



*Working to Perfect the Flow of Energy*

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PJM Manual 11:

**Energy & Ancillary Services  
Market Operations**

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Forward Market Operations

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- The Hourly Conditional Demand Factor is calculated as:
  - $\text{Sum}(\text{price sensitive demand} + \text{decrement bids} - \text{increment offers}) / \text{Sum}(\text{fixed demand})$
  - The Hourly Conditional Demand factors for each day are then averaged to calculate a daily conditional demand factor
  - The ten daily conditional demand factors are then averaged to arrive at the Seasonal Conditional Demand Factor
- PJM will calculate the Seasonal Conditional Demand Factors and post them to PJM.com by no later than November 15 of each year.
- Future reserve requirements may be defined locationally based on operation criteria as documented in the PJM Manuals.

#### 11.2.2 Day-Ahead Scheduling Reserve Market Eligibility

- Day-Ahead Scheduling Reserve Resources are defined as resources that meet the following eligibility requirements to provide Day-Ahead Scheduling Reserve:
- Day-Ahead Scheduling Reserve Resources comprise of all those resources that can provide reserve capability that can be fully converted into energy within 30 minutes from the request of the PJM dispatcher at the time of the request and is provided by equipment which may not necessarily at the time of the request be electrically synchronized to the system.
- A Day-Ahead Scheduling Reserve Resource may be:
  - Equipment not electrically synchronized to the system. The equipment that generally qualifies in this category is ~~shutdown run-of-river~~; pumped hydro, industrial combustion turbines, jet engine/expander turbines, combined cycle and diesels; or
  - Additional generating capacity that is synchronized to the grid and scheduled and can increase output in 30 minutes (including condensing mode and pumped hydro that is in pumping mode) to provide additional Day-Ahead Scheduling Reserve;  
or
  - Load response resources must be registered in the Economic Load Response program, indicate that they can be dispatchable by PJM in real-time and be able to be reduced within 30 minutes.
- Load response resources that are considered “batch load” resources as defined in the section 1.3.1A.001 of the Operating Agreement, may participate in the Day-Ahead Scheduling Reserve market under the same conditions as exist for Synchronized Reserve with respect to having already reduced prior to receiving a PJM dispatch instruction to do so. Such resources must remain off line for the duration of the PJM



dispatch request in order to receive the Day-Ahead Scheduling Reserve market payment.

- Day-Ahead Scheduling Reserve Market offers may be submitted only for those resources located electrically within the PJM RTO. Resources that cannot reliably provide Day-Ahead Scheduling Reserve obligations in real time shall be excluded from the Day-Ahead Scheduling Reserve process. Such resources types include, but are not limited to: Nuclear units, run-of-river and self-scheduled pumped hydro units, Wind units, Solar units, and non-energy resources such as batteries which do not have capability to provide the obligations of Day-Ahead Scheduling Reserve for entire hour. Owners of any specific resource(s) or these resource types may request an exception from the default non-eligibility to provide Day-Ahead Scheduling Reserve if they notify PJM that the resource(s) are able to reliably provide Day-Ahead Scheduling Reserve obligation in real time.
- Resources may participate and be compensated in both the Day-Ahead Scheduling Reserve and Synchronized Reserve Markets. In addition, resources may participate and be compensated in both the Day-Ahead Scheduling and Regulation Markets However, since resources cannot participate in both the Synchronized Reserve and Regulation markets; no resources can participate in the Day-Ahead Scheduling Reserve, Synchronized Reserve AND Regulation markets and be compensated for all three.
- The following additional Demand Resources requirements must also be met in order to participate in the Day-Ahead Scheduling Reserve Market:
  - Demand resources' response controls must be approved by PJM prior to participation in the Day-Ahead Scheduling Reserve Market including ability to be dispatched by PJM's Security Constrained Economic Dispatch system.
  - Demand resources providing Day-Ahead Scheduling Reserve are required to provide telemetry that is capable of providing metering information at no less than a one minute scan rate.
- Metering information of demand resources is not required to be sent to PJM in real time. Daily uploads at the close of the next business day after the operating day if an event has occurred are sufficient, as the response evaluation is performed after the fact.
- Demand resources may be aggregated and offered into the PJM Day-Ahead Scheduling Reserve Market as one combined resource if the appropriate telemetry is provided for the aggregated resource.
- Demand resource participation will be limited to 25% of the RTO Day-Ahead Scheduling Reserve Requirement.
- Demand Resources will be allowed to participate in the Day-Ahead Scheduling Reserve Markets if approved by the appropriate Regional Reliability Council.

### 11.2.3 Day-Ahead Scheduling Reserve Market Rules

- The following offer and operational information must be supplied through the eMKT System:
  - Day-Ahead Scheduling Reserve Availability.



- Day-Ahead Scheduling Reserve Offer Price - Offers to provide Day-Ahead Scheduling [30-Minute] Reserve are in dollars/MW of reserve to be provided, and \$0/MW is a valid offer.
- A valid generator or demand response energy offer must be available in the Day-Ahead Energy Market to participate.