

Critical Issue Fast Path – Resource Adequacy

Problem / Opportunity Statement

In 2021 PJM and stakeholders held a series of nine Capacity Market Workshops. The Workshops were initiated to understand the history of the market, including its objectives and performance against those objectives, seek an understanding of transition in the resource mix driven by changes in consumer preference, technology and state/federal policy, and explore potential market design evolution.

On April 6, 2021 the PJM Board issued a [letter](#) to Members noting that the capacity market had delivered significant benefits since its inception, including reliability, affordability for consumers, reduced emissions, investment in innovative demand response and energy efficiency resources, and the facilitation of a smooth transition of a significant amount of coal to natural gas-fueled generation. The letter also listed several capacity market design aspects that should be reviewed in response to the noted transitions in the industry:

- Evaluate all aspects surrounding the appropriate level of capacity procurement
- Examine the need to strengthen the qualification and performance requirements on capacity resources
- Consider clean capacity/energy auctions as an option to allow for procurement of clean resources
- Evaluate the need for PJM's procurement of additional reliability-based services, with a particular focus on reliability needs in the face of the changing resource portfolio and increased penetration of intermittent resource technologies

In the letter the Board also expressed its agreement with the principles articulated by PJM management in the final Capacity Market Workshop as appropriate guides when considering potential changes in market design. Specifically, the capacity market should:

- Function to help support reliability
- Respect and accommodate state resource preferences and facilitate competitive, least-cost procurement of these policy choices
- Be flexible in design, thus ensuring the long-term viability of the market
- Embrace competitive principles and send appropriate price signals for efficient entry and exit
- Ensure appropriate mitigation of market power

The April 6 letter also initiated the Critical Fast Path (CIFP) process to resolve issues associated with the Minimum Offer Price Rule (MOPR).

Following completion of the CIFP addressing the MOPR, the Board issued another [letter](#) to Members on July 7, 2021. In this letter the Board reiterated the importance of all of the issues related to the capacity market as outlined in its April 6 letter, and encouraged stakeholders to promptly address these issues in Phase 2 of these capacity market discussions.

In response, the Markets and Reliability Committee chartered the Resource Adequacy Sr. Task Force (RASTF) in the fall of 2021, and also approved an issue charge to guide the RASTF's work. This [issue charge](#) included ten Key Work Activities (KWAs):

1. Determine whether a forward procurement of clean resource attributes should be pursued, and investigate the inclusion of the Social Cost of Carbon in PJM markets. *[Note this item was completed with the approval of the issue charge initiating the Clean Attribute Procurement Sr. Task Force]*
2. Determine the types of reliability risks and risk drivers to be considered by the capacity market and how they should be accounted for.
3. Determine the desired procurement metric and level to maintain the desired level of reliability.
4. Determine the performance expected from a capacity resource.
5. Determine the qualification and accreditation of capacity resources.
6. Determine the desired obligations of capacity resources.

7. Determine if there are needed enhancements to the capacity procurement process.
8. As applicable, determine any remaining design details for a seasonal capacity market construct not addressed in other KWAs.
9. Determine if supply-side market power mitigation rules in the capacity market need to be enhanced.
10. Determine if the Fixed Resource Requirement (FRR) rules need to be synchronized with any changes made.

Winter Storm Elliott has highlighted the need to address winter risk in KWA 2.

The RASTF has worked diligently on these KWAs in the intervening time.

On February 24, 2023, PJM posted a [paper](#) entitled Energy Transition in PJM: Resource Retirements, Replacements and Risks which brought the following elements into focus:

- The growth rate of electricity demand is likely to continue to increase from electrification coupled with the proliferation of high-demand data centers in the region.
- Thermal generators are retiring at a rapid pace due to government and private sector policies as well as economics.
- Retirements are at risk of outpacing the construction of new resources, due to a combination of industry forces, including siting and supply chain, whose long-term impacts are not fully known.
- PJM's interconnection queue is composed primarily of intermittent and limited-duration resources. Given the operating characteristics of these resources, we need multiple megawatts of these resources to replace 1 MW of thermal generation.

The paper notes that the composition and performance characteristics of the resource mix will ultimately determine PJM's ability to maintain reliability, and that it will be critical that all PJM markets effectively correct imbalances brought on by retirements and load growth by incentivizing investment in new or expanded resources.

The paper also indicates that it is possible that the current pace of new entry will be insufficient to keep up with expected retirements and demand growth by 2030.

The Board issued an additional [letter](#) to Members on February 24, 2023 that addressed the urgency noted in this paper, coupled with other inputs including:

- The 2022 State of Reliability Report issued by the North American Electric Reliability Corporation in July 2022^{1,2};
- The Federal Energy Regulatory Commission's docket on Modernizing Electricity Market Design recognizing operational challenges resulting from a changing supply resource mix and the electrification of load, and the comments filed therein from other grid operators³;

Specifically, the February 24 Board letter noted:

"... the healthy reserve margins PJM enjoys now cannot be taken for granted into the future. Energy policies and market forces already have, and could further expedite, the retirement of existing generation resources faster than new resources are able to come online. PJM's analysis in its recent report, "Energy Transition in PJM: Resource Retirements, Replacements and Risks," indicates that there is up to 40 GW at risk of retirement from economic and policy drivers by 2030. The report also highlights significant uncertainty around the pace of resource additions, which at current completion rates would be inadequate to maintain resource adequacy. The potential also exists for significant load growth in the future, driven by data center additions and electrification of transportation, heating and industry."

Separately the letter noted:

¹ https://www.nerc.com/pa/RAPA/PA/Performance%20Analysis%20DL/NERC_SOR_2022.pdf

² Infographic from 2022 NERC State of Reliability Report – https://www.nerc.com/news/Headlines%20DL/NERC_Infographic_SOR_2022.pdf

³ <https://www.ferc.gov/media/ad21-10-000-0>



Problem/Opportunity Statement

“While PJM currently has a healthy reserve margin, Winter Storm Elliott demonstrated that PJM is not immune to reliability challenges as the system was stressed, even with a reserve margin in excess of the target and a lower level of renewable penetration than other regions.”

Finally, the letter expressed:

“The Resource Adequacy Senior Task Force (RASTF) is another example of the work currently underway and has resulted in additional initiatives ... Notwithstanding the efforts to date, given recent events and analyses, the Board believes near-term changes to the Reliability Pricing Model (RPM) are necessary to ensure that PJM can maintain resource adequacy into the future. The Board also continues to value robust stakeholder review, input and challenge to help solve complex problems such as this.”

This CIFP process is implemented to accomplish these directives of the Board.