Overview of PJM Proposals

CIFP - Resource Adequacy

August 14, 2023

PJM CIFP Proposals

PJM has offered two proposals for stakeholder consideration and vote to inform the Board.

PROPOSAL #1:
Seasonal Capacity Market

Proposal includes a number of reforms to improve the reliability and efficiency of the capacity market, including a move to a seasonal capacity market construct for implementation in the next BRA.

PROPOSAL #2:
Annual Market (Phase in Seasonal)

Same as Proposal #1, but maintains an annual market design for the next BRA to allow more time for stakeholder discussion and analysis of a seasonal construct, with the intention to move to seasonal as soon as practicable.

Key Elements of PJM Proposals

Included in ***both PJM Proposals***	**1.** Enhance reliability risk modeling in resource adequacy studies and move to Expected Unserved Energy (EUE) as the primary reliability metric.
	2. Improve capacity accreditation to better reflect resources' contribution during periods of risk.
	3. Maintain the capacity performance framework but enhance the rules and testing requirements.
	4. Align FRR rules and improve other areas of the market construct, including balanced market power mitigation rules.
Only included in ***Proposal #1***	**5.** Implement seasonal capacity market design (2 seasons: summer and winter) for the next BRA**.**

Focus of the market design reforms is on near-term achievable improvements to the market's ability to meet resource adequacy requirements in an efficient, least-cost manner.

Enhance Reliability Risk Modeling

DESIGN COMPONENT	PJM PROPOSAL #1	PJM PROPOSAL #2
Reliability Risk Modeling *(reforms included in both proposals)*	• Move to more granular (hourly) models in resource adequacy studies: RTO / LDA reserve requirement studies and capacity accreditation • Use extended weather history back to 1993 and explicitly model expected load patterns as a function of weather in the resource adequacy studies • Explicitly model how forced outages and other de-rates vary with temperature (increasing in extreme cold and hot) and are further correlated across the fleet even after accounting for unit-specific performance dependence on temperature • Capacity Benefit of Ties (CBOT) assumed zero: do not commit fewer PJM resources based on potential for support from neighboring regions during capacity emergencies • Require earlier notification of intent to offer for planned generation resources	

Reliability Metric and Targets

DESIGN COMPONENT	PJM PROPOSAL #1	PJM PROPOSAL #2
Procurement Metric and Target *(both proposals)*	• Switch to Expected Unserved Energy "EUE" as the primary reliability metric in reserve studies (and capacity accreditation), but report out on all metrics. – RTO EUE criteria based on equivalent EUE observed at 0.1 days per year LOLE standard – LDA EUE criteria based on same relative level of additional risk accepted today for LDAs (additional *normalized* EUE of 40% relative to the RTO)	
Reliability Requirements	• Reliability requirements and FPR set individually for each season (FPR set relative to seasonal peak load and based on seasonal accredited UCAP needed to meet target EUE criteria in the season).	• Reliability requirements and FPR set on an annual basis (FPR set relative to summer peak load and based on annual accredited UCAP needed to meet target EUE criteria).
Capacity Import Limits (CETL)	• Separate summer and winter CETL values used in the market.	• Status quo: one CETL value used in the market.

Qualification and Accreditation

DESIGN COMPONENT	PJM PROPOSAL #1	PJM PROPOSAL #2
Resource Qualification	• Seasonal qualification requirements; allow for resources that qualify for only a single seasonal to participate on a standalone basis in that season	• Status quo: annual qualification requirements (with current options for commercial or facilitated aggregation of seasonal resources)
Capacity Accreditation *(both proposals)*	• Move accounting of supply-side availability risks to accreditation for all resource types • Accredit generation and DR based on marginal reliability improvement in EUE using enhanced risk modeling (consistent w/ expected contribution during periods of reliability risk) – Allows for substitution of UCAP MW across resource types while maintaining equivalent reliability – Aligns capacity compensation with resources' contribution to reliability	
Capacity Accreditation *(differences)*	• Accreditation is differentiated by season (based on marginal reliability improvement for the respective season)	• Accreditation is determined for the year (based on marginal reliability improvement across the entire year)

Auction Structure

DESIGN COMPONENT	PJM PROPOSAL #1	PJM PROPOSAL #2
Demand Curves	• Seasonal demand curves based on approved VRR curve shapes, parameterized relative to seasonal FPR and reliability requirement – Net CONE (in UCAP) updated to use ELCC factor of reference technology	• Utilized currently approved VRR curve shape anchored around the Reliability Requirement and Net CONE – Net CONE (in UCAP) updated to use ELCC factor of reference technology
Supply	• Three-part offer structure: – Base annual offer component – Summer offer component: incremental summer capacity costs (e.g. seasonal CPQR) – Winter offer component: parallel to summer	• Single-part offer structure (status quo): – Preserving status quo provisions regarding seasonal offers for certain resource types
Market Clearing and Prices	• Least-cost selection among resources given offered (base annual, summer, winter) costs • Two clearing prices (summer and winter)	• Single annual clearing price

Performance Assessments and Testing

DESIGN COMPONENT	PJM PROPOSAL #1	PJM PROPOSAL #2
Daily Commitment Compliance *(both proposals)*	• Daily commitment deficiency penalty assessed for resources that have insufficient UCAP. Daily deficiency rate set at the applicable clearing price ($/MW-day) for the resource plus the greater of ($20/MW-day, or 20% of clearing price) – Based on seasonal clearing price in proposal #1; annual price in proposal #2	
Generator Seasonal Capability Testing *(both proposals)*	• Assesses resources' ability to operate at committed ICAP in both summer and winter seasons. Requires a physical test in both summer and winter, and assesses if the seasonal capability test value meets the committed ICAP for each day in the season. – Daily deficiency rate for testing shortfalls equal to the commitment compliance deficiency rate	
Generator Operational Testing *(both proposals)*	• Allows PJM initiated testing of generators' availability status to better ensure they are capable of operating if & when needed for reliability – Up to 2x in each season (summer and winter), excluding re-tests following a failed test.	

Performance Assessments and Testing (cont'd)

DESIGN COMPONENT	PJM PROPOSAL #1	PJM PROPOSAL #2
Performance Assessment Intervals *(both proposals)*	• Adopts PAI triggers consistent with the recently approved triggers (ER23-1996): focuses assessments on times of greatest reliability risk • Limits pool of resources that get assessed during PAIs to only committed capacity • Balancing ratio updated to account for proposed reforms to assessed resources and excusals to better balance PAI penalty and bonus rates • Approved planned / maintenance outages excused, plus manual dispatch instructions. Online units excused if LMP-desired MW on operating schedule is below capacity commitment. • No option for retroactive replacements • No option for FRR "physical" assessments (financial assessment for all committed capacity) • Allow for a new PAI obligation transfer for market sellers to exchange the financial PAI obligation associated with committed UCAP on a more granular basis (i.e. hourly), to enable sellers to more effectively manage CP risk.	

Market Power Mitigation

DESIGN COMPONENT	PJM PROPOSAL #1	PJM PROPOSAL #2
Must Offer *(both proposals)*	• Status quo rules for capacity must offer requirements (*existing generation with qualified capacity must offer unless they have a categorical or unit-specific exemption*)	
MSOC reforms *(both proposals)*	• Reforms in both proposals include: – Ability for sellers to reflect incremental cost of taking on a capacity obligation, including risks – A standard CPQR calculation as an option – Use of forward E&AS offsets, administrative reforms, etc.	
MSOC components	• Three-part offer structure: – Annual offer component (Net ACR excl. CPQR) – Summer offer component (incremental summer capacity costs (including seasonal CPQR) – Winter offer component: parallel to summer	• Single-part offer structure (status quo plus PJM MSOC enhancements): – Net ACR, floored at zero; plus incremental capacity costs (e.g. CPQR)
Planned Gen *(both proposals)*	• Both packages include improves to mitigation rules for Planned Generation Capacity Resources	

Fixed Resource Requirement (FRR)

DESIGN COMPONENT	PJM PROPOSAL #1	PJM PROPOSAL #2
Seasonal Construct Alignment	• FRR obligations, resource accreditation, commitments, etc. are determined separately for each season.	• Not applicable (remains annual)
Seasonal Transition	• Allow FRR Entities to opt back into RPM ahead of 5-year minimum period ahead of next BRA. • Do not assess seasonal FRR Insufficiency Charges during the 25/26 and 26/27 Delivery Years. Insufficiency Charge will only be assessed for those Delivery Years if the FRR Plan is short of the equivalent annual requirement. FRR Deficiency charges will still be assessed for any shortfalls during the Delivery Year.	• Not applicable (remains annual)
Insufficiency and Deficiency Charges *(both proposals)*	• Update the penalty rate for both insufficiency charges (assessed on shortfalls of preliminary FRR plans) and daily deficiency charges (assessed on final plans during the Delivery Year) to the greater of annual {CONE, or 1.75x Net CONE} (i.e. annual price cap in RPM).	

Cost Allocation / Transition

DESIGN COMPONENT	PJM PROPOSAL #1	PJM PROPOSAL #2
Cost Allocation and Seasonal Transition	• Maintain current cost allocation rules (based on summer peak load) for the 25/26 and 26/27 Delivery Years. Implement seasonal cost allocation (considering summer and winter peak loads) with the 27/28 Delivery Year.	• Not applicable (remains annual)