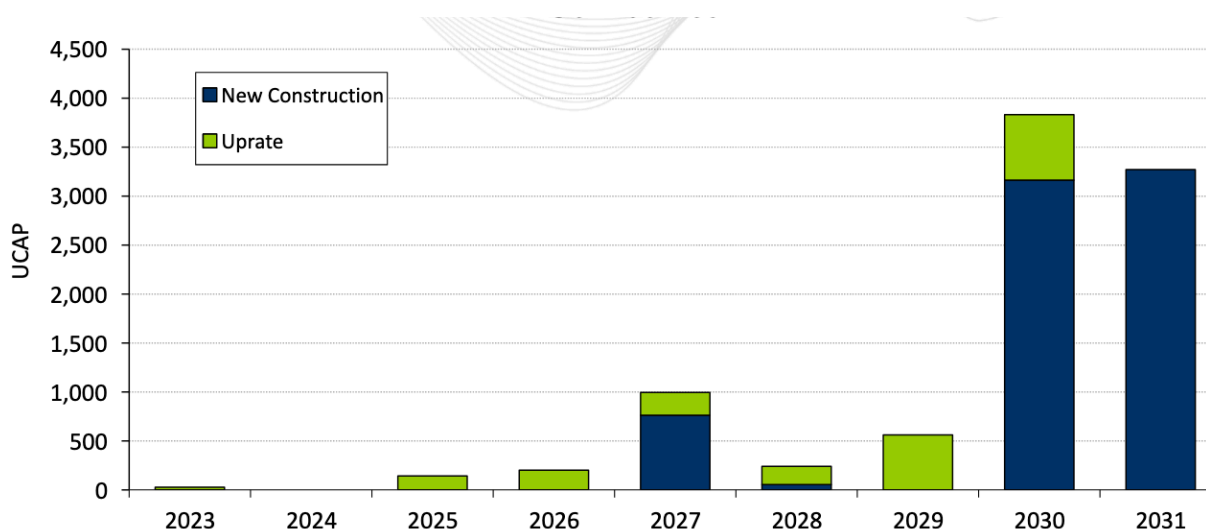
¹² U.S. Department of Energy, *Large Power Transformer Resilience*, Report to Congress (2024), 2, <https://www.energy.gov/sites/default/files/2024-10/EXEC-2022-001242%20-%20Large%20Power%20Transformer%20Resilience%20Report%20signed%20by%20Secretary%20Granholtm%20on%207-10-24.pdf>.

¹³ “Global Gas Turbine Shortages Set to Increase Delays and Costs for Gas-to-Power Projects in Vietnam and the Philippines,” accessed November 22, 2025, <https://ieefa.org/articles/global-gas-turbine-shortages-set-increase-delays-and-costs-gas-power-projects-vietnam-and->

Results from PJM’s Reliability Resource Initiative (RRI) provide a useful measure of delays in PJM. The RRI was a fast-track interconnection process that was authorized to provide interconnection queue preference for resources that were deemed “shovel-ready.”

RRI results confirm that most lead times are between five and six years. The application deadline for RRI projects was March 14, 2025. Figure 2 shows that the in-service date for the majority of the capacity was between five and six years. It should be kept in mind that these dates are non-binding and experience suggests the majority will experience delays.

Figure 2: UCAP of RRI Projects Selected by PJM by In-Service Year



Source: Donnie Bielak, “Reliability Resource Initiative Results Summary,” Planning Committee, May 6, 2025, 10, <https://www.pjm.com/-/media/DotCom/committees-groups/committees/pc/2025/20250506/20250506-item-06---reliability-resource-initiative---summary-results.pdf>.

VI. First Two Auctions Will Occur With a Compressed Timeline

Sufficient lead time is necessary for new entry to compete with existing generators and to relieve the shortage faced by PJM. However, the auctions will continue to be delayed for the first two years of that the VRR curve will be in place, i.e., for delivery years 2028/2029 and 2029/2030. Based on PJM’s current schedule, the first delivery year that the annual RPM auction will recover the three-year lead time will be delivery year 2030/2031.¹⁴ As demonstrated above,

¹⁴ PJM Interconnection, *Filing Letter for 2025 Periodic Review of VRR Curve*, FERC Docket No. ER26-455-000 (2025), 15, www.ferc.gov.

the three-year lead time, when it is implemented, is likely to be insufficient given the five to six year supply chain lead times.

VII. Rapid Load Growth, Constrained Supply, Forecasted Supply Shortages and Compressed Auction Schedules

With a compressed auction schedule, supply chain lags of over five years on average as demonstrated above and rapid load growth due to data center load additions in PJM territory,¹⁵ PJM continues to face a confluence of events almost unchanged from PJM’s filing supporting a price cap and floor. In that filing nine months ago PJM described the unusual conditions supporting the changes thusly:¹⁶

As independent consultants for PJM, The Brattle Group, recently observed, “[w]ith unexpectedly rapid tightening of the supply-demand balance, a short forward period, and barriers to timely supply side response, there is a higher-than-anticipated possibility that the capacity auctions could produce prices at or near the price cap for multiple years in a row. These conditions and potential market outcomes fall beyond what was modeled in the 2022 Quadrennial Review.”

Conditions are largely unchanged. Two of the four auctions under the proposed VRR curve will have foreshortened lead times. The net surplus is forecasted to be narrower (Table 1, see above). The load growth from data center continues.¹⁷ The supply chain faces long delays that are incorporated into longer lead times for projects (see section V above).

These circumstances create conditions of shortage in which, without a price cap or equivalent offer capping, each seller could demand whatever price the seller wishes. In economic terms, each supplier is pivotal and has market power. Thus, the conditions meet the description of an *ex-ante* condition of market power.

¹⁵ David E Mills, “PJM Board of Managers Letter Regarding Implementation of Critical Issue Fast Path Process for Large Load Additions,” August 8, 2025, <https://www.pjm.com/-/media/DotCom/about-pjm/who-we-are/public-disclosures/2025/20250808-pjm-board-letter-re-implementation-of-critical-issue-fast-path-process-for-large-load-additions.pdf>.

¹⁶ PJM Interconnection, *Proposal for Revised Price Cap and Price Floor for the 2026/2027 and 2027/2028 Delivery Years Filing Letter*, FERC Docket ER25-1357-000 (2025), 11, www.ferc.gov.

¹⁷ Mills, “PJM Board of Managers Letter Regarding Implementation of Critical Issue Fast Path Process for Large Load Additions.”

Given conditions of known market power, market regulation requires some mitigation mechanism to assure that the market prices converge to what the price would be in a competitive market. This is the role of the VRR curve's price cap.¹⁸

VIII. Brattle Simulations Expressly Do Not Take Into Account the Current and Expected Conditions

Brattle's affidavit supporting the PJM filing evaluated the proposed curve with a Monte Carlo simulation. That simulation does not incorporate forecasts of supply or demand. Rather, it iterates around values from the most recent Base Residual Auction of 2025/2026:¹⁹

We set the Reliability Requirement and the initial volume of total supply offers consistent with historical market data from the 2025/26 BRA. These values are updated in each model draw based on the supply and demand variability parameters, which are based on the observed variability in BRA supply and demand from the 2015/16 to 2024/25 Planning Years.

The level of demand that determines the reliability requirement in the VRR curve is anchored by the historical 2025/26 BRA and is a random draw based on historical variability. The affidavit makes clear that it is based on the simulations rather than a forecast, and therefore the simulations do not account for expected conditions:²⁰

... this simulation modeling approach... [uses] assumed conditions with unconstrained, rational entry and exit... This Monte Carlo simulation does not attempt to predict the near-term pricing or quantity outcomes that may prevail in any particular year, especially not in a near-term year for which most entry decisions have already been made and further entry is constrained.

The authors emphasize the assumption of unconstrained entry and recognize that these conditions are not met in the current market:²¹

As discussed more extensively in the 2025 CONE Report, the cost and feasibility of building incremental capacity supply is presently constricted by supply chain limitations for turbines and other inputs, siting and permitting delays, a compressed forward period in the BRAs, and extended resource development

¹⁸ Note that PJM's offer caps (Market Seller Offer Cap) and must-offer requirements, while important, do not affect the market price when PJM unilaterally applies the price cap in conditions of a shortage.

¹⁹ Spees et al., *Affidavit of Dr. Kathleen Spees, Dr. Samuel A. Newell, and Dr. Andrew W. Thompson* Exhibit No. 2, 2025 VRR Curve Study, p. 87.

²⁰ Spees et al., *Affidavit of Dr. Kathleen Spees, Dr. Samuel A. Newell, and Dr. Andrew W. Thompson* P 10.

²¹ Spees et al., *Affidavit of Dr. Kathleen Spees, Dr. Samuel A. Newell, and Dr. Andrew W. Thompson* P 14.

timelines. These acute supply challenges may increase supply costs, limit the volume and types of new supply that can be developed in the initial years relevant to this Quadrennial Review... Under these conditions, it is possible that one or more BRAs may clear at the VRR Curve price cap, but yet may not attract sufficient volumes of new entry until supply-demand conditions resolve... We therefore stress that modeled outcomes under base conditions representing a well-behaved long-run equilibrium conditions should be incorporated as only one consideration in assessing VRR Curve suitability, alongside an assessment of potential performance in light of potential Net CONE estimation errors and other factors informing the price cap.

The authors recognize that the simulations do not incorporate the current and expected conditions. These same conditions are those motivating PJM's extraordinary efforts such as the Critical Issue Fast Path (CIFP) stakeholder process that PJM implemented for large load additions.²²

IX. Results from Brattle Simulations Are at Odds with Expected Outcomes

The unique circumstances of accelerating load growth and delayed entry due to supply limitations mean that the most likely, almost certain, outcomes differ dramatically from the assumptions used for Brattle's Monte Carlo analysis.

The VRR curve will be in effect for delivery years 2028/2029 through 2031/2032. The first two years will still have delayed auctions. The majority of the RRI supply is scheduled for the last two years. The PJM forecasted deficit worsens in future years. This is summarized in the table below.

Table 2: Indicators That Price Cap Will Be Triggered

BRA Delivery Year	3-Year Forward Lead Time?	RRI Entry (MW UCAP) Approximate Based on Figure 2	Forecasted Surplus (+)/Deficit (-) Above/Below Price Cap MW Trigger Based on Table 1
2028/2029	No	~ 250	-2,626
2029/2030	No	~ 500	-11,192
2030/2031	Yes	~ 3,800	-16,146
2031/2032	Yes	~ 3,250	-19,183

²² "PJM - Critical Issue Fast Path - Large Load Additions," accessed December 5, 2025, <https://www.pjm.com/committees-and-groups/cifp-lla>.

Given these indicators, it is reasonable to expect the supply to fall short and trigger the price cap in all the auctions to which the proposed VRR curve would apply, while Brattle suggests it will only be true of the earlier auctions.

Thus, it is reasonable to expect at least the first two auctions to clear at the cap, i.e., the cap will apply 50% of the time. However, as table 2 from Brattle’s affidavit shows below, their model predicts that the price cap will only apply 4% of the time.

**TABLE 2: SIMULATED PERFORMANCE OF CURRENT CURVE VS. PROPOSED CURVE
(BASE SCENARIO)**

	Price			Reliability						Cost
	Average Clearing Price (\$/MW-d)	Standard Deviation (\$/MW-d)	Frequency at Cap (%)	Average LOLE (events/yr)	Average Excess (Deficit) (MW)	Average Excess (Deficit) (RR+X%)	Normalized Portfolio EUE (% Target)	Frequency Below RR (%)	Frequency Below 99% of RR (%)	Average Procurement Cost (\$ mln/yr)
Current Curve	\$289	\$151	2.2%	0.065	1,773	1.26%	66.3%	7.3%	2.2%	\$14,363
Proposed Curve	\$289	\$108	4.0%	0.063	2,069	1.48%	65.9%	11.1%	4.0%	\$14,357

Source: Kathleen Spees et al., *Affidavit of Dr. Kathleen Spees, Dr. Samuel A. Newell, and Dr. Andrew W. Thompson*, FERC Docket No. ER26-455-000 (2025), 16, www.ferc.gov Table 2. Highlight of 4% added.

These results are based on simulations that ignore expected conditions. Since the results underpin the assertion by PJM that on average, and in the long run, the proposed VRR curve will result in prices approximating Net CONE.

The assertion that the expected, long-run, price will equal Net CONE underpins the argument that the proposed VRR curve will produce prices similar to a competitive market and therefore are just and reasonable. The evidence provided by the simulations is not relevant to the current and expected market conditions of shortage. Therefore, they cannot be relied on to support the operation of the RPM.

X. When Supply Is Fixed, Prices Above Net CONE Are a Wealth Transfer, Not a “Price Signal” That Attracts More Generation

A frequent justification of price caps significantly above Net CONE is that they are a “price signal” that attracts new generation.²³ The VRR curve, however, is an administrative

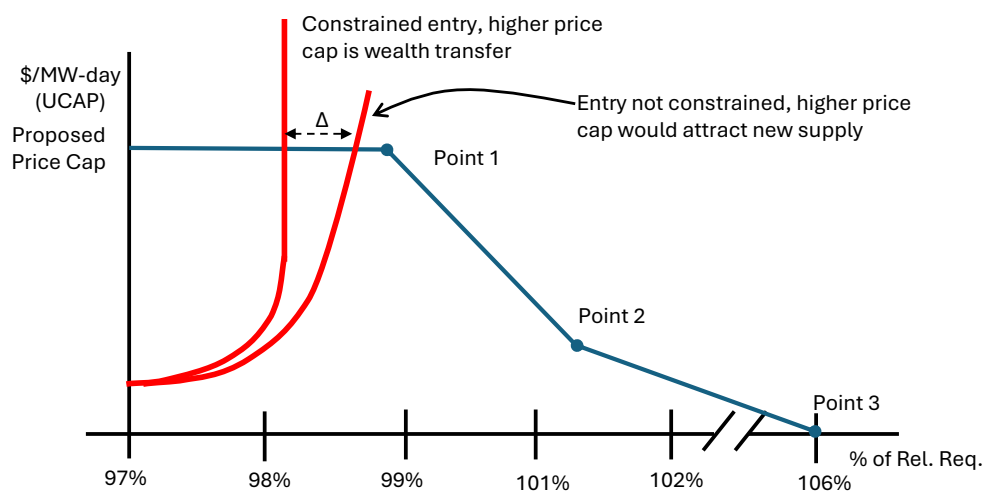
²³ For example: “The results of the 2026/2027 Delivery Year Base Residual Auction, posted on July 22, 2025, further indicate that tight conditions persist, requiring strong price signals from RPM Auctions.” PJM Interconnection, *Filing Letter for 2025 Periodic Review of VRR Curve*, 13.

construct and not a demand curve that expresses the preferences of consumers. Consumers do not reduce their consumption of reliability because the price of UCAP is too high. Therefore, the normal economics interpretation of a price signal during scarcity conditions does not apply.

A more sensible interpretation of the phrase is that at some higher price, more supply will enter, i.e., that the supply limit is financial, not physical. The counterargument is that there are physical and engineering limits to how fast capacity can be built. It takes time to design, permit and build a power plant.

Fundamentally it is a question of the factual conditions that PJM participants face. In the first case of unconstrained entry, supply can be increased at higher prices. In the second case, supply is fixed and prices above Net CONE are simply a wealth transfer from load to existing electric generators. This is illustrated in Figure 3.

Figure 3: Higher Price Cap Provides No Benefit When Supply is Constrained



The question then becomes: which of these two situations is closer to the current circumstances? The existing evidence of lags of supply by five to six years (Section V above) supports the conclusion that the price cap resulting from the VRR curve as proposed by PJM would be a wealth transfer to the extent that it exceeds the competitive new entry costs as measured by Net CONE.

XI. Price Cap Premium Band For Uncertainty In Net CONE Estimation Should Be Limited to 50% or Lower

The competitive equilibrium price of the capacity market is Net CONE. However, it is customary to include a buffer to account for possible under-estimation error. From a statistical perspective, there is little justification for selecting a biased estimator over an unbiased estimator. The implicit rationale is that the risk, i.e., potential damage, of an underestimate of Net CONE is greater than the potential damage (risk) of an overestimate. The former leads to reliability risk due to less generation entry, the latter leads to higher cost for consumers due to the higher price cap.

In a recent order FERC refers to 52% cost estimation error as reasonable and justification for a price cap higher than Net CONE.²⁴

Price caps based on Net CONE, or multiples of Net CONE to account for the uncertainty of the Net CONE estimate, provide such signals. The proposed price cap of \$325/MW-day is 52% higher than estimated Net CONE (\$214/MW-day), which we find is just and reasonable and consistent with Commission precedent accepting similar capacity market price caps in other RTOs/ISOs. [emphasis added]

As pointed out previously, the adder in the proposed price cap and VRR curve was 90%: “The Proposed Curve produces an estimated price cap of 190% of the CT Net CONE.”²⁵ There is no discussion on why the adder of 90% is better than 52%.²⁶ In fact, when Brattle conducted sensitivity tests to see how the proposed VRR curve would perform if Net CONE were underestimated, it used a 40% error band.²⁷

To put the 90% adder in perspective, consider the implied return on equity (ROE) for one year. Brattle recommended a 16% ROE. Since the costs are fixed, the additional revenue flows to

²⁴ FERC, *Order Accepting Tariff Revisions and Dismissing Complaint Re Commonwealth of Pennsylvania v. PJM Interconnection, L.L.C. under ER25-1357 et al. Commissioner See Is Not Participating.*, FERC Dockets ER25-1357-000, EL25-46-000 (2025), 38, https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20250421-3069 paragraph 54.

²⁵ Spees et al., *Affidavit of Dr. Kathleen Spees, Dr. Samuel A. Newell, and Dr. Andrew W. Thompson*, P 21.

²⁶ Even if the VRR curve simulations were based on likely outcomes, a lower price cap could be incorporated by extending the downward portion of the curve to increase revenues when there is surplus capacity in the market.

²⁷ PJM Interconnection, *Additional Modeling Results for PAPUC VRR Curve*, Market Implementation Committee (2025), <https://www.pjm.com/-/media/DotCom/committees-groups/committees/mic/2025/20250709/20250709-informational-only---additional-modeling-results-for-papuc-vrr-curve.pdf>.

equity for a one-year ROE of 30.4% ($=16\% \times 1.90$). Alternatively, one can calculate a similar ROE of 31.6% from the additional revenue of \$261/MW-day (\$550/MW-day - \$289/MW-day) and the capital structure.²⁸ The calculation assumes costs are fixed and holds E&AS revenues constant in the comparison. Only capacity revenues change.

The ROE of 30.4%-31.6% is only for one year. However, it is a pure economic rent. Supply and costs do not change.

Ultimately the error band to use, 90%, 52%, 40%, or 0% is normally a choice that weighs excess costs to consumers at high error bands against possible reliability problems at lower error bands. However, no data has been supplied to demonstrate the size of the uncertainty despite the extraordinary costs of the 90% error band.

The Commission should require proof of expanded uncertainty in the measurement of Net CONE given the request for a 90% surcharge.

XII. Price Cap is Over-Stated Due to Use of Only 75% of Net Energy and Ancillary Services (Net E&AS) Revenues

A benefit of anchoring the VRR curve to Net CONE is that reforms in the energy and reserve markets that create higher revenues during periods of scarcity simultaneously reduce Net CONE and the reliance on the capacity market. As energy and reserve revenues increase, the Net CONE declines. This has been recognized early on by William Hogan, one of the architects of PJM's nodal market, and is one of the reasons Hogan has advocated scarcity pricing of reserve and energy.²⁹

²⁸ The adder provides an additional revenue of \$261/MW-day or \$95,265/MW-year. Since costs are fixed the additional revenue accrues to the equity holder. The capital structure is 55% debt, 45% equity with an overnight capital cost of \$1,361/kW (Samuel Newell et al., *Brattle 2025 CONE Report for PJM* (2025), 112, <https://www.brattle.com/insights-events/publications/brattle-experts-evaluate-parameters-of-pjms-reliability-pricing-model-and-variable-resource-requirement-in-new-reports/>, Table 13, Rest of RTO CT.) The equity share of the original cost is then \$612,450/MW-year. The additional ROE is $95,265/612,450 = 15.6\%$. The total ROE for the year is then $31.6\% = 16\% + 15.6\%$.

²⁹ William W. Hogan, "Electricity Scarcity Pricing Through Operating Reserves," *Economics of Energy & Environmental Policy* 2, no. 2 (2013), <https://doi.org/10.5547/2160-5890.2.2.4>.

The almost certain capacity shortage in PJM means that energy and ancillary prices will rise due to reserve shortages and scarcity pricing.³⁰ This will increase the Net E&AS Offset and decrease Net CONE.

PJM has proposed using only 75% of Net E&AS Offset in its calculation of the Net CONE and hence the price cap. This lower weight on the Net E&AS Offset reduces the contribution to Net CONE of the errors introduced by estimation of energy and ancillary service revenues, as mentioned by PJM.³¹

PJM emphasizes the risk of over-estimating the Net E&AS Offset as would make the Net CONE values too low.

Underestimation is also a risk. Underestimating the Net E&AS Offset would raise Net CONE. This is a concern because it is reasonable to expect higher energy and ancillary service prices due to the capacity shortage. The design of the RPM intended such scarcity prices to offset capacity market revenues through the use of Net CONE in the VRR curve. Ignoring the full effect of the offset requires customers to pay higher energy and reserve prices at the same time as they must pay higher capacity prices.

Furthermore, PJM is currently developing a proposal to revise its reserve markets that would increase the reserve and energy prices through the modification of the Operating Reserve Demand Curve (ORDC) and incorporating offers for reserves.³² PJM recognizes that the reforms will decrease Net CONE: “As Energy Revenues increase, Net CONE will decrease, reducing the upward pressure on capacity prices and shifting costs to the timeframe in which they are incurred.”³³

By explicitly biasing down the estimate Net E&AS Offset, i.e., understating the impact of energy and ancillary service revenues, PJM increases the probability that there will be the

³⁰ Shortage pricing of energy and reserve is described in PJM’s Open Access Transmission Tariff, Attachment K, Section 2.5.

³¹ Skyler Marzewski, *Affidavit of Skyler Marzewski*, FERC Docket No. ER26-455-000 (2025), P 25, www.ferc.gov.

³² PJM Interconnection, “PJM RCSTF Proposal Review Status Update,” RCSTF, October 29, 2025, <https://www.pjm.com/committees-and-groups/task-forces/rcstf>.

³³ PJM Interconnection, “PJM RCSTF Proposal Review Status Update,” 54.

equivalent of double payment to suppliers. First, consumers will pay for the capacity as if energy prices will be low, and second, in real-time they pay the higher energy prices.

XIII. The Commission Should Require PJM To Determine *Ex Ante* Whether the Auctions During the Period that the Proposed VRR Curve is in Place Will Occur in Competitive Conditions

The current extraordinary conditions affecting the PJM capacity market create a very high probability that the first two auctions with the proposed VRR curve will occur in non-competitive conditions that exhaust the supply. Current indications are that the supply will be constrained and higher prices will not increase the supply in the auctions.

Under these conditions prices higher than Net CONE represent a wealth transfer. Only when there is the possibility of new entry to discipline market power will prices higher than Net CONE serve a purpose. Then a higher price cap may entice supply with entry costs greater than the estimated Net CONE.

Given the very high probability that at least the first two auctions will be in non-competitive conditions the Commission should set the price cap of the VRR curve to Net CONE for the first two auctions during which the proposed VRR curve would be in effect - i.e., BRA 2028/2029 and BRA 2029/2030. Given the current supply conditions and uncertainty surrounding new entry, an appropriate value is the current price cap value accepted by the Commission in Dockets ER25-1357-000 and EL25-46-000. When accepted, this value included a substantial 52% adder to cover measurement error. The value of the price cap should continue to represent Net CONE, but with minimal margin for measurement error, thereafter until such time as the Commission determines that both (a) new entry sufficient to alleviate a shortage is feasible within the lead time of the then pending annual BRA and (b) that the market will be reasonably competitive.

Satisfying these two conditions will help satisfy the requirement of *Public Citizen, Inc. v. FERC (Public Citizen)* that a market be determined to be competitive *ex-ante*.

XIV. The Commission Should Require PJM to Maintain the Best Possible Estimates of UCAP for the Same Horizon as the Load Forecast and to Provide the Information Necessary to Replicate the Calculations

PJM is forecasting a UCAP shortfall for future years beyond 2027 and the shortage may well begin in BRA 2027/2028 (Table 1). This shortage has caught stakeholders by surprise and required PJM to take extraordinary steps such as instituting the Critical Issue Fast Path procedure for Large Load Additions.³⁴

It is in the interest of all stakeholders, PJM, and the Commission itself that this situation does not repeat. To that end, PJM should be required to maintain a rolling forecast of UCAP of the same horizon as the load forecast. This should be open to review by stakeholders and should be replicable by stakeholders. Thus, queue interconnection data should include the information necessary to estimate the UCAP of each project. For example, the UCAP values of battery projects are affected by the proposed hours of storage. Therefore, the queue data should include this information. The UCAP values of hybrid projects (combined generation and batteries) are affected by their open or closed configuration. Therefore, the queue data should identify the type of configuration. Any resource parameter relevant to estimating the UCAP of a project should be included.

XV. Certification

I hereby certify that I am the Mario S. DePillis Jr. referred to in the foregoing “Affidavit of Mario S. DePillis Jr. on Behalf of Maryland Office of People’s Counsel,” that I have read the same and know its contents are true as stated to the best of my knowledge, information, and belief. I possess full power and authority to sign this filing.

³⁴ “PJM - Critical Issue Fast Path - Large Load Additions,” accessed December 5, 2025, <https://www.pjm.com/committees-and-groups/cifp-lla>.



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