



# Quadrennial Review Update

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Market Design

MIC Special Session  
November 26, 2024

**FERC filing is planned to be around the first week of July** to allow for the normal pre-auction schedule that starts ~6 months before the auction date.

- The values from this Quadrennial Review will be used for the 2028/2029 through 2031/2032 Delivery Years.
- Originally was planned for the 2029/2030 through 2032/3033 Delivery Years, but with the 2026/2027 auction delay, this Quadrennial Review will be implemented one BRA earlier.
- The 2028/2029 BRA will be on a time-constrained two-year forward schedule and will be conducted around mid 2026.

**Key Takeaway:** The completion schedule for the Quadrennial Review will not be affected by the auction delay, however, the delay will allow it to be implemented one Delivery Year earlier.

**Combustion Turbines (CT)**  
– and –  
**Combined Cycles (CC)**

Dispatches a theoretical Reference Resource using specifications of the relevant technology, with future energy prices and future short run marginal costs for the resource for both the DA and RT energy markets.

**Battery Energy Storage  
Systems (BESS)**

Dispatches a theoretical Reference Resource using specifications of the relevant technology, with future energy prices to maximize arbitrage opportunities in simulated DA and RT energy markets.

- Recognizes applicable regulatory requirements, like emission costs
- Total run time for resources are not subject to a hard constraint

More details found in OATT Attachment DD § 5.10: <https://agreements.pjm.com/oatt/5151>,  
and previous Quadrennial Review: <https://www.pjm.com/directory/etariff/FercDockets/6885/20220930-er22-2984-000.pdf>

Keep existing framework and methodology with targeted enhancements

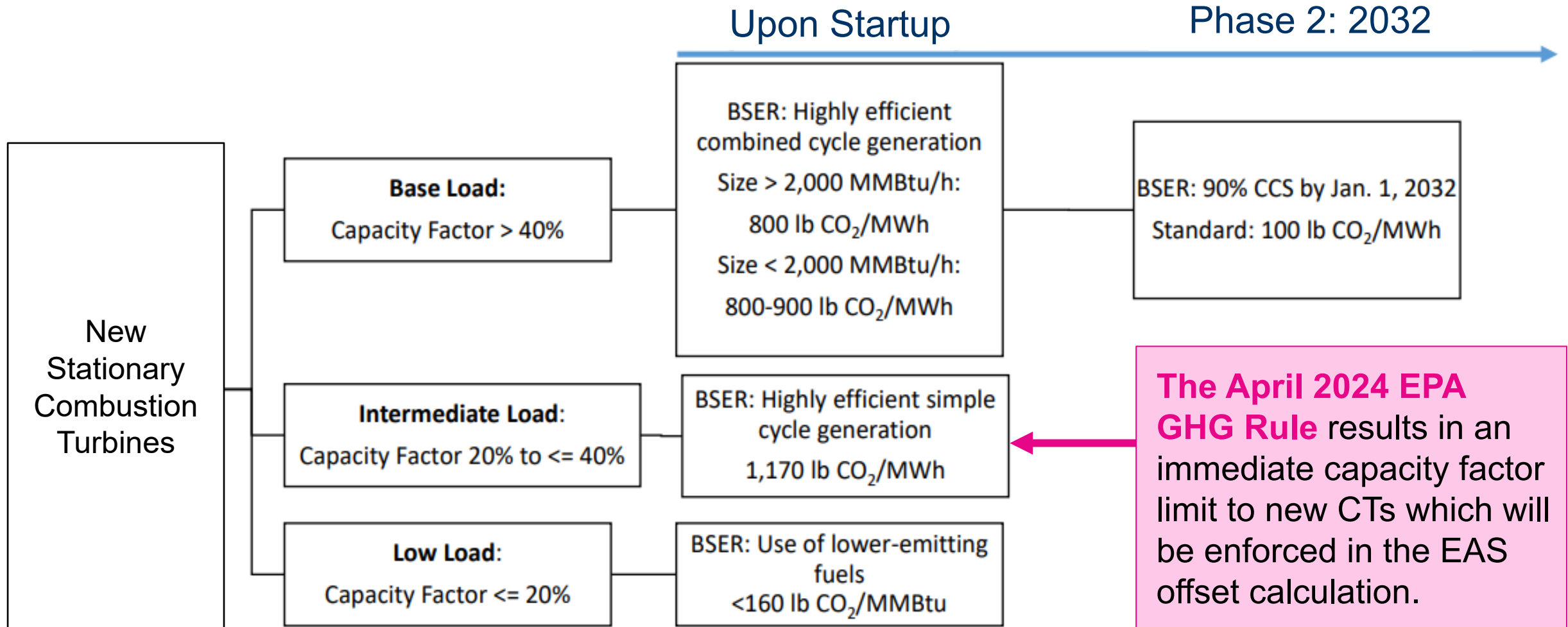
**Combustion Turbines (CT)**  
– and –  
**Combined Cycles (CC)**

- Model 40% capacity factor constraint for EPA 111 implementation – Methodology incorporates an Opportunity Cost if needed
- Under current EPA rules this would be effective now for the CT, but only apply starting with 2032 for a CC.

**Battery Energy Storage Systems (BESS)**

- Tested price uncertainty into the simulation look-ahead – Blended DA/RT price instead of RT price for more realistic dispatch
- Increased complexity with minimum changes to Net E&AS – not implemented

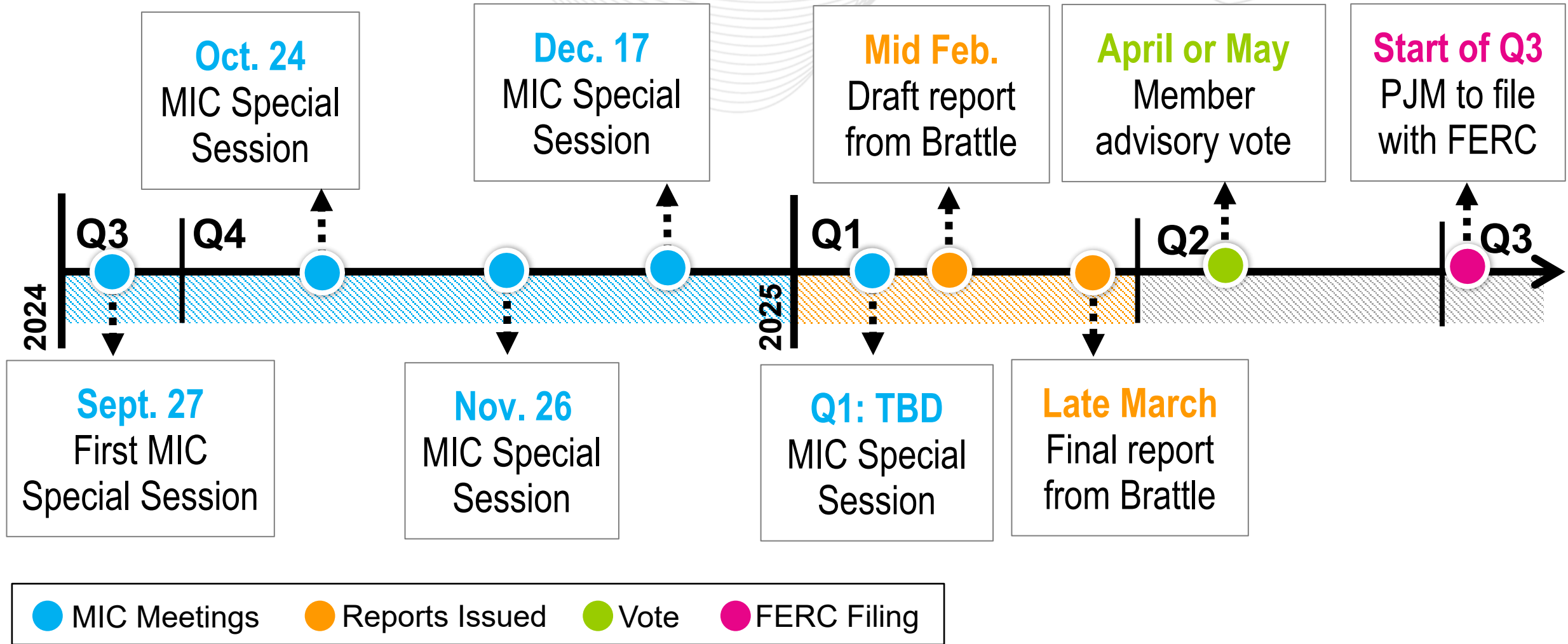
Target enhancements better align the E&AS methodology with actual operations



<https://www.epa.gov/system/files/documents/2024-04/cps-presentation-final-rule-4-24-2024.pdf>

	CC \$/MW-day ICAP	◆ CC 40% \$/MW-day ICAP	CT 40% \$/MW-day ICAP	BESS \$/MW-day ICAP
CONE Area 1	\$342.94	\$298.11	\$120.66	\$288.59
CONE Area 2	\$628.84	\$510.94	\$282.85	\$387.04
CONE Area 3	\$601.21	\$437.76	\$293.27	\$291.38
CONE Area 4	\$540.33	\$404.55	\$244.98	\$279.80
CONE Area 5	\$371.24	\$311.76	\$131.13	\$288.50
RTO	\$571.34	\$410.60	\$253.70	\$280.27

◆ Under current EPA rules this would only apply starting with 2032 for a CC.





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<p>This Quadrennial Review will set the VRR Curve parameters starting with the 28/29 Delivery Year</p>	<p>Target enhancements better align the E&amp;AS methodology with actual operations</p>	<p>Net E&amp;AS values will not be finalized until the applicable posting of the Planning Period Parameters</p>



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## Quadrennial Review Update



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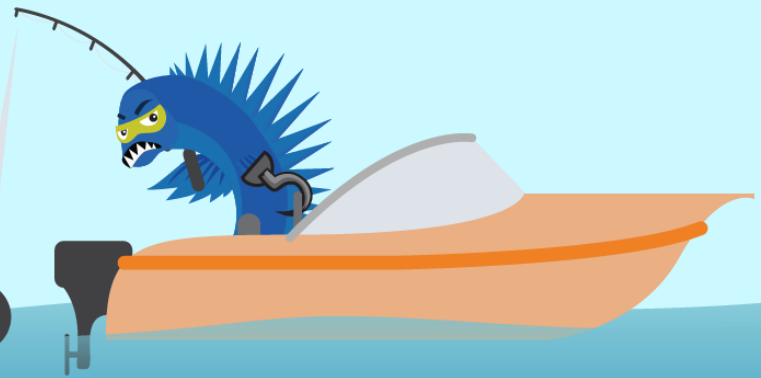
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# Appendix



# Preliminary 28/29 Zonal Net E&AS

	CC \$/MW-day ICAP	CC 40% \$/MW-day ICAP	CT 40% \$/MW-day ICAP	BESS \$/MW-day ICAP
AECO	\$296.58	\$259.17	\$92.54	\$269.18
AEP	\$615.23	\$433.37	\$304.24	\$275.02
APS	\$719.81	\$500.85	\$373.88	\$290.78
ATSI	\$551.53	\$401.37	\$251.48	\$273.90
BGE	\$722.76	\$573.32	\$349.88	\$401.77
COMED	\$371.24	\$311.76	\$131.13	\$288.50
DAY	\$606.53	\$442.49	\$295.87	\$285.02
DEOK	\$576.78	\$423.85	\$276.22	\$284.13
DOM	\$684.29	\$535.27	\$361.50	\$385.93
DPL	\$429.99	\$389.10	\$197.27	\$367.55
DUQ	\$523.05	\$388.56	\$249.16	\$276.28
EKPC	\$552.93	\$404.86	\$250.51	\$276.99
JCPL	\$307.76	\$263.13	\$86.84	\$260.81
METED	\$504.96	\$392.29	\$220.56	\$296.61
OVEC	\$580.75	\$409.23	\$276.61	\$274.39
PECO	\$397.02	\$330.66	\$145.07	\$271.56
PENELEC	\$678.76	\$479.59	\$353.53	\$276.76
PEPCO	\$534.92	\$448.55	\$215.82	\$372.31
PPL	\$437.27	\$341.76	\$160.85	\$266.02
PSEG	\$288.68	\$253.85	\$88.41	\$267.34
RECO	\$337.58	\$292.77	\$113.84	\$295.08
RTO	\$571.34	\$410.60	\$253.70	\$280.27

◆ Under current EPA rules this would only apply starting with 2032 for a CC.