

August 18, 2023

The undersigned companies (“Clean Energy Companies”) appreciate this opportunity to address the PJM Board regarding the capacity market reforms being discussed in PJM’s Critical Issue Fast Path – Resource Adequacy (“CIFP-RA”) process. Earlier this year, the Board acknowledged that reserve margins in PJM will likely decline due to increased retirements, demand growth, and changes to the generation mix. Winter Storm Elliott also emphasized the need to address emerging reliability threats like weather-correlated outages of thermal units during extreme cold weather events. We applaud the Board’s leadership for starting the CIFP-RA initiative and PJM staff’s efforts to craft solutions to address these critical issues under a constrained timeline in the CIFP-RA.

We are writing to express support for what we understand to be the main PJM package and to provide the Board with additional insight into the view of some stakeholders regarding adopting a so-called sub-annual or seasonal capacity market. PJM staff’s seasonal market design provides a potentially workable framework to transition towards a sub-annual construct. However, many essential features of this market remain undefined or poorly understood primarily due to the highly compressed timeline for this effort. It is critical to get these features right to ensure that the new market is investable and durable over the long term. We support an orderly transition to a seasonal capacity model that begins with a well-curated filing with FERC in October. As explained further below, many stakeholders are supportive of the idea of a seasonal capacity market but believe that more work needs to be done to develop this construct for it to be successfully implemented.

The Clean Energy Companies applaud PJM for including several important design features in its main package, including a must offer exemption for intermittent resources and a uniform accreditation method for all generators.

Intermittent resources face a different risk profile than conventional generators by their operating profiles. While coupling battery storage with renewable generators can close some of this gap, PJM’s markets currently do not adequately value the reliability benefits that storage can provide. At the same time, PJM staff’s proposal retains the Capacity Performance penalty regime that can expose these market participants to undue financial harm during events like Winter Storm Elliott. The must offer exemption for renewables allows resources not technically capable of operating during all hours of the day to reduce their risk of non-performance by not requiring them to offer their full accreditation into the market. In turn, this improves reliability by decreasing PJM’s reliance on megawatts to perform during times they cannot feasibly provide capacity and prevents load from paying for capacity that may not exist when they need it. Time-of-day markets, as discussed below, obviate the need for the must offer as they only commit resources for times they are technically capable of performing.

PJM’s proposed new accreditation method for thermal generators will now account for so-called common mode outages—when many resources go offline for the same reason—such as natural gas supply shortfalls. Such outages, like those experienced during recent extreme winter storms, are arguably one of the greatest reliability threats facing PJM. In addition, PJM has made several other changes that appropriately shift the focus of its planning and operations from meeting summer peak load to addressing

winter reliability challenges and the duration of outages, i.e., using Expected Unserved Energy (EUE). Transitioning to an EUE reliability metric that appropriately shifts the focus of its planning and operations from meeting summer peak load to addressing winter reliability challenges and the duration of outages is also an essential feature of the market design that the Board should maintain going forward. As a result of these design features being included in PJM's package, several companies withdrew their own packages from consideration with confidence that the Board would accept PJM's recommendations on these issues.

The Clean Energy Companies support a transition to a seasonal market as a step towards a more granular market with daily intervals, but caution against implementing a two-season market for the 2025/26 BRA to ensure the approach is fully analyzed and vetted prior to implementation.

The seasonal construct introduced by PJM is not yet ready for implementation and requires further discussion and analysis. A two-season market would be an improvement over PJM's current annual construct: PJM would be able to better identify and manage the different types of risk it faces in summer and winter; consumers would save money through more optimal allocation of capacity revenues; and generators would be able to determine where to make investments to provide or improve resource adequacy. While a shift from an annual to a more granular market is necessary, system operators and market participants need time to understand new rules and learn from initial experiences. As such, it is crucial that PJM and market participants fully understand the mechanics of the seasonal market and how it impacts other systems, including energy markets and operations throughout the delivery year. In addition, issues identified in the Board's February 24 letter will take place over the next decade and the market will need to stay in lockstep with this transition. For these reasons, we recommend a phased approach to implementing a seasonal market and, eventually, a more granular time-of-day market.

The Clean Energy Companies recommend the Board direct PJM to initiate a second CIFP-RA process to implement a phased approach to a more granular market structure, and that any changes should first be tested in a sandbox environment.

The ultimate objective of a second CIFP is to comprehensively assess, refine, and execute a functional seasonal market that includes a time-of-day component with a deadline for completion. The first implementation phase involves transitioning from the existing annual market to a co-optimized two-season capacity market as proposed by PJM with distinct summer and winter periods. The Board should instruct PJM to first adopt this market design in a sandbox environment that runs parallel to the annual auction as to not further disrupt the auction schedule. California's CPUC is using the sandbox method to implement its slice-of-day capacity construct where market participants will test run the new paradigm in a secure environment in 2024 before the new construct goes live in 2025.¹ A sandbox would allow PJM to continue securing resource adequacy for a delivery year while simultaneously providing PJM and stakeholders time to run through the mechanics of the seasonal market and fully understand how it impacts the rest of the PJM's systems.

¹ California Public Utilities Commission, Rulemaking 21-01-003, Decision 23-04-010, , April 2023, "DECISION ON PHASE 2 OF THE RESOURCE ADEQUACY REFORM TRACK," Section 5.9 -Test Year Mechanics.

The Clean Energy Companies believe a time-of-day market would lead to a more efficient outcome that dynamically procures and prices capacity based on the times of the year when capacity is needed most.

Concurrent with implementation of this seasonal market, PJM should continue to develop more granular concepts that add additional daily intervals and additional seasons. Creating a market that builds upon the foundation of the Reliability Pricing Model (“RPM”) and incorporates granular time-of-day prices can attract new resources, add cutting-edge technologies, and send a price signal to develop innovative future solutions that can provide capacity during the intervals when the market needs it most. With more granular price signals, investors and technology developers can effectively make informed decisions about what technology attributes are needed and when. Of critical importance, a more granular capacity market (including intra-day and seasonal price shapes) will also generate capacity prices that better reflect the economic value of non-traditional resources, and thus, will attract significant new entry for resources that may not be able to economically enter the annual market today due to the risks associated with 24-hour must offer requirements.

One such concept put forward in the Capacity Coalition 2 proposal uses a time-of-day market with four-seasons (Summer, Fall, Winter, and Spring) with four time-of-day intervals (On-peak, Off-peak, morning ramp, and evening ramp). Each hour of the day would be grouped into intervals that have similar demand and supply characteristics for each season. From a supply perspective, the granular design allows the market to better reflect the resource capacity of the expanding intermittent resources that are replacing both retiring generation combined with new load growth and identifies the intervals when PJM may need additional capacity. On the demand side, by breaking down each season into multiple time-of-day intervals, such as on-peak and off-peak hours, the market design captures the intricacies of demand patterns combined with weather and correlated generator performance within each day and market pricing supply and demand needs. The Capacity Coalition 2 recommends a phased approach to transitioning to a seasonal, time-of-day model and targets the 2030/2031 Base Residual Auction as the first year that procures capacity for 4 seasons with 4 time-of-day intervals. Other stakeholders including the IMM have also proposed more granular concepts that should be refined and discussed by stakeholders during this phase of a second CIFP-RA.

Thank you for your time and consideration.

Respectfully,

Leeward Renewable Energy, LLC

AES Clean Energy Development, LLC

Pine Gate Renewables, LLC

Cypress Creek Renewables