

Problem/Opportunity Statement

PJM last seriously explored a sub-annual approach to capacity market auctions in 2023. At that time, PJM reaffirmed the need for “near-term achievable improvements to the market’s ability to meet resource adequacy requirements in an efficient, least-cost manner.”¹ The lack of a sub-annual approach to capacity credentialing and procurement results in unnecessary cost increases for PJM ratepayers and simultaneously fails to adequately compensate generators whose units are being underassessed. The need for this reform has only grown in the years since PJM last considered a sub-annual model. Immediate action is necessary to achieve PJM’s core mission of affordability and reliability.

PJM’s Reliability Pricing Model (RPM) Base Residual Auction (BRA) procures resources on an annual basis for an entire delivery year. However, in 2022 and 2023, PJM explored moving to a two-season capacity market auction structure. Independent analyses and information published by PJM as part of that exploration demonstrated that a sub-annual capacity mechanism is preferable to the current annual process. Likewise, PJM’s Independent Market Monitor has also proposed moving to a sub-annual market structure. Other key capacity markets across the U.S., including [MISO](#), [NYISO](#), and [ISO-NE](#), either have or are in the process of designing sub-annual capacity markets due to the benefits of sub-annual markets over annual markets in the evolving energy landscape.

First, according to PJM’s own prior analysis, there has been “a significant shift in the patterns of reliability risk to the winter season, where prior resource adequacy analysis has historically shown almost all risk during summer peaks.” In other words, the risks associated with winter peaks have increased, and winter peak risks are not always correlated with summer peak risks. As a result, procurement of sufficient resources to cover the historic summer peak may no longer provide sufficient reliability year-round. Additionally, a growing proportion of generation resources (both renewable resources like wind and solar and gas thermal generators) exhibit distinct seasonal dynamics. Natural gas electric generators, for example, compete between electricity and heat generation during the winter. PJM has stated that a sub-annual approach to the capacity market auction would be “[m]ore robust to the uncertainty in relative risk patterns between winter and summer,” lowering the risk of grid unreliability.

Second, the magnitude of summer and winter peak loads are different, and the annual capacity auction model inefficiently procures resources to meet peak demand in each season, to the detriment of ratepayers. Independent analyses have found that the current annual approach with seasonal matching elements systematically undervalues certain seasonal resources, such as summer-only demand response, winter-optimized wind and combustion resources, and summer-optimized solar.² As demand grows and new resources come online, the existing seasonal sub-annual mis-accreditation will become more prominent, harming grid reliability and increasing consumer costs. A more comprehensive sub-annual solution, including fully separate seasonal reliability requirements, capacity ratings, and capacity payments could more efficiently procure the type and amount of generation resources actually needed to meet anticipated peak demands at different times of the year.

In 2023, PJM found that “[g]iven these results, the reliability and efficiency benefits in moving to a seasonal design are now greater.” According to PJM, a sub-annual construct “[a]llows for improved market efficiency and price signals for capacity,” “[i]mproves the alignment of system and locational accreditation

¹ PJM, Capacity Market Reform: PJM’s Proposal (2023). <https://www.pjm.com/-/media/DotCom/committees-groups/cifp-ra/2023/20230614/20230614-item-02---pjm-cifp-stage-3-proposal.pdf>

² The Brattle Group, Opportunities to More Efficiently Meet Seasonal Capacity Needs in PJM (2021). https://www.brattle.com/wp-content/uploads/2021/05/13723_opportunities_to_more_efficiently_meet_seasonal_capacity_needs_in_pjm.pdf

of resources” and “[s]olves certain problems with the current annual construct that would need to be addressed given the shift in reliability risk.” Despite these findings, further progress towards a comprehensive sub-annual capacity auction design has not taken place.

This problem statement is offered now to allow sufficient time for any necessary changes to PJM’s capacity auction model to be implemented before December 2026, ensuring they take effect in time for pre-auction activities for the 2030/2031 delivery year. Further delay beyond the 2030/2031 delivery year—given the risks of grid unreliability and inefficient resource procurement described earlier in this document—would be particularly harmful given projections of additional significant load growth and resource constraints.

Background Materials

- The Brattle Group, Opportunities to More Efficiently Meet Seasonal Capacity Needs in PJM (2021). https://www.brattle.com/wp-content/uploads/2021/05/13723_opportunities_to_more_efficiently_meet_seasonal_capacity_needs_in_pjm.pdf
- PJM, Capacity Market Reform: PJM’s Proposal (2023). <https://www.pjm.com/-/media/DotCom/committees-groups/cifp-ra/2023/20230614/20230614-item-02---pjm-cifp-stage-3-proposal.pdf>