

**BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

Governor Josh Shapiro and)	Docket No. EL25-46-000
The Commonwealth of Pennsylvania,)	
Complainants,)	
v.)	
PJM Interconnection, L.L.C.,)	
Respondent)	

COMMENTS OF THE PENNSYLVANIA PUBLIC UTILITY COMMISSION

Intervenor Pennsylvania Public Utility Commission (PA PUC) submits the following comments in support of the complaint of Governor Joshua Shapiro of the Commonwealth of Pennsylvania (Governor Shapiro) against PJM Interconnection, LLC (PJM). In light of the results of PJM’s 2025/2026 Base Residual Auction (BRA), PA PUC supports Governor Shapiro’s efforts to have PJM implement changes to its capacity market design that would mitigate against even higher capacity prices in the 2026/2027 BRA. In particular, PA PUC agrees with Governor Shapiro that setting the value of the capacity auction price cap at the higher of 100% Gross CONE or 1.75 times Net CONE inappropriately overcompensates resources, resulting in higher costs for consumers. Therefore, PA PUC likewise respectfully requests that this Commission direct PJM to revise Point 1 of its Variable Resource Requirement (VRR)¹ demand curve down to no more than 1.5 times Net CONE and remove Gross CONE from the formula.

¹ PJM Open Access Transmission Tariff, Attachment DD, Section 5.10(a)(i).

I. Background

Prior to 2011, PJM set the price cap of the VRR curve to 1.5 times Net CONE. Although the VRR curve was modified at various times from its initial proposal to first approval by the Commission, Point 1 of the curve—the price cap—always was justified based on Net CONE.²

For the first time, in its 2011 Triennial VRR Review, PJM proposed to alter the price cap by “set[ting] the highest point on the VRR Curve equal to the greater of gross CONE or 1.5 times Net CONE to avoid potential collapse of the curve when historic energy revenues used to determine the EAS offset are high.”³

In its 2022 Quadrennial Review Filing before FERC, PJM proposed to modify the VRR curve by increasing the Net CONE multiplier from 1.5 to 1.75 for the 2026/2027 Delivery Year, thereby modifying the formula for determining the VRR curve price cap to the greater of gross CONE or 1.75 times Net CONE (noting that gross CONE may still set the price cap if it is greater than the multiple of Net CONE).⁴ At the same time, PJM proposed moving from the use of historical energy and ancillary services for its EAS Offset to the use of a forward-looking EAS Offset.⁵ As justification for the increasing multiple, PJM cited to (1) higher uncertainty in the Net CONE estimate and rapid

² See *PJM Interconnection, L.L.C.*, Docket Nos. ER05-1410-000, EL05148-000, RPM Settlement Explanatory Statement (Filed September 29, 2006) at 7, n. 21.

³ *PJM Interconnection, L.L.C.*, Docket No. ER12-513-000 (filed December 1, 2011) (2011 Triennial VRR Review Filing) at 2.

⁴ *PJM Interconnection, L.L.C.*, Docket No. ER22-2284-000, *Periodic Review of Variable Resource Requirement Curve Shape and Key Parameters* (filed September 30, 2022) (2022 Quadrennial Review Filing) at 17.

⁵ *Id.* at 32, *et seq.*

turnover in the capacity fleet caused by environmental policies, technological changes, and the retirement of aging plants; (2) large uncertainties in expected gas market prices (and consequently, in electricity prices and revenues from Net Energy and Ancillary Services (EAS) offsets); (3) ongoing uncertainties and instabilities in commodity markets, labor markets, supply chains, and financial across many sectors which have introduced challenges in estimating an accurate CONE estimate; and (4) the effects of state and federal policies on the design of the Reference Resource and fleet turnover, including indirect effects on the EAS offset.⁶ PJM also specifically cited to global natural gas shortages caused by Russia's invasion of Ukraine in February 2022 as potentially altering market conditions between the relevant RPM Auction and the 2026/2027 delivery year.

Under these circumstances, PJM took the position that adhering to the existing price cap incorporating the 1.5 times Net CONE multiplier would risk under-estimating Net CONE. Accordingly, PJM asserted that increasing the Net CONE multiplier to 1.75 would mitigate the risk of under-procuring.⁷ FERC approved PJM's proposed OATT revisions by Order issued February 14, 2023.⁸

In June 2024, the 2025/2026 BRA was conducted with the prior rate cap of 1.5 times Net CONE multiplier still in effect. Even at this lower price cap than the one set to be implemented in the 2026/2027 BRA, the 2025/2026 BRA resulted in a capacity price

⁶ 2022 Quadrennial Review Filing at 17.

⁷ 2022 Quadrennial Review Filing at 17.

⁸ *PJM Interconnection, L.L.C.*, Docket No. ER22-2284-000 (Order entered February 14, 2023) (2022 Quadrennial Review Order).

of \$269.92 per megawatt-day (MW-day) for the PJM footprint, representing an almost 10-fold increase over the previous capacity auction for the 2024/25 delivery year, where PJM capacity prices cleared at \$28.92/MW-day. Accordingly, total capacity costs to PJM members rose from \$2.2 billion for the 2024/2025 delivery year to \$14.7 billion for the 2025/2026 delivery year.

II. The VRR Curve Price Cap For The 2026/2027 And 2027/2028 BRAs Should Be Adjusted To Account For The Current State Of The Capacity Market

PJM, in an effort to mitigate against even higher capacity prices in the 2026/2027 and 2027/2028 BRAs, proposed modifications to Reliability Pricing Model (RPM) in its December 9, 2024 filing at Docket No. ER25-682-000, and also proposed revisions to its Open Access Transmission Tariff (OATT) in its December 20, 2024 filing at Docket No. ER25-785-000. However, these proposed changes leave intact the VRR price cap for the 2026/2027 BRA, which is set to increase to the greater of 1.75 of Net CONE or 100% Gross CONE. PA PUC lauds PJM for making efforts to implement adjustments in response to the results of the 2025/2026 BRA. Without addressing the VRR price cap, however, these changes will not be fully effective in either preventing extremely high clearing prices, or incentivize investment in generation, for reasons explained below.

A. PJM's Load Forecast Has Changed Dramatically Since The 2022 Quadrennial Review

FERC has previously explained that a central question of whether PJM has met the just and reasonable standard is whether the proposed demand curve “will attract sufficient

generation to meet its capacity obligations at a just and reasonable price.”⁹ As PJM has explained, and as Governor Shapiro noted in his Complaint, electrification mandates and the rapid growth of data centers within the PJM footprint are driving increases in PJM’s load forecast.¹⁰ In particular, Governor Shapiro notes that Peak load for 2027 is now forecast about 8,000 MW higher than was anticipated in 2022.¹¹

While for many years PJM’s load forecast had been flat or even declining, in the past two years demand has skyrocketed. At the same time, retirements of existing generation units have increased with little to no new generation coming online, resulting in supply becoming more constrained. Therefore, it is not only prudent, but necessary, to re-examine any capacity market design parameters that were set in 2022 and make appropriate modifications to ensure that any resulting price signals are having their intended effect.

B. PJM’s Backlogged Interconnection Queue And Compressed Auction Schedule Prevents Generation From Responding To Capacity Market Price Signals

PJM’s capacity auction is intended to (1) telegraph a price signal to the market and (2) to provide the “missing money”¹² for existing generators to cover their fixed costs beyond the revenues available in the energy and ancillary services markets. Accordingly, the top of the VRR Curve provides generators with information needed to determine

⁹ *PJM Interconnection, L.L.C.*, 119 FERC ¶ 61,318 at P 110 (quoting *PJM Interconnection, L.L.C.*, 117 FERC ¶ 61,331, ¶ 82 (2006)).

¹⁰ See <https://insidelines.pjm.com/pjm-publishes-2024-long-term-load-forecast/>, and Shapiro Complaint at 14-15.

¹¹ Shapiro Complaint at 15.

¹² Shapiro Complaint at 7, n. 20.

whether it is economical for them to offer their units into the capacity market. Periods of low demand and low capacity prices would ostensibly disincentivize less economic generation units from entering the market. Conversely, increased load forecasts and high capacity prices would ordinarily incentivize more generation units to offer into the market. Despite the increased load forecast in the PJM footprint and the tenfold increase in the capacity clearing price from the 2025/2026 BRA, very little new generation or reactivated generation has come online.

As Governor Shapiro observed, there are currently two barriers to capacity market entry. First, the compressed capacity auction schedule provides insufficient time for generators to respond to price signals. Ordinarily, PJM holds its capacity auctions three years in advance of the delivery year. However, PJM suspended its capacity auctions while FERC considered issues relating to the Minimum Offer Price Rule (MOPR). Under normal procedures, the capacity auction for the 2025/2026 delivery year would have been held in Summer 2022. Instead, it was held in June 2024 – approximately one year before the start of the 2025/2026 delivery year. The same one-year advance timeframe will apply to the capacity auction for the 2026/2027 delivery year.¹³ This is simply not enough time for new generation to finalize an Interconnection Service Agreement or Generator Interconnection Agreement, receive permits, complete construction, and be placed into service for the forthcoming delivery year. Second, the

¹³ PJM originally proposed to hold the 2026/2027 BRA in December 2024 – one and a half years in advance of the 2026/2027 delivery year. On November 8, 2024, FERC approved PJM’s request to delay this auction to June 2025 – again, one year in advance of the 2026/2027 delivery year.

substantial backlog of the PJM Interconnection Queue (Queue) means that any new generation projects, including baseload generation, that are looking to respond to the high capacity price set by the 2025/2026 BRA must enter the queue behind the more than 3,000 projects that are already in line. It goes without saying that even if PJM were to approve every project in the Queue, it could not do so by the 2026/2027 delivery year.

With these significant barriers to entry in place, it is illogical to think that *any* modifications to market design will incent new generation in the foreseeable future.

III. The VRR Curve Price Cap For The 2026/2027 And 2027/2028 BRAs Should Be Adjusted

Given that the price signals from capacity market are not functioning to incent new generation, it is imperative that PJM take effective measures to mitigate against higher prices in the forthcoming capacity auctions. Otherwise, any additional increase in capacity prices would only serve to provide excess compensation to existing, incumbent generation. Accordingly, PA PUC agrees with Governor Shapiro that it is appropriate and necessary to (1) to lower the Net CONE multiplier back to 1.5 rather than raising it to 1.75, and (2) remove Gross CONE as part of the price cap formula.

A. PJM's Proposal To Raise The Net CONE Multiplier From 1.5 To 1.75 Was Based On Using CC Rather Than CT As The Resource Reference In The RPM

In 2022 Quadrennial Review proceeding, PJM proposed changing the reference resource from natural gas-fired dual fuel combustion turbine (CT) to Combined Cycle (CC).¹⁴ PJM's rationale for moving from a CT, which it had used as the reference

¹⁴ 2022 Quadrennial Review Filing at 10.

resource since the RPM was established in 2006, to a CC was based on analysis which found that during the preparation period of the 2022 Quadrennial Review Filing, CC resources were the most economically efficient and were actually being built, while CT resources were not being built and had a Net CONE about 20% higher than CC resources within the PJM footprint.¹⁵

FERC has previously acknowledged that, when selecting an appropriate reference technology on which to base an estimate of CONE, it is important to consider whether (1) the reference technology is able to contribute to resource adequacy; (2) project developers will likely build a resource using the reference technology; and (3) capacity, energy, reserve, and other ancillary market revenues of the reference technology can be estimated accurately.¹⁶ Accordingly, PJM found that, compared to CT and other candidate resources, (1) a CC plant is the most economically viable reference technology considered and produces the lowest estimated Net CONE, (2) project developers are likely to build CC plants, and (3) a CC plant's Net CONE can be estimated more accurately than other resource types.¹⁷ Further, PJM stated in the 2022 Quadrennial Review filing that supported the use of a 1.75 multiplier under the following rationale:

[C]hanging the Net CONE multiplier has a smaller effect when the Reference Resource is a CC because the greater EAS revenues associated with a CC than a CT mean that Net CONE is a lower percentage of gross CONE. Thus, the relationship between gross CONE and 1.75 times Net CONE for a CC Reference Resource is similar to the relationship

¹⁵ 2022 Quadrennial Review Filing at 11-12.

¹⁶ 2022 Quadrennial Review filing, citing *PJM Interconnection, L.L.C.*, 117 FERC ¶ 61,331.

¹⁷ 2022 Quadrennial Review Filing at 13.

between gross CONE and 1.5 Net CONE for the CT Reference Resource.¹⁸

In other words, PJM's proposal to raise the Net CONE multiplier from 1.5 to 1.75 was explicitly linked to its proposal to change the reference resource from CT to CC.

B. PJM's December 9, 2024 Filing Illogically Proposes To Change The Resource Reference Without A Corresponding Change To The Net CONE Multiplier

In its December 9, 2024 filing at Docket No. ER25-682-000, PJM proposed certain reforms to its RPM, including a section 205 proposal to maintain its existing utilization of CT plant as the Reference Resource for the 2026/2027 and 2027/2028 delivery years.¹⁹ PJM acknowledged that the compressed auction schedule has exacerbated the impact of “unprecedented rapid load growth, premature retirements of generation with attributes needed to maintain reliability, and state and federal policies that significantly affect the economics of the existing resource fleet and potentiality of replacement capacity.”²⁰ PJM posited that temporarily maintaining the status quo with regard to the reference resource would address market volatility and permit PJM and its stakeholders to complete the ongoing comprehensive review of potential reference resources as part of its periodic review.²¹

PJM noted that CC units are generally baseload units that rely more heavily on EAS revenues compared to CT units, which are typically peaking facilities.²² As such,

¹⁸ See PJM Filing, Docket No. ER22-2984-000 (September 30, 2022) at 19.

¹⁹ *PJM Interconnection, L.L.C., Revisions to Reliability Pricing Model*, Docket No. ER25-682-000 (filed December 9, 2025) (December 9, 2025 Filing) at 1, 36.

²⁰ December 9, 2025 Filing at 35.

²¹ December 9, 2025 Filing at 1, 37.

²² December 9, 2025 Filing at 40.

PJM expressed concern that maintaining a CC unit as the reference resource while using the VRR Curve from the 2022 Quadrennial Review could “produce more concentrated compensation than the curve was designed for, at a greater cost to consumers, and with extreme sensitivity of prices to small changes in supply.”²³

However, despite the evidence showing that PJM’s choice of reference resource in the 2022 Quadrennial Filing was the impetus for changing the Net CONE multiplier from 1.5 to 1.75, PJM clarified in its December 9, 2024, filings that it did not propose changes to the VRR shape and would still proceed to implement the 1.75 Net CONE multiplier to set the price cap in the 2026/2027 BRA.²⁴ Given the dysfunction in the market, PJM must make adjustments to the VRR shape.

C. The 1.75 Net CONE Multiplier Should Be Lowered Back To 1.5 For The 2026/2027 Capacity Auction

The purpose of the RPM is to ensure that resources have the ability to recoup all of their costs not covered by revenues from the energy and ancillary services markets (EAS). The capacity market allows generators to offer their capacity at a price lower than their going forward costs by factoring in EAS revenues (a concept colloquially known as “missing money”). This is why Net CONE is defined as Gross CONE minus EAS revenues.

However, different types of generation vary to the extent that they rely on EAS revenues. As indicated by the IMM, EAS revenues for a CC plant make up about 85% of

²³ December 9, 2025 Filing at 40-41.

²⁴ December 9, 2025 Filing at 39.

Gross CONE – meaning that for a CC, Net CONE is approximately 15% of Gross CONE.²⁵ By comparison, EAS revenues for a CT plant make up only 51% of Gross CONE – meaning that for a CT, Net CONE is about 49% of Gross CONE.²⁶ This distinction is relevant to why the Net CONE multiplier for the VRR price cap should be changed if the reference resource is changed.

Upon approving the change to the VRR curve price cap proposed in PJM’s 2022 Quadrennial Review Filing, FERC took note of PJM’s view that that increasing the Net CONE multiplier for setting the price cap would be unlikely to affect the VRR Curve based on estimates finding that Gross CONE exceeds both 1.5 times and 1.75 times Net CONE, and the price cap therefore would equal Gross CONE regardless of the Net CONE multiplier.²⁷ However this statement was made based on use of CC as the reference resource for the RPM.

The IMM’s comments at Docket No. ER25-682-000 show the financial impact of applying the 1.75 Net CONE multiplier to the RMP using CT as the reference resource.

Use of the 1.75 multiplier makes the $1.75 * \text{Net CONE}$ value much closer to Gross CONE and actually significantly greater (35 percent) than Gross CONE in some LDAs. PJM does not address the reasons for using a value greater than Gross CONE, let alone support such values.²⁸

²⁵ *PJM Interconnection, L.L.C.*, Docket No. ER25-682-000, Comments of the Independent Market Monitor (Filed January 1, 2025) at 22.

²⁶ *Id.*

²⁷ 2022 Quadrennial Review Order at 62, n. 331.

²⁸ *PJM Interconnection, L.L.C.*, Docket No. ER25-682-000, Comments of the Independent Market Monitor (Filed January 1, 2025) at 21.

Based on current Gross CONE values for CT, using the 1.75 Net CONE multiplier in one-third of LDAs in PJM’s footprint (including PPL in Pennsylvania) would lead to prices greater than Gross CONE.²⁹ In fact, under current market conditions, even using the 1.5 Net CONE multiplier for a CT reference results in values higher than Gross CONE in some LDAs.

In sum, PJM’s refusal to propose resetting the Net CONE multiplier from 1.75 back to 1.5 to coincide with its proposal to change the reference resource from CC back to CT will (1) allow generators to be overcompensated with revenues that lack any “missing money” component, and (2) will have a substantial financial impact on customers, without the public benefit of attracting new generation since, as described *supra*, it is not possible for new generation to come online in time for the 2026/2027 delivery year.

D. Using Gross CONE As The VRR Price Cap May Also Result In Higher Prices For Customers

The fact that both the 1.5 and 1.75 Net CONE multipliers would result in prices higher than Gross CONE in some LDAs does not mean that pegging the VRR price cap solely to Gross CONE is the solution, either. As previously mentioned, the current tariff allows the price cap to be the 1.75 times Net CONE or Gross CONE, whichever is *greater*. Therefore, in LDAs where the value generated by the Net CONE multiplier is less than Gross CONE, the price cap will be determined by Gross CONE.

²⁹ *PJM Interconnection, L.L.C.*, Docket No. ER25-682-000, Comments of the Independent Market Monitor (Filed January 1, 2025) at 24, Table 1.

The IMM's calculations show that under the current state of the capacity market, where supply is less than 99% of the reliability requirement, the impact of using Gross CONE rather than 1.5 * Net CONE would be to increase customer payments for capacity by approximately \$10.1 billion for a single delivery year.³⁰ Similarly to PJM's intention to proceed with using the 1.75 Net CONE multiplier, using Gross CONE as the price cap would likewise overcompensate resources by not accounting for EAS revenues, and would fail to incent new generation from coming online.

Beyond the harmful consumer consequences of relying on Gross CONE, there is no economic basis for adopting a Gross CONE backstop under the current market construct. There was so little economic dispute at the formation of RPM that the Gross CONE should be offset by energy and ancillary services revenue that PJM did not even justify that design choice, instead simply describing its function.³¹ Nor did FERC describe any dispute on the issue in its orders approving RPM.³²

When PJM ultimately included a Gross CONE backstop, it only existed because *historical* EAS offsets might bring *future* Net CONE to zero or near zero. Although some comments at the time raised the specter of overpaying for capacity, the Commission accepted the PJM proposal and responded to these concerns by relying on the historical nature of the EAS offset used at the time: "we agree with PJM that its proposal assures

³⁰ *PJM Interconnection, L.L.C.*, Docket No. ER25-682-000, Comments of the Independent Market Monitor (Filed January 1, 2025) at 22.

³¹ *PJM Interconnection, L.L.C.*, Reliability Pricing Model Filing, Docket No. ER05-1410 (Filed August 31, 2005) at 71.

³² *PJM Interconnection, L.L.C.*, 115 FERC ¶ 61,079 (Issued April 20, 2006) (Partially approving and establishing settlement judge procedures for RPM); *PJM Interconnection, L.L.C.*, 117 FERC ¶ 61,331 (Issued December 22, 2006) (Order approving settlement).

capacity resource providers that, even if energy prices spike for a few years before an auction, the clearing price under tight capacity conditions will cover the full cost of new entry.”³³

This justification relied heavily on the incongruity between the historical offset and future auctions. The Commission was imagining a scenario where energy prices spike in the years prior to an auction, but in the years covered by the auction, the Delivery Year, there would be insufficient energy and ancillary services revenues in combination with the suppressed capacity revenues to keep need units online. Without the benefit of hindsight, this was plausible at the time, but when PJM adopted a *forward-looking* EAS offset, the justification was undermined. At no point has the Commission revisited the original justification of the Gross CONE backstop considering the change to the forward-looking EAS offset in the 2022 Quadrennial Review.

Now that the Commission has a clear opportunity to address the issue, it should act. Gross CONE as a backstop no longer serves the function it originally did. Undoubtedly, there is still uncertainty in the calculation of the EAS offset, but in present circumstances, PJM’s Gross CONE backstop is a cure worse than the disease. Gross CONE as a price cap fully ignores the entry signals that energy revenues play in the market. PJM focuses on the use of the backstop to reduce uncertainty in its Net CONE calculation,³⁴ but the backstop also applies when PJM forecasts Net CONE perfectly. If actual energy prices are high enough to meet resource adequacy needs, PJM should not

³³ *PJM Interconnection, L.L.C.*, 138 FERC ¶ 61,062, ¶ 84 (Order issued January 30, 2012).

³⁴ 2022 Quadrennial Review Filing at 17.

artificially reject that outcome. The solution to EAS offset uncertainty is not the Gross CONE backstop.

IV. Conclusion

Therefore, consistent with Governor Shapiro's Complaint, PA PUC respectfully requests that FERC direct PJM to revise its RPM for the 2026/2027 and 2027/2028 delivery years so that (1) the VRR price cap is set to 1.5 times Net CONE instead of 1.75 Net CONE, and (2) also drop Gross CONE as part of the price cap formula.

Respectfully submitted,

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