



Quadrennial Review

Rebecca Carroll
Sr. Director, Market Design
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At least every four years, PJM must review:

Shape of Variable Resource Requirement (VRR) Curve

- Establishes level of capacity needed to meet reliability needs
- Establishes maximum price PJM is willing to pay for a given quantity of capacity

Calculation of the Cost of New Entry (CONE)

Determines the price signal needed to incentivize a new capacity resource

Methodology for determining Energy & Ancillary Services (E&AS) revenue offset

Estimates revenues that reference resource will collect through Energy & Ancillary Service Markets

PJM has hired an independent consultant, Brattle, to perform this analysis

| | Reference Resource | E&AS Offset Methodology | VRR Curve |
|------------------------|---|--|--|
| Status Quo | <ul style="list-style-type: none"> Combustion Turbine Dual Fuel | Estimated based on historical electricity & natural gas prices | Point a) quantity = IRM - 1.2%, price = greater (CONE or 1.5*Net CONE) Point b) quantity = IRM + 1.9%, price = 0.75*Net CONE Point c) quantity = IRM + 7.8%, price = 0 |
| Package A (PJM) | <ul style="list-style-type: none"> 1x1 Combined Cycle (Double train, single shaft) Air-cooled condensers Firm gas transportation Major maintenance in VOM | Calculate E&AS based on a forward basis | Point a) quantity = Reliability Requirement (RR) - 1%, price = greater (Gross CONE or 1.75*Net CONE) Point b) quantity = RR + 1.5%, price = 0.75*Net CONE Point c) quantity = RR + 4.5%, price = 0 |
| Package B (IMM) | Same as Package A, but with: <ul style="list-style-type: none"> Potential for firm gas transportation Operating costs, no major maintenance, in VOM | Same as Package A but details differ | Point a) quantity = IRM - 1.2%, price = greater (Gross CONE or 1.5*Net CONE) Point b) quantity = IRM + 0.95%, price = 0.75*Net CONE Point c) quantity = IRM + 3.9%, price = 0 |
| Package C | Same as Package A | Status Quo | Same as Package A |
| Package D | Status Quo, but with firm gas transportation | Status Quo | Same as Package A, but with CT as reference resource |



Stakeholder Process Work Plan

| 2021/2022 Quadrennial Review Work Plan | MIC SPECIAL SESSIONS: QUADRENNIAL REVIEW | | | | | | | | | | | | | | | |
|---|--|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|-------------------------|-------------------------------------|-------------------------|-------------------------------------|--------------------------|--------------------------|---------------------------|-------------------------------|
| | MTG 1 8/6/21 Special MIC | MTG 2 8/17/21 Special MIC | MTG 3 8/27/21 Special MIC | MTG 4 10/8/21 Special MIC | MTG 5 12/8/21 Special MIC | MTG 6 2/11/22 Special MIC | MTG 7 3/25/22 Special MIC | MTG 8 4/22/22 Special MIC | MTG 9 5/11/22 MIC | MTG 10 5/20/22 Special MIC | MTG 11 6/8/22 MIC | MTG 12 6/21/22 Special MIC | MTG 14 7/13/22 MIC | MTG 15 7/27/22 MRC | MTG 17 8/24/22 MRC* | MTG 18 8/24/22 MC Call* |
| Education & Stakeholder Feedback | X | X | X | X | X | X | | | | | | | | | | |
| Review of IMM Recommendations | | | | | | X | X | X | | X | | | | | | |
| Review of Stakeholder Recommendations | | | | | | X | | | | | | | | | | |
| Review of draft Brattle Recommendations | | | | | | | X | | | | | | | | | |
| Stakeholder Feedback on Final Quadrennial Report | | | | | | | | X | | | | | | | | |
| PJM to review preliminary recommendations | | | | | | | | | X | | | | | | | |
| CBIR Process – identify interests & develop options | | | | | | | | | | X | X | | | | | |
| CBIR Process – develop packages | | | | | | | | | | | X | X | | | | |
| First Read | | | | | | | | | | | | | | X | | |
| Vote | | | | | | | | | | | | | X | | X | X |

