

2.5.7.3 Market Based Prices.

Public utilities under the FPA must submit bids for Ancillary Services capped at FERC authorized cost-based rates unless and until FERC authorizes different pricing. Public utilities under the FPA shall seek FERC Ancillary Services rate approval on bases consistent with the ISO time-frame for contracting for each Ancillary Service (hourly rate for some Ancillary Services, annual rate or otherwise for other Ancillary Services) so that cost-based bids and market based bids for each service shall be on comparable terms. All other entities may use market-based rates not subject to any restrictions [apart from those found in Section 2.5.27.7 of this Tariff](#). Public utilities under the FPA which have not been approved to bid at market-based rates, will not be paid above their cost-based bid for the Ancillary Service concerned even if the relevant market clearing price is higher.

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2.5.27.1 Regulation.

Regulation Up and Regulation Down payments shall be calculated separately.

Quantities. The following quantity definitions shall be used for each Scheduling Coordinator in the settlement process:

$AGCUpQDA_{xt}$ = the Scheduling Coordinator's total quantity of Regulation Up capacity in Zone X sold through the ISO auction [at bids at or below the level specified in Section 2.5.27.7](#), and scheduled Day-Ahead j for Settlement Period t.

$AGCDownQDA_{xt}$ = the Scheduling Coordinator's total quantity of Regulation Down capacity in Zone X sold through the ISO auction [at bids at or below the level specified in Section 2.5.27.7](#), and scheduled Day-Ahead j for Settlement Period t.

$EnQUnst_{xt}$ = Uninstructed Imbalance Energy increase or decrease in Zone X in real time Dispatch for each BEEP Interval b of Settlement Period t, determined in accordance with the ISO Protocols.

Prices. The prices in the Settlement process for Regulation Up and Regulation Down shall be those determined in Section 2.5.14 [for bids at or below the level specified in Section 2.5.27.7 and prices determined in accordance with Section 2.5.27.7 for bids above that level.](#)

Adjustment: penalty described in Section 2.5.26.1.

$PAGCUpDA_{xt}$ = the market clearing price, PAGC, in Zone X for Regulation Up capacity in the Day-Ahead market for Settlement Period t.

$PAGCDownDA_{xt}$ = the market clearing price, PAGC, in Zone X for Regulation Down capacity in the Day-Ahead market for Settlement Period t.

Payments. Scheduling Coordinators for Generating Units providing Regulation Up capacity through the ISO auction shall receive the following payments for Regulation Up:

$$AGCUpPay_{xt} = AGCUpQDA_{xt} * PAGCUpDA_{xt} - Adjustment$$

Scheduling Coordinators for Generating Units providing Regulation Down capacity through the ISO auction shall receive the following payments for Regulation Down:

$$AGCDownPay_{xt} = AGCDownQDA_{xt} * PAGCDownDA_{xt} - Adjustment$$

Scheduling Coordinators for Generating Units shall receive payment for Energy output from Regulation in accordance with settlement for Uninstructed Imbalance Energy under Section 11.2.4.1.

$$\sum_i [(EnQUnstixt * HourlyExPostPriceinZoneX) + REPAixt]$$

$REPA_{ixt}$ = the Regulation Energy Payment Adjustment for Generating Unit i in Zone X for Settlement Period t calculated as follows:

$$[(R_{UPixt} * C_{UP}) + (R_{DNixt} * C_{DN})] * \max (\$20/MWh, P_{xt})$$

Where

R_{UPixt} = the upward range of generating capacity for the provision of Regulation from Generating Unit i in Zone X included in the bid accepted by the ISO for Generating Unit i for Settlement Period t , weighted in proportion to the ISO's need for upward Regulation. The weighting factors will be specified within a range from 0-100 percent. The weighting factors will be set at the discretion of the ISO based on system conditions, and will be set at a level that will provide sufficient incentive to the market to supply upward Regulation for the ISO's purposes of satisfying WSCC criteria and NERC control performance standards. The ISO shall post the weighting factors consistent with the ISO Weighting Procedure, posted on the ISO website.

R_{DNixt} = the downward range of generating capacity for the provision of Regulation for Generating Unit i in Zone X included in the bid accepted by the ISO for Generating Unit i for Settlement Period t , weighted in proportion to the ISO's need for downward Regulation. The weighting factors will be specified within a range from 0-100 percent. The weighting factors will be set at the discretion of the ISO based on system conditions, and will be set at a level that will provide sufficient incentive to the market to supply downward Regulation for the ISO's purposes of satisfying WSCC criteria and NERC control performance standards. The ISO shall post the weighting factors consistent with the ISO Weighting Procedure, posted on the ISO website.

$$C_{UP} = 1$$

$$C_{DN} = 1$$

$$P_{xt} = \text{the Hourly Ex Post Price for Zone } X \text{ in Settlement Period } t.$$

The ISO may modify the value of the constants C_{UP} or C_{DN} within a range of 0-1 either generally in regard to all hours or specifically in regard to particular times of the day, after the ISO

Governing Board approves such modification, by a notice issued by the Chief Executive Officer of the ISO and posted on the ISO Internet "Home Page," at <http://www.caiso.com>, or such other Internet address as the ISO may publish from time to time, specifying the date and time from which the modification shall take effect, which shall be not less than seven (7) days after the Notice is issued.

REPA shall not be payable unless the Generating Unit is available and capable of being controlled and monitored by the ISO Energy Management System over the full range of its Scheduled Regulation capacity for the entire Settlement Period at least the ramp rates (increase and decrease in MW/minute) stated in its bid. In addition, the total Energy available (R_{UP} plus R_{DN}) may be adjusted to be only R_{UP} or only R_{DN} , a percentage of R_{UP} or R_{DN} , or the sum of R_{UP} and R_{DN} , depending on the needs of the ISO for each direction of Regulation service.

2.5.27.2 Spinning Reserve.

Quantities. The following quantity definitions shall be used for each Scheduling Coordinator in the Settlement process:

$SpinQDA_{xt}$ = the Scheduling Coordinator's total quantity of Spinning Reserve capacity in Zone X sold through the ISO auction [at bids at or below the level specified in Section 2.5.27.7](#), and scheduled Day-Ahead for Settlement Period t.

$EnQInst_{xt}$ = Instructed Imbalance Energy output in Zone X in real time Dispatch for Settlement Period t, supplied in accordance with the ISO protocols.

Prices. The prices in the Settlement process for Spinning Reserve shall be those determined in Section 2.5.15 [for bids at or below the level specified in Section 2.5.27.7 and prices determined in accordance with Section 2.5.27.7 for bids above that level.](#)

$Adjustment$ = penalty described in Section 2.5.26.1, or rescinded capacity payments described in Section 2.5.26.2 or 2.5.26.3.

$P_{spDA_{xt}}$ = market clearing price, P_{sp} , in Zone X for Spinning Reserve capacity in the Day-Ahead Market for Settlement Period t.

Payments. Scheduling Coordinators for Generating Units, System Units, or System Resources providing Spinning Reserve capacity through the ISO auction shall receive the following payments for Spinning Reserve capacity:

$$SpinPay_{xt} = SpinQDA_{xt} * PspDA_{xt} - Adjustment$$

Scheduling Coordinators for Generating Units, System Units, or System Resources shall receive the following payments for Energy output from Spinning Reserve capacity:

$$EnQInst_{xt} * BEEP Interval Ex Post Price_{xt}$$

2.5.27.3 Non-Spinning Reserve.

Quantities. The following quantity definitions shall be used for each Scheduling Coordinator in the settlement process:

$NonSpinQDA_{xt}$ = the Scheduling Coordinator's total Quantity of Non-Spinning Reserve capacity in Zone X sold through the ISO's auction [at bids at or below the level specified in Section 2.5.27.7.](#) and scheduled Day-Ahead for Settlement Period t.

$EnQInst_{xt}$ = Instructed Imbalance Energy output or Demand reduction in Zone X in real time Dispatch for Settlement Period t, supplied in accordance with the ISO protocols.

Prices. The prices in the Settlement process for Non-Spinning Reserve shall be those determined in Section 2.5.16 [for bids at or below the level specified in Section 2.5.27.7 and prices determined in accordance with Section 2.5.27.7 for bids above that level.](#)

$Adjustment$ = penalty described in section 2.5.26.1, or rescinded capacity payments described in Section 2.5.26.2 or 2.5.26.3.

$PnonspDA_{xt}$ = market clearing price, $Pnonsp$, in Zone X for Non-Spinning Reserve capacity in the Day-Ahead Market for Settlement Period t.

Payments. Scheduling Coordinators for Generating Units, System Units, System Resources, or Loads supplying Non-Spinning Reserve capacity through the ISO auction shall be paid the following for the Non-Spinning Reserve capacity:

$$\text{NonspPay}_{xt} = \text{NonSpinQDA}_{xt} * \text{PnonspDA}_{xt} - \text{Adjustment}$$

Scheduling Coordinators for Generating Units, System Units, System Resources or Loads shall receive the following payments for Energy output from Non-Spinning Reserve capacity:

$$\text{EnQInst}_{xt} * \text{BEEP Interval Ex Post Price}_{xt}$$

2.5.27.4 Replacement Reserve.

Quantities. The following quantity definitions shall be used for each Scheduling Coordinator in the settlement process:

RepResQDA_{xt} = the Scheduling Coordinator's total quantity of Replacement Reserve capacity in Zone X sold through the ISO auction at bids at or below the level specified in Section 2.5.27.7, and scheduled Day-Ahead for Settlement Period t, and from which Energy has not been generated.

EnQInst_{xt} = Instructed Imbalance Energy output or Demand reduction in Zone X in real time Dispatch for Settlement Period t, supplied in accordance with the ISO protocols.

Prices. The prices in the settlement process for Replacement Reserve shall be those determined in section 2.5.17 for bids at or below the level specified in Section 2.5.27.7 and prices determined in accordance with Section 2.5.27.7 for bids above that level.

Adjustment = penalty described in section 2.5.26.1, or rescinded capacity payments described in Section 2.5.26.2 or 2.5.26.3.

PRepResDA_{xt} = market clearing price, PRepRes, in Zone X for Replacement Reserve capacity in the Day-Ahead Market for Settlement Period t.

Payments. Scheduling Coordinators for Generating Units, System Units, System Resources, or Loads providing Replacement Reserve capacity through the ISO auction shall receive the following payments for the portion of a Scheduling Coordinator's Replacement Reserve capacity from which Energy has not been generated:

$$RepResPay_{ijt} = (RepResQDA_{xt} -) * PRepResDA_{xt}-Adjustment$$

Scheduling Coordinators shall not receive capacity payments for the portion of a Scheduling Coordinator's Replacement Reserve capacity from which Energy has been generated. The payments for Energy output from Replacement Reserve capacity are calculated as follows:

$$EnQInst_{ijt} * BEEP Interval Ex Post Price_{xt}$$

2.5.27.5 Voltage Support. The total payments for each Scheduling Coordinator shall be the sum of the short-term procurement payments, based on opportunity cost, as described in Section 2.5.18, and the payments under long term contracts.

2.5.27.6 Black Start.

Quantities. The following quantities shall be used in the Settlement process:

$EnQBS_{ijt}$ = Energy output from Black Start made by Generating Unit i from Scheduling Coordinator j (or Black Start Generator j, as the case may be) for Settlement Period t, pursuant to the ISO's order to produce.

Prices. The prices used in the Settlement process are those described in the contracts referred to in section 2.5.19.

$Adjustment$ = penalty described in section 2.5.26.1.

Payments.

Scheduling Coordinators for owners of Reliability Must-Run Units (or Black Start Generators, as the case may be) shall receive the following payments for Energy output from Black Start facilities:

$$BSEN_{ijt} = (EnQBS_{ijt} * EnBid_{ijt}) + BSSUP_{ijt} - Adjustment$$

where $BSSUP_{ijt}$ is the start-up payment for a Black Start successfully made by Generating Unit i of Scheduling Coordinator j (or Black Start Generator j) in Trading Interval t calculated in accordance with the applicable Reliability Must-Run Contract (or the Interim Black Start agreement as the case may be).

2.5.27.7 Temporary Limitation on Ancillary Service Prices.

Notwithstanding any other provision of the ISO Tariff, the Market Clearing Prices for Regulation Up, Regulation Down, Spinning Reserves, Non-Spinning Reserves, and Replacement Reserves shall not exceed \$150. Scheduling Coordinators for Generating Units, System Units, Loads, and System Resources that submit bids above \$150 for the supply of these Ancillary Services shall be paid in accordance with their bids if accepted by the ISO.