

**Comments of the Renewable Generation Coalition**  
**Regarding the PJM Capacity Performance Updated Proposal**

**I. Introduction**

The Renewable Generation Coalition (“Coalition”) appreciates the opportunity to submit comments on behalf of its members to PJM and the PJM Board on the PJM Capacity Performance Updated Proposal (“PJM Proposal”). This Coalition includes PJM members and other entities that are generally aligned with the interests of renewable generation, including the infrastructure and policy necessary to support renewable generation. As such, our comments will primarily focus on those aspects of the PJM Proposal that affect renewable generation.

**II. Summary**

The Coalition would like to thank PJM for responding to stakeholder input and making improvements to the original Capacity Performance Proposal. The PJM Proposal removes some barriers to entry for renewable generation, but is only a partial move toward i) valuing the capacity benefits renewable generation provides to the system and ii) not creating significant and likely unintended harm to the renewable industry.

The Coalition feels the rules proposed are too rigid and an over-reaction to last winter’s events and if not adjusted, they will have significant unintended consequences for renewable investments. Billions of dollars were invested into gigawatts of wind and solar based on expectation that these resources would receive capacity revenues based on a probabilistic methodology (i.e., tied to performance during a fixed and known period of time). The shift to Capacity Performance will significantly diminish those revenue streams for renewables --- creating harm where maybe it was not intended.

Due to environmental regulations like the Clean Power Plan and state renewable portfolio standards, renewable generation will continue to be an important component of the PJM resource mix. Given the potential for significant growth in renewable generation, along with its current penetration, this Coalition believes that ensuring renewable generation is able to participate and receive revenue from the PJM RPM is integral to meeting the reliability needs of the PJM system in a least-cost, efficient manner.

While we appreciate the quantity and intensity of work that has gone into developing this proposal, the accelerated timeline for development, filing and implementation is insufficient to fully understand and vet the impact on renewable generation from such a significant change in market rules. We are broadly concerned that the design of this plan will not fully reflect the contribution to reliability provided by wind and solar generation. Effective Load Carrying Capability figures calculated in PJM’s recent [Renewable Integration Study \(PRIS\)](#)

indicate that significant generation adequacy value is provided by wind and solar in varying configurations. These numbers for solar ranged from 55% to 66% of nameplate capacity, and 14% to 29% for wind. PJM has also reported that the wind generation performance during the polar vortex was well in excess of the capacity values expected and compensated in the existing RPM construct. Specifically, PJM wind output exceeded 2,800 MW (47% of total wind nameplate capacity of 5,907 MW<sup>1</sup>) during the peak demand hours on January 6, 2014, and 1,500 MW (25% of nameplate capacity) during the peak demand hours on January 7, the two days on which PJM experienced the most critical generation shortages in recent experience.<sup>2</sup> We believe that the proposed capacity market will not provide reasonable rates to consumers or appropriate compensation to renewable generation without further revisions that recognize the real contributions of wind and solar to meeting system capacity needs.

That said, the Coalition's comments are broadly categorized into the following four areas:

- 1) Protect capacity already cleared in any Base Residual Auction ("BRA")
- 2) Make certain the RPM construct appropriately values renewable generation
- 3) Allow renewable generation to couple with complementary forms of capacity to harness seasonal attributes to provide a single, annual Capacity Performance product
- 4) Ensure the rules allow for the participation of existing and build of new renewable generation

### **III. Protect capacity already cleared in any Base Residual Auction ("BRA")**

Offers for capacity from Capacity Market Sellers are based on the rules and requirements that are in place when a given auction is conducted. As such, Capacity Market Sellers must be assured that the rules and requirements for the capacity product will remain intact through the Delivery Year for which they were procured. The Coalition recognizes the importance of maintaining reliability for all Delivery Years, but also wants to ensure that capacity that has already cleared in a BRA is not harmed by the introduction of new rules or additional incremental auctions that may occur as a result of the PJM Proposal. While the PJM Proposal and related FAQ responses appear to provide such protection, the Coalition considers this of great importance and would like to see specific provisions of the final proposal that explicitly state that the rules for capacity already cleared in any BRA will not change.

In addition, for those Delivery Years in which a BRA has already been conducted, the Coalition proposes that Capacity Market Sellers retain the choice to offer Capacity

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<sup>1</sup> PJM wind nameplate capacity totaled 5,907 MW in January 2014 <http://www.pjm.com/~media/committees-groups/task-forces/irtf/20140721/20140721-item-05-wind-report.ashx>

<sup>2</sup> Wind output data available at <http://www.pjm.com/markets-and-operations/ops-analysis.aspx>, load data available at <http://www.pjm.com/markets-and-operations/energy/real-time/loadhryr.aspx>

Performance. For these delivery years, there should be no Capacity Performance must-offer requirement and to the extent Capacity Performance allows for the appropriate valuation of renewable generation, the rules for the Transition Auction Mechanism should be structured in such a way as to allow the participation of renewable generation.

#### **IV. Make certain the RPM construct appropriately values renewable generation**

Based on the PJM Proposal, renewable industry will be unable to meaningfully participate in Capacity Performance due to its inherent intermittent nature and the significant risk associated with Hourly Non-Performance Penalties. Billions of dollars of investment have been made (and billions more are in the planning/execution stages) based on an expectation that solar and wind generation will receive their expected capacity revenues over the long-term. Those investments are now at risk. However, the Coalition understands PJM's reliability goals and that the market should ultimately transition to being 100 percent Capacity Performance product. The Coalition believes that it is important to ensure the Capacity Performance rules allow for the participation of renewable generation and have rules and incentives that allow owners of such generation to be able to manage the risk associated with Capacity Performance and receive credit for the reliability benefits it provides.

##### **a. Utilize a Probabilistic Approach for Intermittent Resources**

PJM has traditionally taken a probabilistic approach to evaluating intermittent resources for capacity (as it does with much of the overall system design) and moving away from that approach will be a damaging set-back to the renewable industry and the overall rate-base.

In order to allow intermittent resources to help PJM meet the reliability needs while also recognizing the inherent nature of intermittent resources, the Coalition proposes integrating a set of performance measurement rules for wind and solar generation that are similar to how intermittent resources are currently treated in RPM - See Manual 21, Appendix B. Intermittent Resources should be subject to the same penalty prices as the rest of the market; however, instead of measuring performance during the proposed Hot and Cold Weather Alert days, the measurement would be probabilistic and based on the peak period of capacity contribution. As an example, the measurement period for solar could be made consistent with the existing rules (i.e., based on average of June through August peak hours over three calendar years. See Manual 21).

##### **b. Penalties for under-performers and payment for over-performers**

In addition to the Coalition proposal outlined in the prior section, the Coalition feels the PJM Proposal contains other elements that cause a misalignment of incentives and penalties that result in an inability to manage the risk associated with performance penalties.

The proposed Allocation of Penalties Collected would allocate the penalties collected to LSEs and Base Capacity resources, DR and EE. Given the PJM intention to move to a 100 percent Capacity Performance Product, the Coalition assumes that if the Base Capacity product no longer exists, that these penalties would be allocated solely to LSEs. The Coalition proposes that PJM revise this aspect of their proposal, whereby the Allocation of Penalties Collected would be allocated to over-performing Base Capacity resources, DR and EE, so long as that product exists, over-performing Capacity Performance resources, and over-performing resources in excess of their RPM commitment. In other words, penalties collected should be allocated to all over-performing resources, DR and EE, regardless of the type or quantity of product cleared. In the event that the penalties collected exceed the performance incentive payments, any remainder could then be allocated to LSEs. This revised structure is consistent with the ISONE proposal and will help resources better manage the downside risk of Hourly Non-Performance Penalties. Under the PJM Proposal there is only downside risk to clearing Capacity Performance, which is one of the aspects of the PJM Proposal that makes renewable generation participation in Capacity Performance infeasible.

The PJM Proposed Cost Allocation would retain the existing method of allocating the cost of capacity to LSEs as Locational Reliability Charges. LSEs are paying for system reliability by limiting the potential for a loss of load event. To the extent that a loss of load event does not occur, the Coalition proposes to allocate the penalties collected from under-performers to over-performers as described in the prior paragraph. However, should a loss of load event occur, the Coalition proposes to allocate all or at least a portion of the penalties collected to LSEs.

The Non-Performance Penalty Offset would allow a Capacity Market Seller to offset its penalties with energy production from resources that either do not have an RPM commitment or have a partial RPM commitment within the same constrained LDA. In general, the Coalition agrees with the concept of netting or offsetting. As discussed in the prior paragraphs, the Coalition proposes the Allocation of Penalties Collected be paid to over-performing resource for their incremental production. Therefore, in addition to the netting achieved through the Non-Performance Penalty Offset, a financial offset is accomplished through the penalties incurred for under-performance and the payments received for over-performance. Such an approach would also allow for over-performing DR and EE to receive performance incentive revenues, unlike the current proposal that limits the offset to capacity resources.

### **c. Increased certainty of the Penalty Cap and stop-loss provisions**

The utilization of a factor of Net CONE for non-Shortage Hours and an administrative rate of \$2,700 for Shortage Hours provides greater certainty in the penalty rate than the variable, RT LMP rate in the original Capacity Performance Penalty. However, having two separate rates that depend on whether or not a given hour is a Shortage Hour complicates the calculation of potential Hourly Non-Performance Penalties and its associated risk. The

Coalition proposes that PJM develop a single rate that applies to a specific set of hours, similar to the ISONE approach.

Having a single penalty rate for all hours that are evaluated is particularly important when combined with the concept of penalizing under-performers and paying over-performers. Some of the risk for certain types of renewable generation (e.g., wind generation) associated with the non-performance penalties could be mitigated by the potential for payment for over-performance. However, if the penalty and payment vary from one time period to the next, there is greater volatility and therefore more risk. The Coalition also wonders if there is adequate time between a hot or cold weather alert and reaching shortage conditions to respond to the heightened penalty under shortage conditions. The significant increase in the penalty rate should only exist to the extent that resources, DR and EE are able to modify their behavior to respond to the price signal.

The proposed Penalty Cap and stop-loss provisions limit the annual and single outage event Non-Performance Penalties, respectively. Since the Penalty Cap is a function of the Delivery Year Net CONE and has no dependence on the revenues received in the RPM Auction, the potential Hourly Non-Performance Penalties are unknown until the auction clears. The Coalition proposes that the Penalty Cap be the lesser of the proposed function of Net CONE and a function of the revenues received from the RPM Auction. Given PJM's stated intent of stronger performance incentives, the Coalition suggests the Penalty Cap be the minimum of: (a) two times the annual revenues received in the RPM Auctions; or (b) 1.5 times Net CONE.

Consider an example where the Net CONE is \$350/MW-Day and the RTO price is \$120/MW-day (i.e., Similar to the 2017/2018 BRA). Based on the Penalty Cap in the PJM Proposal, 1 MW-day of UCAP would receive \$43,800 of revenue, but could incur up to \$191,625 of penalties, or over 4 times the penalties. To the extent the BRA clears at or close to Net CONE, the PJM Proposal penalty cap is manageable. However, this example demonstrates how the risk becomes unmanageable if the BRA clears at some value below Net CONE. Under the Coalition proposed approach, the Penalty Cap would be adequately punitive at \$87,600, but allow for Capacity Market Sellers to manage downside risk.

The PJM Proposal contains stop-loss provisions that are based on "any single outage event" where a Capacity Performance resource "is rendered unable to meet its Capacity Performance obligations." The Coalition proposes that the stop-loss provision also be made applicable to renewable generation based on its inability to meet its Capacity Performance obligation. For purposes of comparability, the Coalition proposes to limit the total penalty for any consecutive series of hours in which PJM has declared a Hot or Cold Weather Alert and/or declared a Maximum Emergency Generation Alert to 25 percent of the Capacity revenues received by the Capacity Performance resource for the Delivery Year. Similar to the PJM Proposal stop-loss provision, the Coalition would also propose that this amount increase to 50 percent for those consecutive hours in which a shortage pricing event occurs.

## **V. Allow renewable generation to couple with complementary forms of capacity to harness seasonal attributes to provide a single, annual Capacity Performance product**

The PJM Proposal states that storage resources may be co-located and “married up” with intermittent resources. The Coalition believes that this is a step in the right direction, but that it is too limited in scope. In order to meet the reliability needs of the system, PJM must ensure they have adequate capacity for the summer and winter peak, along with any other time the system is approaching a shortage condition. The ability to “marry up” intermittent resources with storage allows such resources the ability to provide a more certain capacity product to PJM. With the goal of reliable operations in a least-cost, efficient manner, the Coalition proposes to expand the ability to couple resources to any resource, DR or EE as applicable that is capable of providing capacity. The Coalition believes that the same benefits of coupling intermittent resources with storage may also be achieved by coupling renewable generation with DR, EE, and even other types of generation.

For example, consider a solar resource that is most capable of providing capacity in the summer and a typical wind generator which would produce far more energy in the winter than in the summer as a percentage of nameplate capacity. Under the PJM Proposal, the solar resource would likely not participate in Capacity Performance due to the high likelihood of incurring significant penalties in the winter. Likewise, the wind generator would likely not participate due to the high likelihood of significant penalties in the summer. However, as a coupled resource with an agreement regarding penalties between the solar resource and wind generator owners, the risk of penalties is more easily managed, making it more likely for these assets to participate in Capacity Performance. Without the ability to couple, it is entirely possible neither asset would participate in Capacity Performance, and the effective value of each asset from a capacity perspective would be zero megawatts.

As a side point, the fact that either resource’s actual capacity contribution would not be accounted for under the proposed rules highlights a deficiency in the PJM Proposal in that it undercounts a resource’s actual capacity contributions. Under an ideal proposal, each resource would receive compensation for its full reliability contribution, which should be unaffected by whether a resource is coupled with another resource as their total contribution would be the sum of their individual contributions.

In addition, the Coalition is concerned that the term ‘co-locate’ used in the PJM Proposal, might also limit the ability of renewable generation to couple with other resources, DR or EE. Similar to the proposed Non-Performance Penalty Offset, the Coalition proposes that the coupling of resources be allowed for any two or more resources, DR, or EE in the same constrained LDA. This approach would allow the greatest amount of optionality for such resources, DR and EE owners, while also remaining consistent with the locational reliability needs of the RPM auction.

## **VI. Ensure the rules allow for the participation of existing and build of new renewable generation**

Under the PJM Proposal, there are a number of statements that appear to be eligibility criteria, which if included in the final proposal and enforced could preclude renewable generation from participating in Capacity Performance, or even limit its ability to pursue new development at all. The Coalition would like to ensure that the final proposal allows for the participation of existing and new renewable generation.

The PJM Proposal states, “PJM proposes that all planned resources be required to be Capacity Performance.” Additionally, it states, “PJM believes the market should ultimately transition to being 100 percent Capacity Performance product.” Depending on the final proposal and renewable generation’s ability to provide Capacity Performance, these statements would appear to limit the development of new renewable generation. Rather than mandating this requirement, the Coalition believes that proper rules and incentives will achieve the appropriate amount of Capacity Performance.

The Capacity Performance Availability and Flexibility Requirements identify a number of requirements that all Generation Capacity Resources which clear as a Capacity Performance resource must meet. The Coalition questions the need for such requirements given the significant incentive to perform in order to avoid the penalties. Should such requirements be part of the final proposal, the Coalition would like to ensure that they are either modified to apply to renewable generation or that renewable generation be exempted from any such requirements that are not applicable.

### **Coalition Members**

[Iberdrola Renewables LLC](#)

[EverPower Commercial Services LLC](#)

[Rock Island Clean Line LLC](#)

[E.ON Climate & Renewables North America](#)

[EDP Renewables NA](#)

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