2.2.16 Relationship Between ISO and Participating Loads

The ISO shall only accept bids for Supplemental Energy or Ancillary Services, or Schedules for self-provision of Ancillary Services, from Loads if such Loads are Participating Loads which meet standards adopted by the ISO and published on the ISO Home Page. The ISO shall not schedule Energy or Ancillary Services from a Participating Load other than through a Scheduling Coordinator.

2.3.4.3 In addition to the action taken under 2.3.4.2, the ISO will, if it considers it necessary to maintain he reliable operation of the ISO Control Area, offer Energy for sale on behalf of Scheduling Coordinators to adjacent Control Area operators at the estimated ~~Hourly~~ BEEP Interval Ex Post Price or, if the ISO considers it necessary, at a price established by the ISO on behalf of Scheduling Coordinators, to be paid to adjacent Control Area operators.

* * * * *

2.5.7.1 ~~Hourly Ex Post Price.~~[NOT USED]

~~he ISO shall use the Hourly Ex Post Price to settle and pay for Energy dispatched from Regulation, Spinning Reserves, Non-Spinning Reserves, and Replacement Reserves.~~

* * * * *

2.5.18 Voltage Support.

As of the ISO Operations Date, the ISO will contract for Voltage Support service with the owners of Reliability Must-Run Units. Payments for public utilities under the FPA shall be capped at the FERC authorized cost based rates unless and until FERC authorizes different pricing. The ISO shall pay owners of Reliability Must-Run Units for long term Voltage Support through their Scheduling Coordinators.

In addition, any Participating Generator who is producing Energy shall, upon the ISO's specific request, provide reactive energy output outside the Participating Generator's Voltage Support obligation defined in Section 2.5.3.4.

The ISO shall select Participating Generator's Generating Units which have been certified for Voltage Support to provide this additional Voltage Support. Subject to any locational requirements, the ISO shall select the least costly Generating Units from a computerized merit order stack to back down to produce additional Voltage Support in each location where Voltage Support is needed.

The ISO shall pay to the Scheduling Coordinator for that Participating Generator the opportunity cost of reducing Energy output to enable reactive energy production. This opportunity cost shall be:

Max{0, Zonal ~~Hourly~~ BEEP Interval Ex Post Price - Generating Unit bid price } x reduction in Energy output (MW).

If necessary, the ISO shall develop a regulatory cost based determination of marginal operating cost to be used in place of the Generating Unit bid price.

*** * * * ***

2.5.22 Rules For Real Time Dispatch of Imbalance Energy ~~Ancillary Service~~ Resources.

2.5.22.1 Overview. During real time, the ISO shall dispatch Generating Units, Loads and System Resources to procure Imbalance Energy. In addition, the ISO may also need to purchase additional Ancillary Services if the services arranged in advance are used to provide Imbalance Energy, and such depletion needs to be recovered to meet reliability contingency requirements.

2.5.22.2 General Principles. The ISO shall base real time dispatch of Generating Units, System Units, Loads and System Resources on the following principles:

(a) the ISO shall dispatch Generating Units, System Units, and System Resources providing Regulation Service to meet NERC and WSCC Area Control Error (ACE) performance requirements;

(b) once ACE has returned to zero, the ISO shall determine whether the Regulation Generating Units, System Units, and System Resources are operating at a point away from their preferred operating point. The ISO shall then adjust the output of Generating Units, System Units, and System Resources available (either providing Spinning Reserve, Non-Spinning Reserve, Replacement Reserve or offering Supplemental Energy) to return the Regulation Generating Units, System Units, and System Resources to their preferred operating points to restore their full regulating margin;

(c) the ISO shall dispatch Generating Units, System Units, Loads and System Resources only to meet its Imbalance Energy requirements. The ISO shall not dispatch such resources in real time for economic trades either between Scheduling Coordinators or within a Scheduling Coordinator portfolio;

(d) subject to Section 2.5.22.3.2, the ISO shall select the Generating Units, System Units, Loads and System Resources to be dispatched to meet its Imbalance Energy requirements based on a merit order of Energy bid prices;

(e) subject to Section 2.5.22.3.2, the ISO shall not discriminate between Generating Units, System Units, Loads and System Resources other than based on price, and the effectiveness (location and ramp rate) of the resource concerned to respond to the fluctuation in Demand or Generation;

(f) Generating Units, System Units, Loads and System Resources shall be dispatched during the operating hour only until the next variation in Demand or the end of the operating hour, whichever is sooner. In dispatching such resources, the ISO makes no further ~~is not making any long term~~ commitment as to the duration of their operation, nor the level of their output or Demand, except to the extent that a Dispatch instruction causes Energy to be delivered in a different BEEP Interval.

* * * * *

2.5.22.4.1 Timing of Supplemental Energy Bids

Supplemental Energy bids must be submitted to the ISO no later than forty-five (45) minutes prior to the operating hour. Bids may be submitted at any time after the Day-Ahead Market closes. These Supplemental Energy bids cannot be withdrawn after forty-five (45) minutes prior to the Settlement Period, except that a bid from a System Resource may specify that any portion of the bid that is not called prior to the beginning of the Settlement Period shall not be called after the beginning of the Settlement Period. The ISO may dispatch the associated resource at any time during the Settlement Period.

2.5.23 Pricing Imbalance Energy.

2.5.23.1 General Principles. Instructed and Uninstructed Imbalance Energy shall be priced using the BEEP Interval Ex Post Prices ~~for Instructed Imbalance Energy per resource and the Hourly Ex Post Price for Uninstructed Imbalance Energy~~. The BEEP Interval Ex Post Prices shall be based on the bid of the marginal Generating Units, System Units, Loads and System Resources dispatched by the ISO to increase or reduce Demand or ~~to increase or decrease~~ Energy output in each BEEP Interval as provided in Section 2.5.23.2.1.

The marginal Generating Unit, System Unit, Load or System Resource provides ~~dispatched in each BEEP Interval is~~

(a) Incremental Energy if Ggeneration output is increased, or Demand reduced, ~~the Generating Unit, System Unit, Load or System Resource with the highest bid that is accepted by the ISO's BEEP Software for incremental Generation, or Demand reduction~~; or

(b) Decremental Energy if Ggeneration output is decreased, or Demand increased~~the Generating Unit, System Unit, Load or System Resource with the lowest bid that is accepted by the ISO's BEEP Software for decremental Generation~~.

For Incremental Energy, the marginal bid is the Generating Unit, System Unit, Load or System Resource with the highest bid that is accepted by the ISO's BEEP Software for increased Generation, or reduced Demand. For Decremental Energy, the marginal bid is the Generating Unit, System Unit, Load or System Resource with the lowest bid that is accepted by the ISO's BEEP Software for reduced Generation or increased Demand.

When an Inter-Zonal Interface is operated at the capacity of the interface (whether due to scheduled uses of the interface, or decreases in the capacity of the interface), the marginal incremental or decremental bid prices in some Zones may differ from one another. In such cases, the ISO will determine separate Ex Post Prices for the Zones.

The ISO will respond to the Dispatch instructions issued by the BEEP Software to the extent practical in the time available and acting in accordance with Good Utility Practice. The ISO will record the reasons for any variation from the Dispatch instructions issued by the BEEP Software.

2.5.23.2 Determining Ex Post Prices.

2.5.23.2.1 BEEP Interval Ex Post Prices. For each BEEP Interval, the ISO will compute an updated ~~dispatch price~~ supply curve, using the Generating Units, System Units, Loads and System Resources dispatched according to the ISO's BEEP Software during that time period to meet Imbalance Energy requirements. The BEEP Interval Ex Post Price is equal to the bid price of the marginal resource accepted by the ISO for Dispatch. For each BEEP Interval of the Settlement Period, BEEP will compute an incremental Ex Post Price and a decremental Ex Post Price. The BEEP Interval ~~incremental~~ Ex Post Price for incremental Energy will be ~~equal~~ the highest

incremental marginal ~~price~~ bid selected by ~~in~~ the BEEP software in the corresponding BEEP Interval. The BEEP Interval ~~decremental~~ Ex Post Price for decremental Energy will be ~~equal~~ the lowest price decremental marginal bid selected by the BEEP software in the corresponding BEEP Interval. If only decremental Imbalance Energy is dispatched in a BEEP Interval, then the BEEP Interval Ex Post Price for incremental Energy will be equal to the BEEP Interval Ex Post Price for decremental Energy. If only incremental Imbalance Energy is dispatched in a BEEP Interval, then the BEEP Interval Ex Post Price for decremental Energy will be equal to the BEEP Interval Ex Post Price for incremental Energy. ~~The Ex Post Prices for each BEEP Interval will equal the marginal bid of the marginal Generating Unit, System Unit, Load, or System Resource as described in Section 2.5.23.1.~~

~~The BEEP Interval incremental Ex Post Price will be computed for each BEEP Interval i as~~

~~$PI_i = Max(EnBid_{ir})_{ti}$~~

~~The BEEP Interval decremental Ex Post Price will be computed for each BEEP Interval as~~

~~$PD_i = Min(EnBid_{ri})_i$~~

~~Where~~

~~$EnBid_{ri}$ = Energy bid prices of the resource providing Ancillary Service Energy, or Supplemental Energy.~~

In the event of Inter-Zonal Congestion, the ISO will develop a dispatch price curve, and the BEEP Interval Ex Post Prices for each Zone where congestion exists.

* * * * *

2.5.23.2.2 Hourly Ex Post Price Applicable to Uninstructed Deviations. The Hourly Ex Post Price ~~applicable to Uninstructed Imbalance Energy~~ in Settlement Period t in each zone will equal the Energy weighted average of the BEEP Interval Charges in each Zone, calculated as follows:

$$PHourExPostx = \frac{(\sum_{ji} \left| MWh_{jix} \right| * BIP_{ix})}{\sum_{ji} \left| MWh_{jix} \right|}$$

Where:

$PHourExPost_x$ = Hourly Ex Post Price in Zone x

BIP_{ix}= BEEP Interval Ex Post Price

J=the number of Scheduling Coordinators with instructed deviations

~~*IIEC*$_{jix}$= the Instructed Imbalance Energy Charges for Scheduling Coordinator j for the BEEP Interval i in Zone x.~~

~~*I*~~*IMWH*$_{jix}$=the Instructed Imbalance Energy for Scheduling Coordinator j for the BEEP Interval i in Zone x.

If the ISO declares a System Emergency, e.g. during times of supply scarcity, and involuntary load shedding occurs during the real time Dispatch, the ISO shall set the Hourly Ex Post Price at the Administrative Price.

2.5.26 Penalties for Failure to Pass Tests and Rescission of Payment for Non-Delivery.

2.5.26.1 Penalties for Failure to Pass Tests. A Generating Unit, Curtailable Demand, System Unit or System Resource that fails an availability test, as determined under criteria to be established by the ISO, shall be deemed not to have been available to provide the Ancillary Service concerned or the relevant portion of that Service for the entire period the Generating Unit, Curtailable Demand, System Unit or System Resource was committed to provide the Service, unless appropriate documentation (i.e., daily test records) confirming the availability of that service during the committed period(s) is presented to the ISO. The "committed period" is defined as the total of all the hours/days the Generating Unit, Curtailable Demand, System Unit or System Resource was scheduled by the ISO to provide the Ancillary Service beginning from: (i) the last successful availability test; or (ii) the last time the Generating Unit, Curtailable Demand, System Unit or System Resource actually provided Energy or reduced Demand as part of the Ancillary Service; whichever results in a shorter committed period. The Scheduling Coordinator for a Generating Unit, Curtailable Demand, System Unit or System Resource that fails an availability test shall not be entitled to payment for the Ancillary Service concerned for the committed period and adjustments to reflect this shall be made in the calculation of payments to the Scheduling Coordinator, provided that any such penalty shall be reduced to reflect any adjustment made over the duration of the committed period under Section 2.5.26.2 or 2.5.26.3.

System Units engaged in Literal Self Provision of Ancillary Services, In-Kind Self-Provision of Ancillary Services, or providing Ancillary Services to the ISO are subject to the same testing, compensation, and penalties as are applied to individual Generating Units engaged in In-Kind Self Provision or provision of Ancillary Services. To perform testing, the ISO will bias the MSS's MSRE to test the responsiveness of the System Unit.

If payments for capacity for a particular Ancillary Service in a particular Settlement Period would be rescinded under more than one provision of this Section 2.5.26, the total amount to be rescinded for a particular Ancillary Service in a particular Settlement Period shall not exceed the total payment due in that Settlement Period.

2.5.26.2 Rescission of Payments for Unavailability. If capacity scheduled into the ISO's Ancillary Services markets from a Generating Unit, Curtailable Demand, System Unit or System Resource is unavailable during the relevant BEEP Interval ~~Settlement Period~~, then payments will be rescinded as described herein. For self-provided Ancillary Services, the payment obligation shall be equivalent to that which would arise if the Ancillary Services had been bid into each market in which they were scheduled.

2.5.26.2.1 If the ISO determines that a Scheduling Coordinator has supplied Uninstructed Imbalance Energy to the ISO during a BEEP Interval ~~Settlement Period~~ from the capacity of a Generating Unit, System Unit or System Resource that is obligated to supply Spinning Reserve, Non-Spinning Reserve, or Replacement Reserve to the ISO during such BEEP Interval ~~Settlement Period~~, payments to the Scheduling Coordinator representing the Generating Unit, System Unit or System Resource for the Ancillary Service capacity used to supply Uninstructed Imbalance Energy and for Energy supplied from such capacity shall be eliminated to the extent of the deficiency, except to the extent (i) the deficiency in the availability of Ancillary Service capacity from the Generating Unit, System Unit or System Resource is attributable to control exercised by the ISO in that BEEP Interval ~~Settlement Period~~ through AGC operation, an RMR Dispatch Notice, or dispatch to avoid an intervention in Market operations or to prevent a System Emergency; or (ii) a penalty is imposed under Section 2.5.26.1 with respect to the deficiency.

2.5.26.2.2 If the metered Demand of a Curtailable Demand is insufficient to deliver the full amount of the Non-Spinning and Replacement Reserve to which that Curtailable Demand is obligated in that BEEP Interval~~Settlement Period~~, then the related capacity payments will be rescinded to the extent of that deficiency as explained in Section 2.5.26.2.4 and 2.5.26.2.5, unless a penalty is imposed on that Curtailable Demand for that ~~Settlement Period~~ BEEP Interval under Section 2.5.26.1.

2.5.26.2.3 The payment for Energy to be eliminated shall be determined in accordance with Section 11.2.4.1.

2.5.26.2.4 This Section 2.5.26.2.4 shall not apply to the capacity payment for any particular Ancillary Service if the Zonal Market Clearing Price determined in accordance with Sections 2.5.15, 2.5.16 or 2.5.17 is less than or equal to zero. For those Ancillary Services for which such Zonal Market Clearing Prices are greater than zero, the payment for Ancillary Service capacity otherwise payable under Section 2.5.27.2, 2.5.27.3, and/or 2.5.27.4 shall be reduced by one sixth of the product of the applicable prices and the amount of Ancillary Service capacity from which the Generating Unit, Curtailable Demand, System Unit or System Resource has supplied Uninstructed Imbalance Energy in a BEEP Interval. If a Scheduling Coordinator schedules Ancillary Services through both the Day-Ahead and Hour-Ahead Markets, capacity payments due the Scheduling Coordinator from each market will be rescinded in proportion to the amount of capacity sold to the ISO in each market. The amount of capacity for which payments will be rescinded shall equal the value $UnavailAncServMW_{ixt}$, as defined in Section 11.2.4.1, applied to each Generating Unit, System Unit and System Resource supplying the Ancillary Service or the value $UnavailDispLoadMW_{ixt}$, as also defined in Section 11.2.4.1, applied to the Curtailable Demand supplying the Ancillary Service.

2.5.26.2.5 Payment shall be eliminated first for any Spinning Reserve capacity for which the Generating Unit, Curtailable Demand or System Resource would otherwise be entitled to payment. If the amount of Ancillary Service capacity from which the Generating Unit or System Resource has supplied Uninstructed Imbalance Energy exceeds the amount of Spinning Reserve capacity for which it would otherwise be entitled to receive payment, payment shall be eliminated for Non-Spinning Reserve capacity, and then for Replacement Reserve capacity, until payment has been withheld for the full amount of Ancillary Service capacity from which the Generating Unit, Curtailable Demand or System Resource supplied Uninstructed Imbalance Energy.

2.5.26.2.6 For each BEEP Interval in which a Generating Unit, Curtailable Demand, System Unit or System Resource fails to supply Energy from Spinning Reserve, Non-Spinning Reserve or Replacement Reserve capacity in accordance with a Dispatch instruction, or supplies only a portion of the Energy specified in the Dispatch instruction, the capacity payment will be pro-rated

to reflect the unavailability in that BEEP Interval of the difference between (1) the total MW of the particular Ancillary Service scheduled in that Settlement Period[,] and (2) the amount of Energy, if any, supplied in response to the Dispatch instruction in that BEEP Interval.

2.5.26.3 Rescission of Payments When Dispatch Instruction is Not Followed

If the total metered output of a Generating Unit, Curtailable Demand, System Unit, or System Resource ~~as adjusted by a deadband factor to be published on the ISO Home Page,~~ is insufficient to deliver ~~less than~~ the amount of Instructed Imbalance Energy associated with a Dispatch ~~dispatch~~ instruction issued in accordance with a bid on Spinning Reserve, Non-Spinning Reserve, or Replacement Reserve in any ~~Settlement Period~~BEEP Interval, then the ~~Ancillary Services~~ capacity payment~~s~~ associated with the difference between the ~~sum of the~~ total scheduled amount of each Ancillary Service ~~Spinning Reserve, Non-Spinning Reserve, and Replacement Reserve~~for which Insufficient Energy was delivered, and the actual output attributed to the response to the Dispatch instruction on each Ancillary Service, shall be rescinded. However, no capacity payment shall be rescinded if the shortfall in the metered output of the Generating Unit, Curtailable Demand, System Unit, or System Resource is less than a deadband amount published by the ISO on the ISO Home Page at least twenty-four hours prior to the BEEP Interval. For any BEEP Interval with respect to which no deadband amount has been published by the ISO, the deadband amount shall be zero MWH. ~~If the metered Demand of a Curtailable Demand in any Settlement Period is greater than its scheduled Demand net of dispatch instructions, then the capacity payments associated with the difference between its total scheduled Non-Spinning and Replacement Reserve, and actual load reduction as represented by the difference between its metered Demand and scheduled Demand, shall be rescinded.~~ If the Generating Unit, Curtailable Demand or System Resource is scheduled to provide more than one Ancillary Service in the Settlement Period, then the actual output will be attributed first to Replacement Reserve, then to Non-Spinning Reserve, and finally to Spinning Reserve, ~~to each in proportion to the dispatch instructions issued by the ISO,~~ and the capacity payments associated with the balance of each Ancillary Service shall be rescinded. If the same Ancillary Service is scheduled in both the Day-Ahead and Hour-Ahead Markets, ~~than~~ then payments shall be rescinded in proportion to the amount of each Ancillary Service scheduled in each market.

* * * * *

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, 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, 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~~or~~ 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.

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 ~~the following~~ payment for Energy output from Regulation in accordance with settlement for Uninstructed Imbalance Energy under Section 11.2.4.1.~~:~~

$$\sum_{i} [(EnQUnst_{ixt} * HourlyExPostPriceinZoneX) + REPAi_{xt}]$$

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

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

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} = the Hourly Ex Post Price for Zone X 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.

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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, 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, ~~determined~~ 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.

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.

$PspDA_{xt}$ = market clearing price, Psp, 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 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, ~~determined~~ 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.

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:

$NonspPay_{xt} = NonSpinQDA_{xt} * PnonspDAxt - Adjustment$

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

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

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, 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, ~~determined~~ 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.

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 Replacement Reserve capacity:

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

The payments for Energy output from Replacement Reserve capacity are calculated as follows:

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

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11.2.4.1 Net Settlements for Uninstructed Imbalance Energy.

Uninstructed Imbalance Energy attributable to each Scheduling Coordinator ~~in~~for each Settlement Period in the relevant Zone shall be deemed to be sold or purchased, as the case may be, by the ISO and charges or payments for Uninstructed Imbalance Energy shall be settled by debiting or crediting, as the case may be, the Scheduling Coordinator with an amount for each BEEP Interval of each Settlement Period equal to the product of the net deviation in the Zone or Zones, as appropriate, and the appropriate BEEP Interval Ex Post Price determined in accordance with Section 2.5.23.2.1. ~~sum of~~:

~~(a) The quantity of undelivered Instructed Imbalance Energy, multiplied by the Effective Price and;~~

~~(b) The quantity of deviation from the Final Hour-Ahead Schedule multiplied by the Hourly Ex Post Price.~~

~~Imbalance Energy charge will be calculated as follows:~~

~~*IE Charge = DevC + ASSEDevC*~~

~~where~~

$$DevC = \sum_i GenDevC_i + \sum_i LoadDevC_i + \sum_q ImpDevC_q + \sum_q ExpDevC_q + UFEC$$

$$ASSEDevC = \sum_i ASSEGenDevC_i + \sum_i ASSELoadDevC_i + \sum_q ASSEImpDevC_q$$

~~and~~

~~The deviation between scheduled and actual Energy Generation for Generator i represented by the Scheduling Coordinator for the Settlement Period is calculated as follows:~~

~~$$GenDev_i = G_s * GMM_f - \left[\left(G_a - G_{adj}\right) * GMM_{ah} - G_{a/s} - G_{s/e}\right] - UnavailAncServMW_{ixt}$$~~

~~$$UnavailAncServMW_{ixt} = Max[-(G_{i,oblig} - G_{a/s}), Min(0, Pmax - Ga - (G_{i,oblig} - G_{a/s}))]$$~~

~~$GenDevC_i = GenDev_i * P$ in case of (b) above, and~~

~~If $G_{a/s} + G_{s/e} > 0$ and $P < P_{eff}$ then:~~

~~$ASSEGenDevC_i=Max[0,[G_{a/s}-Max[0,(G_a-G_{adj}-G_s)]]]*(P_{eff-I}-P)$ in case of (a) above, or~~

~~If $G_{a/s}+G_{s/e}<0$ and $P>P_{eff}$ then:~~

~~$ASSEGenDevC_i=Min[0,[G_{a/s}-Min[0,(G_a-G_{adj}-G_s)]]]*(P_{eff-I}-P)$ in case of (a) above~~

~~The deviation between scheduled and actual Load consumption for Load i represented by the Scheduling Coordinator for the Settlement Period is calculated as follows:~~

~~$LoadDev_i = L_s - \left[\left(L_a - L_{adj}\right) + L_{a/s} + L_{s/e}\right] - UnavailDispLoadMW_{ixt}$~~

~~Where:~~

~~$UnavailDispLoadMW_{ixt}=Max[0,(L_{i,oblig}-L_{a/s})-L_a$~~

~~$LoadDevC_i=LoadDev_i*P$ in case of (b) above, and~~

~~If $L_{a/s}+L_{s/e}>0$ and $P<P_{eff}$ then:~~

~~$ASSELoadDevC_i=Max[0,[L_{a/s}-Max[0,(L_a-L_{adj}-L_s)]]]*(P_{eff-I}-P)$ in case of (a) above, or~~

~~If $L_{a/s}+L_{s/e}<0$ and $P>P_{eff}$ then:~~

~~$ASSELoadDevC_i=Min[0,[L_{a/s}-Min[0,(L_a-L_{adj}-L_s)]]]*(P_{eff-I}-P)$ in case of (a) above~~

~~The deviation between forward, scheduled and Real Time adjustments to Energy imports, adjusted for losses, for Scheduling Point q represented by the Scheduling Coordinator for the Settlement Period is calculated as follows:~~

~~$ImpDev_q=I_s*GMM_{fq}-[(I_a-I_{adj})*GMM_{ahq}]+I_{a/s}$~~

~~$ImpDevC_q=ImpDev_q*P$ in case of (b) above, and~~

~~If $I_{a/s}>0$ and $P<P_{eff}$ then~~

~~$ASSEImpDevC_q=Max[0,[L_{a/s}-Max[0,(L_a-L_{adj}-L_s)]]]*(P_{eff-q}-P)$ in case of (a) above, or~~

~~If $I_{a/s}<0$ and $P>P_{eff}$ then:~~

~~$ASSEImpDevC_q=Min[0,[L_{a/s}-Min[0,(L_a-L_{adj}-L_s)]]]*(P_{eff-q}-P)$ in case of (a) above~~

~~The deviation between forward, scheduled and Real Time adjustments to Energy exports for Scheduling Point q represented by the Scheduling Coordinator for the Settlement Period is calculated as follows:~~

~~$ExpDevC_q=ExpDev_q*P$~~

~~and where:~~

~~G_s = sum of effective schedules for Day-Ahead and Hour-Ahead~~

~~GMM_f = estimated GMM for Day-Ahead~~

~~G_a = actual metered Generation~~

~~G_{adj} = deviations in real time ordered by the ISO for purposes such as Congestion Management~~

~~GMM_{ah} = hour-ahead GMM (proxy for ex-post GMM)~~

~~$G_{a/s}$ = Energy generated from Ancillary Service resource or Supplemental Energy resource due to ISO dispatch instruction~~

~~L_s = sum of Demand scheduled for Day-Ahead and Hour-Ahead~~

~~L_a = actual metered Demand~~

~~L_{adj} = Demand deviation in real time ordered by ISO for purposes such as Congestion Management~~

~~$L_{a/s}$ = Demand reduction from Ancillary Service resource due to ISO dispatch instruction~~

~~GMM_{fq} = estimated GMM for an Energy import at Scheduling Point q for Day-Ahead~~

~~GMM_{ahq} = estimated GMM for an Energy import at Scheduling Point q for Hour-Ahead (proxy for ex-post GMM)~~

~~I_S = sum of Scheduled Energy import through Scheduling Point q for Day-Ahead and Hour-Ahead~~

~~I_a = sum of actual Energy import through Scheduling Point q.~~

~~I_{adj} = deviation in real time import ordered by ISO for purposes such as Congestion Management, and import curtailment.~~

~~$I_{a/s}$ = Energy generated from Ancillary Service System Resources pursuant to Existing Contracts or Supplemental Energy from interties due to dispatch instruction~~

~~E_S = sum of scheduled Energy export scheduled through Scheduled Point q for Day-Ahead and Hour-Ahead~~

~~E_a = sum of actual Energy export through Scheduling Point q~~

~~E_{adj} = deviation in real time export ordered by ISO for purposes such as Congestion Management, and export curtailment~~

~~P = Hourly Ex Post Price for Imbalance Energy for the relevant hour~~

~~$UFEC$ = the Unaccounted for Energy Charge for the Scheduling Coordinator calculated as follows:~~

~~The ISO shall develop protocols and procedures for the monitoring of persistent intentional excessive imbalances by Scheduling Coordinators and for the imposition of appropriate sanctions and/or penalties to deter such behavior. The net balance of the charges attributable to all Scheduling Coordinators represents the Transmission Losses imbalance total for each hourly Settlement Period.~~

~~Unaccounted for Energy Charge~~

~~The hourly Unaccounted for Energy Charge on Scheduling Coordinator j for Settlement Period t for each relevant Zone is calculated in the following manner:~~

~~The UFE for each utility service territory *k* is calculated as follows,~~

$$E_{UFE\_UDC\_k} = \left(I_k - E_k + G_k - \left(RTM_k + LPM_k\right) - TL_k\right)$$

~~The Transmission Loss calculation per Settlement Period t per relevant Zone for each utility service territory k is calculated as follows,~~

$$TL_k = \sum\left[G_a * \left(1 - GMM_{ah}\right)\right] + \sum\left[I_a\left(1 - GMM_{ahq}\right)\right]$$

~~Each metered demand point, either ISO grid connected or connected through a UDC, is allocated a portion of the UFE as follows:~~

$$E_{UFE\_z} = \frac{D_z}{\sum_Z D_z} E_{UFE\_UDC\_k}$$

~~The UFE charge for Scheduling Coordinator j per Settlement Period per relevant Zone is then,~~

$$UFEC_j = \left(\sum_z E_{UFE\_z}\right) * P_{xt}$$

~~Where the terms used in the equations have the following meaning:~~

~~**$E_{UFE\_UDC\_k}$ -- MWh**~~

~~The Unaccounted for Energy (UFE) for utility service territory k.~~

~~**E_{UFE_z} -- MWh**~~

~~The portion of Unaccounted for Energy (UFE) allocated to metering point z.~~

~~**I_k -- MWh**~~

~~The total metered imports into utility service territory k in Settlement Period t.~~

~~**E_k -- MWh**~~

~~The total metered exports from utility service territory k in Settlement Period t.~~

~~**G_k -- MWh**~~

~~The total metered Generation in Settlement Period t in utility service territory k.~~

~~**RTM_k -- MWh**~~

~~The Settlement Period t total of the real-time metering in utility service territory k in Settlement Period t.~~

~~**LPM_k -- MWh**~~

~~The calculated total of the Load Profile metering in utility service territory k per Settlement Period t.~~

~~**TL_k -- MWh**~~

~~The Transmission Losses per Settlement Period t in utility service territory k.~~

~~**D_z -- MWh**~~

~~The Demand including Exports in Settlement Period t at metered point z.~~

The ISO shall develop protocols and procedures for the monitoring of persistent intentional excessive imbalances by Scheduling Coordinators and for the imposition of appropriate sanctions and/or penalties to deter such behavior.

11.2.4.1.1 Settlement for Instructed Imbalance Energy

Instructed Imbalance Energy attributable to each Scheduling Coordinator j in each Settlement Period t in the relevant Zone shall be deemed to be sold or purchased, as the case may be, by the ISO and charges or payments for Instructed Imbalance Energy shall be settled by debiting or

crediting, as the case may be, the Scheduling Coordinator with an amount for each BEEP Interval of each Settlement Period ~~t equal to~~in accordance with Section 2.5.23.~~:~~

~~$IIEC_j = IGDC_j + ILDC_j + IIDC_j$~~

~~*Where:*~~

~~*Instructed Generation Deviation Payment/Charge is calculated as follows:*~~

$$IGDC = \sum_{gi} \frac{G_{gi} * P_i}{HBI}$$

~~*Instructed Load Deviation Payment/Charge is calculated as follows:*~~

$$ILDC = \sum_{Li} \frac{L_{Li} * P_i}{HBI}$$

~~*Instructed Import Deviation Payment/Charge is calculated as follows:*~~

$$IIDC = \sum_{Ii} \frac{I_{Ii} * P_i}{HBI}$$

~~*and where:*~~

~~***$IGDC_j$***=total of instructed Generation deviation payments/charges for the Settlement Period t~~

~~***$ILDC_j$***=total of instructed Demand deviation payments/charges for the Settlement Period t~~

~~***$IIDC_j$***=total of instructed import deviation payments/charges for the Settlement Period t~~

~~***G_{gi}***=instructed Energy (in MW) for Generating Unit g during BEEP Interval i~~

~~***L_{Li}***=instructed Energy (in MW) for Load L during BEEP Interval i~~

~~***I_{Ii}***=instructed Energy (in MW) for import I during BEEP Interval I~~

~~***P_i***=the BEEP incremental Ex Post Price for BEEP Interval i if the net instructed Energy for resources is positive. Or, the BEEP decremental Ex Post Price for BEEP Interval i if the net instructed Energy for resources is negative~~

~~***HBI***= the Number (2-12) of BEEP Intervals in the Settlement Period: the maximum number of intervals in the Settlement Period that BEEP can instruct a resource for incremental/decremental Energy.~~

* * * * *

ISO TARIFF APPENDIX A

Master Definitions Supplement

Ancillary Service Provider A Participating Generator or Participating Load~~an owner of~~

~~Load~~ who is eligible to provide an ancillary service.

* * * *

BEEP Interval Ex Post Prices

The prices charged to or paid by Scheduling Coordinators for ~~Instructed~~ Imbalance Energy in each Zone in each BEEP Interval. ~~The prices will vary between Zones if Congestion is present. The BEEP Interval Ex Post Price is equal to the bid price of the marginal resource accepted by the ISO for Dispatch and deemed eligible by the ISO to set the price during the BEEP Interval. For each BEEP Interval: the BEEP Interval Ex Post Price for incremental Energy will equal the highest price bid selected by the BEEP software; and the BEEP Interval Ex Post Price for decremental Energy will equal the lowest price bid selected by the BEEP software.~~

* * * * *

Dispatchable Loads

Load ~~from a Participating Load~~ which is the subject of an Adjustment Bid.

* * * * *

Participating Load

An entity providing Curtailable Demand, ~~Dispatchable Load, or both,~~ which has undertaken in writing to comply with all applicable provisions of the ISO Tariff, as they may be amended from time to time.

* * * * *

Supplemental Energy

Energy from Generating Units bound by a Participating Generator Agreement, Loads bound by a Participating Load Agreement, System Units, and System Resources~~other resources~~ which have uncommitted capacity following finalization of the Hour-Ahead Schedules and for which Scheduling Coordinators have submitted bids to the ISO at

least half an hour before the commencement of the Settlement Period.

* * * * *

DP 7.3 Supplemental Energy Bids

Supplemental Energy bids may be submitted to the ISO no later than forty-five ~~thirty~~ (~~30~~45) minutes prior to the beginning of the Settlement Period in accordance with the format and content of the SBP. These Supplemental Energy bids cannot be withdrawn after forty-five ~~thirty~~ (45~~30~~) minutes prior to the beginning of the Settlement Period, except that a bid from a System Resource may specify that any portion of the bid that is not called prior to the beginning of the Settlement Period shall not be called after the beginning of the Settlement Period. The ISO may dispatch the associated resource at any time during the Settlement Period.

* * * * *

DP 8.6.3 Basis for Real Time Dispatch

The ISO shall base real time Dispatch of Generating Units, Curtailable Demands and Interconnection schedules on the following principles:

(a) the ISO shall dispatch Generating Units and Interconnection schedules providing Regulation service to meet WSCC and NERC Area Control Error (ACE) performance criteria;

(b) following the loss of a resource and once ACE has returned to zero, the ISO shall determine if the Regulation Generating Units and Interconnection schedules are operating at a point away from their Set Point. The ISO shall then adjust the output of Generating Units and Interconnection schedules (either providing Spinning Reserve, Non-Spinning Reserve or Supplemental Energy) to return the Regulation Generating Units and Interconnection schedules to their Set Points to restore their full regulating margin;

(c) the ISO shall dispatch Generating Units, Curtailable Demands and Interconnection schedules only to meet its balancing Energy requirements. The ISO shall not dispatch such resources in real time for economic trades either between SCs or within a SC's portfolio;

(d) the ISO shall select the Generating Units, Curtailable Demands and Interconnection schedules to be dispatched to meet its balancing Energy requirements based on the merit order stack of Energy bid prices produced by BEEP;

(e) the ISO shall not discriminate between Generating Units, Curtailable Demands and Interconnection schedules other than based on price, and the effectiveness (location and ramp rate) of the resource concerned to respond to the fluctuation in Demand or Generation;

(f) Generating Units, Curtailable Demands or Interconnection schedules shall be dispatched during the Settlement Period only until the next variation in Generation or Demand or the end of the Settlement Period, whichever is sooner. In dispatching such resources, the ISO is not making any commitment beyond the Settlement Period, as to the duration of their operation, nor the level of their output or Demand;

(g) The ISO will not differentiate between Ancillary Services procured by the ISO and Ancillary Services which are being self-provided; [~~and~~]

(h) Within BEEP, once a decremental bid has been used by the ISO, it will then be included in the incremental part of the database with its incremental bid equal to its decremental price bid. Once an incremental bid has been used by the ISO it will then be included in the decremental part of the database with a decremental bid equal to its incremental price. In the event that the ISO subsequently needs to decrement output, it will initially decrement the Generating Units or Interconnection schedules incremented previously, and then continue down the merit order of the decremental bids; and

(i) The bid ramp rate of a resource will be considered by the BEEP software in determining the amount of Instructed Imbalance Energy by BEEP Interval, and such consideration may result in Instructed Imbalance Energy in BEEP Intervals subsequent to the BEEP Interval to which the Dispatch instruction applies.

* * * * *

Scheduling Protocol

SP 4.2.1 Derivation of GMMs

(a) The ISO will utilize the Power Flow Model to determine the GMMs which will be used to allocate, to each Generating Unit and external import, scheduled and Ex Post Transmission Losses.

(b) For each Settlement Period, the GMMs will be first calculated before SCs submit Day-Ahead Preferred Schedules. Prior to the time when SCs are required to submit their Day-Ahead Preferred Schedules, the ISO will forecast the total Control Area Demand. This forecast, along with the ISO forecast of Generation and Demand patterns throughout the ISO Control Area, will be used to develop estimated GMMs for each Generating Unit and each external import. The ISO will calculate and publish (in accordance with SP 3.2.1) GMMs for each Settlement Period to reflect different expected Generation and Demand patterns and expected operations and maintenance requirements, such as line Outages, which could affect Transmission Loss determination and allocation.

(c) The ISO will utilize the real time Power Flow Model to calculate Ex Post GMMs to allocate Ex Post Transmission Losses to each Generating Unit and each external import. This run of the Power Flow Model will use metered Generation and Demand. Any difference between scheduled and Ex Post Transmission Losses will be considered as an Imbalance Energy deviation and will be purchased or sold in the Real Time Market at the ~~Hourly~~ BEEP Interval Ex Post Price.

* * * * *

Settlement and Billing Protocol

C 2.1.3 ~~**C 2.1.3 Real Tme Market**~~

~~The total payment to each Scheduling Coordinator for real time Instructed Imbalance Energy output from all resources which it represents for a given Trading Interval in a given Zone is calculated by summing all the payments for the resources of the Scheduling Coordinator in the Zone for the Trading Interval. This payment for Scheduling Coordinator j in Zone x for Trading Interval t is calculated as follows:~~

$$EnQPayTotal_{ijxt} = \sum_{i} EnQPay_{ijxt}$$

Each Scheduling Coordinator will be paid a Regulation Energy Payment Adjustment for real time incremental or decremental Energy provided from Regulation resources as a result of the ISO's control of those resources. The payment for Scheduling Coordinator j for providing incremental or decremental Energy from resource i in Zone x for Trading Interval t is calculated as follows:

$$REPA_{ijxt} = [(RUP_{ijxt} * CUP) + (RDN_{ijxt} * CDN)] * max(\$20/MWh, P_{xt})$$

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 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.

* * * * *

C 3.16 EnQ_{ijxt} – MWh[Not Used]

The Instructed Imbalance Dispatched and Supplemental Energy output in the Real Time Market from resource i represented by Scheduling Coordinator j in Zone x for Trading Interval t.

C 3.17 $EnQPayTotal_{jxt}$ - $[Not Used]

The total payment to each Scheduling Coordinator j for Dispatched and Supplemental Energy output in the Real Time Market from all resources which it represents for Trading Interval t in Zone x.

C 3.18 P_{xt} - $/MWh[Not Used]

The Hourly Ex Post Price of Uninstructed Imbalance Energy in the Real Time Market in Zone x for Trading Interval t

* * * * *

APPENDIX D

IMBALANCE ENERGY CHARGE COMPUTATION

* * * * *

D 2.1.1 Uninstructed Imbalance Energy Charges on Scheduling Coordinators

Uninstructed Imbalance Energy attributable to each Scheduling Coordinator in each Settlement Period in the relevant Zone shall be deemed to be sold or purchased, as the case may be, by the ISO and payments for Uninstructed Imbalance Energy shall be settled by debiting or crediting, as the case may be, the Scheduling Coordinator with an amount for each BEEP Interval of each Settlement Period ~~equal to the sum of~~ calculated in accordance with the following formulae:

~~(a) The quantity of undelivered Instructed Imbalance Energy, multiplied by the Effective Price, and~~

~~(b) The quantity of deviation from the final Hour-Ahead Schedule multiplied by the Hourly Ex Post Price.~~

~~Imbalance Energy charge will be calculated as follows:~~

~~*IECharge=DevC + ASSEDevC*~~

~~Where:~~

$$DevC = \sum_i GenDevC_i + \sum_i LoadDevC_i + \sum_q ImpDevC_q + \sum_q ExpDevC_q + UFEC$$

$$ASSDevC = \sum_i ASSEGenDevC_i + \sum_i ASSELoadDevC_i + \sum_q ASSEImpDevC_q$$

$$DevC_{bjxt} = NetDev_{bjxt} * BIP_{bxt}$$

Where:

$$NetDev_{bjxt} = \left[\sum_i GenDev_{bixt} - \sum_i LoadDev_{bixt} + \sum_q ImpDev_{bq\text{-}xt} - \sum_q ExpDev_{bq\text{-}xt} \right]$$

If $NetDev_{bjxt} < 0$, then

BIP_{bxt} = BEEP Interval Price for decremental Energy for BEEP Interval b in Settlement Period t.

If $NetDev_{bjxt} > 0$, then

BIP_{bxt} = BEEP Interval Price for incremental Energy in Zone x for BEEP Interval b in Settlement Period t.

~~and~~

The deviation quantity between scheduled and actual Energy Generation for Generator i represented by Scheduling Coordinator j in Zone x during each BEEP Interval b of each Settlement Period ~~Trading Interval~~ t is calculated as follows:

~~$GenDev_i = G_s * GMM_f - [(G_a - G_{adj}) * GMM_{ah} - G_{a/s} - G_{s/e}] - UnavailAncServMW_{ixt}$~~

$$\text{GenDev}_{\text{ixbt}} = \left[\left(G_{s_b}\right) * \text{GMM}_{\text{f}} - \left[\left(G_{\text{a}} - G_{\text{b,adj}}\right) * \text{GMM}_{\text{a}} - G_{\text{b,a/s}} - G_{b,s/e} \right] - \frac{UnavailAncServMW_{bx}}{HBI} \right]$$

Where:

If the BEEP Interval Ex Post Price for decremental Energy is negative, then:

$UnavailAncServMW_{jx} = 0$

If the BEEP Interval Ex Post Price for decremental Energy is greater than or equal to zero, then:

$UnavailAncServMW_{ixt}$ ~~=~~ $= Max[- (G_{i,\ oblig} - G_{a/s}*6)\ Min(0, Pmax_i - Ga*6 - (G_{i,\ oblig} - G_{a/s}*6))]$

~~$GenDevC_i = GenDev_i * P$ in case of (b) above, and~~

The value of G_a for Generation scheduled on behalf of Participating Generators for each BEEP Interval in each Settlement Period shall be the actual meter data aggregated on a 10-minute basis. The value of G_{sb} for Generation scheduled on behalf of Participating Generators for each BEEP Interval in each Settlement Period shall be determined as follows for BEEP Intervals 2 through 5:

$$G_{s,b} = \frac{G_s}{6}$$

For BEEP Interval 1 and BEEP Interval 6, implicit Dispatch instructions for ramping will be applied to adjust the Schedules attributed to those BEEP Intervals as follows:

$$G_{s,1} = \left(\frac{G_s}{6}\right) - \left(\frac{\left(G_s - G_{s-1}\right)}{24}\right)$$

$$G_{s,6} = \left(\frac{G_s}{6}\right) + \left(\frac{\left(G_{s+1} - G_s\right)}{24}\right)$$

The value of G_s and G_a for Generation which has not undertaken in writing to be bound by the ISO Tariff in accordance with Article 5 shall be determined as follows for all six BEEP Intervals:

$$G_{s,b} = \frac{G_{s,t}}{6}$$

$$G_a = \frac{G_{at}}{6}$$

~~*If $G_{a/s}$ +$G_{s/e}$ > 0 and P < P_{eff} then:*~~

~~*$ASSEGenDevC_i$=Max[0,[$G_{a/s}$-Max[0,(G_a-G_{adj}-G_s)]]]*(P_{eff-I} - P) in case of (a) above, or*~~

~~*If $G_{a/s}$ +$G_{s/e}$< 0 and P > P_{eff} then:*~~

~~*$ASSEGenDevC_i$=Min[0,[$G_{a/s}$-Min[0,(G_a-G_{adj}-G_s)]]]*(P_{eff-I} -P) in case of (a) above,*~~

The deviation quantity between scheduled and actual Load consumption for Load i represented by Scheduling Coordinator j in Zone x ~~during Trading Interval t~~ for each BEEP Interval of each Settlement Period t is calculated as follows:

~~$LoadDev_i = L_s - \left[\left(L_a - L_{adj}\right) + L_{a/s} + L_{s/e}\right]$ - $UnavailDispLoadMW_{ixt}$~~

$$LoadDev_{ibxt} = L_{s_b} - \left[\left(L_a - L_{b,adj}\right) + L_{b,a/s} + L_{b,s/e} - \frac{UnavailDispLoadMW_{bx}}{HBI}\right]$$

Where:

If the BEEP Interval Ex Post Price for decremental Energy is negative, then:

$UnavailDispLoadMW_{iX} = 0$

If the BEEP Interval Ex Post Price for decremental Energy is greater than or equal to zero, then:

$UnavailDispLoadMW_{iX} = Max[0, [((L_{i,\ oblig}) - L_{a/s}*6) - (L_a*6]]$

The value of $L_{b,a/s}$, $L_{b,s/e}$ and L_{adj} are determined on a 10-minute basis. The value of L_a for Load scheduled on behalf of Participating Loads for each BEEP Interval in each Settlement Period shall be the actual meter data aggregated on a 10-minute basis. The value of L_{sb} for Load scheduled on behalf of Participating Loads for each BEEP Interval in each Settlement Period t, shall be determined as follows:

For BEEP Intervals 2 through 5,

$$L_{sb} = \frac{L_s}{6}$$

For BEEP Interval 1 and BEEP Interval 6, implicit Dispatch instructions for ramping will be applied to adjust the schedules attributed to those BEEP Intervals as follows:

$$L_{s,1} = \left(\frac{L_s}{6}\right) - \left(\frac{\left(L_s - L_{s-1}\right)}{24}\right)$$

$$L_{s,6} = \left(\frac{L_s}{6}\right) + \left(\frac{\left(L_{s+1} - L_s\right)}{24}\right)$$

The value of L_{sb} and L_a for Loads that are not Participating Loads shall be determined as follows for all six BEEP Intervals:

$$L_{sb} = \frac{L_s}{6}$$

$$L_a = \frac{L_{at}}{6}$$

L_{at} is Load i hourly metered quantity for Settlement Period t.

~~$UnavailDispLoadMW_{ixt} = Max[0, (L_{i, oblig} - L_{a/s}) - L_a]$~~

~~$LoadDevC_i = LoadDev_i * P$ in case of (b) above, and~~

~~If $L_{a/s} + L_{s/e} > 0$ and $P < P_{eff}$ then:~~

~~$ASSELoadDevC_i = Max[0,[L_{a/s} - Max[0,(L_{a/s} - L_{adj} - L_s)]]]*(P_{eff-I} - P)$ in case of (a) above, or~~

~~If $L_{a/s} + L_{s/e} < 0$ and $P > P_{eff}$ then:~~

~~$ASSELoadDevC_i = Min[0,[L_{a/s} - Min[0,(L_{a/s} - L_{adj} - L_s)]]]*(P_{eff-I} - P)$ in case of (a) above~~

The deviation quantity between forward scheduled and Real Time adjustments to Energy imports*, adjusted for losses, for Scheduling Point q represented by Scheduling Coordinator j into Zone x during each BEEP Interval of each Settlement Period ~~Trading Interval~~ t is calculated as follows:

$$ImpDev_q = I_{sb} * GMM_{fq} - [(I_a + I_{b,a/s} - I_{b,adj}) * GMM_{ahq}] + I_{b,a/s}$$

~~$ImpDevC_i = ImpDev_i * P$ in case of (b) above, and~~

* Note that this deviation is a difference between a forward Market value and a Real Time value. It is not inadvertent energy.

~~*If $I_{a/s}$ > 0 and P < P_{eff} then:*~~

~~*$ASSEImpDevC_i$=Max[0,[$I_{a/s}$-Max[0, (I_a-I_{adj}-I_s)]]]*(P_{eff-q} - P) in case of (a) above, or*~~

~~*If $I_{a/s}$ < 0 and P > P_{eff} then:*~~

~~*$ASSEImpDevC_i$=Min[0,[$I_{a/s}$-Min[0, (I_a-I_{adj}-I_s)]]]* (P_{eff-q} - P) in case of (a) above*~~

The values of $I_{b,a/s}$, I_a and $I_{b,adj}$ are determined on a 10-minute basis. The value of I_{sb} shall be determined as follows:

For BEEP Intervals 1 through 6,

$$I_{sb} = \frac{I_s}{6}$$

The deviation quantity between forward scheduled and Real Time adjustments to Energy exports* for Scheduling Point q represented by Scheduling Coordinator j from Zone x ~~during~~ for each BEEP Interval for each Settlement Period ~~Trading Interval~~ t is calculated as follows:

~~$ExpDev_q = E_s - E_a - E_{adj}$~~

$$ExpDev_q = E_{s,b} - E_a - E_{adj,b}$$

The values of E_a and $E_{b,adj}$ are determined on a 10-minute basis. The value of $E_{s,b}$ shall be determined as follows:

For BEEP Intervals 1 through 6,

$$E_{sb} = \frac{E_s}{6}$$

~~*$ExpDevC_q$=$ExpDev_q$ * P*~~

The Hourly Ex Post Price applicable to uninstructed deviations in Settlement Period t in each zone will equal the Energy weighted average of the BEEP Interval charges in each zone, calculated as follows:

$$P_{xt} = \frac{(\sum_{ji} \left| MWh_{jix} \right| * BIP_{ix})}{\sum_{ji} \left| MWh_{jix} \right|}$$

Where:

BIP_{jx}= BEEP Interval Ex Post Prices to be used for settlement of Uninstructed Imbalance Energy. The BEEP Interval Price for incremental Energy will be charged to decremental uninstructed deviations in that interval, and the BEEP

Interval Price for incremental Energy will be charged to incremental uninstructed deviations in that interval.

P xt = the Hourly Ex Post Price in Zone x

~~IIEC jix = the Instructed Imbalance Energy Charges for Scheduling Coordinator j for BEEP Interval i in Zone x~~

~~I~~MWH jix = the Instructed Imbalance Energy for Scheduling Coordinator j for the BEEP Interval i in Zone x

D 2.1.2 Instructed Imbalance Energy Charges on Scheduling Coordinators

Implicit Dispatch instructions for ramping Energy shall be calculated based on Final Hour Ahead Schedules for Energy to result in a linear ramp by all Participating Generators and Participating Loads beginning 10 minutes prior to the start, and ending 10 minutes after the start of each Settlement Period. Ramping Energy shall be deemed delivered and settled at a price of zero dollars per MWh.

The amount of Instructed Imbalance Energy to be delivered in each BEEP Interval will be determined based on the ramp rates and time delays bid in accordance with SBP 5 and 6. Payment due a Load, Generator, Import or Export for Instructed Imbalance Energy to be delivered in a BEEP Interval shall be calculated based on the actual Energy delivered to the ISO Grid in accordance with the Dispatch instruction.

Instructed Imbalance Energy by an Import or Export is deemed delivered. The actual Energy delivered by a Load or Generator in response to Dispatch instructions will be determined by first attributing Energy deviations to any Energy associated with redispatch of that Load or Generation in that BEEP Interval according to Section 7.2.6.2, or to Dispatch orders to be settled in accordance with Section 11.2.4.2. If instructions for both incremental and decremental Energy are issued in a BEEP Interval, then any instructions described in the previous sentence for decremental Energy, together with any decremental Dispatch instructions on Supplemental Energy, shall be deemed delivered.

Any remaining deviation will then be sequentially attributed to Instructed Imbalance Energy, first from Supplemental Energy, then from Replacement Reserve, then from Non-Spinning Reserve, and then from Spinning Reserve in that BEEP Interval.

Residual Instructed Imbalance Energy arising due to Dispatch instructions shall be priced based on the applicable BEEP Interval Ex Post Price for the BEEP Interval to which the Dispatch instruction applied. If Instructed Imbalance Energy is to be delivered in the last BEEP Interval of the hour preceeding the Settlement Period to which a Dispatch instruction applies shall be settled at the applicable BEEP Interval Ex Post Price for the first BEEP Interval of the Settlement Period for which the bid was submitted.

Subject to the above conditions, ~~T~~the Instructed Imbalance Energy charge for each BEEP Interval b of each Settlement Period t for Scheduling Coordinator j for Zone x is calculated using the following formulas:

~~$IIEC_j = IGDC_j + ILDC_j + IIDC_j$~~

The instructed Generation deviation payment/charge is calculated as follows:

~~$IGDC_j = \sum_{gi} \frac{G_{gi} * P_i}{HBI}$~~

$IGDC_{ib} = G_{ib} * P_b$

The instructed Load deviation payment/charge is calculated as follows:

~~$ILDC_j = \sum_{L_i} \frac{L_{Li} * P_i}{HBI}$~~

$ILDC_{ib} = L_{ib} * P_b$

The instructed import deviation payment/charge is calculated as follows:

~~$IIDC_j = \sum_{Ii} \frac{I_{Ii} * P}{HBI}$~~

$IIDC_{qb} = I_{qb} * P_b$

D. 2.2 Unaccounted for Energy Charge

The ~~hourly~~ Unaccounted for Energy Charge on Scheduling Coordinator j for each BEEP Interval ~~B~~ of each Settlement Period~~Trading Interval~~ t for each relevant Zone is calculated in the following manner:

The UFE for each utility service territory *k* is calculated as follows,

$$E_{UFE\_UDC\_k} = \left(I_k - E_k + G_k - \left(RTM_k + LPM_k\right) - TL_k\right)$$

The Transmission Loss calculation for each BEEP Interval of each Settlement Period~~per Trading Interval~~ t per relevant Zone for each utility service territory k is calculated as follows,

$$TL_k = Total\_TLRC_{Losses} * (UDC_k\_Branch_{Losses} / Total\_Branch_{Losses})$$

Where:

$$Total\_TLRC_{Losses} = \sum \left[G_a * \left(1 - GMM_a\right)\right] + \sum \left[I_a \left(1 - GMM_{aq}\right)\right]$$

$$Total\_Branch_{Losses} = \frac{\left(\sum UDC_k - Branch_{Losses}\right)}{6}$$

Each metered demand point, either ISO grid connected or connected through a UDC, is allocated a portion of the UFE as follows:

$$E_{UFE\_z} = \frac{D_z}{\sum_z D_z} E_{UFE\_UDC\_k}$$

The UFE charge for Scheduling Coordinator j for each BEEP Interval b of each Settlement Period ~~tper Trading Interval~~ per relevant Zone is then,

~~$$UFEC_j = (\sum_z E_{UFE\_z}) * P_{xt}$$~~

$$UFEC_j = (\sum_z E_{UFE\_z}) * BIP_{bxt}$$

D 3.6 G_S – MWh

The total scheduled Generation of Scheduling Coordinator j for Generator i in ~~Trading Interval~~Settlement Period t as a result of both the Day-Ahead Final Schedule and the Hour-Ahead Final Schedule.

D 3.6.1 G_{s-1}

The total scheduled Generation of Scheduling Coordinator j for Generator i in settlement Period t-1 as a result of both the Day-Ahead Final Schedule and the Hour-Ahead Final Schedule.

D3.6.2 G_{s+1}

The total scheduled Generation of Scheduling Coordinator j for Generator i in settlement Period t+1 as a result of both the Day-Ahead Final Schedule and the Hour-Ahead Final Schedule.

D3.6.3 $G_{b,adj}$

Is Deviation in real time ordered by the ISO in BEEP Interval b according to Section 7.2.6.2, or for settlement according to Section 11.2.4.2.

~~**D 3.7 $G_{b,a}$ – MWh**~~

~~The total actual metered Generation of Scheduling Coordinator j for Generator i in Trading BEEP Interval b of Settlement Peroiod t..~~

D 3.7 G_{at} - MWh

The total actual metered Generation of Scheduling Coordinator j for Generator i in Settlement Period t.

D 3.14 L_s – MWh

The total scheduled Demand of Scheduling Coordinator j for Demand i in ~~Trading Interval~~Settlement Period t as a result of both the Day-Ahead Final Schedule and the Hour-Ahead Final Schedule.

D 3.15 L_a – MWh

The total actual metered Demand of Scheduling Coordinator j for Demand i in ~~Trading Interval~~ BEEP Interval b of Settlement Period t.

D 3.15.1 L_{at} – MWh

The total actual metered Demand of Scheduling Coordinator j for Demand i in Settlement Period t.

D 3.15.2 $L_{b,adj}$

Is Deviation in real time ordered by the ISO in BEEP Interval b according to Section 7.2.6.2, or for settlement according to Section 11.2.4.2.

~~**D 3.16 L_{adj} – MWh**~~**[Not Used]**

~~The deviation in realtime Demand (i.e., Load bidding into the market) ordered by the ISO for Congestion Management, Overgeneration, etc.]. This value will be calculated based on the projected impact of the Dispatch instruction(s) over the time period within the Trading Interval for which such Dispatch instruction(s) applies.~~

D 3.17 $L_{a/s}$ – MWh

The Energy reduction by curtailable Load due to ISO dispatch of Ancillary Services from such curtailable Load (i.e., Load bidding into the Ancillary Services markets). This value will be calculated based on the projected impact of the Ancillary Services dispatch instruction(s) over the time period within the Trading Interval for which such Ancillary Services dispatch instruction(s) applies.

D 3.17.1 **$L_{s/e}$ -MWh**

The Energy reduction by curtailable Load due to ISO dispatch of Supplemental Energy from such curtailable Load. This value will be calculated based on the projected impact of the Supplemental Energy dispatch instruction(s) over the time period within the Trading Interval for which such Supplemental Energy dispatch instruction(s) applies.

D 3.18 **I_s – MWh**

The total scheduled Energy import of Scheduling Coordinator j through Scheduling Point q in ~~Trading Interval~~Settlement Period t as a result of both the Day-Ahead Final Schedule and the Hour-Ahead Final Schedule.

D 3.19 **I_a – MWh**

The total actual Energy import of Scheduling Coordinator j through Scheduling Point q in BEEP Interval b in Settlement Period ~~in Trading Interval~~ t. This is deemed to be equal to the total scheduled Energy import I_S

D 3.20 **$I_{b,adj}$ – MWh**

The deviation in real time import ordered by the ISO for congestion management, overgeneration, etc. or a result of an import curtailment. This value will be calculated based on the projected impact of the Dispatch instruction(s) (or curtailment event) between the close of the Hour-Ahead Market and the end of the Trading Interval for which such Dispatch Instructions(s) (or curtailment event) applies.

D 3.21 **$I_{a/s}$ – MWh**

The Energy generated from Ancillary Service System Resources pursuant to Existing Contracts or Supplemental Energy from interties due to ISO's Dispatch instruction.

D 3.22 **E_S – MWh**

The total scheduled Energy export of Scheduling Coordinator j through Scheduling Point q in ~~Trading Interval~~ Settlement Period t as a result of both the Day-Ahead Final Schedule and the Hour-Ahead Final Schedule.

D 3.23 **E_a – MWh**

The total actual Energy export of Scheduling Coordinator j through Scheduling Point q in ~~Trading Interval~~BEEP Interval b of Settlement Period t. This is deemed to be equal to the total scheduled Energy export E_S.

D 3.24 **E_{adj} – MWh**

The deviation in Real Time export ordered by the ISO for Congestion Management, Overgeneration, etc. or as a result of an export curtailment. This value will be calculated based on the projected impact of the Dispatch Instruction(s) (or curtailment event between the close of the Hour-Ahead Market and the end of the Trading Interval for which such Dispatch Instruction (or curtailment event) applies.

D 3.25 **P_{xt} – $/MWh**

The Hourly Ex Post Price for Imbalance Energy for the relevant Trading Interval. This value is calculated as the weighted average of the 12 Five Minute Ex Post Prices in each Zone during each hour. The Five Minute Ex Post Price is equal to

the bid price of the marginal resource accepted by the ISO for dispatch and deemed eligible to set the price during a five minute period.

D 3.25.1 **P_{eff} – $**

Effective Price for Instructed Imbalance Energy for the relevant Settlement Period

D 3.26 **$UFEC_j$ – $**

The Unaccounted for Energy Charge for Scheduling Coordinator j is the cost representing the difference in Energy, for each UDC Service Area and Trading Interval, between the net Energy delivered into the UDC Service Area, adjusted for UDC Service Area Transmission Losses (calculated in accordance with ISO Tariff Section 7.4.3), and the total metered Demand within the UDC Service Area adjusted for distribution losses using Distribution System loss factors approved by the Local Regulatory Authority.
This difference (UFE) which is attributable to meter measurement errors, power flow modeling errors, energy theft, statistical Load profile errors, and distribution loss deviations is multiplied by the Hourly Ex-Post Price.

D 3.27 **$E_{UFE\_UDC\_k}$ – MWh**

The Unaccounted for Energy (UFE) for utility service territory k.

D 3.28 **E_{UFE_z} – MWh**

The portion of Unaccounted for Energy (UFE) allocated to metering point z.

D 3.29 **$RRDC_j$**

The Replacement Reserve Capacity Dispatch Charge for Scheduling Coordinator j for Trading Interval t.

D 3.30 **RRC – $**

The Dispatched Replacement Reserve Capacity Cost which is to be allocated to Scheduling Coordinators in proportion to their contributions to Imbalance Energy requirements. The RRC is, in turn, calculated as the total cost of Replacement Reserve capacity in Trading Interval t (as determined in the Hour-Ahead and Day-Ahead Markets) less the Undispatched Replacement Reserve Capacity Cost. [Note: Both these costs are dealt with in the Ancillary Services payments in Appendix C]

D 3.31 **G_k – MWh**

The total metered Generation in BEEP Interval b of Settlement Period ~~Trading Interval~~ t in utility service territory k.

D 3.32 **D_z – MWh**

The Demand including Exports in BEEP Interval b of Settlement Period ~~Trading Interval~~ t at metered point z.

D 3.33 **I_k – MWh**

The total metered imports into utility service territory k in BEEP Interval b of Settlement Period ~~Trading Interval~~ t.

D 3.34 **E_k – MWh**

The total metered exports from utility service territory k in BEEP Interval b of Settlement Period ~~Trading Interval~~ t.

D 3.35 **RTM_k – MWh**

The Trading Interval t total of the real-time metering in utility service territory k in BEEP Interval b of Settlement Period ~~Trading Interval~~ t

D 3.36 **LPM_k – MWh**

The calculated total of the Load Profile metering in utility service territory k per BEEP Interval b of Settlement Period ~~Trading Interval~~ t.

D 3.37 **TL_k – MWh**

The Transmission Losses per BEEP Interval b of Settlement Period ~~Trading Interval~~ t in utility service territory k.

D 3.38 **$IGDC_{jib}$ - $**

The total of instructed Generation deviation payments/charges for Scheduling Coordinator j in BEEP Interval b of Settlement Period t.

D 3.39 **$ILDC_{jib}$ - $**

The total of instructed Load deviation payments/charges for Scheduling Coordinator j in BEEP Interval b of Settlement Period t.

D 3.40 **$IIDC_{jib}$ - $**

The total of instructed import deviation payments/charges for Scheduling Coordinator j in BEEP Interval b of Settlement Period t.

D 3.41 **G_{giib} - MW**

Instructed Energy for Generating Unit ~~g~~ i during BEEP Interval ~~i~~b.

D 3.42 **L_{Liib} - MW**

Instructed Energy for Load ~~l~~i during BEEP Interval ~~i~~b.

D 3.43 **I_{igb} – MW**

Instructed Energy for import ~~l~~g during BEEP Interval ~~i~~b

D 3.44 **P_{ib} -- $/MWh**

The BEEP Incremental Ex Post Price for BEEP Interval ~~i~~b if the net instructed Energy for resources is positive, or the BEEP decremental Ex Post Price for BEEP Interval ~~i~~b if the net instructed Energy for resources is negative.

D 3.45 **HBI – Number**

The number ~~(2-12)~~ of BEEP Intervals in Settlement Period t, currently set to 6.

D 3.46 **$ReplObligRatio_{jxt}$ – fraction**
where:

$$ReplObligRatio_{jxt} = \frac{ReplOblig_{jxt}}{\sum_{j} ReplOblig_{jxt}}$$

where:

$ReplOblig_{jxt}$ is the replacement reserve capacity obligation as defined in Appendix C Section C 3.67.

* * * * *

Metering Protocol

MP 2.2.3 Frequency of Recording and Collecting Data

Subject to any exemption granted by the ISO under MP 13, Meter Data must be recorded:

(a) at 5-minute intervals by Loads and Generators providing ~~Regulation and/or~~ Ancillary Services and/or Supplemental Energy; and

(b) at 1-hour intervals by other ISO Metered Entities.

Meter Data will be collected regularly by MDAS in accordance with the frequency for collection determined by the ISO from time to time. The ISO may also collect Meter Data on demand. The ISO will issue such demands using voice communications. If the ISO issues a demand for Meter Data, the ISO Metered Entity from which the ISO demands

that Meter Data must provide that Meter Data to the ISO within 10 minutes of receiving the demand from the ISO or, if that ISO Metered Entity has been granted an exemption from directly interfacing with MDAS pursuant to MP 13, within the time period specified in that exemption.

* * * * *

MP 2.3.4 Format for Data Submission

SCs shall submit Settlement Quality Meter Data to MDAS for the SC Metered Entities they represent using the Meter Data Exchange Format. Subject to any exemption granted by the ISO under MP 13, SCs must ensure that Settlement Quality Meter Data submitted to the ISO is in intervals of:

(a) 5 minutes for Loads and Generators providing ~~Regulation and/or~~ Ancillary Services and/or Supplemental Energy; and

(b) 1 hour for other SC Metered Entities

Each SC shall submit Settlement Quality Meter Data for all of the SC Metered Entities that it schedules aggregated by:

(a) Demand Zone, Load group or bus for Demand;

(b) the relevant unit for Generation; or

(c) the Scheduling Point for imports and exports.

The Settlement Quality Meter Data submitted by SCs may be in either kWh or MWh values.