

Manual 11 Redlines in support of Flexible Resource Definition Proposal

2.3.3 Market Sellers

The following business rules apply to Market Sellers whether or not the resource is a Capacity Resource:

- Market Sellers can choose to self-schedule their generation into the Day-ahead Market or submit an offer into the Day-ahead Market and allow PJM to schedule their generation.
 - Hybrid Resources and resources enrolled in the Energy Storage Resource (ESR) participation model may self-schedule only. When self-scheduling ESR or Hybrid Resources with a storage component, Market Sellers must specify the hourly mode of operation as described in Sections 2.3.4B and 2.3.4C of this Manual and an operating range as described in Section 2.3.3.2 of this Manual.
- Self-scheduled generation shall submit an hourly operating range and can offer an associated price/MW pair for consideration in dispatch.
- Flexible Resources that are either combustion turbine (CT) or diesel resources with a pool-scheduled Day-ahead Energy Market commitment are expected to wait for PJM dispatch instructions prior to running in real-time.
 - If a Flexible Resource that is either a combustion turbine (CT) or diesel resource with a pool-scheduled Day-ahead Energy Market commitment is not called on in real-time by PJM, it may be eligible for lost opportunity cost credits as defined in Section 5.2.6.3 of PJM Manual 28: Operating Agreement Accounting.
- Generation owners planning to run generation resources, except for wind and solar resources, that are scheduled in the Day-ahead Market are required to call the PJM Control Center at least twenty (20) minutes prior to bringing the resource online. Generation owners of self-scheduled generation resources in Real-time only must also provide at least twenty (20) minutes notice.
 - Hybrid Resources and resources enrolled in the ESR participation model with greater than ten (10) Megawatts must contact the PJM Control Center prior to changing its mode of operation with at least twenty (20) minutes notice.
- Generation resources that are scheduled in the Day-ahead Market have a financial obligation to sell their output in Real-time.
 - ~~Combustion Turbines that are scheduled in the Day-ahead Market and then not called on in Real-time by PJM may be eligible for Credits for Canceled Pool-Scheduled Resources as defined in Section 5.2.4 of PJM Manual 28: Operating Agreement Accounting.~~
- Generation resources that are committed by PJM in advance of the Day-ahead Energy Market will be offer capped and committed on the applicable available schedule at the time of the commitment. The cost-based schedule made available must follow the Generation Owner's Fuel Cost Policy as defined in PJM Manual 15: Cost Development Guidelines.

2.3.6.1 Market Power Mitigation

PJM tests for the concentration of local market power under transmission constrained conditions and applies measures to mitigate such power when detected. If transmission limits are identified during the Day-ahead scheduling process or during Real-time operations, the appropriate generators (those for which the owner fails the Three-Pivotal Supplier Test (“TPS Test”) as detailed in Section 6.4.1 paragraphs (e) and (f) of the PJM Operating Agreement) are offer-capped. Resources remain eligible to set LMP when offer-capped. Both pool-scheduled and self-scheduled resources are eligible for offer capping. The Three-Pivotal Supplier Test is performed in IT SCED, further described in Section 2.5 of this Manual, as part of the dispatch run. Offer capping, as described below, is based on the results of the Three Pivotal Supplier Test.

Offer-capping is applied as follows:

- Resources are offer-capped at lesser of their cost-based or price-based schedules, including startup and no-load components. Specific details regarding determination of cost-based offers may be found in PJM Manual 15: Cost Development Guidelines and Section 6.4.2 of the PJM Operating Agreement.
- For resources scheduled in the Day-ahead Market, the offer caps are applied at the time of commitment and apply for the length of time the unit is scheduled in the Day-ahead Market at the schedule that results in the lowest overall system production cost, in accordance with Section 6.4.1(a) of the Operating Agreement.
 - If the incremental energy offer, no load cost or startup cost for any portion of the offer capped hours is updated subsequent to the Day-ahead commitment, the offer caps are recalculated for each hour that was updated and apply at the schedule that results in the lowest dispatch cost for each updated hour, in accordance with Section 6.4.1(g) of the Operating Agreement; however, once the resource is dispatched on a cost-based offer, it remains on a cost-based offer regardless of the determination of the cheapest schedule.
- For resources scheduled in the Real-time Market, the offer caps are applied at the time of commitment and apply at the schedule which results in the lowest dispatch cost, in accordance with Section 6.4.1(g) of the Operating Agreement.
 - If the incremental energy offer, no load cost or startup cost for any portion of the offer capped hours are updated subsequent to the Real-time commitment, the offer caps will be recalculated for each hour that is updated and will apply at the schedule that results in the lowest dispatch cost for each updated hour in accordance with Section 6.4.1(g) of the Operating Agreement; however, once the resource is dispatched on a cost-based offer, it will remain on a cost-based offer regardless of the determination of the cheapest schedule.
- Non-CT resources, as well as CTs and diesels that are committed in the Day-ahead Market and do not meet the definition of a Flexible Resource are expected to run in the Real-time Market without additional notification from PJM Dispatch, that are offer-capped in the Day-ahead

Market are offer-capped for those same hours in the Real-time Market and at the same schedule.

- Pool-scheduled CTs and diesels that qualify as Flexible Resources that are committed in the Day-ahead Market and are not expected to run in Real-time unless notified by PJM Dispatch and are offer-capped in the Day-ahead Market and are re-evaluated for market power at the time of commitment in the Real-time Market. Such resources are offer-capped in accordance with the results of the TPS Test that is conducted at the time of the Real-time commitment.
- Pool-scheduled resources brought on-line for economics prior to constrained conditions are not offer-capped at the time of commitment
- Resources whose owners passed the TPS Test at the time of commitment remain uncapped and are not be subject to additional market power testing until the end of the initial capping determination period, which is defined as follows:
 - For pool-scheduled or self-scheduled resources committed in the Day-ahead Market, the end of their Day-ahead commitment.
 - For pool-scheduled resources committed in the Real-time Market (and not in the Day-ahead Market): the end of their minimum run time.
 - For self-scheduled units committed in the Real-time Market (and not in the Day-ahead Market): the end of the first hour of their commitment.
- Resources running in Real-time beyond the initial capping determination period are subject to evaluation for market power on an hourly basis and are offer-capped as follows:
 - Resources operating on a price-based schedule whose owner pass the TPS Test will not be offer-capped and will remain on the price-based offer.
 - Resources operating on a price-based schedule whose owner does not pass the TPS Test will be offer-capped.
 - Resources operating on a cost-based schedule will remain on a cost schedule regardless of the results of the TPS Test.
- Once a unit is offer-capped in the Real-time Market it shall remain offer-capped until the earlier of:
 - The resource's release from its commitment by PJM Dispatch.
 - The end of the Operating Day.
 - The start of the resource's next pre-existing commitment.

Section 5.2.6 PJM Day-ahead Energy Market Technical Software

The Energy Market technical software develops the Day-ahead Market results based on minimizing production cost of energy and reserve to meet the demand bids and decrement bids that are submitted into the Day-ahead Market while respecting the PJM RTO security constraints and reliability requirements that are necessary for the reliable operation of the PJM RTO.

Subsequent to the close of the generation Re-bidding Period at 14:15, the RSC is the primary tool used to determine any change in steam resource commitment status based on minimizing the additional

startup costs and costs to operate steam resources at economic minimum in order to provide sufficient operating reserves to satisfy the PJM Load Forecast (if greater than cleared total demand in the Day-ahead Market) and adjusted Day-ahead Reserve requirements.

The purpose of this second phase of resource commitment, known as the Reliability Assessment and Commitment (RAC) run, is to ensure that PJM has scheduled enough generation in advance to meet the PJM Load Forecast for the next Operating Day and for the subsequent day. Combustion Turbine (CT) and diesel resources are included in the scheduling process and are scheduled in the Day-ahead Market. However, the decisions concerning actual operation of pool-scheduled CT and diesel resources during the Operating Day are not generally made until real-time to preserve the flexibility of these resources. ~~the current operating hour in Real-time dispatch.~~