

Draft Business Rules for
Aggregation of Seasonal Resources within Auction Clearing Mechanism

Effective with the 2020/2021 Delivery Year BRA, PJM will procure only Capacity Performance Resources to meet the PJM Region's reliability and resource adequacy needs. A Capacity Performance Resource ("CP Resource") must be capable of sustained, predictable operation that allows the resource to be available throughout the entire Delivery Year to provide energy and reserves whenever PJM determines an emergency condition exists.

A. Current Aggregation Rules

The current requirements for resources to form an Aggregate Resource are defined in section 5.6.1(h) of Attachment DD of the PJM OATT, with further details described in section 4.9 of PJM Manual 18. Among these requirements, the resources that comprise an Aggregate Resource must be located in the same modeled LDA¹ and must reside in a single Capacity Market Seller account under the current aggregation rules.

Starting with the 2020/2021 Delivery year, Intermittent Resources, Capacity Storage Resources, Environmentally-Limited Resources, and DR Resources and EE Resources that generally cannot satisfy the annual performance obligation of a CP Resource on a stand-alone basis are either ineligible to participate in RPM and/or are limited from a quantity perspective in their ability to participate in RPM due to the risk associated with their seasonal or intermittent capabilities. However, these resource types are eligible to combine their capabilities to create a single pseudo aggregated resource ("Aggregate Resource") that can satisfy the annual performance obligation of a CP Resource and may participate in RPM as components of the Aggregate Resource. Resources participating in this type of aggregation are required to have come to an agreement prior to the auction. Such resources are modeled in the auction as a single resource in an LDA.

B. PJM Proposed Changes for Existing Aggregation Rules

PJM believes existing rules regarding Aggregate Resources require additional detail and modifications to align with other PJM market and planning rules and to ensure the rules applied to Aggregate Resources are commensurate with rules applied to non-Aggregate Resources. As a result, PJM proposes the following rule changes.

1. The daily allocation of a CP commitment on an Aggregate Resource to the underlying resources must be **provided to PJM by 10:30 EPT** the day prior to the Operating Day.

The current rules require this information by noon the day before the Operating Day which is based on the old Day-ahead Market timeline. The update to 10:30 AM is to match the current timing.

2. An individual resource that is part of an Aggregate Resource may not receive a daily

¹ All references to LDA in the draft business rules are meant to be "modeled LDA."

CP commitment allocation in excess of their CIRs.

3. Aggregate Resources **will be eligible to aggregate across modeled LDAs**, however, for the purpose of BRA modeling and compensation, the Aggregate Resource will be modeled in the highest level LDA of all individual resources comprising the Aggregate Resource. For example, if two resources aggregate together and one is physically located in EMAAC and the other is in the Rest of RTO, the Aggregate Resource will be modeled in the Rest of RTO and compensated at the Rest of RTO clearing price.

If the individual resources are located in different modeled LDAs that are not nested, they will be modeled and compensated in the smallest LDA common to all of them. For example, an Aggregate Resource where the individual resources are physically located in EMAAC and SWMAAC would be modeled and compensated in MAAC. An Aggregate Resource with individual resources located in COMED and EMAAC would be modeled and compensated as if it were in the Rest of RTO.

4. Individual resources that are part of an Aggregate Resource will be expected to respond to a Performance Assessment Hour (PAH) in the area where they are physically located and their Non-Performance Charge Rate will be based on the location of the physical resources underlying the aggregate. If multiple individual resources that are part of an Aggregate Resource are in the same area where there is a PAH, the under-/over-performance of the Aggregate Resource will be based on the total commitment and performance of all of the individual resources included in the PAH.
5. Individual resources that are part of an Aggregate Resource will be able to replace their commitment if desired. Any replacement transactions done on an Aggregate Resource must be done based on the physical location of the individual resource and not the location where the resource was modeled and cleared in an RPM auction.

C. PJM Proposal for Aggregation of Seasonal Capacity Resource Offers

The following draft business rules describe a PJM proposal that will also permit certain resource types with seasonal capacity capability to be aggregated by PJM during the BRA clearing process if they have not done so prior to the auction. This proposal for seasonal aggregation will not replace the current business rules regarding aggregation; rather it is being proposed as an additional type of aggregation that PJM would offer.

Resources eligible for this type of seasonal aggregation are those Intermittent Resources, Capacity Storage Resources, Environmentally-Limited Resources, summer-only DR Resources and summer-only EE Resources that can demonstrate that they can only meet the qualifications of a CP Resource on a seasonal basis. Such resources that are eligible for seasonal aggregation but do not aggregate prior to the BRA will be able to instead submit sell offers of capacity into the BRA on a stand-alone basis, specifying a season in which they are seeking to commit. Under this proposal, the requirement that PJM procure 100% CP Resource commitments is maintained by instructing the auction clearing engine to clear equal quantities of off-setting seasonal capacity sell offers thereby creating annual capacity commitments from the seasonal capacity sell

offers. This methodology will also maintain a single, uniform, capacity clearing price that will be paid to all committed resources for the duration of their commitment.

1. Intermittent Resources, Capacity Storage Resources, Environmentally-Limited Resources, summer-only DR Resources and summer-only EE Resources are eligible to combine capabilities to form an Aggregate Resource for a delivery year prior to the start of the BRA for that delivery year. Section 5.6.1(h) of Attachment DD of the PJM OATT and section 4.9 of PJM Manual 18 describe the requirements for creating an Aggregate Resource. These existing rules may be used for the purpose of seasonal aggregation if an agreement can be reached between two capacity sellers prior to an auction.
2. Resources that are eligible for seasonal aggregation but do not do so prior to a BRA may instead submit sell offers of seasonal capacity into the BRA on a stand-alone basis. Seasonal capacity consists of summer-period capacity and winter-period capacity.
 - (a) A cleared summer-period capacity sell offer takes on a capacity commitment and performance obligation for the months of June through October and the following May, inclusive; and, receives a daily auction credit for each day of the same period based on the cleared UCAP quantity times the auction's resource clearing price applicable to the location of the resource.
 - (b) A cleared winter-period capacity sell offer takes on a capacity commitment and performance obligation for the months of November through April, inclusive; and, receives a daily auction credit for each day of the same November through April period based on the cleared UCAP quantity times the auction's resource clearing price applicable to the location of the resource.
 - (c) Seasonal resources that receive a capacity commitment for either the summer or winter period of the Delivery Year will be responsible for the commitment and obligations of a CP Resource for that period. This includes performance during a Performance Assessment Hour and the submission of offers into the Day-ahead Energy Market, where applicable, during the committed period.
3. Intermittent Resources, Capacity Storage Resources, and Environmentally-Limited Resources are generally available throughout the entire delivery year to provide energy but may have expected capability in one season that exceeds expected capability in the other season. Such resources may submit a sell offer for CP capacity and a separate sell offer for either summer-period capacity or winter-period capacity up to a total sell offer quantity for each season no greater than the UCAP value of the resource.

Summer-only DR and summer-only EE may submit sell offers for summer-period capacity.

4. Similar to Capacity Performance Resources with full-year commitments, generation resources that are eligible and wish to sell seasonal capacity will not be permitted to sell seasonal capacity in excess of their Capacity Interconnection Rights (CIR).

5. Similar to PJM's proposed rule changes to the existing aggregation rules, seasonal aggregation will also be permitted across modeled LDAs subject to the modeling and compensation rules defined in B.3 above. Resources aggregated seasonally using the new rules will be modeled in the smallest LDA common to all individual resources.
6. Similar to PJM's proposed rule changes to the existing aggregation rules, resources aggregated seasonally will be expected to respond to PAH that occurs in the region where they are physically located as in B.4 above.
7. Similar to PJM's proposed rule changes to the existing aggregation rules, resources aggregated seasonally will be may use replacement transactions based on their physical location as stated in B.5 above.
8. Prior to the auction clearing, PJM will match all seasonal sell offers based on offers prices in each modeled LDA. Each seasonal sell offer will be matched with the seasonal sell offer with the nearest offer price of the opposite season (low offer to low offer) until the season with the least amount of sell offers is exhausted. When there are no more offers for the more limiting season in a modeled LDA, PJM will then match resources across LDAs until the most limiting seasons' offer across the RTO are exhausted.

Each full-year resource created from the combination of seasonal resources will be modeled in the auction in the smallest LDA common to both with the highest offer price of the individual resources contained within the seasonal aggregate. The highest sell offer price is used to ensure that the seasonal aggregate will clear only if the clearing price is greater than or equal to the offers of all individual resources within the aggregate.