

Net CONE Impacts on Black Start Revenues

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MIC
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Acronym	Term & Definition
BFR	Base Formula Rate is a formula used for Black Start resource compensation for resources without capital cost.
BSSC	Black Start Service Cost is a component of the Base Formula Rate. There are fixed Black Start Service Cost and variable Black Start Service Cost components in the Base Formula Rate.
CONE	Cost of New Entry is the calculated cost of building a new resource as utilized in the PJM capacity market.
CRF	Capital Recovery Factor is a factor used in the Capital Recovery Rate used for Black Start resource compensation for resources with capital costs.
RFP	A Request For Proposal is the method by which Black Start resources are selected in PJM to provide Black Start Service.

- Multiple GOs expressed concerns with decreasing Net CONE values and its impact on Base Formula Rate (BFR) revenues
- Approximately 70% of PJM's BS fleet (150+ units) is currently on the BFR and another 20% will transition to BFR now through 2026/2027 delivery year
- Decreasing Black Start revenues could result in numerous Black Start termination and less participation in future RFPs
 - Increased BS costs to replace units on BFR
 - New BS units on CRF rate would be approximately \$40-\$70 million per unit
 - Possible need for Reliability Backstop process to address reliability concerns
- Net CONE is also utilized in the NERC CIP Rate although there are currently no resources on this rate

- ***Annual Black Start Service Revenue Requirement =***

$$\{\text{Fixed BSSC} + \text{Variable BSSC} + \text{Training Costs} + \text{Fuel Storage Costs}\} * (1 + Z)$$

Where:

- Fixed BSSC = Fixed Black Start Service Cost
- Variable BSSC = Variable Black Start Service Costs (approved O&M Costs)
- Training Costs = \$3,750 per plant per delivery year (50 staff hours per plant per year multiplied by \$75 per staff hour)
- Fuel Storage Costs are the costs defined in the tariff for oil units with onsite storage
- Z = Incentive Factor that will be one of the following:
 - 10% for Non-Fuel Assured Black Start Units
 - 20% for Fuel Assured Black Start Units
 - Zero (0) for Black Start Units that are recovering new or additional Black Start capital costs or Fuel Assurance capital costs under section 6 of Schedule 6A

- Fixed Black Start Service Costs (FBSSC) are calculated using Net CONE in two (2) Black Start Revenue rates:

- Base Formula

$$\text{FBSSC} = \text{Net CONE} * \text{Black Start Unit Capacity} * X$$

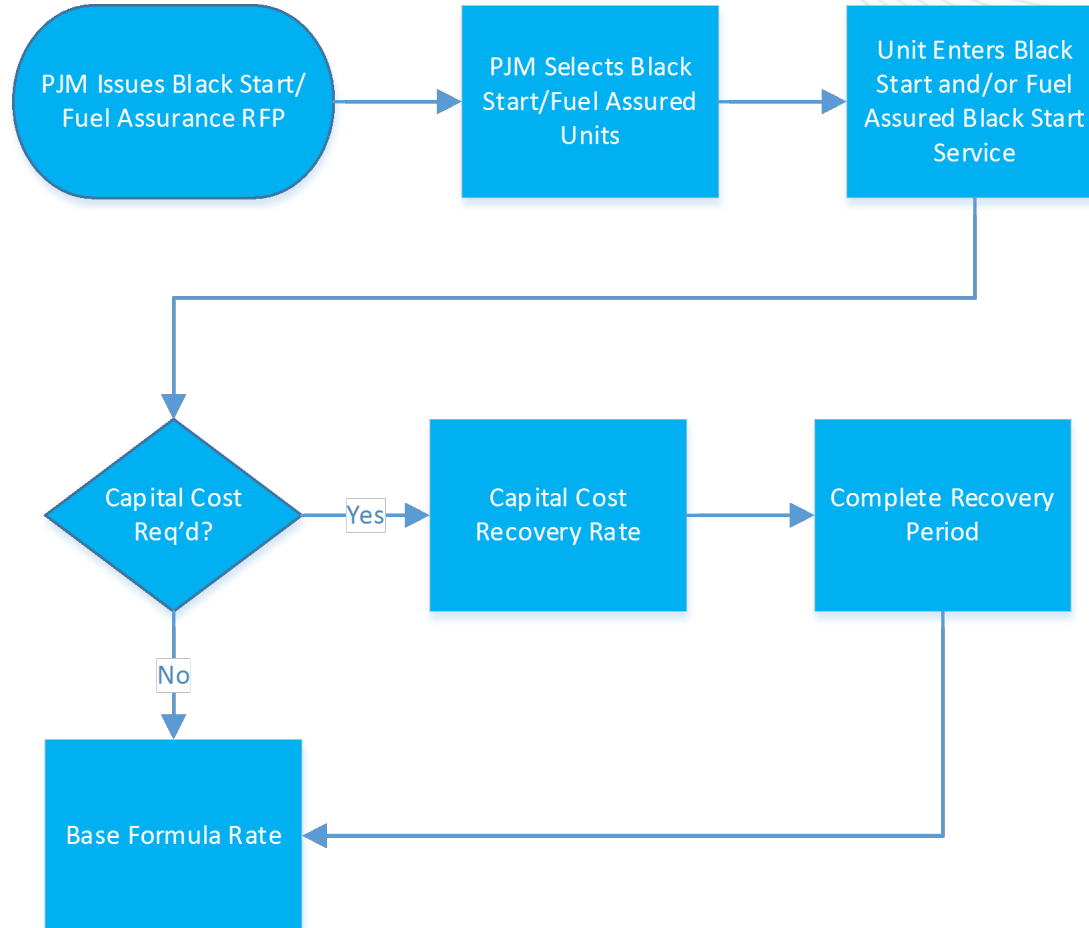
- Net CONE is the then current ICAP net Cost of New Entry (\$/MW day) for the CONE Area where the Black Start Unit is located
- Black Start Unit Capacity is resource's installed capacity*
- X = 0.01 for hydro; X = 0.02 for CT and Fuel Assured Black Start

- Capital Cost Recovery – NERC CIP Rate

$$\text{FBSSC} = \text{Net Cone} * \text{Black Start NERC CIP Unit Capacity} * X$$

* Additional details in OATT Sched 6A Paragraph 18

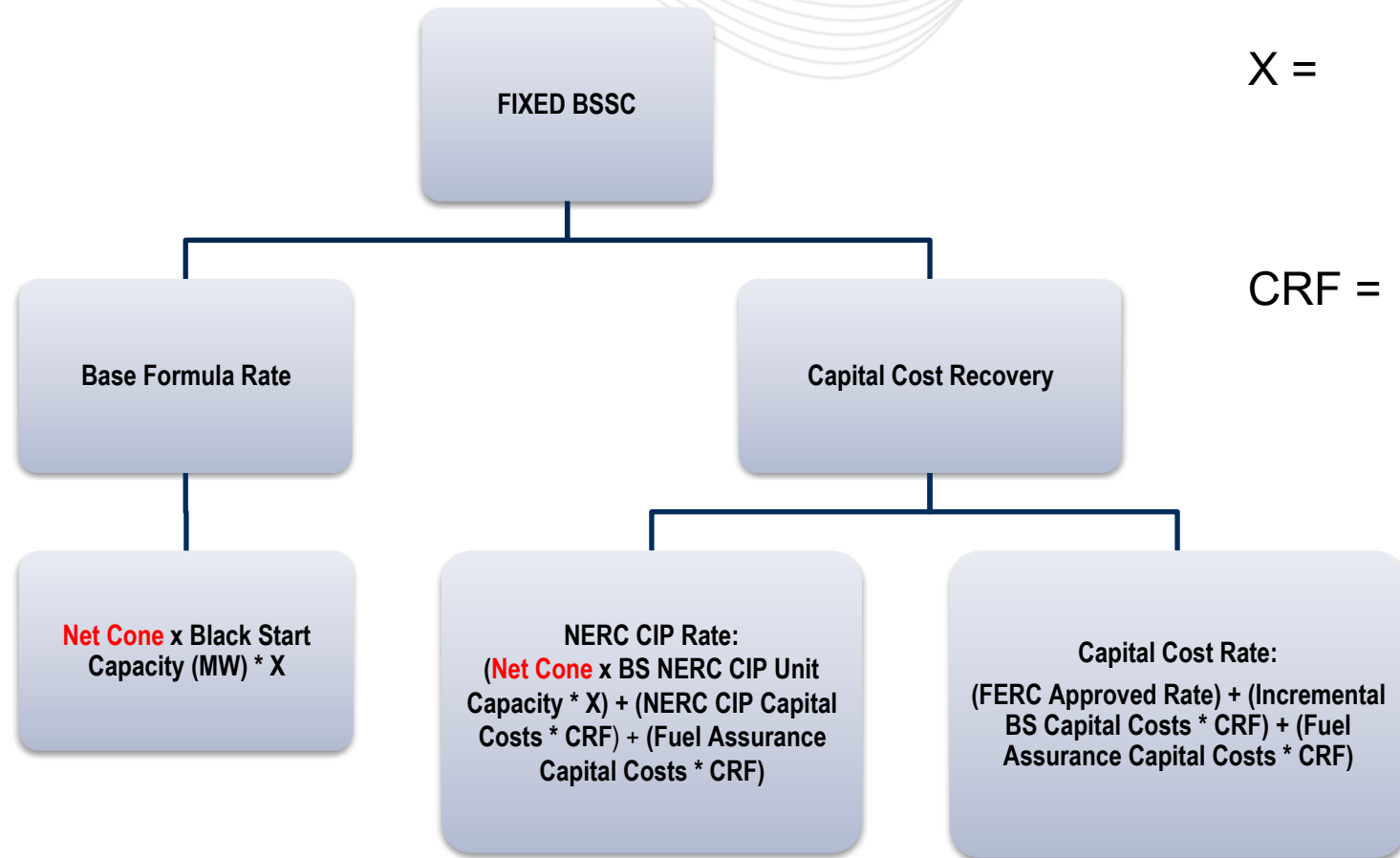
- Black Start and Fuel Assurance Cost Recovery Process



Notes:

- All capital, O&M, and fuel storage costs must be approved by IMM and PJM
- Units electing Capital Recovery Rate will have a lifetime commitment to Black Start/Fuel Assured Service. (For units selected after June 6, 2021)
- Units electing Base Formula Rate will provide two (2) year initial commitment to Black Start/Fuel Assured Service. One (1) year notice is required to terminate service.
 - Units that terminate BS service would have to wait until next RFP process to re-enter service

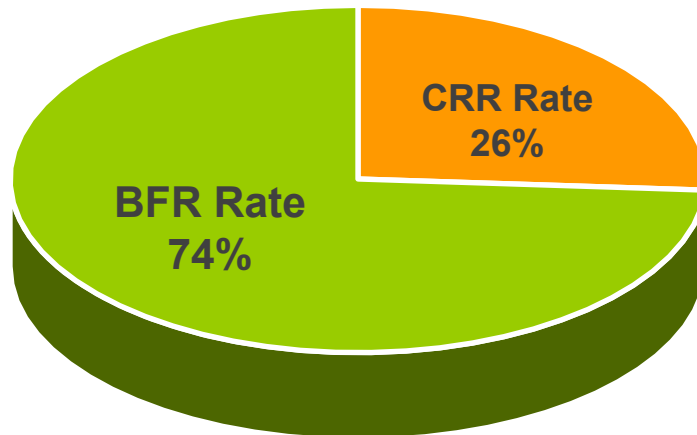
- Fixed Black Start Service Cost (BSSC) recovery options:



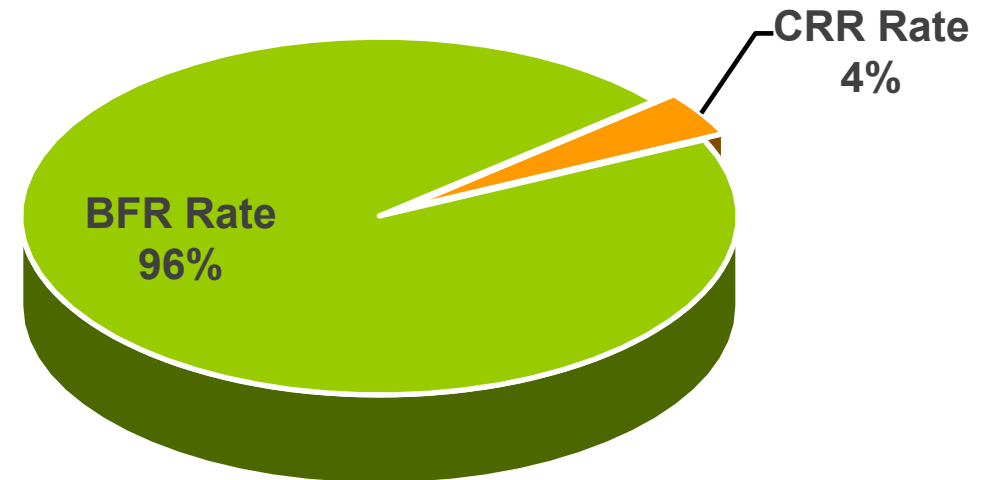
X =
0.01 Hydro Units
0.02 Diesel or CT Units
0.02 Fuel Assured Units

CRF = Capital Recovery Factor
(calculated by PJM)

2024/2025 DY Recovery Rates



2026/2027 DY Recovery Rates



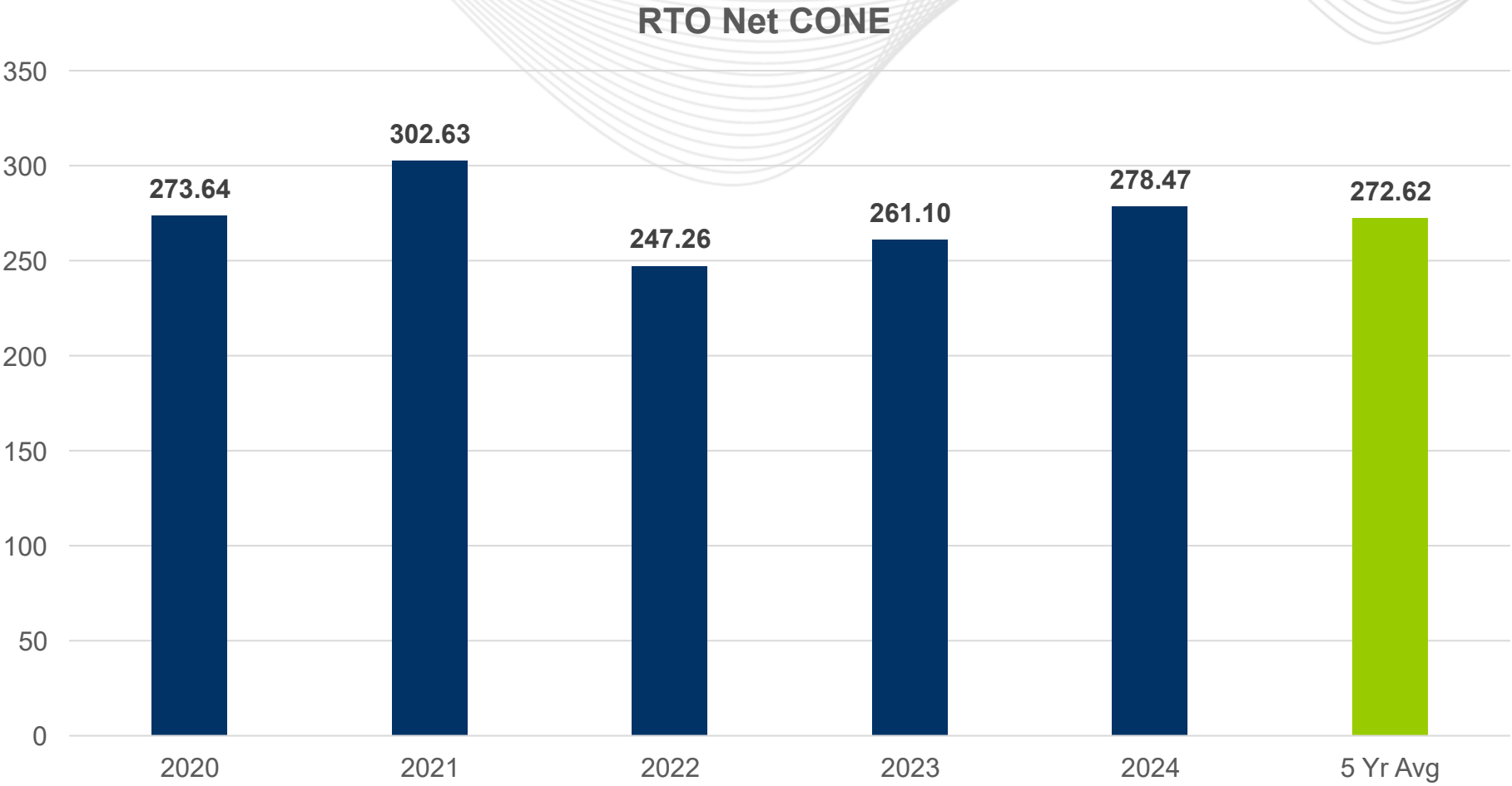
Note:

Data as of 6/1/24.

Does not include new units selected in the recent RTO-wide Black Start RFP's.

- For 26/27 Delivery year, Net CONE is \$0 for one CONE area and significantly reduced for others (based on current data)
- This greatly reduces fixed component of Black Start revenue
 - FBSSC component is roughly 80-90% of total Black Start Revenue
- Could lead to units withdrawing from Black Start Service as early as 2025 (Tariff requires 1 year notice)

Delivery Year	Low Net CONE Area (\$/MW day)	High Net CONE Area (\$/MW day)
23/24	232.39	276.68
24/25	247.96	296.71
25/26	106.31	245.60
26/27	0	179.54



Five (5) Year Average = 272.62

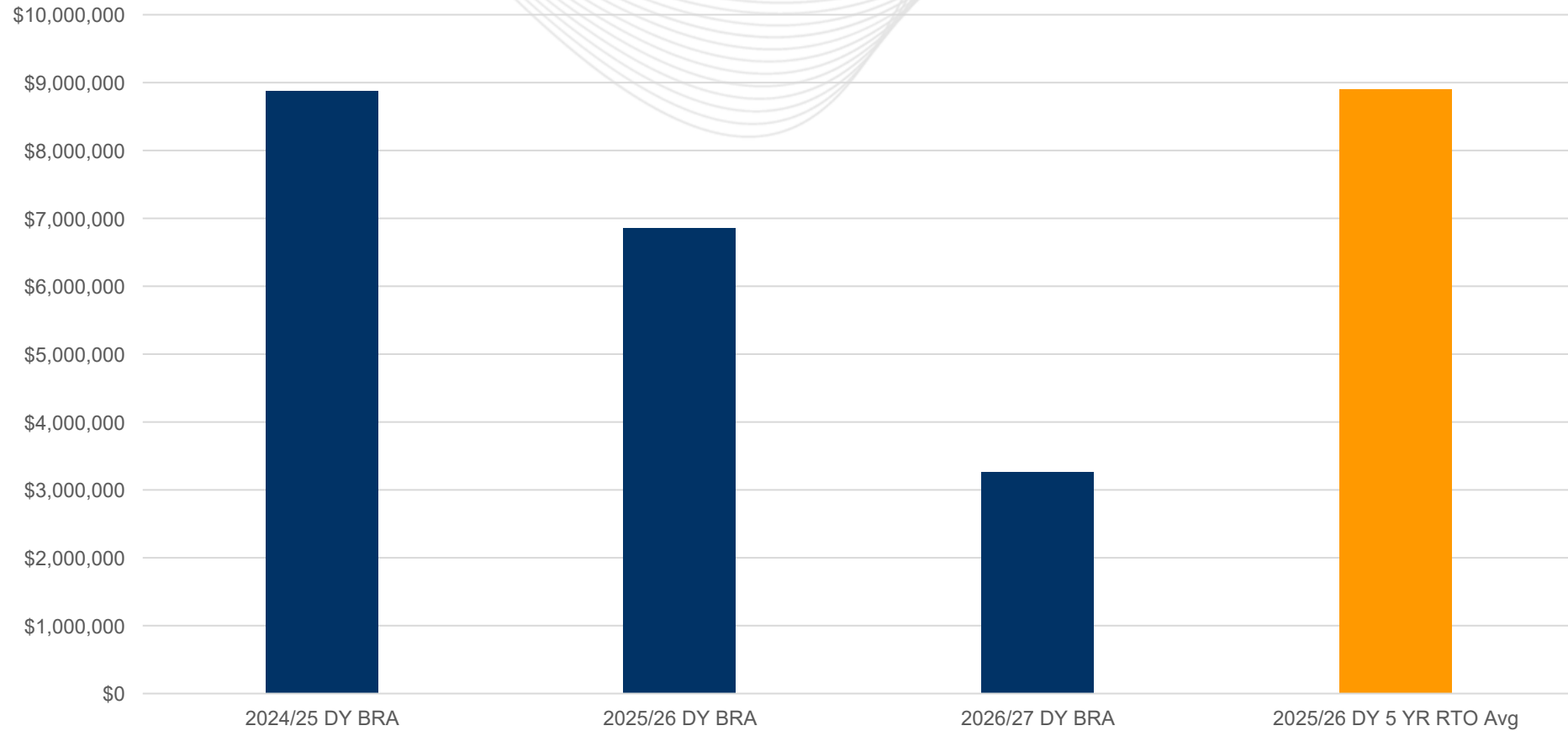
<https://www.pjm.com/markets-and-operations/rpm>

- Set RTO Net CONE value used in BS calculation at average of last 5 years (Calculated at \$272.62 \$/MW Day) as a fixed value
 - Use RTO Net CONE values prior to capacity market changes
 - Provides revenue stability
 - Maintains BS revenue at approximately 2024/2025 levels

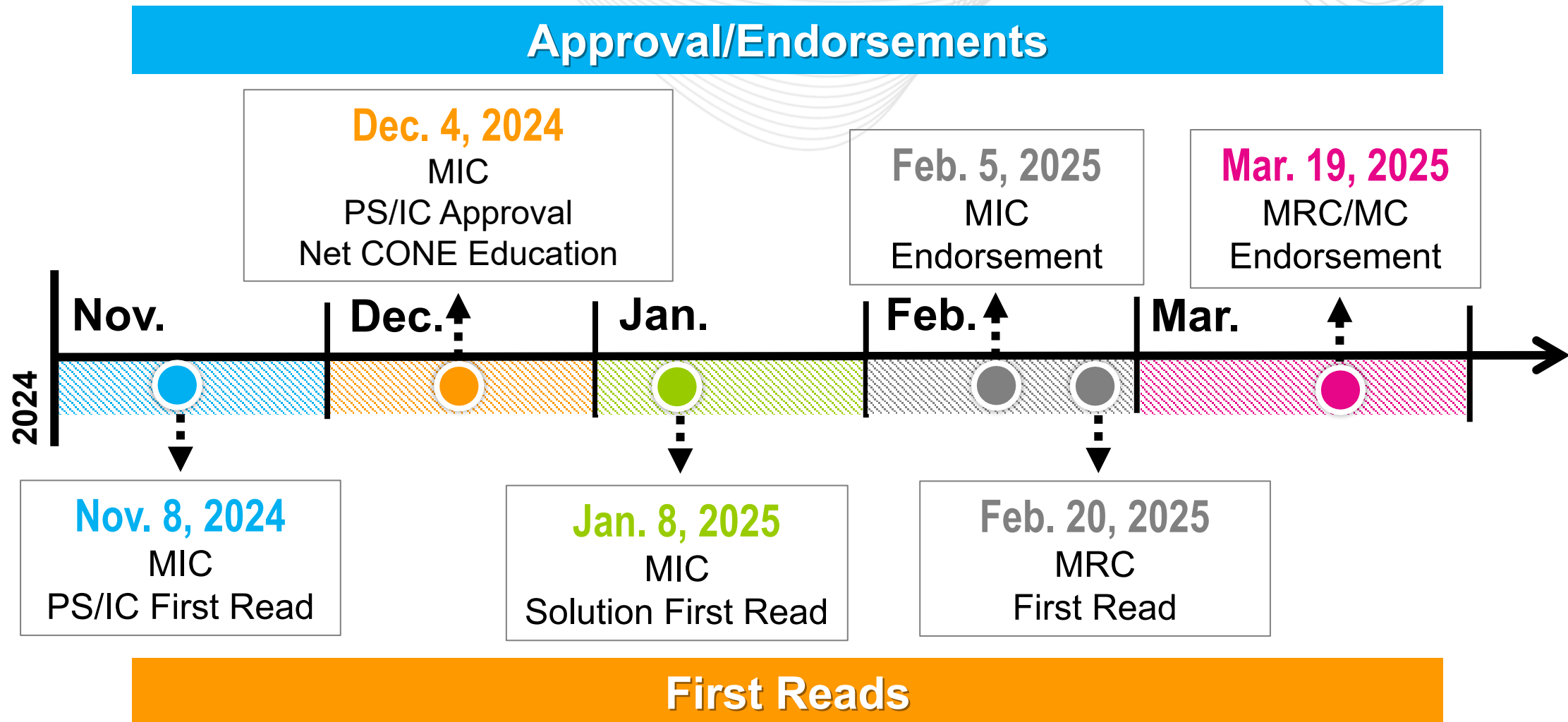
		2025/26 (BRA) – Status Quo		2025/26 (RTO 5 Year Average = \$272.62/MW Day)	
CONE Area	2024/25	Revenue (Fixed BSSC)	% Change from 2024	Revenue (Fixed BSSC)	% Change from 2024
1	\$3,172,733.26	\$2,626,193.33	-17.23%	\$2,915,236.25	-8.12%
2	\$158,028.80	\$67,750.30	-57.13%	\$173,738.01	9.94%
3 & 5	\$4,434,151.58	\$3,473,703.77	-21.66%	\$4,672,020.08	5.36%
4	\$1,112,340.81	\$691,456.23	-37.84%	\$1,142,730.42	2.73%
TOTAL	\$8,877,254.45	\$6,859,103.64	-22.73%	\$8,903,724.75	0.30%

Note: Zone 3 & 5 combined due to changes in CONE area in 25/26 DY

Black Start Service Annual Fixed Costs (BFR Rate)



- Net CONE issue only impacts Base Formula Rate and NERC CIP Rate
 - No impact to Capital Cost Recovery rate
- PJM draft solution uses 5 year average of RTO Net CONE as a fixed value in the Base Formula Rate and NERC CIP Rate formulas
 - Provides revenue certainty for Black Start resources and load
 - Reduces possibility of Black Start resource terminations and need to replace



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**Net CONE Impacts on Black Start
Revenues**



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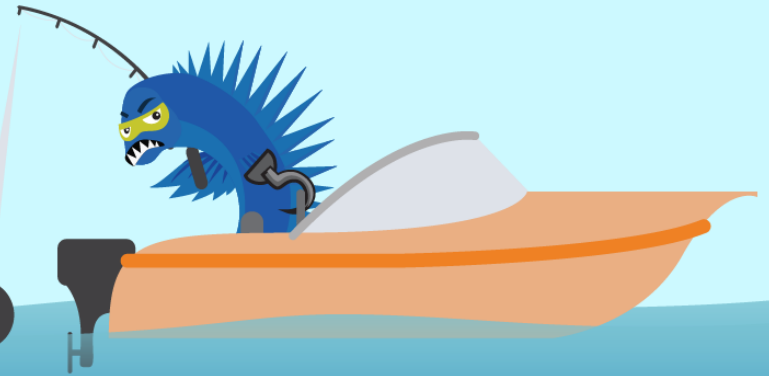
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