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Re: Comments from NRDC on proposed capacity market reforms

NRDC appreciates the opportunity to comment on proposals for capacity market reform. NRDC supports the directives set out in the Board's February 24, 2023 letter. Failure to properly account for the risks created by poor generator performance during emergencies is the most pressing reliability concern in PJM and has the potential for catastrophic consequences if unaddressed.

Proper resource accreditation is vital to the energy transition. Accurate accreditation allows clean resources to replace fossil resources to the maximum extent consistent with reliability, but no more. In conjunction with good market design, it helps send price signals that retain and attract power plants as needed for reliability, but not in excess.

PJM's proposed accreditation corrects current reliability shortfalls

As Elliott and the Polar Vortex demonstrated, RPM has not kept pace with the risks introduced by the transition to natural gas as a dominant fuel. All analysis presented during the CIFP shows that PJM faces significant winter risk not currently addressed in RPM, and that fossil plants, especially gas-fired ones, are given capacity values well in excess of their actual reliability contribution. This over-accreditation of gas units endangers reliability both directly and through the long-term effects of distorting market outcomes. PJM's proposal to improve modeling and move to ELCC based accreditation for all resource types corrects this problem, and the Board should endorse this approach.

However, questions remain on the accuracy of PJM's modeling, which continues to evolve. We believe that enhanced transparency around PJM's modeling will both ensure correct results and increase confidence in the market. Interested stakeholders should be able to reproduce PJM's modeling results, and so we ask the Board to open source the data and tools used by PJM.

PJM has not addressed market changes needed to implement ELCC

While we fully support PJM's proposal to use ELCC for all resources, there are several important market design issues that we believe PJM has not given due consideration.

- ***Supply obligations.*** PJM proposes to retain the current structure where resources are obligated to be available to provide their UCAP at all times. This is a poor match with ELCC, where many resources are expected to produce more or less than their UCAP at any particular time. For example, solar is currently expected to be outputting around double its UCAP during summer afternoons; four-hour storage is expected to be able to deliver around 133% of its UCAP during those four hours, and so on. **This makes PJM's proposal inconsistent with a reliable system: under PJM's proposal it is entirely**

possible for PJM to have to shed load even though all capacity suppliers fully meet their obligations. The Board should find this unacceptable.

Conversely, it is possible for resources to be penalized for limitations that are already fully accounted for in their accreditation, e.g., solar at night, or a four-hour battery in hour five of an emergency. PJM tacitly acknowledges this problem by exempting those resources from the capacity must-offer obligation. However, as renewables and storage increase, the must-offer exception will become increasingly untenable. For the sake of reliability and markets, PJM must develop an obligation and penalty structure consistent with ELCC.

- *Equitable distribution of capacity obligation reductions.* PJM proposes to implement marginal ELCC, where each resource class is accredited at the incremental reliability contribution of the last MW of that class. Because most resources' ELCC declines with increasing installations, this means that the total accredited value of each resource class will be less than that classes' actual resource adequacy contribution. To balance this, capacity requirements are correspondingly reduced.¹

This raises important benefit allocation issues. Since much of the value of many resources will be reflected in reduced capacity obligations, it is critical to determine whose capacity obligation will be reduced. PJM's current proposal appears to simply allocate the reduction RTO wide; NRDC is concerned that this results in the benefits of state-supported clean energy resources being allocated to other states that did not pay for them.² Similarly, a LSE or self-serving customer who procures sufficient clean energy to meet its load 8760 hours per year will still have a capacity obligation as the benefits of its purchases are socialized. We are also unclear if PJM's approach is consistent with transmission constraints.

- *Accurate auction results.* If the resource mix that clears an auction is different than that assumed in ELCC modeling, the ELCC values will be incorrect. This opens the door to situations similar to recent results in DPL-S, where auction results are inconsistent with reliability and economics. To avoid this, the Board should include a safety valve provision enabling PJM to iterate modeling and auction clearing as necessary to ensure modeled and actual ELCC values are reasonably consistent.

¹ See, e.g., PJM's [August 14th analysis](#), p9, showing that under the new rules, both the reliability requirement and cleared UCAP decrease even as cleared ICAP increases.

² Marginal ELCC has only been implemented so far in NYISO, where interstate equity issues do not arise.

Accreditation should include more detailed consideration of fuel supply and unit parameters

PJM proposes to rely on unit-specific adjustments to account for the effects of fuel supply arrangements. NRDC believes this approach is inadequate, and PJM should instead reflect fuel supply directly in the ELCC model. Fuel supply directly affected resources' availability during Elliott. Generators added to oversubscribed pipelines bring little reliability value. Incorporating these and other fuel supply factors into accreditation is necessary to correctly measure resources' resource adequacy value. The rarity of emergency events makes it difficult for unit-specific adjustments to capture these effects.

Besides the obvious reliability implications, failing to account for fuel supply at a granular level obscures price signals that should drive decisions to invest in dual fuel or other winter reliability, allow market competition between gas and other winter resources, or signal need for infrastructure investments.

Similar concerns apply to unit parameters. Resources that are too slow to respond to rapidly evolving emergencies bring less reliability value. This includes both resources that have physical limitations, and resources that can not respond due to gas nomination schedules. PJM's proposal does not consider these issues in accreditation, ignoring what can be a significant resource adequacy risk³ and in effect passing it on to load.

PJM should move to a seasonal market

PJM has correctly identified the need to move to a seasonal market. Load, supply, and transmission constraints all are different across seasons, A seasonal market can ensure that PJM maintains reliability at least cost by more accurately meeting system needs. PJM staff analysis found that a seasonal market improved reliability with no impact on costs, and would send a strong price signal on the value of summer vs winter capacity.

We acknowledge that the rapid evolution of PJM's seasonal proposals has made it difficult for some stakeholders to support them. NRDC takes no position on if PJM should implement a seasonal market now or later, but we recommend that if PJM does not include a seasonal market in the current round of changes, it should commit to developing one expeditiously.

We appreciate the Board's attention to these vital issues and would like to express our appreciation for the effort PJM staff have made running the intensive stakeholder process supporting this effort.

Sincerely,

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³ For example, in the December 24, 2022 emergency event in ISO-NE, 30% of their committed capacity was unavailable due to start times.