

PA/PJM Agreement re Maximum and Minimum RPM Prices

Special MC

February 7, 2025

IMM



Monitoring Analytics

Agreement

- **The Governor of Pennsylvania and PJM agreed upon a maximum price and a minimum price for the upcoming 2026/2027 BRA and 2027/2028 BRA**
 - **Maximum Price: \$325/MW Day (UCAP)**
 - **Minimum Price: \$175/MW-day (UCAP)**
- **The maximum and minimum prices are the only information about the Agreement provided.**
- **Implementation details matter.**
- **Part F of the IMM's Report on the 2025/2026 BRA analyzes the Agreement and PJM's proposed implementation.**

IMM re Agreement

- **The IMM supports the Agreement.**
 - **If implementation done correctly.**
 - **PJM's implementation proposal is not consistent with the Maximum Price defined by the Agreement.**
- **Agreement is consistent with a competitive market design and results.**
- **The maximum price of \$325/MW-day is higher than the average of all historical capacity market weighted average BRA clearing prices prior to the 2025/2026 Delivery Year: \$116.30/MW-day.**

IMM re Agreement

- Agreement is reasonable starting place for immediate capacity market design reforms that should be made prior to the 2026/2027 BRA.
- Agreement is similar to the MMU recommendation to use 1.5 times Net CONE, capped at Gross CONE, as the maximum price, Point A, on the VRR curve.
- The Agreement maximum price of \$325/MW-Day is 14 percent higher than the average of $1.5 * \text{Net CONE}$ values for all LDAs.
- The three related MMU recommendations are not addressed in the Agreement and remain as contested issues at FERC should also be implemented.

Impact of Settlement Maximum Price

- **The IMM calculated the impact of a maximum price of \$325/MW-day.**
 - **Compared results under Agreement to results under PJM's existing VRR curve for 2025/2026 BRA**
 - **IMM's interpretation of Agreement implementation**
 - **Updated CONE values**
 - **PJM maximum price = greater of (Gross CONE, $1.75 \times \text{Net CONE}$)**
 - **5.0 higher forecasted peak load than 2025/2026 BRA**
 - **All other parameters are same as 2025/2026 BRA**
 - **Offers are from 2025/2026 BRA**

Impact of using Settlement Price*

- **Total revenues under PJM's existing VRR curve (modified per Scenario 59 from Part E) would be \$24,824,268,329**
- **Total revenues under modified VRR curve under IMM's interpretation of the Agreement (Scenario 79 from Part F) would be \$16,092,691,225**
- **Difference: \$8,731,577,104 per year**

* For more details, see, Analysis of the 2025/2026 RPM Base Residual Auction Part F

PJM's Interpretation of Agreement

- **Make ICAP the maximum price instead of UCAP**
- **Use filed VRR curve with maximum and minimum price added rather than defining new VRR curve based on a maximum UCAP price of \$325/MW-day and a minimum UCAP price of \$175/MW-day.**

IMM's Interpretation of Agreement: Price

- **The \$325/MW-day is the maximum price in the BRA auctions for 2026/2027 and for 2027/2028**
 - **The auction price is in UCAP terms**
 - **The ICAP price is derived from the UCAP price**
 - **If the reference resource accredited UCAP factor (ELCC) changes, the maximum price in UCAP terms does not change.**

PJM's Interpretation of Agreement: Price

- Translate \$325/MW-Day (UCAP) to \$256.75/MW-day (ICAP)
 - $\text{UCAP price} = (\text{ICAP price} / \text{ELCC})$, or $\text{ICAP price} = \text{UCAP price} * \text{ELCC}$
 - $\$325 = \$256.75 / .79$; $\$256.75 = \$325 * .79$
- Make ICAP the fixed price instead of \$325/MW-day price.
- As a result, if ELCC changes, the \$325 maximum price changes.
- For example, if the ELCC for the dual fuel CT reference unit changes from .79 to .73, the maximum price would become \$352 instead of \$325.
 - $\$351.71 = \$256.75 / .73$

IMM's Interpretation of the Agreement: VRR Curve

- **Maximum Price is \$325/MW-day (UCAP)**
- **Minimum Price is \$175/MW-day (UCAP)**
- **Build new VRR curve based on VRR curve logic**
 - **Define Points A, B and C**
- **Point A price is Maximum Price**
- **Point B price is 0.75 times Maximum Price**
- **Point C price is Minimum Price**

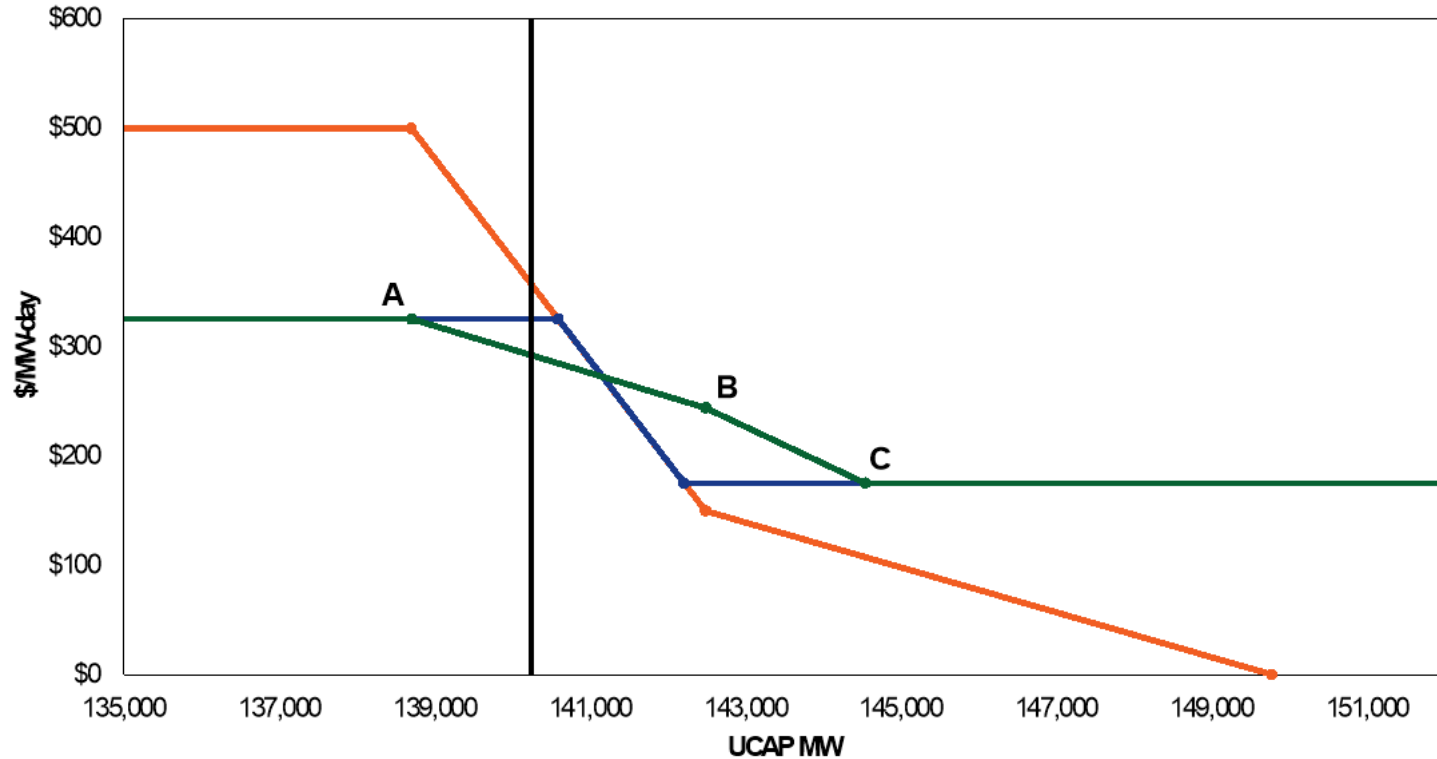
IMM's Interpretation of the Agreement: VRR Curve

- Create new VRR curve based on new maximum price
- Maximum Price is \$325 per UCAP MW-day
- Minimum Price is \$175 per UCAP MW-day
- Price at point A = Maximum Price
- MW at point A = $98.9 * \text{Reliability Requirement (RR)}$
- Price at point B = 0.75 times Maximum Price
- MW at point B = $101.6 * \text{RR}$
- Price at Point C = Minimum Price
- MW at point C = $106.8 * \text{RR}$
- MW values change slightly for 2026/2027 BRA

PJM's Interpretation of the Agreement: VRR Curve

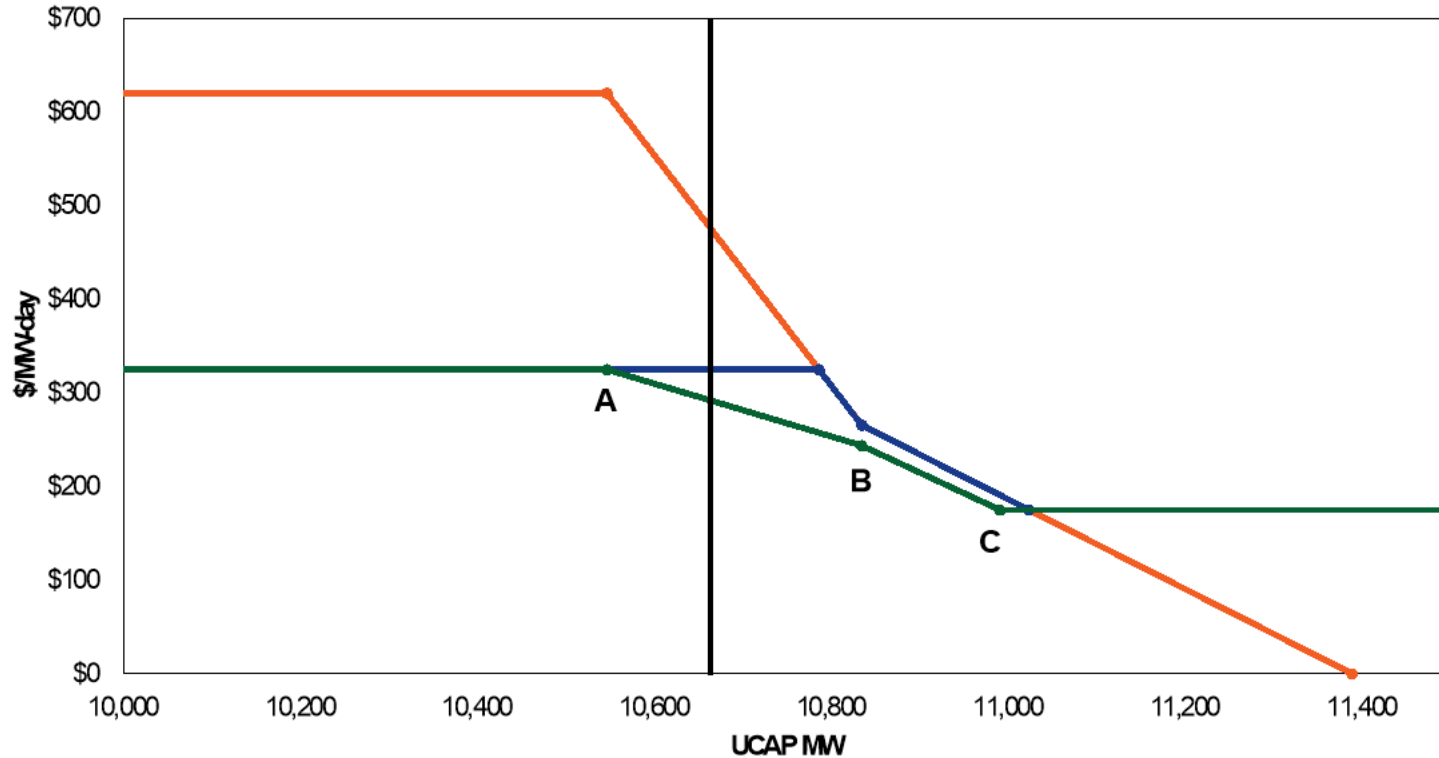
- **Start with filed VRR curve**
 - **Maximum price = $\text{Max}(\text{Gross CONE}; 1.75 * \text{Net CONE})$**
- **Agreement maximum price intersects filed VRR curve**
- **MW at maximum price > MW at Point A and greater than reliability requirement**
- **Point B based on filed VRR curve remains**
- **New Point B not defined**
- **Minimum price intersects filed VRR curve**
- **New Point C not defined**

Comparison of VRR Curves: RTO



Original VRR Curve PJM Proposed VRR Curve IMM VRR Curve Reliability Requirement

Comparison of VRR Curves: PSEG LDA



Original VRR Curve PJM Proposed VRR Curve IMM VRR Curve Reliability Requirement

Coordinates of the VRR Curve under IMM's Proposal

	Point A		Point B		Point C		Point D	
	\$/MMV-day	MW	\$/MMV-day	MW	\$/MMV-day	MW	\$/MMV-day	MW
RTO	\$325.00	138,699.1	\$243.75	142,485.7	\$175.00	144,542.6	\$175.00	+Inf.
MAAC	\$325.00	52,755.5	\$243.75	54,195.8	\$175.00	54,978.2	\$175.00	+Inf.
EMAAC	\$325.00	30,612.9	\$243.75	31,448.7	\$175.00	31,902.7	\$175.00	+Inf.
SWMAAC	\$325.00	13,348.7	\$243.75	13,713.4	\$175.00	13,911.5	\$175.00	+Inf.
PSEG	\$325.00	10,546.7	\$243.75	10,834.6	\$175.00	10,991.0	\$175.00	+Inf.
PS-NORTH	\$325.00	5,356.2	\$243.75	5,502.5	\$175.00	5,581.9	\$175.00	+Inf.
DPL-SOUTH	\$325.00	2,720.1	\$243.75	2,794.4	\$175.00	2,834.7	\$175.00	+Inf.
PEPCO	\$325.00	6,485.2	\$243.75	6,662.2	\$175.00	6,758.4	\$175.00	+Inf.
ATSI	\$325.00	12,052.0	\$243.75	12,381.0	\$175.00	12,559.7	\$175.00	+Inf.
ATSI-CLEVELAND	\$325.00	5,008.3	\$243.75	5,145.0	\$175.00	5,219.3	\$175.00	+Inf.
COMED	\$325.00	20,590.6	\$243.75	21,152.7	\$175.00	21,458.0	\$175.00	+Inf.
BGE	\$325.00	6,864.4	\$243.75	7,051.8	\$175.00	7,153.6	\$175.00	+Inf.
PPL	\$325.00	8,669.0	\$243.75	8,905.6	\$175.00	9,034.2	\$175.00	+Inf.
DAY	\$325.00	3,483.1	\$243.75	3,578.1	\$175.00	3,629.8	\$175.00	+Inf.
DEOK	\$325.00	5,500.5	\$243.75	5,650.6	\$175.00	5,732.2	\$175.00	+Inf.
DOM	\$325.00	25,463.0	\$243.75	26,158.1	\$175.00	26,535.7	\$175.00	+Inf.

Coordinates of the VRR Curve under IMM's Proposal

- **Note: The MW quantities in the table include 5.0 percent higher forecasted peak load than used in the 2025/2026 BRA**

IMM Analysis

- The IMM has published reports including sensitivity analyses of 2025/2026 BRA (Part A – Part F).
- The goal is to analyze the results of the 2025/2026 BRA.
- The goal is also to address the implications of proposed market design changes for the upcoming 2026/2027 BRA
- All the reports are available on the IMM's website
 - <https://www.monitoringanalytics.com>

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