

ATTACHMENT J

2.5.28.4 Replacement Reserve. The user rate per unit of purchased Replacement Reserve for each Settlement Period in the Day-Ahead Market and Hour-Ahead Markets for each Zone shall be calculated as shown below. If [the ISO procures Replacement Reserves on a Zonal basis](#) ~~there is Congestion~~ in the Day-Ahead Market the ISO will allocate the Replacement Reserve capacity Charges (both Dispatched and Un-Dispatched) on a Zonal basis. If [the ISO procures Replacement Reserves on a ISO Control Area-wide basis](#) ~~there is no Congestion~~ in the Day-Ahead Market the ISO will allocate the Replacement Reserve capacity Charges [\(both Dispatched and Un-Dispatched\)](#) on a ISO Control Area-wide basis (irrespective of whether [any additional Replacement Reserves are procured on a Zonal basis](#) ~~there is Congestion~~ in the Hour Ahead Markets or not) and references in Section 2.5.28.4 of the ISO Tariff to “Zone(s)”, “Zonal” and the use of subscript “x” shall be read as referring to “ISO Control Area”. Dispatched Replacement Reserve capacity charges are recovered by an augmentation to the Imbalance Energy Charge to allocate costs associated with the dispatch of Replacement Reserve to those Scheduling Coordinators who contributed to the Imbalance Energy requiring such dispatch. The calculation of this augmentation is set forth in Section 11.2.4.1 of this ISO Tariff. For undispached Replacement Reserve the user rate shall be calculated by dividing the total cost to ISO of purchasing undispached Replacement Reserve capacity within the Zone, for the Settlement Period by the ISO’s total Replacement Reserve requirement for the Settlement Period in the Day-Ahead and Hour-Ahead Markets less that which has been self provided by Scheduling Coordinators within the Zone. The net cost to the ISO to purchase undispached Replacement Reserve capacity is equal to the total cost to the ISO to purchase Replacement Reserve less any amounts payable to the ISO by Scheduling Coordinators for Replacement Reserve bought back from the ISO in the Hour-Ahead Market, less the cost for the Replacement Reserve which was Dispatched. The undispached Replacement Reserve user rate for each Settlement Period shall be calculated as follows for each Zone:

$$UnDispReplRate = \frac{(ReplPayTotal - ReplReceiveTotal) - RRC}{ReplObligTotal}$$

where

UnDispReplRate = the undispached Replacement Reserve user rate

ReplPayTotal = the total payments for Replacement Reserve capacity in the Day-Ahead and Hour-Ahead Markets

ReplReceiveTotal = the total amount payable to the ISO by Scheduling Coordinators for Replacement Reserve bought back from the ISO in the Hour-Ahead Market

RRC = the cost of Replacement Reserve capacity dispatched in real time

ReplOblig Total = the ISO's total Replacement Reserve requirement in the Day-Ahead and Hour-Ahead Markets less that which has been self provided by Scheduling Coordinators.

The cost of Replacement Reserve capacity which is dispatched in real time in each Settlement Period in each Zone shall be calculated by multiplying the quantity of Replacement Reserve capacity Dispatched in the Settlement Period in the Zone by the average price paid for Replacement Reserve capacity scheduled in the Day-Ahead and Hour-Ahead Market for the same Zone and Settlement Period calculated as follows:

$$RRC = PavgRepl * ReplQDisp$$

where *ReplQDisp* is the Replacement Reserve capacity Dispatched in the Zone in the Settlement Period and

PavgRepl is calculated as follows:

$$PavgRepl = \frac{ReplPayTotalDA + (ReplPayTotalHA - ReplReceiveTotal)}{ReplQDA + ReplQHA}$$

where:

ReplPayTotalDA = the total payments for Replacement Reserve for the Day-Ahead Market.

ReplPayTotalHA = the total payments for Replacement Reserve for the Hour-Ahead Market. *ReplQDA* = the total quantity of Replacement Reserve capacity provided in the Day-Ahead Market.

ReplQHA = the total quantity of Replacement Reserve capacity provided in the Hour-Ahead Market.

The undispached Replacement Reserve capacity charge for each Scheduling Coordinator in the Day-Ahead and Hour-Ahead Markets for each Settlement Period shall be calculated as follows in each Zone:

$$ReplOblig * UnDispReplRate$$

where *ReplOblig* is the Scheduling Coordinator's obligation for Replacement Reserve in the Settlement Period in the Day-Ahead and Hour-Ahead Markets which has not been self provided.

SABP, Appendix C

C 2.2.3 Replacement Reserve

Only undispached Replacement Reserve capacity charges are covered within the Ancillary Services calculations. Dispatched Replacement Reserve capacity charges are covered within the Imbalance Energy calculations in Appendix D. This enables the ISO to allocate the cost of Dispatched Replacement Reserve capacity to those Scheduling Coordinators who contributed to the Imbalance Energy requiring such Dispatch.

If [the ISO procures Replacement Reserves on a Zonal basis](#)~~there is Congestion~~ in the Day-Ahead Market the ISO will allocate the Replacement Reserve capacity Charges (both Dispatched and Un-Dispatched) on a Zonal basis. If [the ISO procures Replacement Reserves on a ISO Control Area-wide basis](#)~~there is no Congestion~~ in the Day Ahead Market the ISO will allocate the Replacement Reserve capacity Charges [\(both Dispatched and Un-Dispatched\)](#) on a ISO Control Area-wide basis (irrespective of whether [any additional Replacement Reserves are procured on a Zonal basis](#)~~there is Congestion~~ in the Hour Ahead Markets or not) and references in C 2.2.3 of this Appendix C to Settlements and Billing Protocol to “Zone(s)”, “Zonal” and the use of subscript “x” shall be read as referring to “ISO Control Area”.

The ISO will charge the zonal net cost of providing undispached Replacement Reserve capacity that is not self provided by Scheduling Coordinators, in the Day-Ahead and Hour-Ahead Markets, through the application of a charge to each Scheduling Coordinator for each Trading Interval. This charge will be computed by multiplying the undispached Replacement Reserve capacity user rate for the Trading Interval by the Scheduling Coordinators Replacement Reserve obligation, for which it has not self provided, for the same Trading Interval.

The zonal undispatched Replacement Reserve capacity user rate is calculated by dividing the net cost to ISO of purchasing undispatched Replacement Reserve capacity within the Zone, for the Trading Interval, by the total ISO Replacement Reserve obligation for the Trading Interval within the Zone. The net cost to ISO to purchase undispatched Replacement Reserve capacity is equal to the total cost to ISO to purchase Replacement Reserve capacity less any amounts payable to the ISO by Scheduling Coordinators for Replacement Reserve bought back from the ISO in the Hour-Ahead Market on behalf of resources located in the Zone less the cost for Replacement Reserve capacity which was Dispatched. The undispatched Replacement Reserve capacity user rate in Zone x for Trading Interval t is calculated as follows:

$$UnDispReplRate_{xt} = \frac{(\sum_j ReplPayTotal_{jxt}) - RRC}{ReplObligTotal_{xt}}$$

The zonal cost of Replacement Reserve capacity which is dispatched in the Real Time Market in a Trading Interval is calculated by multiplying the quantity of Replacement Reserve capacity Dispatched in the Trading Interval in the Zone by the average price paid for Replacement Reserve capacity scheduled in the Day-Ahead Market and the Hour-Ahead Market for the same Zone and Trading Interval. The cost of Replacement Reserve capacity dispatched in the Real Time Market in Zone x for Trading Interval t is calculated as follows:

$$RRC = PavgRepl_{xt} * ReplQDisp_{xt}$$

The average price paid for Replacement Reserve capacity in the Day-Ahead Market in Zone x in Trading Interval t is calculated as follows:

$$PavgRepl_{xt} = \frac{\sum_j ReplPayTotalDA_{jxt} + \sum_j ReplPayTotalHA_{jxt}}{\sum_{ij} ReplQDA_{ijxt} + \sum_{ij} ReplQIHA_{ijxt} - \sum_{ij} ReplQDHA_{ijxt}}$$

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

$$UnDispReplChg_{jxt} = (ReplOblig_{jxt} * UnDispReplRate_{xt}) - (ReplSellBack_{jxt} * UnDispReplRate_{xt})$$