Monitoring Analytics

Analysis of the 2028/2029 RPM Base Residual Auction Part A

The Independent Market Monitor for PJM

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Introduction

This report, Part A of what will be a comprehensive multipart report, prepared by the Independent Market Monitor for PJM (IMM or MMU), presents a first set of sensitivity analyses of the twenty second Reliability Pricing Model (RPM) Base Residual Auction (BRA), for the 2028/2029 Delivery Year, which was held from June 30 to July 7, 2026. The sensitivities in this Part A are focused on the substantial recent increase in actual load and the increase in the peak load forecast for the 2028/2029 BRA, both of which were almost entirely due to existing and projected large data center load additions to the PJM grid. The MMU presents the results of these sensitivities in order to provide information to stakeholders that is relevant to the 2029/2030 BRA, now scheduled for December 9 to December 15, 2026, the design of the Reliability Backstop Procurement (RBP), the design of future auctions, the design of the Variable Resource Requirement (VRR) curve, and the treatment of large data center loads. The results reported by the MMU are not forecasts or predictions of the outcome of any future BRA.

For the first time since the introduction of the RPM capacity market design, the 2026/2027 BRA used a VRR curve with a defined minimum price. The 2028/2029 BRA is the third RPM capacity auction to use a defined minimum price. The VRR curve has always included a maximum price that both defines scarcity price levels and prevents the exercise of market power. The specific maximum and minimum prices used in 2026/2027 BRA and 2027/2028 BRA were based on the Agreement between Governor Shapiro of Pennsylvania and PJM applicable to the 2026/2027 BRA and the 2027/2028 BRA that was incorporated in a PJM filing with FERC.[1] PJM filed and FERC approved the extension of the maximum and minimum price for the 2028/2029 BRA and 2029/2030 BRA.[2] The minimum price in the Agreement was a unique feature, never previously included in a BRA, and was at a very high level compared to historical BRA clearing prices. The maximum price in the 2026/2027 BRA was approximately equal to the maximum price recommended by the MMU. The maximum price for the Rest of RTO in the 2028/2029 BRA of $554.73 was higher than the MMU's recommended level of $488.54 per MW-day by $66.19/MW-day, or 14 percent. That VRR curve with the defined maximum and minimum price is referred

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1 On December 30, 2024, in Docket No. EL25-46-000, Governor Josh Shapiro and the Commonwealth of Pennsylvania filed a complaint against PJM asserting that the maximum price for PJM's capacity auctions is unjust and unreasonable. The Governor and PJM reached an Agreement. On February 20, 2025, in Docket No. ER25-1357-000, pursuant to FPA section 205, PJM submitted proposed revisions to its Tariff to establish a specific maximum price and minimum price for all RPM auctions for the 2026/2027 and 2027/2028 Delivery Years, consistent with the Agreement.

2 195 FERC ¶ 61,076

to in this report as the actual VRR curve.[3] The VRR curve that would have been used absent the Agreement is referred in this report as the alternate VRR curve.

The Agreement resulted in a reduction of 2028/2029 BRA revenues of $13,314,277,218, or 44.8 percent, compared to the revenues that would have resulted from the alternate VRR curve, holding everything else constant. If the 2028/2029 BRA had been run with an alternate VRR curve, total revenues would have been $29,722,226,243, an increase of $13,314,277,218, or 81.1 percent, compared to the actual auction revenues of $16,407,949,025 (Scenario 1).

The Agreement resulted in a reduction of combined 2026/2027 BRA, 2027/2028 BRA and 2028/2029 BRA revenues of $26,397,465,049, or 35.0 percent, compared to the revenues that would have resulted from the alternate VRR curve, holding everything else constant.[4] [5]

The 2026/2027 BRA was the first BRA to clear less capacity than the target reliability requirement. The capacity market cleared 208.7 MW (UCAP) short of PJM's reliability requirement, or 0.2 percent less than the reliability requirement.[6] The 2027/2028 BRA also cleared at less than the target reliability requirement. The 2027/2028 BRA in December 2025 cleared 6,516.6 MW (UCAP) short of PJM's UCAP reliability requirement, or 8,452.4 MW (ICAP) less than the IRM ICAP which is 5.6 percent less than the IRM.[7] The 2028/2029 BRA also cleared at less than the target reliability requirement. The 2028/2029 BRA in July 2026 cleared 6,831.3 MW (UCAP) short of PJM's UCAP reliability requirement, or 8,716.1 MW (ICAP) less than the IRM ICAP which is 5.6 percent less than the IRM (Table 2).

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3 In the prior auction reports, the actual VRR curve with maximum and minimum price used in the auction was referred to as restricted VRR curve (this is now referred to as the actual VRR curve) and the VRR curve with no minimum price and a maximum price set based on the Quadrennial Review was referred to as the unrestricted VRR curve (this is now referred to as the alternate VRR curve).

4 *See* Monitoring Analytics, LLC, "Analysis of the 2026/2027 RPM Base Residual Auction – Part A," (October 1, 2025).

5 *See* Monitoring Analytics, LLC, "Analysis of the 2027/2028 RPM Base Residual Auction – Part A," (January 5, 2026).

6 *See* Monitoring Analytics, LLC, *2025 Quarterly State of the Market Report for PJM: January through September* (November 13, 2025) Section 5: Capacity Market.

7 *See* Monitoring Analytics, LLC, "Analysis of the 2027/2028 RPM Base Residual Auction – Part A," (January 5, 2026).

PJM's 2026 load forecast used as the basis for demand in clearing the 2028/2029 BRA included forecast total data center load of 21,470 MW (Table 4). The forecast load from existing data centers was 5,034 MW. The forecast increase in total data center load was 16,436 MW. The capacity shortfalls in 2026/2027, 2027/2028 and the 2028/2029 BRAs were a result of existing demand from large data centers, forecast increases in existing data center load, and new data center load. There would have been no shortfall but for the forecast data center load.

The inclusion of existing data center load and forecast data center load has resulted in significant increases in costs for other PJM customers. Table 1 shows the increase in costs to PJM customers in the 2025/2026 BRA, the 2026/2027 BRA, the 2027/2028 BRA and the 2028/2029 BRA. The increase in costs to PJM customers in the 2028/2029 BRA as a result of data center demand was $6,267,819,123 (Scenario 4). The total increase in costs to PJM customers as a result of data center load in the last four BRAs was $29,368,774,465. The smaller impact in the 2027/2028 BRA and 2028/2029 RPM BRA compared to the 2026/2027 RPM BRA was a result of higher prices without data center load resulting from a higher reliability requirement for the MAAC LDA in the 2027/2028 RPM BRA and the 2028/2029 RPM BRA compared to the 2026/2027 RPM BRA.

Table 1 Increase in capacity market revenues due to the inclusion of the data center load in the peak load forecast by delivery year[8]

	Above Embedded	All Data Center Load
2025/2026 Delivery Year	$7,742,960,157	$9,332,103,858
2026/2027 Delivery Year	$7,271,197,971	$7,271,197,971
2027/2028 Delivery Year	$6,244,523,827	$6,497,653,512
2028/2029 Delivery Year	$5,732,465,337	$6,267,819,123
Total	$21,258,681,955	$29,368,774,465

[8] *See* Monitoring Analytics, LLC, "Analysis of the 2025/2026 RPM Base Residual Auction - Part G Revised," <https://www.monitoringanalytics.com/reports/Reports/2025/IMM_Analysis_of_the_2025_2026_RPM_Base_Residual_Auction_Part_G_20250603_Revised.pdf> (June 3, 2025), Scenario 87 and Scenario 88. *See* Monitoring Analytics, LLC, "Analysis of the 2026/2027 RPM Base Residual Auction - Part A," <https://www.monitoringanalytics.com/reports/Reports/2025/IMM_Analysis_of_the_20262027_RPM_Base_Residual_Auction_Part_A_20251001.pdf> (October 1, 2025), Scenario 3 and Scenario 4. *See* Monitoring Analytics LLC, "Analysis of the 2027/2028 RPM Base Residual Auction – Part A," <https://www.monitoringanalytics.com/reports/Reports/2026/IMM_Analysis_of_the_20272028_RPM_Base_Residual_Auction_Part_A_20260105.pdf> (January 5, 2026), Scenario 3 and Scenario 4.

Table 2 shows the elements of supply and demand for the 2027/2028 BRA and the 2028/2029 BRA, including all the elements from forecast peak loads to the shortfalls in cleared capacity. PJM's calculations included a relatively small error but was corrected in a revised report posted on January 5, 2026.[9]

Table 2 Reserve margin calculation: 2027/2028 RPM BRA and 2028/2029 RPM BRA[10]

	Reserve Margin Calculation		
	2027/2028 RPM BRA	2028/2029 RPM BRA	Formula
Forecast peak load ICAP (MW)	164,579.0	165,953.5	A
FRR peak load ICAP (MW)	12,201.9	11,556.0	B
PRD ICAP (MW)	115.0	0.0	C
Installed reserve margin (IRM)	20.0%	20.0%	D
Pool-Wide Accredited UCAP Factor	77.17%	78.34%	E
Forecast pool requirement (FPR)	0.9260	0.9401	F=(1+D)*E
Cleared UCAP (generation and DR)	134,478.1	138,317.8	G
Cleared ICAP (generation and DR)	174,262.1	176,560.9	H=G/E
RPM peak load ICAP (MW)	152,262.1	154,397.5	J=A-B-C
Reserve margin ICAP (MW)	22,000.0	22,163.4	K=H-J
Reserve margin (%)	14.4%	14.4%	L=K/J
Reserve cleared in excess of IRM ICAP (MW)	(8,452.4)	(8,716.1)	M=K-D*J
Reserve cleared in excess of IRM (%)	(5.6%)	(5.6%)	N=M/J
RPM peak load UCAP (MW)	117,500.7	120,955.0	P=J*E
RPM reliability requirement UCAP (MW)	140,994.7	145,149.1	Q=J*F
Reserve margin UCAP (MW)	16,977.4	17,362.8	R=G-P
Reserve cleared in excess of IRM UCAP (MW)	(6,516.6)	(6,831.3)	S=G-Q

Conclusions

The basic conclusion of this analysis is that data center load growth is the primary reason for recent and expected capacity market conditions, including total forecast load growth, the tight supply and demand balance, the significant shortfall in cleared capacity, and high prices. But for data center growth, both actual and forecast, the PJM Capacity Market would not have seen the same tight supply demand conditions, the same high prices

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9 *See* PJM. 2027/2028 Base Residual Auction Report (December 17, 2025) <https://www.pjm.com/-/media/DotCom/markets-ops/rpm/rpm-auction-info/2027-2028/2027-2028-bra-report.pdf>.

10 *See* PJM. 2027/2028 Base Residual Auction Report (December 17, 2025) <https://www.pjm.com/-/media/DotCom/markets-ops/rpm/rpm-auction-info/2027-2028/2027-2028-bra-report.pdf>. See also PJM. 2028/2029 Base Residual Auction Report (July 14, 2026) <https://www.pjm.com/-/media/DotCom/markets-ops/rpm/rpm-auction-info/2028-2029/2028-2029-bra-results-report.pdf>.

observed in the 2025/2026 BRA, the 2026/2027 BRA, the 2027/2028, and the 2028/2029 BRA, and the currently expected tight supply conditions and high prices for subsequent capacity auctions. Holding aside all the other issues associated with the 2028/2029 BRA, existing and forecast data center load by itself resulted in an increase in the 2028/2029 BRA revenues. Based on actual auction clearing prices and quantities and uplift MW, total RPM market revenues for the 2028/2029 RPM Base Residual Auction were $16,407,949,025. Inclusion of 21,470 MW (Table 6) of existing and forecast data center load in the peak load forecast for 2028 resulted in an increase of $6,267,819,123, or 61.8 percent, in capacity market revenues for the 2028/2029 RPM Base Residual Auction compared to what RPM revenues would have been had PJM cleared the auction with a peak load forecast that did not include load from existing and planned data centers (Scenario 4).

The combined total increase in capacity market revenues that resulted from the inclusion of large data center loads for the 2025/2026 BRA (Scenario 88), the 2026/2027 BRA (Scenario 4), the 2027/2028 BRA (Scenario 4) and the 2028/2029 BRA (Scenario 4) was $29,368,774,465 (Table 1). This total, cumulative impact of data center loads will continue to grow until the issues associated with the additions of large data center loads are addressed in an effective manner.[11] An additional significant impact of approximately the same level as the last four BRAs is expected to result from the 2029/2030 BRA that is currently scheduled for December 2026 because the maximum and minimum prices defined by the Agreement will continue to be in effect for that auction and because PJM's Reliability Backstop Procurement ("RBP") is now scheduled to be conducted after the 2029/2030 BRA.[12] The impact is expected to increase for the subsequent BRAs after the 2029/2030 BRA if the maximum and minimum prices defined by the Agreement are not

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[11] Inclusion of existing and forecast data center load (embedded and above embedded) increased the 2025/2026 BRA revenues by $9,332,103,858 (Scenario 88). *See* Monitoring Analytics, LLC, "Analysis of the 2025/2026 RPM Base Residual Auction - Part G Revised," <https://www.monitoringanalytics.com/reports/Reports/2025/IMM_Analysis_of_the_2025 2026_RPM_Base_Residual_Auction_Part_G_20250603_Revised.pdf> (June 3, 2025). Inclusion of existing and forecast data center load (embedded and above embedded) increased the 2026/2027 BRA revenues by $7,271,197,971 (Scenario 4). *See also* Monitoring Analytics, LLC, "Analysis of the 2026/2027 RPM Base Residual Auction - Part A," <https://www.monitoringanalytics.com/reports/Reports/2025/IMM_Analysis_of_the_2026202 7_RPM_Base_Residual_Auction_Part_A_20251001.pdf> (October 1, 2025). Inclusion of existing and forecast data center load (embedded and above embedded) increased the 2027/2028 BRA revenues by $6,497,653,512 (Scenario 4). *See also* Monitoring Analytics, LLC, "Analysis of the 2027/2028 RPM Base Residual Auction – Part A," <https://www.monitoringanalytics.com/ reports/Reports/2026/IMM_Analysis_of_the_20272028_RPM_Base_Residual_Auction_Part_A _20260105.pdf> (January 5, 2026).

[12] 195 FERC ¶ 61,076

extended to those auctions. The actual impact will also depend on whether and to what extent PJM removes some data center load from the load forecast for the 2029/2030 BRA based on the RBP and bilateral contracts between data centers and generators, and whether PJM adds matching data center load and new capacity to the BRAs, and how well the locations of the data centers and the generation are matched.

The impact on the 2028/2029 BRA revenues would have been higher had PJM not used the actual VRR curve based on the Agreement. If the 2028/2029 BRA had been run with an alternate VRR curve, total revenues would have been $29,722,226,243, an increase of $13,314,277,218, or 81.1 percent, compared to the actual auction results (Scenario 1). Using an alternate VRR curve (Scenario 6), including 21,470 MW (Table 6) of existing and forecast data center load in the 2028 peak load forecast would have resulted in a $22,376,528,315 or a 304.6 percent, increase in capacity market revenues for the 2028/2029 RPM BRA compared to what RPM revenues would have been without the impact of data center load.

The actual VRR curve included a maximum price and a minimum price. The minimum price included in the VRR curve for the 2028/2029 BRA would have increased prices and revenues if the impact of large data center loads had been removed. While the maximum price included in the VRR curve for the 2028/2029 BRA ($325.00/MW-day) did reduce prices and revenues compared to the alternate VRR curve, the maximum price was less than the MMU's recommended level of 1.5 times Net CONE ($488.54 per MW-day for the Rest of RTO) by $163.54/MW-day, or 50.0 percent, ($488.54 per MW-day minus $325.00 per MW-day). The MMU's recommended maximum price was for a market run without the distortionary effects of data center load. In the absence of that load, the BRA would not have cleared at the maximum price. The minimum price significantly reduced the calculated impact of data center load because in the absence of data center load and the minimum price, BRA clearing prices would have been below the minimum price. Without the minimum price, the clearing price without data center load would have been lower and therefore the difference between the price without data center load and the price with data center load would have been larger. The minimum price reduced the impact of the total of existing and forecast data center (embedded and above embedded) on the RPM revenues for the 2028/2029 BRA by $2,794,431,974 (Scenario 4 minus Scenario 6).[13] The VRR curve has always included a maximum price that both defines scarcity price levels and prevents the exercise of market power. The minimum price in the Agreement was a unique feature, never previously included in a BRA, and was at a very high level

[13] Total revenues in Scenario 4 were $10,140,129,902 while total revenues in Scenario 6 were $7,345,697,928. The difference is $2,794,431,974.

compared to historical BRA clearing prices. No economic or logical rationale was presented for the minimum price.

It is misleading to assert that the capacity market results are simply just a reflection of supply and demand. The current conditions are not the result of organic load growth. The current conditions in the capacity market are almost entirely the result of large load additions from data centers, both existing and forecast. The growth in data center load and the expected future growth in data center load are unique and unprecedented and uncertain and require a different approach than simply asserting that it is just supply and demand. The extreme uncertainty in the load forecasts based on uncertainty about the addition of large data center loads is also unique and unprecedented and raises questions about the meaning of clearing a capacity auction based on those forecasts.

Specifically, the results of this Part A show that the level of data center demand for the 2028/2029 Delivery Year included in the 2026 PJM load forecast report had a very significant impact on capacity market conditions and prices in the capacity market for the 2028/2029 BRA.

For example, total revenues in the 2028/2029 BRA were $16,407,949,025 (Scenario 0). If the existing data center load had been included but forecast new data center load plus the forecast increase in existing data center load (above embedded) equal to 16,436 MW (Table 6) had not been included, total revenues would have been $10,675,483,688 (Scenario 3). From another perspective, the inclusion of forecast data center load increased total revenues by $5,732,465,337 or 53.7 percent (Scenario 3). If the total of existing and forecast data center load equal to 21,470 MW (Table 6), had not been included (embedded and above embedded) total revenues would have been $10,140,129,902 (Scenario 4). From another perspective, the inclusion of both existing and forecast data center load increased total revenues by $6,267,819,123 or 61.8 percent (Scenario 4).

For example, if the 2028/2029 BRA had been run with the alternate VRR curve, total revenues would have been $29,722,226,243 (Scenario 1). If the 2028/2029 BRA had been run with the alternate VRR curve, and the existing data center load had been included but forecast new data center load plus the forecast increase in existing data center load equal to 16,436 MW (Table 6), (above embedded) had not been included, total revenues would have been $10,099,016,344 (Scenario 5). From another perspective, if the 2028/2029 BRA had been run with an alternate VRR curve, the inclusion of forecast data center load would have increased total revenues by $19,623,209,899 or 194.3 percent (Scenario 5 minus Scenario 1). If the 2028/2029 BRA had been run with an alternate VRR curve, and if the total of existing and forecast data center load equal to 21,470 MW (Table 6), had not been included (embedded and above embedded) total revenues would have been $7,345,697,928 (Scenario 6). From another perspective, if the 2028/2029 BRA had been run with an alternate VRR curve, the inclusion of both existing and forecast data center load

would have increased total revenues by $22,376,528,315 or 304.6 percent (Scenario 6 minus Scenario 1).

The role of data center load does not mean that PJM would not have eventually reached a point where supply and demand were tight, but that trajectory was relatively slow and would have resulted in more time to permit market reactions to address the balance of supply and demand. Inefficient and uneconomic resources were in the process of retiring and will continue to retire. Organic load growth will likely continue, albeit relatively slowly. Prices would rise in this scenario but not jump suddenly to the maximum price. The maximum price on the VRR curve would increase to reflect the updated, correctly calculated Net CONE, but supply and demand would intersect at a lower price than the maximum.[14] PJM's queue improvements would have time to have an effect. Incentives to enter would increase and the balance of higher prices and actual new entry from dispatchable resources would develop based on all those factors.

If the MMU's recommendation to require new data center load to bring their own new generation were adopted, the impact of the uncertain forecast of data center load on other customers would be limited or eliminated, although the impact of embedded data center load would remain unless explicitly addressed, and the slower underlying dynamic of organic load growth and incentives would play out.[15] [16] The longer that the issues associated with the addition of large new data center loads remain unaddressed, the larger will be the irreversible cost impacts on all customers, currently $29,368,774,465. That number will be significantly higher if PJM runs the 2029/2030 BRA in December 2026, prior to the RBP, as currently planned.

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[14] See "IMM Gross and Net CONE Impact of Extended Project Schedule" presented at the Market Implementation Committee meeting, September 10, 2025 <https://www.pjm.com/-/media/DotCom/committees-groups/committees/mic/2025/20250910/20250910-item-02-1b---quadrennial-review-proposal---imm.pdf> and "Quadrennial Review Issues," presented at the PJM Markets and Reliability Committee and the PJM Members Committee (September 25, 2025). <https://www.monitoringanalytics.com/reports/Presentations/2025/IMM_MRC_MC_Quadrennial_Review_Issues_20250925.pdf>.

[15] See "Pre Technical Conference Comments of the Independent Market Monitor for PJM," *Meeting the Challenge of Resource Adequacy in Regional Transmission Organization and Independent System Operator Regions*, Docket No. AD25-7 (May 20, 2025).

[16] See *Complaint of the Independent Market Monitor for PJM,* Docket No. EL26-30-000 (November 25, 2025).

Summary

Table 10 through Table 17 show the revenue and MW impacts of the scenarios analyzed in this Part A.

The results of individual scenarios are not strictly additive. The combined results of multiple scenarios are shown for scenarios that address multiple results simultaneously. The quantitative results are estimates. The report makes explicit when the quantitative results depend on assumptions. Even in those cases, the quantitative results are correct as to direction and order of magnitude. The RPM Revenue column shows the revenues that resulted from the defined scenario only. The RPM Revenue Change column shows the difference between the specified base scenario RPM total revenues and the total RPM revenues that resulted from each defined alternative scenario. A positive number means that the existing market design elements in the defined scenario resulted in an increase in RPM revenues compared to the specified base scenario. A negative number means that the existing market design elements in the defined scenario resulted in a decrease in RPM revenues compared to the specified base scenario. The Percent Change columns show the percent change in RPM revenues for the defined alternative scenario from two perspectives. The Scenario to Actual Percent column shows the difference between the revenues under the defined scenario and the specified base scenario auction results as a percent of the revenues under the defined scenario. The Actual to Scenario Percent column shows the difference between the revenues under the defined scenario and the specified base scenario auction results as a percent of the revenues under the actual auction results.

Data Center Load Growth in PJM Forecast

Table 3 shows the date, hour and peak load excluding exports for every year from 2009 through July 2026. From 2009 through 2024, the summer peak load excluding exports in PJM averaged 144,802 MW. The summer peak load in PJM did not exceed 150,000 MW in any year from 2014 through 2024. During this period, the summer peak load in PJM averaged 144,493 MW. Prior to June 2025, the highest summer peak load excluding exports in PJM since 2009, 154,095 MW, was reached during hour ending 17 on Thursday, July 21, 2011. The highest peak load, 158,005 MW, since 2009 was reached on July 02, 2026.

Starting with the 2024 load forecast report, PJM began to project substantial growth in the summer peak load.[17] Table 4 shows the forecasted summer peak load for 2022 through 2028 as reported in the recent annually published load forecast reports. PJM's actual

[17] See PJM. Previous PJM Long-Term Load Forecast Reports can be found here <https://www.pjm.com/-/media/DotCom/planning/res-adeq/load-forecast/previous-load-forecast-reports.zip> (January 14, 2026).

summer peak load excluding exports for 2026, 158,005 MW was 9,115 MW or 6.1 percent higher than the PJM's actual summer peak load excluding exports for 2024, 148,890 MW. PJM is projecting that the summer peak load will increase by an additional 7,562 MW or 4.8 percent from 2026 to 2028, based on the most recent 2026 load forecast report. PJM's current load forecasts represent a significant increase over recent actual load growth and over load forecasts from recent years. PJM's average yearly forecasted growth rate for 2024, 2025, 2026 and 2027 was 0.49 percent based on the 2022 load forecast report.[18] PJM's average yearly forecasted growth rate for 2024, 2025, 2026 and 2027 was 0.86 percent based on the 2023 load forecast report.[19] PJM revised the projected growth rates significantly in the 2025 load forecast report. For example, PJM projected that the summer peak load in 2027 would reach 164,186 in the 2025 load forecast report. This is a substantial upward revision (11,864 MW or 7.8 percent) from the projected 2027 summer peak load, 152,322 MW, in the 2022 load forecast report. Compared to 2025 load forecast report, PJM reduced the summer peak load forecast for all years starting from 2026 in the latest 2026 load forecast report. PJM projected that the 2026 summer peak load would reach 156,373 MW in the 2026 load forecast report, or 2,564 MW lower than the 2026 summer peak load forecast in the 2025 load forecast report. The actual peak load in the first seven months of 2026 was 158,005 MW, 1.04 percent higher than the projected peak load of 156,373 MW.

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[18] See PJM. Previous PJM Long-Term Load Forecast Reports can be found here <https://www.pjm.com/-/media/DotCom/planning/res-adeq/load-forecast/previous-load-forecast-reports.zip> (January 14, 2026).

[19] *See id.*

Table 3 PJM peak load: August 2009 through July 2026[20]

	Date	Hour Ending (EPT)	PJM Load (MWh)
2009	Mon, August 10	17	123,900
2010	Tue, July 06	17	133,297
2011	Thu, July 21	17	154,095
2012	Tue, July 17	17	150,879
2013	Thu, July 18	17	153,790
2014	Tue, June 17	18	138,448
2015	Tue, July 28	17	140,266
2016	Thu, August 11	16	148,577
2017	Wed, July 19	18	142,387
2018	Tue, August 28	17	147,042
2019	Fri, July 19	18	148,228
2020	Mon, July 20	17	141,449
2021	Tue, August 24	17	145,563
2022	Wed, July 20	18	144,356
2023	Thu, July 27	18	144,215
2024	Tue, July 16	18	148,890
2025	Mon, June 23	18	156,256
2026 (Jan-Jul)	Thu, July 02	18	158,005

Table 4 Forecasted Summer Peak Load for 2022 through 2028 as reported in the recent load forecast reports[21]

	Forecasted Summer Peak Load (MW)						
Report	2022	2023	2024	2025	2026	2027	2028
2022 Load Forecast	148,938	149,351	150,309	151,165	152,259	152,322	152,689
2023 Load Forecast		149,059	149,737	150,924	152,736	154,275	155,703
2024 Load Forecast			151,247	153,493	156,803	159,859	162,972
2025 Load Forecast				154,144	158,937	164,186	169,981
2026 Load Forecast					156,373	160,451	165,567

[20] *See* Monitoring Analytics, LLC, *2026 Quarterly State of the Market Report for PJM: January through September*, Section 3 Energy Market at Demand, (November 12, 2026).

[21] See PJM. 2026 PJM Long-Term Load Forecast Report <https://www.pjm.com/-/media/DotCom/library/reports-notices/load-forecast/2026-load-report.pdf> (February 6, 2026). Previous PJM Long-Term Load Forecast Reports <https://www.pjm.com/-/media/DotCom/planning/res-adeq/load-forecast/previous-load-forecast-reports.zip>

PJM attributed almost all of this increase in the summer peak load forecast to the anticipated additions in data center demand.[22] Table 5 shows large load adjustments to the load forecast for 2022 through 2028 as reported in the recent load forecast reports. In the 2025 load forecast report, PJM projected that the sum of large load additions from new facilities and growth from existing (embedded) large load facilities (growth above embedded) would reach 8,453 MW in 2026. Of the 8,453 MW, data center load accounts for 7,892 MW or 93 percent. A port electrification project in PSEG, a voltage optimization in Dominion and a peak shaving program in EKPC account for the remainder of the large load growth.[23] In the 2025 load forecast report, PJM projected that the sum of large load additions from new facilities and growth from existing (embedded) large load facilities (growth above embedded) would reach 13,668 MW in 2027. Of the 13,668 MW, data center load accounts for 13,018 MW or 95 percent. PJM projected that the sum of large load additions from new facilities and growth from existing (embedded) large load facilities (growth above embedded) would reach 16,242 MW in 2028 (Table 5). The data center load projected by PJM for 2028 was 16,436 MW (Table 6). The data center load was offset slightly by a peak shaving program in EKPC and voltage optimization in DOM.

Table 6 shows the data center load included in the summer peak load forecast for the 2025/2026 RPM BRA, the 2026/2027 RPM BRA, the 2027/2028 BRA and the 2028/2029 BRA. PJM forecast that the load from the planned data centers and the forecast load growth from the existing data centers (above embedded) would be 16,436 MW higher for the 2028/2029 BRA.[24] PJM forecast that the total load from planned and existing data centers (embedded and above embedded) in the 2028 summer peak load forecast would be 21,470 MW higher for the 2028/2029 BRA.

(January 14, 2026). The forecasted peak load used in the clearing of RPM BRA (Table 2) includes additional load served outside PJM.

22 See PJM. Load Adjustment Requests Summary for 2026 Load Forecast - Preliminary, presented at Load Analysis Subcommittee <https://www.pjm.com/-/media/DotCom/committees-groups/subcommittees/las/2025/20251124/20251124-item-03---large-load-adjustment-requests-summary.pdf> (November 24, 2025).

23 See PJM. 2026 PJM Long-Term Load Forecast Report at 5 <https://www.pjm.com/-/media/DotCom/library/reports-notices/load-forecast/2026-load-report.pdf> (February 14, 2025).

24 The total data center load is distributed across multiple LDAs. The scenario analyses in this report accounted for the locational distribution of the data center load.

Table 5 Large load adjustments for 2022 through 2028 as reported in the recent load forecast reports

	Large Load (MW)						
Report	2022	2023	2024	2025	2026	2027	2028
2022 Load Forecast (Adjustments)	897	1,643	2,344	3,061	3,885	4,166	4,441
2023 Load Forecast (Adjustments Above Embedded)		2,231	3,393	4,654	6,594	8,300	9,866
2024 Load Forecast (Adjustments Above Embedded)			2,664	4,673	7,557	10,064	12,643
2025 Load Forecast (Adjustments Above Embedded)				3,591	8,453	13,668	19,320
2026 Load Forecast (Adjustments Above Embedded)					6,403	10,785	16,242

Table 6 Embedded and above embedded data center load for 2025/2026 RPM BRA, 2026/2027 RPM BRA, 2027/2028 RPM BRA and 2028/2029 RPM BRA[25]

	Above Embedded Data Center Load (MW)	All Data Center Load (MW)
2025/2026 RPM BRA (Based on 2024 Load Forecast)	4,654	7,927
2026/2027 RPM BRA (Based on 2025 Load Forecast)	7,892	11,993
2027/2028 RPM BRA (Based on 2025 Load Forecast)	13,018	17,071
2028/2029 RPM BRA (Based on 2026 Load Forecast)	16,436	21,470

Alternate VRR Curve

Table 7 shows the shows the price and MW coordinates of the VRR curves for the RTO and each modeled LDA for the 2028/2029 RPM Base Residual Auction without the maximum price and minimum price (alternate) that PJM filed and FERC accepted for the 2028/2029 BRA.[26] [27] These are the alternate VRR curves. For the capacity auctions for the 2028/2029 Delivery Year, the alternate VRR curve was based on the PJM implementation of the parameters defined in the quadrennial review in 2023.[28] For these delivery years the maximum price on the VRR curve was the greater of 1.15 times Gross CONE minus 0.75 times Net Energy and Ancillary Service Revenue offset (E&AS) or 0.2 times Net CONE for all unforced capacity MW between 0 and 99.0 percent of the reliability requirement (from zero MW to Point A). The first downward sloping segment is from 99.0 percent to

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25 In this report, embedded load means existing load at the time of the forecast. Above embedded includes forecast increases in load for both existing data center load and new data center load.

26 In this report, the actual VRR curve and actual PJM parameters include the identified maximum and minimum prices capacity prices on the VRR curve. The alternate VRR curve and alternate PJM parameters include the existing tariff definition of the VRR curve, without the minimum price and maximum price based on the Agreement.

27 191 FERC ¶ 61,066 (Apr. 21, 2025).

28 182 FERC ¶ 61,073 (Feb. 14, 2023).

101.5 percent of the reliability requirement (from Point A to Point B). The price coordinate for Point B is set at 0.5 times the Maximum Price (Point A). The second downward sloping segment is from 101.5 percent to 106.0 percent of the reliability requirement (from Point B to Point C). On December 9, 2024, as part of a package of capacity market changes, PJM filed to retain a gas fired dual fuel CT with oil backup as the reference resource, effective for the 2026/2027 BRA and 2027/2028 BRA.[29]

The 2028/2029 BRA reliability requirements included in the VRR curves were based on the 2026 PJM Load Forecast Report adjusted for the FRR obligation.

Table 7 Price coordinates for 2028/2029 RPM BRA alternate VRR curve

	Point A		Point B		Point C	
LDA	X (UCAP MW)	Y ($/MW-day)	X (UCAP MW)	Y ($/MW-day)	X (UCAP MW)	Y ($/MW-day)
RTO	143,697.6	$554.72	147,326.3	$277.36	153,858.0	$0.00
ATSI	12,418.9	$530.16	12,732.5	$265.08	13,297.0	$0.00
COMED	22,589.0	$776.69	23,159.5	$388.35	24,186.2	$0.00
MAAC	54,338.8	$624.89	55,700.8	$312.45	58,152.4	$0.00
ATSI-CLEVELAND	5,159.9	$530.16	5,290.2	$265.08	5,524.7	$0.00
DAY	3,754.2	$505.59	3,849.0	$252.80	4,019.6	$0.00
DEOK	5,604.5	$523.26	5,746.0	$261.63	6,000.8	$0.00
DOM	29,715.3	$426.55	30,465.7	$213.28	31,816.4	$0.00
EMAAC	30,913.6	$708.73	31,694.3	$354.37	33,099.5	$0.00
PPL	10,053.5	$662.47	10,307.3	$331.24	10,764.3	$0.00
SWMAAC	13,355.7	$547.77	13,688.9	$273.89	14,288.6	$0.00
DPL-SOUTH	2,657.1	$618.73	2,724.2	$309.37	2,844.9	$0.00
PSEG	10,742.6	$750.42	11,013.9	$375.21	11,502.2	$0.00
BGE	6,921.3	$517.72	7,096.1	$258.86	7,410.7	$0.00
PEPCO	6,423.7	$608.78	6,585.9	$304.39	6,877.9	$0.00
PS-NORTH	5,178.4	$750.42	5,309.2	$375.21	5,544.5	$0.00
JCPL	6,195.6	$746.50	6,352.1	$373.25	6,633.7	$0.00

[29] PJM's filing was approved. See Attachment D, FERC Docket No. ER25-682-000, Revisions to PJM Capacity Market (December 9, 2024). "In the meantime, the instant proposal would allow PJM to retain the dual-fuel CT as the Reference Resource for another two Base Residual Auctions (i.e., through the 2027/2028 Delivery Year) rather than switch, as previously planned, to a CC Reference Resource beginning with the 2026/2027 Delivery Year."

Actual VRR Curve

The VRR curve used in the 2028/2029 BRA was based on a defined maximum and minimum price and is referred to as the actual VRR curve.[30] [31]

Table 8 shows the shows the price and MW coordinates of the VRR curves for the RTO and each modeled LDA for 2028/2029 RPM Base Residual Auction with the actual VRR curve. The maximum price is set at $325.00 per MW-day UCAP, which is derived from the $325 per MW-day in the Agreement.[32] PJM's approach is that the maximum price of $325.00 per MW-day in UCAP terms equals a maximum price of $256.75 per MW-day in ICAP terms, using a dual fuel CT ELCC, which was 0.79 at the time of the Agreement. PJM recalculated the maximum price using the updated dual fuel CT ELCC, also at 0.79, to obtain $325.00 per MW-day ($256.75/0.79). The minimum price is similarly calculated as $175.00 per MW-day based on the $175 per MW-day in the Agreement and the same ELCC for 2028/2029 RPM BRA.

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[30] The potential impacts of actual (restricted) VRR curve for the 2025/2026 RPM Base Residual Auction were analyzed in Part F of the MMU Analysis of the 2025/2026 RPM Base Residual Auction. *See* Monitoring Analytics, LL, "Analysis of the 2025/2026 RPM Base Residual Auction - Part F," <https://www.monitoringanalytics.com/reports/Reports/2025/IMM_Analysis_of_the_20252026_RPM_Base_Residual_Auction_Part_F_20250204.pdf> (Feb. 4, 2025).

[31] *See* Monitoring Analytics, LLC, "Analysis of the 2025/2026 RPM Base Residual Auction - Part G Revised," <https://www.monitoringanalytics.com/reports/Reports/2025/IMM_Analysis_of_the_2025_2026_RPM_Base_Residual_Auction_Part_G_20250603_Revised.pdf> (June 3, 2025).

[32] *See* Commonwealth of Pennsylvania, "What Industry Leaders, Lawmakers, and Consumer Advocates Are Saying About Governor Shapiro's Action to Save Consumers Over $21 Billion in Utility Charges," (January 31, 2025) <https://www.pa.gov/governor/newsroom/2025-press-releases/-industry-leaders--lawmakers-consumer-adv-saying-about-shapiro-s.html> and also; Email to PJM Members "PA Governor Shapiro Complaint – PJM Notice of Consultation" (January 28, 2025).

Table 8 Price coordinates for 2028/2029 RPM BRA actual VRR curve

	Point A		Point B		Point C		Point D	
LDA	X (UCAP MW)	Y ($/MW-day)	X (UCAP MW)	Y ($/MW-day)	X (UCAP MW)	Y ($/MW-day)	X (UCAP MW)	Y ($/MW-day)
RTO	146,703.0	$325.00	147,326.3	$277.36	149,736.8	$175.00	153,858.0	$175.00
ATSI	12,661.6	$325.00	12,732.5	$265.08	12,924.3	$175.00	13,297.0	$175.00
COMED	23,327.0	$325.00	23,723.5	$175.00	24,186.2	$175.00		
MAAC	55,241.9	$325.00	55,296.6	$312.45	56,375.1	$175.00	57,748.2	$175.00
ATSI-CLEVELAND	5,260.7	$325.00	5,290.2	$265.08	5,369.9	$175.00	5,524.7	$175.00
DAY	3,821.9	$325.00	3,849.0	$252.80	3,901.5	$175.00	4,019.6	$175.00
DEOK	5,711.7	$325.00	5,746.0	$261.63	5,830.4	$175.00	6,000.8	$175.00
DOM	30,072.6	$325.00	30,465.7	$213.28	30,708.1	$175.00	31,816.4	$175.00
EMAAC	31,810.8	$325.00	32,405.6	$175.00	33,099.5	$175.00		
PPL	10,315.9	$325.00	10,522.9	$175.00	10,764.3	$175.00		
SWMAAC	13,464.7	$325.00	13,526.9	$273.89	13,743.4	$175.00	14,126.6	$175.00
DPL-SOUTH	2,720.8	$325.00	2,724.2	$309.37	2,776.6	$175.00	2,844.9	$175.00
PSEG	11,079.2	$325.00	11,274.5	$175.00	11,502.2	$175.00		
BGE	7,051.4	$325.00	7,096.1	$258.86	7,198.0	$175.00	7,410.7	$175.00
PEPCO	6,574.9	$325.00	6,585.9	$304.39	6,710.0	$175.00	6,877.9	$175.00
PS-NORTH	5,340.7	$325.00	5,434.8	$175.00	5,544.5	$175.00		
JCPL	6,388.5	$325.00	6,501.7	$175.00	6,633.7	$175.00		

The sensitivities in this Part A focus on the impact of data center load on the clearing prices in the 2028/2029 RPM Base Residual Auction (Scenario 3 through Scenario 8) and on the capacity market revenues using the offers from the 2028/2029 BRA, parameters for the 2028/2029 BRA, the actual VRR curve, the alternate VRR curve, and the MMU proposed alternative VRR Curve (IMM VRR Curve).[33]

IMM VRR Curve

The MMU proposed an alternative VRR curve (IMM VRR Curve).[34] [35] Under the IMM VRR Curve, the maximum price (point A) is set at the lower of Gross CONE and 1.5 times

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[33] The sensitivities in Part G of the 2025/2026 BRA Report focused on the expected impact of the growth in the data center load on the clearing prices and total revenue in the 2026/2027 RPM Base Residual Auction (Scenario 90 and Scenario 94) using the offers from the 2025/2026 BRA, and parameters for the 2026/2027 BRA including the unrestricted (referred to in this report as alternate) 2026/2027 VRR curve. *See* Monitoring Analytics, LLC "Analysis of the 2025/2026 RPM Base Residual Auction - Part G Revised," <https://www.monitoringanalytics.com/reports/Reports/2025/IMM_Analysis_of_the_20252026_RPM_Base_Residual_Auction_Part_G_20250603_Revised.pdf> (June 3, 2025).

[34] The MMU filed the detailed differences with the PJM Quadrennial Review proposed VRR curve. *See* Protest of the Independent Market Monitor for PJM, Docket No. ER26-455 (December 8, 2025).

[35] See "IMM Gross and Net CONE Impact of Extended Project Schedule" Market Implementation Committee, (September 10, 2025) <https://www.pjm.com/-/media/DotCom/committees-groups/committees/mic/2025/20250910/20250910-item-02-1b---quadrennial-review-proposal--

the Net CONE of the reference resource. The inflection point (point B) is set at 0.5 times the maximum price. The price coordinate corresponding to the maximum quantity (point C) is set at $0 per MW-day. The IMM VRR Curve does not include the maximum price and minimum price from the actual VRR curve.

Under the IMM VRR Curve, the maximum price on the VRR curve (point A) is set for all unforced capacity MW between 0 and 99 percent of the reliability requirement. The first downward sloping segment is set from 99 percent to 101.5 percent (point B) of the reliability requirement. The second downward sloping segment is set from 101.5 percent to 104.5 percent (point C) of the reliability requirement. The MW quantities under the IMM VRR Curve correspond to the same MW quantities used in the 2028/2029 RPM Base Residual Auction.[36]

Table 9 shows the price and MW coordinates of the IMM VRR Curves for the RTO and each modeled LDA for the 2028/2029 RPM Base Residual Auction.

Table 9 Price coordinates for IMM VRR Curve for 2028/2029 RPM BRA

	Point A		Point B		Point C	
LDA	X (UCAP MW)	Y ($/MW-day)	X (UCAP MW)	Y ($/MW-day)	X (UCAP MW)	Y ($/MW-day)
RTO	143,697.6	$488.54	147,326.3	$244.27	151,680.8	$0.00
ATSI	12,418.9	$463.83	12,732.5	$231.92	13,108.8	$0.00
COMED	22,589.0	$860.07	23,159.5	$430.04	23,844.0	$0.00
MAAC	54,333.1	$633.11	55,695.1	$316.55	57,329.5	$0.00
ATSI-CLEVELAND	5,159.9	$463.83	5,290.2	$231.92	5,446.5	$0.00
DAY	3,754.2	$414.69	3,849.0	$207.35	3,962.7	$0.00
DEOK	5,604.5	$450.02	5,746.0	$225.01	5,915.8	$0.00
DOM	29,715.3	$256.62	30,465.7	$128.31	31,366.2	$0.00
EMAAC	30,913.6	$756.03	31,694.3	$378.02	32,631.1	$0.00
PPL	10,053.5	$725.66	10,307.3	$362.83	10,612.0	$0.00
SWMAAC	13,353.4	$479.63	13,686.6	$239.81	14,086.4	$0.00
DPL-SOUTH	2,657.1	$632.63	2,724.2	$316.31	2,804.7	$0.00
PSEG	10,742.6	$756.03	11,013.9	$378.02	11,339.4	$0.00
BGE	6,921.3	$419.52	7,096.1	$209.76	7,305.8	$0.00
PEPCO	6,423.7	$601.64	6,585.9	$300.82	6,780.6	$0.00
PS-NORTH	5,178.4	$756.03	5,309.2	$378.02	5,466.1	$0.00
JCPL	6,195.6	$756.03	6,352.1	$378.02	6,539.8	$0.00

-imm.pdf> and "Quadrennial Review Issues," Markets and Reliability Committee and the Members Committee, (September 25, 2025) <https://www.monitoringanalytics.com/reports/Presentations/2025/IMM_MRC_MC_Quadrennial_Review_Issues_20250925.pdf>.

[36] Ibid.

Figure 1 compares the alternate VRR curve, the actual VRR curve and the IMM VRR Curve for the RTO for the 2028/2029 BRA. Figure 2 compares the alternate VRR curve, the actual VRR curve, and the IMM VRR curve for the PSEG LDA for the 2028/2029 BRA.

Figure 1 Comparison of VRR curves for RTO

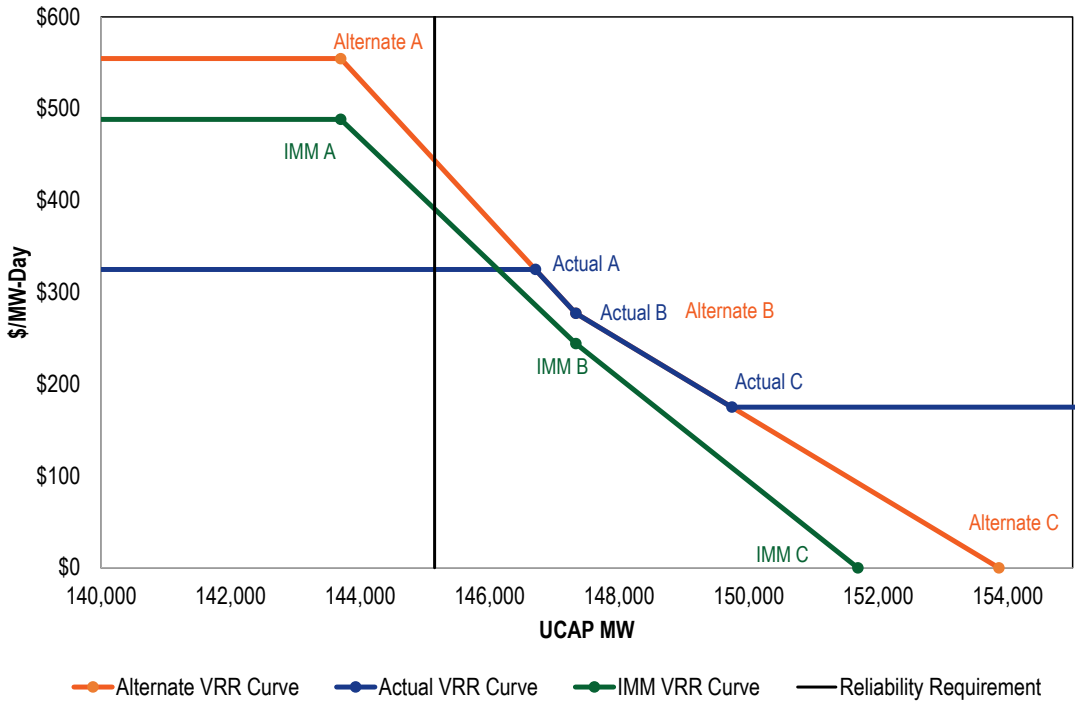
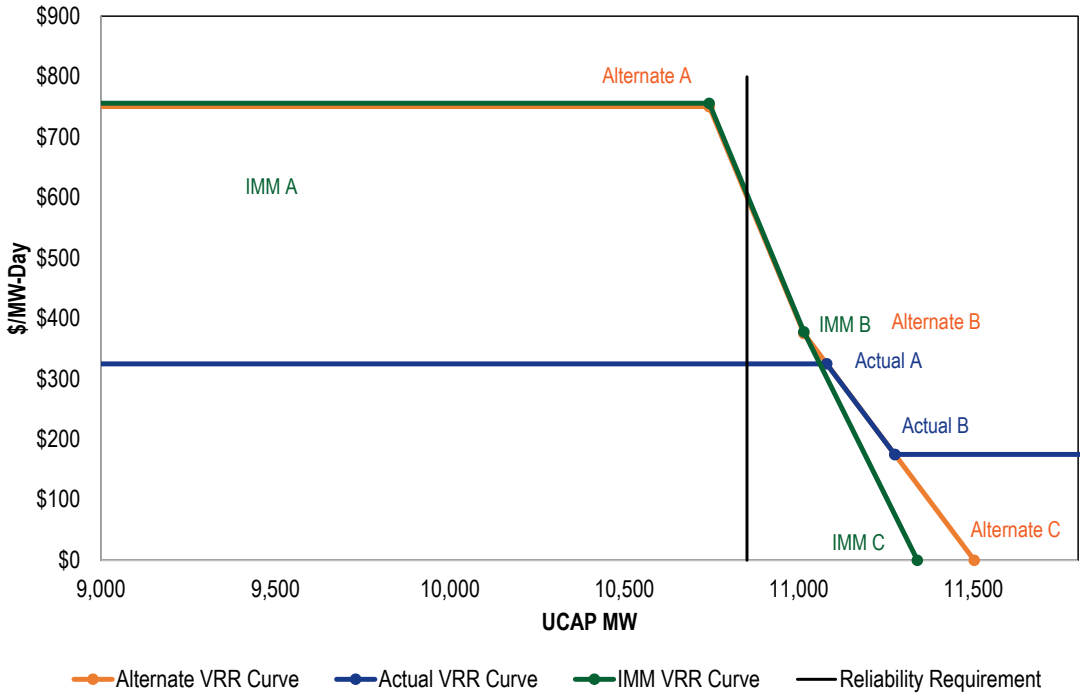


Figure 2 Comparison of VRR curves for PSEG LDA



The MMU used the IMM VRR Curves to analyze the impact of the increase in the data center load on the 2028/2029 RPM Base Residual Auction in order to show what the impact would have been for the 2028/2029 BRA. The clearing prices with the actual VRR curve were lower than with the IMM VRR curves, holding everything else constant.

The actual VRR curve would artificially inflate the clearing prices and capacity market revenues in the scenario where there is no data center load growth. There would likely have been no VRR curve with a maximum and minimum price in the absence of data center load growth. The Agreement between the Governor of Pennsylvania and PJM to implement a maximum and a minimum clearing price in the RPM auction would likely not have happened in the absence of the substantial increase in the data center load, the resultant increase in the clearing prices in the 2025/2026 RPM Base Residual Auction, and the resultant expected high clearing prices in the upcoming auctions.

Results: Impact of the Actual VRR Curve on the 2028/2029 RPM Base Residual Auction

In Scenarios 1 and 2, the MMU analyzed the impact on the auction results for the 2028/2029 BRA of using the actual VRR curve rather than the alternate 2028/2029 RPM Base Residual Auction parameters or the IMM VRR Curve (Table 10). Scenario 1 shows the impact of using the alternate 2028/2029 BRA parameters. Scenario 2 shows the impact of using the IMM VRR Curve.

Table 10 shows the impact on RPM revenues for Scenario 1. Based on actual auction clearing prices and quantities and uplift MW, total RPM market revenues for the 2028/2029 RPM Base Residual Auction were $16,407,949,025. If the 2028/2029 RPM BRA had been cleared using the alternate VRR curve, and everything else had remained the same, total RPM market revenues for the 2028/2029 RPM Base Residual Auction would have been $29,722,226,243, an increase of $13,314,277,218, or 81.1 percent, compared to the actual auction results (Scenario 1). From another perspective, the actual 2028/2029 BRA VRR curve resulted in 44.8 percent lower 2028/2029 RPM BRA revenues compared to what RPM revenues would have been had PJM cleared the auction using the alternate 2028/2029 RPM BRA VRR curve (Scenario 1).

Table 10 shows the impact on RPM revenues for Scenario 2. Based on actual auction clearing prices and quantities and uplift MW, total RPM market revenues for the 2028/2029 RPM Base Residual Auction were $16,407,949,025. If the 2028/2029 RPM BRA had been cleared using the 2028/2029 RPM BRA parameters and the IMM VRR Curve, and everything else had remained the same, total RPM market revenues for the 2028/2029 RPM Base Residual Auction would have been $27,889,570,368, an increase of $11,481,621,343, or 70.0 percent, compared to the actual auction results (Scenario 2). From another perspective, the actual 2028/2029 BRA VRR curve resulted in 41.2 percent lower 2028/2029 RPM BRA revenues compared to what RPM revenues would have been had PJM cleared the auction using the 2028/2029 RPM BRA parameters and IMM VRR Curve (Scenario 2).

Table 10 Scenario summary for the 2028/2029 RPM Base Residual Auction: Alternate 2028/2029 BRA Parameters; IMM VRR Curve

		Scenario Impact			
				Percent Change	
Scenario	Scenario Description	RPM Revenue ($ per Delivery Year)	RPM Revenue Change ($ per Delivery Year)	Scenario to Actual	Actual to Scenario
0	Actual results	$16,407,949,025	NA	NA	NA
1	Alternate VRR Curve	$29,722,226,243	($13,314,277,218)	(44.8%)	81.1%
2	IMM VRR Curve	$27,889,570,368	($11,481,621,343)	(41.2%)	70.0%

Results: Actual 2028/2029 BRA VRR Curve and Existing and Forecast Data Center Load

In Scenario 3 and Scenario 4, the MMU analyzed the impact on the auction results for the 2028/2029 BRA of including large data center load (Table 11). Scenario 3 shows the impact of including the forecast load from the planned data centers and the forecast load growth from the existing data centers (above embedded) in the 2028 summer peak load forecast. Scenario 4 shows the impact of including the total load from planned and existing data centers (embedded and above embedded) in the 2028 summer peak load forecast.

Table 11 shows the impact on RPM revenues for Scenario 3. If the 2028/2029 RPM BRA had been cleared with the 2028 peak load forecast that did not include 16,436 MW (Table

6) of forecast load growth from planned data centers and from existing data centers (above embedded), and everything else had remained the same, total RPM market revenues for the 2028/2029 RPM Base Residual Auction would have been $10,675,483,688, a decrease of $5,732,465,337 or 34.9 percent compared to the actual results (Scenario 3). From another perspective, including forecast data center load in the 2028 peak load forecast resulted in a 53.7 percent increase in RPM revenues for the 2028/2029 RPM Base Residual Auction compared to what RPM revenues would have been had PJM cleared the auction with a peak load forecast that did not include forecast load growth from planned data centers and existing data centers (Scenario 3).

Table 11 shows the impact on RPM revenues for Scenario 4. If the 2028/2029 RPM BRA had been cleared with the 2028 peak load forecast that did not include 21,470 MW (Table 6) of load from existing data centers, forecast load from planned data centers and forecast load growth from existing data centers (embedded and above embedded), and everything else had remained the same, total RPM market revenues for the 2028/2029 RPM Base Residual Auction would have been $10,140,129,902, a decrease of $6,267,819,123 or 38.2 percent compared to the actual results (Scenario 4). From another perspective, including existing and forecast data center load in the 2028 peak load forecast resulted in a 61.8 percent increase in RPM revenues for the 2028/2029 RPM Base Residual Auction compared to what RPM revenues would have been had PJM cleared the auction with a peak load forecast that did not include load from existing data centers, forecast load from planned data centers and forecast load growth from existing data centers (Scenario 4).

The difference in the impact on RPM revenues under Scenario 3 and Scenario 4 is relatively small when compared to the difference in the peak load forecast because the actual VRR curve has a minimum price. The minimum price included in the actual VRR curve limits the impact of the reduced data center load on clearing prices because it forces a higher price than would result without a minimum price. The reduction in price is limited by the minimum price included in the actual VRR curve actually used in the BRA.

Results: Alternate 2028/2029 BRA VRR Curve and Existing and Forecast Data Center Load

Table 12 shows the impact on RPM revenues for Scenario 5 and Scenario 6. If the 2028/2029 RPM BRA had been cleared using the 2028/2029 RPM BRA parameters and the alternate VRR curve, and everything else had remained the same, total RPM market revenues for the 2028/2029 RPM Base Residual Auction would have been $29,722,226,243 (Scenario 1).

Table 12 shows the impact on RPM revenues for Scenario 5. If, in addition to Scenario 1, the 2028/2029 RPM BRA had been cleared with the 2028 peak load forecast that did not include 16,436 MW (Table 6) of forecast load growth from planned data centers and from existing data centers (above embedded), total RPM market revenues for the 2028/2029 RPM Base Residual Auction would have been $10,099,016,344 (Scenario 5), a decrease of $19,623,209,899 or 66.0 percent compared to the results if the 2028/2029 RPM BRA had

been cleared using the 2028/2029 RPM BRA parameters with the alternate VRR curve, and everything else had remained the same (Scenario 5 compared to Scenario 1). From another perspective, in addition to Scenario 1, including forecast data center load in the 2028 peak load forecast resulted in a 194.3 percent increase in RPM revenues for the 2028/2029 RPM Base Residual Auction compared to what RPM revenues would have been had PJM cleared the auction using the 2028/2029 RPM BRA parameters with the alternate VRR curve, and with a peak load forecast that did not include load from planned data centers and the forecast load growth from existing data centers (Scenario 5 compared to Scenario 1).

Table 12 shows the impact on RPM revenues for Scenario 6. If, in addition to Scenario 1, the 2028/2029 RPM BRA had been cleared with the 2028 peak load forecast that did not include 21,470 MW (Table 6) of load from existing data centers, forecast load from planned data centers and forecast load growth from existing data centers (embedded and above embedded), and everything else had remained the same, total RPM market revenues for the 2028/2029 RPM Base Residual Auction would have been $7,345,697,928 (Scenario 6), a decrease of $22,376,528,315 or 75.3 percent compared to the results if the 2028/2029 RPM BRA had been cleared using the 2028/2029 RPM BRA parameters with the alternate VRR curve, including the data center load and everything else had remained the same (Scenario 6 compared to Scenario 1). From another perspective, in addition to Scenario 1, including existing and forecast data center load in the 2028 peak load forecast resulted in a 304.6 percent increase in RPM revenues for the 2028/2029 RPM Base Residual Auction compared to what RPM revenues would have been had PJM cleared the auction using the 2028/2029 RPM BRA parameters with the alternate VRR curve, and with a peak load forecast that did not include load from existing data centers, forecast load from planned data centers and forecast load growth from existing data centers (Scenario 6 compared to Scenario 1).

The actual VRR curve reduced the impact of the data center load compared to the alternate VRR curve. If the 2028/2029 RPM BRA had been cleared with the 2028 peak load forecast that did not include 16,436 MW of forecast load growth from planned data centers and from existing data centers (above embedded), the use of the actual VRR curve reduced the impact by $13,890,744,562 (Scenario 5 compared to Scenario 3). If the 2028/2029 RPM BRA had been cleared with the 2028 peak load forecast that did not include 21,470 MW of load from existing data centers, forecast load from planned data centers and forecast load growth from existing data centers (embedded and above embedded), the use of the actual VRR curve reduced the impact by $16,108,709,192 (Scenario 6 compared to Scenario 4).

Results: IMM VRR Curve and Existing and Forecast Data Center Load

Table 13 shows the impact on RPM revenues for Scenario 7 and Scenario 8. If the 2028/2029 RPM BRA had been cleared using the 2028/2029 RPM BRA parameters and the IMM VRR

Curve, and everything else had remained the same, total RPM market revenues for the 2028/2029 RPM Base Residual Auction would have been $27,889,570,368 (Scenario 2).

Table 13 shows the impact on RPM revenues for Scenario 7. If, in addition to Scenario 2, the 2028/2029 RPM BRA had been cleared with the 2028 peak load forecast that did not include 16,436 MW (Table 6) of forecast load growth from planned data centers and from existing data centers (above embedded), total RPM market revenues for the 2028/2029 RPM Base Residual Auction would have been $9,918,707,490 (Scenario 7), a decrease of $17,970,862,878 or 64.4 percent compared to the results if the 2028/2029 RPM BRA had been cleared using the 2028/2029 RPM BRA parameters with IMM VRR Curve, and everything else had remained the same (Scenario 7 compared to Scenario 2). From another perspective, in addition to Scenario 2, including forecast data center load in the 2028 peak load forecast resulted in a 181.2 percent increase in RPM revenues for the 2028/2029 RPM Base Residual Auction compared to what RPM revenues would have been had PJM cleared the auction using the 2028/2029 RPM BRA parameters with the IMM VRR Curve, and with a peak load forecast that did not include load from planned data centers and the forecast load growth from existing data centers (Scenario 7 compared to Scenario 2).

Table 13 shows the impact on RPM revenues for Scenario 8. If, in addition to Scenario 2, the 2028/2029 RPM BRA had been cleared with the 2028 peak load forecast that did not include 21,470 MW (Table 6) of load from existing data centers, forecast load from planned data centers and forecast load growth from existing data centers (embedded and above embedded), and everything else had remained the same, total RPM market revenues for the 2028/2029 RPM Base Residual Auction would have been $6,385,451,926 (Scenario 8), a decrease of $21,504,118,442 or 77.1 percent compared to the results if the 2028/2029 RPM BRA had been cleared using the 2028/2029 RPM BRA parameters with the IMM VRR Curve, including the data center load and everything else had remained the same (Scenario 8 compared to Scenario 2). From another perspective, in addition to Scenario 2, including existing and forecast data center load in the 2028 peak load forecast resulted in a 336.8 percent increase in RPM revenues for the 2028/2029 RPM Base Residual Auction compared to what RPM revenues would have been had PJM cleared the auction using the 2028/2029 RPM BRA parameters with the IMM VRR Curve, and with a peak load forecast that did not include load from existing data centers, forecast load from planned data centers and forecast load growth from existing data centers (Scenario 8 compared to Scenario 2).

Table 11 Scenario summary for 2028/2029 RPM Base Residual Auction: Actual VRR Curve; Existing Data Center Load; Forecast Data Center Load

			Scenario Impact		
				Percent Change	
Scenario	Scenario Description	RPM Revenue ($ per Delivery Year)	RPM Revenue Change ($ per Delivery Year)	Scenario to Actual	Actual to Scenario
0	Actual results	$16,407,949,025	NA	NA	NA
3	Peak Load Forecast Without Above Embedded Data Center Load	$10,675,483,688	$5,732,465,337	53.7%	(34.9%)
4	Peak Load Forecast Without Embedded and Above Embedded Forecast for Data Center Load	$10,140,129,902	$6,267,819,123	61.8%	(38.2%)

Table 12 Scenario summary for 2028/2029 RPM Base Residual Auction: Alternate VRR Curve; Existing Data Center Load; Forecast Data Center Load

			Scenario Impact		
				Percent Change	
Scenario	Scenario Description	RPM Revenue ($ per Delivery Year)	RPM Revenue Change ($ per Delivery Year)	Scenario to Actual	Actual to Scenario
1	Alternate VRR Curve	$29,722,226,243	NA	NA	NA
5	Scenario 1 and Peak Load Forecast Without Above Embedded Data Center Load	$10,099,016,344	$19,623,209,899	194.3%	(66.0%)
6	Scenario 1 and Peak Load Forecast Without Embedded and Above Embedded Forecast for Data Center Load	$7,345,697,928	$22,376,528,315	304.6%	(75.3%)

Table 13 Scenario summary for 2028/2029 RPM Base Residual Auction: IMM VRR Curve; Existing Data Center Load; Forecast Data Center Load

			Scenario Impact		
				Percent Change	
Scenario	Scenario Description	RPM Revenue ($ per Delivery Year)	RPM Revenue Change ($ per Delivery Year)	Scenario to Actual	Actual to Scenario
2	IMM VRR Curve	$27,889,570,368	NA	NA	NA
7	Scenario 2 and Peak Load Forecast Without Above Embedded Data Center Load	$9,918,707,490	$17,970,862,878	181.2%	(64.4%)
8	Scenario 2 and Peak Load Forecast Without Embedded and Above Embedded Forecast for Data Center Load	$6,385,451,926	$21,504,118,442	336.8%	(77.1%)

Results: Cleared UCAP MW

Table 14 through Table 17 show the cleared UCAP MW impact of all the scenarios analyzed. The Cleared UCAP column shows the cleared MW that resulted from the specific scenario only. The Cleared UCAP Change column shows the difference between the specified base scenario RPM cleared UCAP MW and the total RPM cleared UCAP MW that resulted from the specific alternative scenario. A positive number means that the specific alternative scenario resulted in a reduction in cleared MW. A negative number means that the specific alternative scenario resulted in an increase in cleared MW. The percent columns show the percent change in RPM cleared MW for the specific alternative scenario from two perspectives. The Scenario to Actual Percent column shows the difference between the MW under the defined alternative scenario and the defined baseline as a percent of the MW under the defined scenario. The Actual to Scenario Percent column shows the difference between the MW under the defined alternative scenario and the defined baseline as a percent of the MW under the defined baseline.

Table 14 shows the impact on the cleared UCAP MW for the auction for Scenarios 1 and 2. In Scenario 1, the MMU analyzed the impact of using alternate 2028/2029 BRA parameters. In Scenario 2, the MMU analyzed the impact of using the alternate 2028/2029 BRA parameters and the IMM VRR Curve. Resources that did not clear in the 2028/2029 BRA using actual BRA parameters would clear under Scenario 1 using alternate BRA parameters, resulting in higher cleared UCAP MW under Scenario 1. The lower cleared MW under Scenario 2 (IMM VRR Curve) compared to the actual 2028/2029 BRA results and Scenario 1 using alternate VRR curve were due to the IMM VRR curve being positioned slightly to the left of the alternate VRR curve (see Figure 1).

Table 15 shows the impact on the cleared UCAP MW for the auction for Scenario 3 and Scenario 4. In Scenario 3, the MMU analyzed the impact on the auction results for the 2028/2029 BRA of including forecast load from the planned data centers and forecast load growth from the existing data centers (above embedded) in the 2028 summer peak load forecast. In Scenario 4, the MMU analyzed the impact on the auction results for the 2028/2029 BRA of including load from existing data centers, forecast load from the planned data centers and forecast load growth from the existing data centers (embedded and above embedded) in the 2028 summer peak load forecast.

Table 16 shows the impact on the cleared UCAP MW for the auction for Scenario 1, Scenario 5 and Scenario 6. In Scenario 1, the MMU analyzed the impact of using alternate 2028/2029 BRA parameters. In Scenario 5, the MMU analyzed the impact on the auction results for the 2028/2029 BRA of using alternate 2028/2029 RPM Base Residual Auction parameters, and including forecast load from the planned data centers and forecast load growth from the existing data centers (above embedded) in the 2028 summer peak load forecast. The alternate VRR curve without a minimum clearing price resulted in lower cleared UCAP MW under Scenario 5 than under Scenario 3. In Scenario 6, the MMU analyzed the impact on the auction results for the 2028/2029 BRA of using alternate 2028/2029 RPM Base Residual Auction parameters, and including load from existing data centers, forecast load from the planned data centers and forecast load growth from the existing data centers (embedded and above embedded) in the 2028 summer peak load forecast. The alternate VRR curve without a minimum clearing price resulted in lower cleared UCAP MW under Scenario 6 than under Scenario 4.

Table 17 shows the impact on the cleared UCAP MW for the auction for Scenario 2, Scenario 7 and Scenario 8. In Scenario 2, the MMU analyzed the impact of using the 2028/2029 BRA parameters and the IMM VRR Curve. In Scenario 7, the MMU analyzed the impact on the auction results for the 2028/2029 BRA of using the IMM VRR Curve for 2028/2029 RPM Base Residual Auction parameters, and including forecast load from the planned data centers and forecast load growth from the existing data centers (above embedded) in the 2028 summer peak load forecast. In Scenario 8, the MMU analyzed the impact on the auction results for the 2028/2029 BRA of using the IMM VRR Curve for 2028/2029 RPM Base Residual Auction parameters, and including load from existing data

centers, forecast load from the planned data centers and forecast load growth from the existing data centers (embedded and above embedded) in the 2028 summer peak load forecast.

Table 14 Scenario summary for 2028/2029 RPM Base Residual Auction: Alternate 2028/2029 BRA Parameters; IMM VRR Curve

		Scenario Impact			
				Percent Change	
Scenario	Scenario Description	Cleared UCAP (MW)	Cleared UCAP Change (MW)	Scenario to Actual	Actual to Scenario
0	Actual results	138,317.8	NA	NA	NA
1	Alternate VRR Curve	138,394.6	(76.8)	(0.1%)	0.1%
2	IMM VRR Curve	138,309.3	8.5	0.0%	(0.0%)

Table 15 Scenario summary for 2028/2029 RPM Base Residual Auction: Actual VRR Curve; Existing Data Center Load; Forecast Data Center Load

		Scenario Impact			
				Percent Change	
Scenario	Scenario Description	Cleared UCAP (MW)	Cleared UCAP Change (MW)	Scenario to Actual	Actual to Scenario
0	Actual results	138,317.8	NA	NA	NA
3	Peak Load Forecast Without Above Embedded Data Center Load	135,766.5	2,551.3	1.9%	(1.8%)
4	Peak Load Forecast Without Embedded and Above Embedded Forecast for Data Center Load	135,619.5	2,698.3	2.0%	(2.0%)

Table 16 Scenario summary for 2028/2029 RPM Base Residual Auction: Alternate VRR Curve; Existing Data Center Load; Forecast Data Center Load

		Scenario Impact			
				Percent Change	
Scenario	Scenario Description	Cleared UCAP (MW)	Cleared UCAP Change (MW)	Scenario to Actual	Actual to Scenario
1	Alternate VRR Curve	138,394.6	NA	NA	NA
5	Scenario 1 and Peak Load Forecast Without Above Embedded Data Center Load	134,781.0	3,613.6	2.7%	(2.6%)
6	Scenario 1 and Peak Load Forecast Without Embedded and Above Embedded Forecast for Data Center Load	131,787.6	6,607.0	5.0%	(4.8%)

Table 17 Scenario summary for 2028/2029 RPM Base Residual Auction: IMM VRR Curve; Existing Data Center Load; Forecast Data Center Load

		Scenario Impact			
				Percent Change	
Scenario	Scenario Description	Cleared UCAP (MW)	Cleared UCAP Change (MW)	Scenario to Actual	Actual to Scenario
2	IMM VRR Curve	138,309.3	NA	NA	NA
7	Scenario 2 and Peak Load Forecast Without Above Embedded Data Center Load	134,729.3	3,580.0	2.7%	(2.6%)
8	Scenario 2 and Peak Load Forecast Without Embedded and Above Embedded Forecast for Data Center Load	130,314.5	7,994.8	6.1%	(5.8%)