

## 6.3 Charges for Synchronized Reserve

The total cost of providing Synchronized Reserve for each hour is the sum of the credits provided to PJM Members for supplying Synchronized Reserve in that hour. The hourly cost of Tier 1 and Tier 2 Synchronized Reserve is allocated separately and charged to PJM Members.

### PJM Actions:

- PJM calculates for each hour the Total Cost of Synchronized Reserve by summing the following credits for all PJM Members:
  - Total Tier 1 credits for Synchronized Reserve (\$)
  - Total Tier 2 credits for Synchronized Reserve (\$)
- PJM calculates for each hour each participants synchronized reserve obligation as determined by applying the real-time load ratio share (adjusted for load responsibility) in the applicable reserve zone or sub-zone to the total synchronized reserve assigned for that hour and then adding bilateral sales and subtracting bilateral purchases. Note that LSEs whose reserve obligations are satisfied through an agreement to share reserves with external entities subject to the requirements in NERC Reliability Standard BAL-002 will not have a synchronized reserve obligation. Synchronized reserve charges are then determined for both the amount of Tier 1 applied to each participant's obligation and the amount of Tier 2 each participant purchased from the market.
- PJM calculates for each hour the Tier 1 charges by allocating the total cost of Tier 1 credits to each PJM Member based on their ratio share of Tier 1 synchronized reserve allocated to obligation. The amount of Tier 1 applied to each participant's obligation is equal to the amount of Tier 1 estimated prior to the operating hour as part of the market clearing process on that participant's own resources up to the amount of obligation, plus the remaining obligation ratio share of any excess Tier 1 estimated on the resources of generation owners in excess of their individual obligations.
- PJM calculates for each hour the Tier 2 charges as follows:
  - The appropriate hourly Tier 2 clearing price times the participant's synchronized reserve obligation MW less any Tier 1 synchronized reserve applied to obligation.
  - The appropriate hourly Tier 2 clearing price for each LSE is the clearing price for the sub-zone or Reserve Zone for which the LSE's load is located. Loads located in a sub-zone will pay that sub-zone's clearing price. Loads not located in a sub-zone will pay the corresponding Reserve Zone clearing price.
  - The participant's share of any unrecovered costs incurred by assigned Tier 2 pool-schedule resources, including those Tier 2 resources assigned in addition to that which was estimated prior to a given hour, over and above the Tier 2 clearing price
  - The amount of unrecovered costs allocated to each participant is determined based on each participant's ratio share of Tier 2 synchronized reserve purchased from the market. A participant's purchases from the market equals their synchronized reserve obligation MW less any Tier 1 synchronized reserve applied to obligation, less any self-scheduled Tier 2 MW.
  - The cost of Tier 2 resources assigned by PJM during the operating hour in addition to that which resulted from the Tier 2 clearing process due to reduced availability of Tier 1 Synchronized Reserve are allocated to those entities for which less Tier 1 was available during the hour that was estimated prior to the hour, in proportion to the

reduction in Tier 1 availability. If there are no entities with a reduction in Tier 1 availability, the cost of these resources assigned during the hour is allocated based on a participant's purchases from the market as described in the preceding bullet.

- Tier 2 resources that fail to provide assigned Tier 2 capability during a synchronized reserve event incur a retroactive obligation to refund at SRMCP the amount of the shortfall measured in MW for all of the hours the resource was assigned- over the immediate past interval, the duration of which is equal to the lesser of the average number of days between events as determined by the annual review of the last 2 years, or the number of days since the resource last failed to respond with its assigned or self-scheduled Synchronized Reserve amount in response to a Synchronized Reserve event. ~~synchronized reserve obligation in the amount of the shortfall for the 3 consecutive, same-peak days occurring at least 3 business days following the synchronized reserve event. Off-peak days are defined as weekends and PJM holidays, and on-peak days are all others.~~ Additional details on verification and non-performance can be found in Manual 11: Energy & Ancillary Services Market Operations, Section 4: Overview of the PJM Synchronized Reserve Market.