



DATE: August 18, 2023
TO: RASTF/CIFP
FROM: IMM
SUBJECT: Comments on PJM's CIFP Proposals

This memo provides IMM comments on the PJM CIFP proposal.

PJM's seasonal proposal, which would be a dramatic change to the market design, was advanced only in recent months, and there has not been adequate time for development, documentation, testing or review. PJM's seasonal proposal should not be proposed to FERC or implemented, regardless of agreement or disagreements with the concepts, prior to the BRA for the 2027/2028 delivery year. The IMM does not provide detailed comments on the PJM seasonal proposal here because the proposal has not been documented and is not ready for implementation.

PJM's annual proposal, while not including most of the seasonal proposal, does include some common elements. There are a number of positive elements in the PJM proposal that should be implemented and that do not require stakeholder or regulatory approval. There are also a number of negative elements in the PJM proposal that should be rejected.

The positive elements in the PJM proposal are primarily about improved analysis of reliability. These include: hourly modeling in resource adequacy studies and temperature based correlated forced outages. PJM proposes improved testing protocols including required winter testing. PJM proposes moving to the EUE metric for reliability in place of the LOLE. PJM proposes to apply the same reliability standards to FRR entities as to resources that are in the PJM RPM market.

The negative elements in the PJM proposal include the continued use of PAI logic and high penalty rates, the continued use of ELCC but based on marginal ELCC, use of average summer and winter ELCC derating values, a proposed reduction in the target reliability requirement through a left shift of the VRR curve, a proposal to create a new financial market related to unit obligations to generate ("PAI obligation transfer"), a proposal to continue to exempt intermittent capacity resources from the must offer obligation in the capacity market, and changes to the market seller offer cap (MSOC).

PJM's proposed changes to the status quo include: improved testing; improved reliability analysis; marginal ELCC in place of average ELCC; average seasonal ELCC values in place of summer ELCC values; creation of a new financial market related to PAI risk; a left and up shifted average VRR curve in place of a VRR curve based on summer reliability; increasing the market seller offer cap by excluding CPQR from the definition of net ACR.

PJM proposes to continue to use the PAI logic that incorporates extremely high penalties that are likely to be imposed only on an infrequent and hard to predict basis despite the clear failure of the PAI logic to produce the intended results during Winter Storm Elliott. The IMM helped develop the modified PAI triggers, but the more targeted PAI triggers do not change the basic dynamic, and do not eliminate the fact that PAI events will be infrequent, hard to predict, with extremely high penalties, without clear rules on exports, and that it will continue to be hard for generators to understand their obligations in real time. The PAI model, as seen during Elliott, is a recipe for confusion, dislocation and litigation. It is not a stable, ongoing, predictable set of incentives designed to help ensure that resources are available when expected.

PJM's approach to ELCC is based on correct insights about the need to calculate the availability of different resource types but the actual and proposed implementation ends up with a set of illogical implications that then require significant changes in the market design to accommodate. Rather than accepting the illogical implications and modifying basic elements of the fundamental capacity market design to accommodate those illogical implications, PJM needs to rethink the ELCC model that produces illogical results and continue its progress towards a full hourly model that explicitly accounts for unit availability, including correlated outages.

PJM has stated that when a solar resource is assigned a derating factor, the derated MW are equivalent to a perfect resource accredited at that MW level. PJM assigned penalties to solar resources during Elliott when they did not generate power after dark. This is clearly not correct and illustrates the flaws in the ELCC logic compared to hourly availability. The solar resource is available for sunny hours and not for unsunny hours. A solar resource is not expected to generate at night and should not face penalties for failing to do what it obviously cannot. ELCC does not convert intermittent resources, or any resource, into a perfect resource, or even the equivalent of a perfect resource.

The ELCC approach leads PJM to draw the conclusion, based on this illogical result, that solar resources and other intermittent resources should therefore not have a must offer obligation because a must offer obligation would require resources to take on the illogical obligation to produce when they cannot. PJM could appropriately recognize the core must offer obligation of all capacity resources to offer in the capacity market if the ELCC approach evolved to an hourly availability approach. The capacity market design, from its inception and from long before the PJM markets were created, has recognized the must buy, must offer logic. All customers are required to buy capacity equal to forecast load plus a reserve margin and all capacity resources, using scarce CIRs, are obligated to offer their full capacity.

The purpose of the must offer rule, which has been in place since the beginning of the capacity market in 1999, and was in place before the PJM markets were established, is to ensure that the capacity market works based on the inclusion of all demand and all supply,

and to prevent the exercise of market power via withholding of supply. The purpose of the must offer requirement is also to ensure equal access to the transmission system through CIRs (capacity interconnection rights). If a resource has CIRs but fails to use them by not offering in the capacity market, the resource is withholding and is also denying the opportunity to offer to other resources that would use the CIRs. For these reasons, existing resources are required to return CIRs to the market within one year after retirement. The same logic should be applied to intermittent and storage resources. The failure to apply the must offer requirement will create increasingly significant market design issues and market power issues in the capacity market as the level of capacity from intermittent and storage resources increases. The failure to apply the must offer requirement consistently could also result in very significant changes in supply from auction to auction which would create price volatility and uncertainty in the capacity market and put PJM's reliability margin at risk. The capacity market was designed on the basis of a must buy requirement for load and a corresponding must offer requirement for capacity resources. The capacity market can work only if both are enforced.

The ELCC approach also leads PJM to draw the conclusion that a new financial market must be created by PJM to permit intermittent resources to manage the illogical risk imposed on intermittent resources by PJM's ELCC implementation. In addition to the fact that this proposed new market would allow intermittent resources to sell the same obligation to perform twice, the entire approach would be unnecessary if the ELCC approach evolved to an hourly availability approach. There is no risk of a solar resource not producing at night if PJM's ELCC approach did not create it. It is not an actual risk that needs to be managed. The entire approach would also be unnecessary in the absence of the PAI logic and the extreme penalties that are part of it, particularly when applied to solar resources for not producing at night. Regardless, PJM should not be in the business of creating financial markets; private markets can handle any actual issue if there were one. As clearly recognized in the lengthy stakeholder process related to defining the required level of CIRs for intermittent resources, intermittent resources have an obligation to produce at their full output level (equal to the required CIR level) whenever they can. That is the basis for the derated ELCC value; a range of outputs from zero to full output, depending on actual solar radiance or wind speed. Intermittent resources are already obligated to produce at maximum, above the derated value, when they can. That output is already committed and cannot be sold again.

PJM's ELCC approach is an ex ante determination of the accredited value of resource classes. The ex ante approach cannot address the actual level of reliability that will result from the actual resources that clear in the capacity market auction, including their availability characteristics. This is a significant flaw in PJM's approach to risk modeling.

The definition of a competitive offer is the marginal cost of capacity, net ACR, where ACR includes an explicit accounting for the costs of mitigating risk, including the risk associated

with capacity market nonperformance, and the relevant avoidable costs of acquiring fuel, including natural gas. CPQR is part of gross ACR and is subject to offset by net revenues from the energy and ancillary services markets. No change to the definition of CPQR is needed. PJM's proposal that CPQR not be offset by net energy and ancillary service revenues is inconsistent with the basic PJM capacity market design. CPQR is a cost like any other and can be covered by energy and ancillary services revenues.

The missing money logic means that the role of the capacity market is to provide revenue that is not provided through the energy and ancillary services markets. The metric for missing money is gross avoidable costs, ACR. If net revenue from the energy and ancillary services markets covers or more than covers gross ACR, then the competitive offer for that resource in the capacity market is zero. There is no missing money for that resource in that case. The resource could still receive capacity market revenue if the competitive offers of other resources results in a positive capacity market price. PJM's proposed approach ignores this basic capacity market logic and assigns special properties to the cost of mitigating risk (CPQR). If a resource had gross ACR of \$150 per MW-day, including CPQR of \$10 per MW-day, and energy market net revenues of \$200 per MW-day, PJM would define its acceptable offer to be \$10 per MW-day when the competitive offer is clearly zero. The same would be true, regardless of how high the energy market net revenues were. The energy market net revenues could never be high enough to offset the CPQR. This is illogical. This is inconsistent with the premise of the capacity market. This could result in significant price increases in the capacity market if the CPQR levels approved by PJM were \$100 per MW-day.

The experience of Winter Storm Elliott and the associated penalties changed the calculation of the CPQR risk mitigation component of the ACR offer caps. Incorporating the Elliott data in the history used to calculate an appropriate CPQR led to very large CPQR values for some poorly performing resources. Correctly calculated maximum CPQR values increased from less than \$10 per MW-day to about \$50 per MW-day while some participants proposed CPQR values in excess of \$100 per MW-day. This impact illustrates the circular logic of the CP model. The CP model creates arbitrarily high penalty rates which affect CPQR which increase the ACR market seller offer caps. The risk is created by the CP model and then the cost to mitigate that risk is compensated within the CP model. Under the SCM approach, the arbitrarily and extreme penalties would be eliminated and therefore the impact on CPQR and the impact on capacity market clearing prices would be eliminated. There would continue to be risk and there would continue to be a cost to mitigate that risk, but the risk would be fundamental to the operation of the market rather than based on an assumption about the correct clearing price.

There is nothing wrong with the definition or implementation of the MSOC. Capacity prices are not suppressed by the MSOC. There is no reason for any resource to make noncompetitive offers. The PJM capacity market does not require the exercise of market power in order to

result in prices that reflect supply and demand fundamentals. When expected energy market revenues are high, capacity market prices will be low. When expected energy market revenues are low, capacity market prices will be higher.

PJM also proposes a significant change in the process for the review of MSOCs. PJM would make PJM the primary reviewer and decision maker in the review of the MSOCs. PJM's proposal would significantly diminish the role of the MMU in reviewing proposed MSOCs and making market power determinations. Under the status quo, if there is a disagreement, both the market seller and the MMU submit proposed MSOC values to PJM. PJM must choose between the two proposals and cannot negotiate with the seller or calculate an MSOC value. The seller and the MMU can continue to discuss differences, exchange additional data and come to an agreement about the appropriate MSOC. FERC has the final decision making authority if a disagreement remains and PJM selects one option. PJM's proposal would inappropriately substitute PJM for the MMU in making decisions about market power.