

The zonal Non-Spinning Reserve capacity user rate for the Hour-Ahead Market is calculated by dividing the total cost to ISO of purchasing Non-Spinning Reserve capacity within the Zone less any amounts payable to the ISO by Scheduling Coordinators for Non-Spinning Reserve bought back from the ISO in the Hour-Ahead Market on behalf of resources in the Zone, for the Trading Interval, by the total ISO Non-Spinning Reserve MW purchases for the Trading Interval within the Zone. The Hour-Ahead Non-Spinning Reserve capacity user rate in Zone x for Trading Interval t is calculated as follows:

$$NonSpinRateHA_{xt} = \frac{\sum_j NonSpinPayTotalHA_{jxt}}{NonSpinPurchHA_{xt}}$$

The Non-Spinning Reserve capacity charge for Scheduling Coordinator j in the Hour-Ahead Market in Zone x for Trading Interval t is calculated as follows:

$$NonSpinChgHA_{jxt} = (NonSpinOblig_{jxt} * NonSpinRateHA_{xt})$$

**C 2.2.3 Replacement Reserve**

The user rate per unit of Replacement Reserve obligation for each Settlement Period t for each Zone x shall be as follows:

$$ReplRate_{xt} = \frac{(PRepResDA_{xt} * OrigReplReqDA_{xt}) + (PRepResHA_{xt} * OrigReplReqHA_{xt})}{OrigReplReqDA_{xt} + OrigReplReqHA_{xt}}$$

where:

*OrigReplReqDA<sub>xt</sub>* = Replacement Reserve requirement net of self-provision in the Day-Ahead Market before consideration of any substitutions pursuant to Section 2.5.3.6.

*OrigReplReqHA<sub>xt</sub>* = Incremental change in the Replacement Reserve requirement net of self-provision between the Day-

Ahead Market and the Hour-Ahead Market before consideration of any substitutions pursuant to Section 2.5.3.

$PRepResDA_{xt}$  is the Market Clearing Price for Replacement Reserve in the Day-Ahead Market for Zone  $x$  in Settlement Period  $t$ .

$PRepResHA_{xt}$  is the Market Clearing Price for Replacement Reserve in the Hour-Ahead Market for Zone  $x$  in Settlement Period  $t$ .

For each Settlement Period t, each Scheduling Coordinator shall pay to the ISO a sum calculated as follows for each Zone x:

$$ReplRate_{xt} * ReplOblig_{jxt}$$

where

$$ReplOblig_{jxt} = DevReplOblig_{jxt} + RemRepl_{jxt} - SelfProv_{jxt} + NetInterSCTrades_{jxt}$$

*DevReplOblig<sub>jxt</sub>* is the Scheduling Coordinator's obligation for deviation Replacement Reserve in Zone x in the Settlement Period t and *RemRepl<sub>jxt</sub>* is the Scheduling Coordinator's obligation for remaining Replacement Reserve in Zone x for Settlement Period t.

*SelfProv<sub>jxt</sub>* is Scheduling Coordinator's Replacement Reserve self provision in Zone x for Settlement Period t.

*NetInterSCTrades<sub>jxt</sub>* is the sale of Replacement Reserve less the purchase of Replacement Reserve through Inter-Scheduling Coordinator Trades by Scheduling Coordinator j in Zone x for Settlement Period t.

Deviation Replacement Reserve for Scheduling Coordinator i in Zone x for Settlement Period t is calculated as follows:

If  $ReplObligTotal_{xt} > TotalDeviations_{xt}$  then:

$$DevReplOblig_{xjt} = \left[ \text{Max} \left( 0, \sum_i \text{GenDev}_{ijxt} \right) - \text{Min} \left( 0, \sum_i \text{LoadDev}_{ijxt} \right) \right]$$

If  $ReplObligTotal_{xt} < TotalDeviations_{xt}$  then:

$$DevReplOblig_{xjt} = \frac{ReplObligTotal_{xt}}{TotalDeviations_{xt}} * \left[ \text{Max} \left( 0, \sum_i \text{GenDev}_{ijxt} \right) - \text{Min} \left( 0, \sum_i \text{LoadDev}_{ijxt} \right) \right]$$

where,

$$TotalDeviations_{xt} = \sum_j \left[ \text{Max} \left( 0, \sum_i \text{GenDev}_{ijxt} \right) - \text{Min} \left( 0, \sum_i \text{LoadDev}_{ijxt} \right) \right]$$

*GenDev<sub>jxt</sub>* = The deviation between scheduled and actual Energy generation for Generator i represented by Scheduling Coordinator I in Zone x during Settlement Period t as referenced in Section 11.2.4.1.

$LoadDev_{ijt}$  = The deviation between scheduled and actual Load consumption for resource I represented by Scheduling Coordinator i

in Zone x during Settlement Period t as referenced in Section 11.2.4.1.

$DevReplOblig_{xt}$  is total deviation Replacement Reserve in Zone x for Settlement Period t.

$ReplObligTotal_{xt}$  is total Replacement Reserve Obligation (including self-provision) Zone x for Settlement Period t.

Remaining Replacement Reserve for Scheduling Coordinator j in Zone x for Settlement Period t is calculated as follows:

$$RemRepl_{xjt} = \frac{MeteredDemand_{jxt}}{TotalMeteredDemand_{xt}} * TotalRemRepl_{xt}$$

where:

$MeteredDemand_{jxt}$  is the Scheduling Coordinator's total metered Demand excluding exports in Zone x for Settlement Period t.

$TotalMeteredDemand_{xt}$  is total metered Demand excluding exports in Zone x for Settlement Period t.

$$TotalRemRepl_{xt} = Max[0, ReplObligTotal_{xt} - DevReplOblig_{xt}]$$

#### C 2.2.4 Rational Buyer Adjustments

- (a) If, in any Settlement Period, no quantity of Regulation, Spinning Reserve, Non-Spinning Reserve or Replacement Reserve is purchased in the Day-Ahead Market or the Hour-Ahead Market due to the operation of Section 2.5.3.6 of the ISO Tariff, then in lieu of the user rate determined in accordance with Section C 2.2.1, C 2.2.2, or C 2.2.3, as applicable, the user rate for the affected Ancillary Service for that Settlement Period shall be determined as follows:

If the affected market is a Day-Ahead Market, the user rate for the affected Ancillary Service shall be set at the lowest capacity reservation price for an unaccepted qualified capacity bid in a Day-Ahead Market for that Ancillary Service or for another Ancillary Service that meets the requirements for the affected Ancillary Service. If there are no such unaccepted bids, the user rate for the affected Ancillary Service shall be the lowest Market

Clearing Price for the same Settlement Period established in the Day-Ahead Market for another Ancillary Service that meets the requirements for the affected Ancillary Service.

(ii) If the affected market is an Hour-Ahead Market, the user rate for the affected Ancillary Service shall be set at the lowest capacity reservation price for an unaccepted qualified capacity bid in the Hour-Ahead Market for the same Settlement Period for that Ancillary Service or for another Ancillary Service that meets the requirements for the affected Ancillary Service. If there are no such unaccepted bids, the user rate for the affected Ancillary Service shall be the user rate for the same Ancillary Service in the Day-Ahead Market in the same Settlement Period.

- (b) With respect to each Settlement Period, in addition to the user rates determined in accordance with Sections C 2.2.1 through C 2.2.3, or Section C 2.2.4(a), as applicable, each Scheduling Coordinator shall be charged an additional amount equal to its proportionate share, based on total purchases by Scheduling Coordinators of Regulation, Spinning Reserve, Non-Spinning Reserve and Replacement Reserve of the amount, if any, by which (i) the total payments to Scheduling Coordinators pursuant to Section C 2.1 for the Day-Ahead Market and Hour-Ahead Market and all Zones, exceed (ii) the total amounts charged to Scheduling Coordinators pursuant to Sections C 2.2.1 through C 2.2.3, for the Day-Ahead Market and Hour-Ahead Market and all Zones. If total amounts charged to Scheduling Coordinators exceed the total payments to Scheduling Coordinators, each Scheduling Coordinator will be refunded its proportionate share, based on total purchases by Scheduling Coordinators of Regulation, Spinning Reserve, Non-Spinning Reserve and Replacement Reserve.

**C 2.2.5 Real-Time Market**

- (i) The ISO will charge the costs of purchasing real time instructed Energy output from Dispatched Regulation, Spinning Reserve, Non-Spinning Reserve, Replacement Reserve and Supplemental Energy resources through the Imbalance Energy settlement process.

