



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

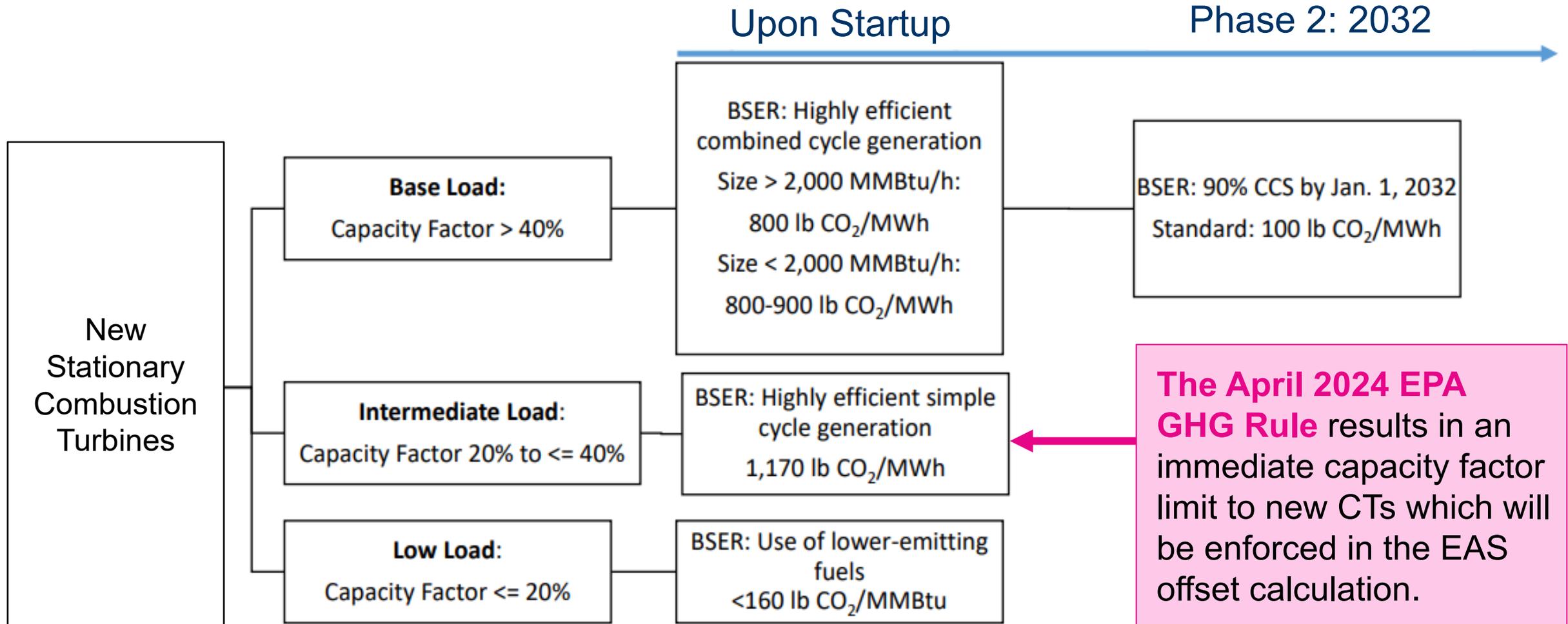
Combustion Turbines (CT)
– and –
Combined Cycles (CC)

Model 40% capacity factor constraint for EPA 111 implementation – Methodology incorporates an Opportunity Cost if needed

Battery Energy Storage Systems (BESS)

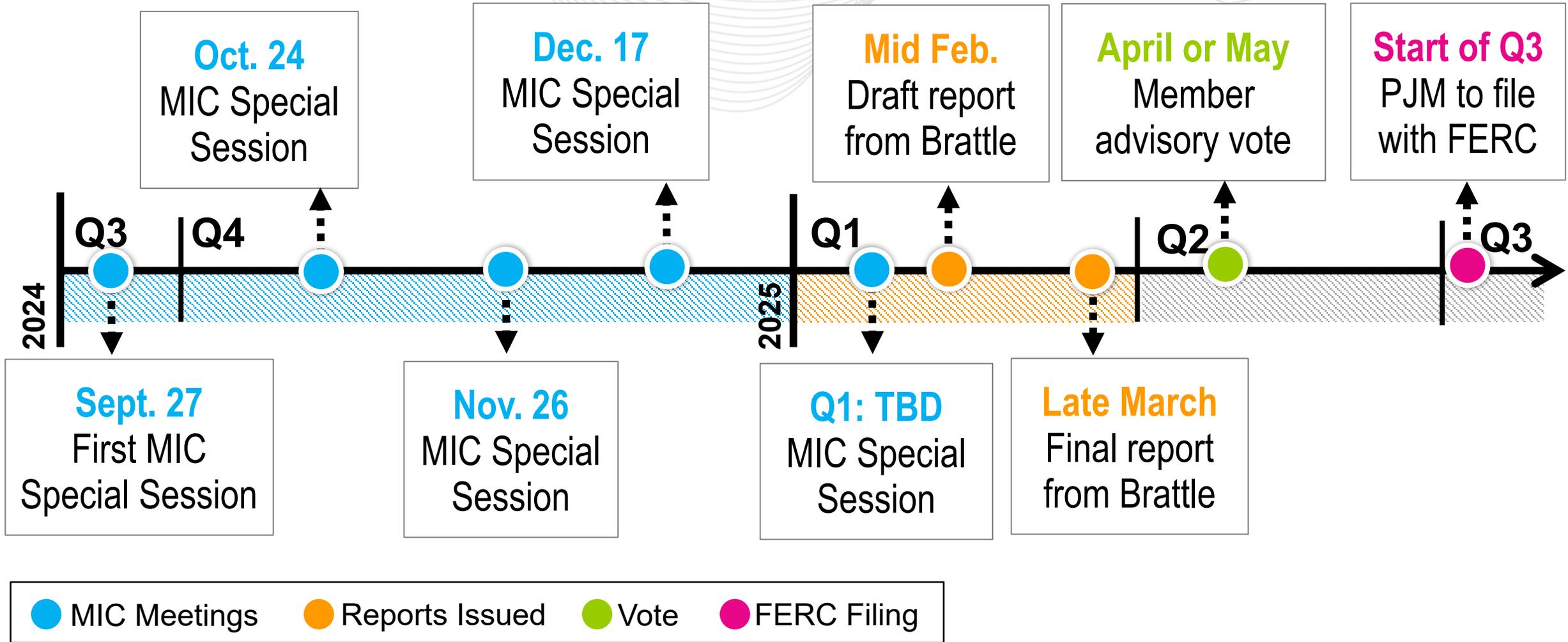
- Tested price uncertainty into the simulation look-ahead – Blended DA/RT price instead of RT price for more realistic dispatch
- Increased complexity with minimum changes to Net E&AS – not implemented

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>

D	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



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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&AS methodology with actual operations</p>	<p>Net E&AS values will not be finalized until the applicable posting of the Planning Period Parameters</p>

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Quadrennial Review Update



Member Hotline

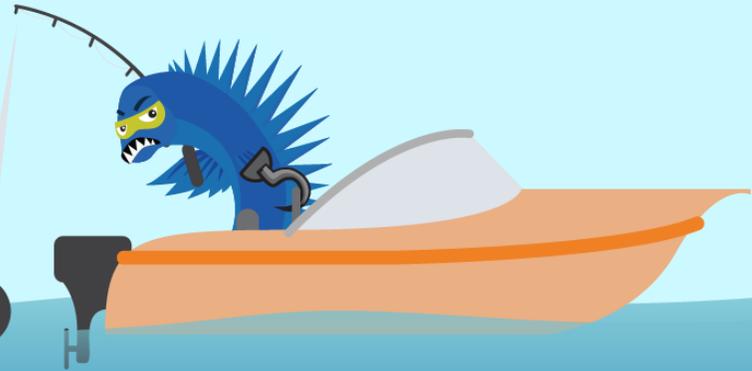
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Appendix



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