August 18, 2023

To: Dave Anders & Jaclynn Lukach, PJM Interconnection LLC
Subject: Resource Adequacy Critical Issue Fast Path

The Institute for Policy Integrity at New York University School of Law[1] respectfully submits these comments to PJM regarding the Resource Adequacy Critical Issue Fast Path.[2] Policy Integrity is a nonpartisan think tank dedicated to improving the quality of government decisionmaking through advocacy and scholarship in the fields of administrative law, economics, and public policy. Policy Integrity has expertise in capacity markets, including PJM's Reliability Pricing Model.[3]

Efficient investment in generation resources requires the efficient pricing of resources' contributions to reliability, which requires setting a reliability target and accrediting capacity resources in a manner that reflects supply- and demand-side uncertainties as accurately as possible. We therefore make the following observations on this round of capacity market reform in PJM:

- PJM's proposed seasonal capacity market design (the Seasonal Proposal) is likely to improve cost-effectiveness relative to the proposed annual design (the Annual Proposal) by allowing certain parameters to reflect seasonal fluctuations in supply and demand.
- Regardless of which design is selected, PJM's proposed refinements of the reliability standard and its Effective Load Carrying Capability analysis would also help to ensure that parameters reflect supply- and demand-side uncertainty.

PJM's Seasonal Proposal Is Likely to Improve Cost-Effectiveness Relative to the Status Quo

PJM determines reliability targets and accreditation using administratively set parameters. These include: (1) the Forecast Pool Requirement (FPR)—which results in an aggregate unforced capacity (UCAP) value needed to achieve the reliability standard when multiplied by peak load forecasts; (2) the Variable Resource Requirement (VRR) curve—the demand curve used to clear the capacity market auction, calibrated in part by the FPR; and (3) accreditation values (denominated in UCAP) associated with different capacity resources.[4]

Accurately setting the values of these parameters requires assessing the system's reliability needs as well as demand- and supply-side uncertainties. Supply and demand, while uncertain due to myriad factors including weather, do follow seasonal patterns. Accordingly, to the extent that market design parameters accurately reflect seasonal patterns, the parameters would better capture some of the uncertainties surrounding supply and demand. In turn, capturing these uncertainties would benefit consumers by ensuring reliability at lowest cost. In contrast, the

[1] This document does not purport to represent the views, if any, of New York University School of Law.
[2] *See* Letter from Mark Takahashi, Chair, PJM Board of Managers, to PJM Stakeholders (Feb. 24, 2023).
[3] *See, e.g.*, Inst. for Pol'y Integrity, Comments to FERC on PJM MOPR Reform (Aug. 20, 2021), https://perma.cc/N5Z5-S4CX.
[4] PJM CAPACITY MARKET & DEMAND RESPONSE OPERATIONS, PJM MANUAL 18: PJM CAPACITY MARKET §§ 2.1, 3.1 (2023).

current system's reliance on an annual FPR, VRR curve, and accreditation values does not ensure reliability as accurately throughout the year.

Consider an extreme but simple example of a "summer resource" that can offer 0.75 MW of dispatchable capacity in the summer and 0.25 MW in the winter. Viewed annually, the summer resource would have a reliability value equal to 0.5 UCAP (its average capacity value over the course of the year, assuming the seasons are equal in duration). Suppose there were peak demand of one MW in both the summer and winter, resulting in a UCAP target of one MW UCAP for the year (ignoring, for the purpose of the example, a reserve margin requirement). A system made up only of two units of the summer resource would satisfy this UCAP target—but would not meet demand in the winter. By setting seasonal UCAP targets with seasonal accreditation of capacity resources, the system operator could ensure reliability in both seasons.

To address this potential seasonal-bias problem, current market rules require a resource bidding for a single season to be matched with a resource from the other season for either of them to clear the capacity market.[5] PJM's Seasonal Proposal (or a future seasonal design)—by allowing the FPR and VRR curve to vary by season, using seasonal accreditation values for resources, and setting qualification requirements that "allow for resources that qualify for only a single season[] to participate on a standalone basis in that season"[6]—would encourage a more flexible approach to capacity market participation likely to strengthen reliability in a cost-effective manner. The proposed change would obviate the need to match summer and winter resources while still avoiding the seasonal-bias problem. Because summer resources would no longer need to be paired with their winter complements (and vice versa) to clear the capacity market, the proposed change is less restrictive and likely to lead to more available supply and a lower cost of achieving reliability.[7] These changes would help ensure that the lowest-cost mix of resources necessary to ensure reliability in each season clear the capacity market.

PJM's Proposed Adoption of EUE and Improved Accreditation in Both Proposals Are Likely to Improve Cost-Effectiveness Relative to the Status Quo

In both proposals, PJM's proposed adoption of Expected Unserved Energy (EUE) as its reliability criterion would improve the accuracy with which reliability goals are set, thereby improving the cost-effectiveness of its capacity market. Under the existing system, the reliability standard is defined as one day or fewer in ten years in which there is an outage event. However, it is well recognized that this "one-in-ten" criterion focuses only on the frequency of lost-load events and is thus agnostic to the *duration* and *magnitude* of lost load events.[8] A shortage on a given day would be regarded the same under the 1-in-10 criterion whether it is one MWh or one thousand MWh. The EUE criterion, in contrast, depends on both the magnitude and duration of

[5] *Id.* at 16.
[6] PJM INTERCONNECTION, OVERVIEW OF PJM PROPOSALS: CIFP RESOURCE ADEQUACY PRESENTATION 6 (2023), https://perma.cc/7FMN-YSPP.
[7] For a discussion of seasonality in capacity market design and aggregation rules, *see* Sylwia Bialek & Burçin Ünel, *Will you be there for me the whole time? On the importance of obligation periods in design of capacity markets,* 32 ELEC. J. 21, 22–23 (2019).
[8] PATRICIO ROCHA GARRIDO, PJM INTERCONNECTION, EDUCATION: OTHER RESOURCE ADEQUACY RELIABILITY METRICS 2–5 (2022), https://perma.cc/5R4P-ZN46.

expected lost load events.[9] Using EUE therefore allows a more careful calibration of the system's reliability.

Further, PJM's proposed refinement (in both proposals) of its Effective Load Carrying Capability (ELCC) analysis and assessment of supply-side availability risks for all resources would also improve the efficiency of its capacity market. These improvements are designed to more accurately incorporate uncertainty that arises throughout the year, including seasonal and other temporal load patterns.

To the extent possible, PJM should continue its efforts to ensure that all parameters appropriately reflect uncertainty as accurately as possible—regardless of whether these parameters are ultimately expressed in seasonal or annual terms.

Respectfully,

Christopher Holt
Christoph Graf
Matthew Lifson

chris.holt@nyu.edu

[9] For example, an expected shortage of 100 MWh for 3 hours of the year would result in 300 MWh EUE. An expected shortage of 300 MWh for 1 hour would also result in 300 MWh EUE. While these two scenarios result in the same EUE, they are both the product of the magnitude and the duration of the expected lost-load events.