# Attachment B

**7.2.6.1.3 [Not Used]**

**7.2.6.1.4 [Not Used]**

**7.2.6.1.5 [Not Used]**

**7.2.6.1.6 [Not Used]**

**7.2.6.2 Intra-Zonal Congestion During Initial Period.** Except as provided in Sections 2.2.10.7, 5.2, 7.2.6.1 and 11.2.4.4, the ISO will perform Intra-Zonal Congestion Management in real time using available Adjustment Bids and Imbalance Energy bids, based on their effectiveness and in merit order, to minimize the cost of alleviating Congestion. If the Adjustment Bid or Imbalance Energy bid from a Generating Unit the ISO must Dispatch to manage Intra-Zonal Congestion is not the next bid in merit order, the ISO shall set the price of that bid equal to the default energy bid price of that Generating Unit as determined in accordance with Section 5.12.5.1.4.1.3 and Dispatch that Generating Unit pursuant to that adjusted bid to manage Intra-Zonal Congestion. The Scheduling Coordinator for that Generating Unit shall then be 1) paid the higher of its default bid price as determined in accordance with Section 5.12.5.1.4.1.3 or the BEEP Interval Ex Post Price for incremental Dispatch, or 2) charged the lower of its default energy bid price as determined in accordance with Section 5.12.5.1.4.1.3 or the BEEP Interval Ex Post Price for decremental Dispatch. In the event no Adjustment Bids or Imbalance Energy bids are available, the ISO will exercise its authority to direct the redispatch of resources as allowed under the Tariff, including Section 11.2.4.

**7.2.6.3 Cost of Intra-Zonal Congestion Management.** The net of the amounts paid by the ISO to the Scheduling Coordinators and the amounts charged to the Scheduling Coordinators will be calculated and charged to all Scheduling Coordinators through a Grid Operations Charge, as described in Section 7.3.2.

**7.2.7 Creation, Modification and Elimination of Zones.**

**7.2.7.1 Active Zones.** The Active Zones are as set forth in Appendix I to this ISO Tariff.

**7.2.7.2 Modifying Zones.** The ISO shall monitor usage of the ISO Controlled Grid to determine whether new Zones should be created, or whether existing Zones should be eliminated, in accordance with the following procedures.

**7.2.7.2.1** If over a 12-month period, the ISO finds that within a Zone the cost to alleviate the Congestion on a path is equivalent to at least 5 percent of the product of the rated capacity of the path and the weighted average High Voltage Access Charge and Low

# Attachment C

**7.2.6.2 Intra-Zonal Congestion During Initial Period.** Except as provided in Sections **2.2.10.7,** 5.2**, 7.2.6.1** and 11.2.4.~~2~~**4**, the ISO will perform Intra-Zonal Congestion Management in real time using available Adjustment Bids and Imbalance Energy bids, based on their effectiveness and in merit order, to minimize the cost of alleviating Congestion. **If the Adjustment Bid or Imbalance Energy bid from a Generating Unit the ISO must Dispatch to manage Intra-Zonal Congestion is not the next bid in merit order, the ISO shall set the price of that bid equal to the default energy bid price of that Generating Unit as determined in accordance with Section 5.12.5.1.4.1.3 and Dispatch that Generating Unit pursuant to that adjusted bid to manage Intra-Zonal Congestion. The Scheduling Coordinator for that Generating Unit shall then be 1) paid the higher of its default bid price as determined in accordance with Section 5.12.5.1.4.1.3 or the BEEP Interval Ex Post Price for incremental Dispatch, or 2) charged the lower of its default energy bid price as determined in accordance with Section 5.12.5.1.4.1.3 or the BEEP Interval Ex Post Price for decremental Dispatch.** In the event no Adjustment Bids or Imbalance Energy bids are available, the ISO will exercise its authority to direct the redispatch of resources as allowed under the Tariff, including Section **11.**2.4.~~2 and 2.4.4.~~

# Attachment D

**2.3.3.6.4** The amount used to compensate each applicable Participating TO and Participating Generator, as described in Section 2.3.3.6.3, shall be charged to the Scheduling Coordinators in proportion to their metered Demand (including exports) during the Settlement Period(s) of the originally scheduled Outage.

**2.3.3.7** The ISO Outage Coordination Office shall provide notice to the Operator of the approval or disapproval of any requested Maintenance Outage. Additionally, the ISO Outage Coordination Office shall notify any Connected Entity that may in the reasonable opinion of the ISO Outage Coordination Office be directly affected by an Approved Maintenance Outage. The content of and procedures for such notice shall be established by the ISO.

**2.3.3.8 Final Approval.** On the day on which an Approved Maintenance Outage is scheduled to commence, the Operator shall contact the ISO Control Center for final approval of the Maintenance Outage. No Maintenance Outage shall commence without such final approval (including the time of release, in hours and minutes) being obtained from the ISO Control Center whose decision shall be final.

**2.3.3.9 Forced Outages.**

**2.3.3.9.1** Coordination of all Forced Outages (consistent with Section 2.3.3.4) will be through the single point of contact between the Operator and the ISO Control Center.

**2.3.3.9.2** All notifications of Forced Outages shall be communicated to the ISO Control Center with as much notice as possible in order that the necessary security analysis and ISO Controlled Grid assessments may be performed. If prior notice of a Forced Outage cannot be given, the Operator shall notify the ISO of the Forced Outage within thirty (30) minutes after it occurs.

**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 economically dispatch Generating Units, System Units, Loads and System Resources only to meet its Imbalance Energy requirements and eliminate any Price Overlap between incremental and decremental energy bids;

(d) subject to Section 2.5.22.3 and its subparts, the ISO shall select the Generating Units, System Units, Loads and System Resources to be dispatched to meet its Imbalance Energy requirements and eliminate any Price Overlap based on a merit order of Energy bid prices;

(e) subject to Section 2.5.22.3 and its subparts, the ISO shall not discriminate between Generating Units, System Units, Loads and System Resources other than based on price, and the effectiveness (e.g., location and ramp rate) of the resource concerned to respond to the fluctuation in Demand or Generation;

**2.5.22.6 Real Time Dispatch.** The ISO shall economically dispatch Generating Unit, Load, System Unit or System Resource that is effective to meet Imbalance Energy requirements and eliminate any Price Overlap in real time, subject to the limitation on the Dispatch of Spinning Reserve and Non-Spinning Reserve set forth in Section 2.5.22.3. The ISO shall determine that additional output is needed if the current output levels

of the Regulation Generating Units, System Units, and System Resources exceed their preferred operating points by more than a specified threshold (to be determined by the ISO). The ISO shall determine that less output is needed if the output levels of the Regulation Generating Units, System Units, and System Resources fall below their preferred operating points by more than a specified threshold (to be determined by the ISO). To minimize the cost of providing Imbalance Energy, the ISO shall economically increase or reduce Demand or Energy output from Generating Units, Loads, System Units or System Resources according to Energy Bid prices.

Once a bid has been accepted by the ISO, the database shall be adjusted to reflect the change in status of the bid. Once a decremental bid has been used by the ISO, it will then be included in the incremental part of the database with an 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 bid.

wishes, to Dispatch. The recipient Scheduling Coordinator shall ensure that the Dispatch instruction is communicated immediately to the operator of the Generating Unit, System Unit, external import of System Resources or Load concerned. The ISO may, with the prior permission of the Scheduling Coordinator concerned, communicate with and give Dispatch instructions to the operators of Generating Units, System Units, external imports of System Resources and Loads directly without having to communicate through their appointed Scheduling Coordinator. The recipient of a Dispatch instruction shall confirm the Dispatch. The ISO shall record the communications between the ISO and Scheduling Coordinators relating to Dispatch instructions in a manner that permits auditing of the Dispatch instructions, and of the response of Generating Units, System Units, external imports of System Resources and Loads to Dispatch instructions.

The ISO Protocols govern the content, issue, receipt, confirmation and recording of Dispatch instructions.

**2.5.22.11 Failure to Conform to Dispatch Instructions.** All Scheduling Coordinators, Participating Generators, owners or operators of Curtailable Demands and operators of System Resources providing Ancillary Services (whether self provided or procured by the ISO) or whose Supplemental Energy bids have been accepted by the ISO shall be obligated to respond or to secure response to the ISO's Dispatch instructions in accordance with their terms, and to be available and capable of doing so, for the full duration of the Settlement Period. Dispatch Instructions will be deemed delivered and associated Energy will be settled as Instructed Imbalance Energy in accordance with Section 11.2.4.1.1. If a Generating Unit, Curtailable Demand or System Resource is unavailable or incapable of responding to a Dispatch instruction, or fails to respond to a Dispatch instruction in accordance with its terms, the Generating Unit, Curtailable Demand or System Resource:

(a) shall be declared and labeled as non-conforming to the ISO's instructions, unless it has notified the ISO of an event that prevents it from performing its obligations within 30 minutes of the onset of such event;

(b) cannot set the BEEP Interval Ex Post Price; and

the Scheduling Coordinator for the Participating Generator, owner or operator of the Curtailable Demand or System Resource concerned shall have Uninstructed Imbalance Energy due to the difference between the Generating Unit's, Curtailable Demand's or System Resource's instructed and actual output (or Demand). The Uninstructed Imbalance Energy shall be subject to the settlement for Uninstructed Imbalance Energy in accordance with Section 11.2.4.1 and the Uninstructed Deviation Penalty in accordance with Section 11.2.4.1.2. This applies whether the Ancillary Services concerned are contracted or self provided.

The ISO will develop additional mechanisms to deter Generating Units, Curtailable Demand and System Resources from failing to perform according to Dispatch instructions, for example reduction in payments to Scheduling Coordinators, or suspension of the Scheduling Coordinator's Ancillary Services certificate for the Generating Unit, Curtailable Demand or System Resource concerned.

**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. The BEEP Interval Ex Post Prices shall be based on the bid of the marginal Generating Units, System Units, Loads or System Resources dispatched by the ISO to increase or reduce Demand or Energy output in each BEEP Interval as provided in Section 2.5.23.2.1.

The marginal bid is

the highest bid that is accepted by the ISO's BEEP Software for increased energy supply or the lowest bid that is accepted by the ISO's BEEP Software for reduced energy supply. In the event the lowest price decremental bid accepted by the ISO is greater and not equal to the highest priced incremental bid accepted, then the BEEP Interval Ex-Post Price shall be equal to the highest incremental bid accepted when there is a non-negative Imbalance Energy system requirement and equal to the lowest accepted decremental bid when there is a negative Imbalance Energy requirement.

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 updated supply and demand curves, 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 and to eliminate any Price Overlap. The BEEP Interval Ex Post Price is equal to the bid price of the marginal resource accepted by the ISO for Dispatch, subject to any limitation applicable under Section 2.5.23.3. For each BEEP Interval of the Settlement Period, BEEP will compute the Ex Post Price so that is:

(a) greater than or equal to the prices of accepted incremental bids;

(b) smaller than or equal to the prices of unaccepted incremental bids;

(c) smaller than or equal to the prices of accepted decremental bids; and

(d) greater than or equal to prices of unaccepted decremental bids.

In the event of Inter-Zonal Congestion, the ISO will develop supply and demand curves separately for each Zone separated by congestion.

**2.5.23.2.2 Hourly Ex Post Price.** The Hourly Ex Post Price in Settlement Period t in each Zone will equal the Energy weighted average of the BEEP Interval Prices in each Zone, calculated as follows:

$$HP_{xt} = \frac{\sum_{b} |Q_{bxt}| P_{bxt}}{\sum_{b} |Q_{bxt}|}$$

Where:

$HP_{xt}$ is the Hourly Ex Post Price in Zone x;

$P_{bxt}$ is the BEEP Interval Ex Post Price during BEEP Interval b in Zone x; and

$Q_{bxt}$ is the total the Instructed Imbalance Energy during BEEP Interval b in Zone x.

ISO may credit or debit, as appropriate, the account of a Scheduling Coordinator for any over- or under-assessment of Start-Up Fuel Cost Charges that the ISO determines occurred due to the error, omission, or miscalculation by the ISO or the Scheduling Coordinator.

**2.5.23.3.7.6 Submission of Start-Up Fuel Cost Invoices**

Scheduling Coordinators for Must-Offer Generators that incur Start-Up Fuel Costs as a direct result of an ISO Dispatch instruction before October 1, 2002 may submit to the ISO an invoice in the form specified on the ISO Home Page (the "Start-Up Fuel Cost Invoice") for the recovery of such Start-Up Fuel Costs. Such Start-Up Fuel Costs shall not exceed the costs which would be incurred within the start-up time for a unit specified in Schedule 1 of the Participating Generator Agreement. Start-Up Fuel Cost Invoices shall use the applicable proxy figure for natural gas costs as determined in accordance with Section 2.5.23.3.4 and posted on the ISO Home Page. Start-Up Fuel Cost Invoices shall not include any Start-Up Fuel Costs specified in an RMR Contract for a unit owned or controlled by a Must-Offer Generator.

**2.5.23.3.7.7 Payment of Start-Up Fuel Cost Invoices**

The ISO shall pay Scheduling Coordinators for all Start-Up Fuel Costs submitted in a Start-Up Fuel Cost Invoice and demonstrated to be a direct result of an ISO Dispatch instruction. The ISO shall pay such Start-Up Fuel Cost Invoices each month in accordance with the ISO Payments Calendar from the funds available in the Start-Up Fuel Cost Trust Account. To the extent there are insufficient funds available in the Start-Up Fuel Cost Trust Account in any month to pay all Start-Up Fuel Costs submitted in a Start-Up Fuel Cost Invoice and demonstrated to be a direct result of an ISO Dispatch instruction, the ISO shall make pro rata payment of such Start-Up Fuel Costs and shall adjust the rate at which the ISO will assess the Start-Up Fuel Cost Charge in accordance with Section 2.5.23.3.7.4. Any outstanding Start-Up Fuel Costs owed from previous months will be paid in the order of the month in which such costs were invoiced to

**2.5.23.3.8.2 Data Requirements to be Eligible to Establish the BEEP Interval Ex Post Price, Marginal Proxy Clearing Price, or Non-Emergency Clearing Price**

Scheduling Coordinators for generating units not contained within the metered boundaries of the ISO Control Area that seek to be eligible to set the BEEP Interval Ex Post Price, Marginal Proxy Clearing Price, or Non-Emergency Clearing Price must meet the requirements set forth in the ISO's "Monitoring and Communications Requirements for Generating Units Providing Only Energy and Supplemental Energy" as posted on the ISO Home Page. Scheduling Coordinators for generating units not contained within the metered boundaries of the ISO Control Area that seek to be eligible to set the BEEP Interval Ex Post Price, Marginal Proxy Clearing Price, or Non-Emergency Clearing Price must provide the ISO, for each such generating unit, with: 1) a unique interchange identifier that refers to the generating unit; and 2) the heat rate data set forth in Section 5.12 before those units will be eligible to set the BEEP Interval Ex Post Price, Marginal Proxy Clearing Price, or Non-Emergency Clearing Price. Scheduling Coordinators for generating units not contained within the metered boundaries of the ISO Control Area that seek to be eligible to set the BEEP Interval Ex Post Price, Marginal Proxy Clearing Price, or Non-Emergency Clearing Price must provide the ISO with Settlement Quality Meter Data for each BEEP Interval in that Trade Day and other Settlement Quality Meter Data the ISO may deem necessary to verify the generating unit's performance. Scheduling Coordinators shall submit these data, using the template posted on the ISO Home Page for this purpose, no later than 30 calendar days after the Trade Day in which the Energy was provided.

**2.5.24 Verification of Performance of Ancillary Services.**

Availability of both contracted and self provided Ancillary Services shall be verified by the ISO by unannounced testing of Generating Units, Loads and System Resources, by auditing of response to ISO Dispatch instructions, and by analysis of the appropriate Meter Data, or interchange schedules. Participating Generators, owners or operators of Loads, operators of

System Units or System Resources and Scheduling Coordinators shall notify the ISO immediately whenever they become aware that an Ancillary Service is not available in any way. All Participating Generators, owners or operators of Loads and operators of System Units or System Resources shall check, monitor and/or test their system and related equipment routinely to assure availability of the committed Ancillary Services. These requirements apply whether the Ancillary Services are contracted or self provided. For a duration specified by the ISO, the ISO may suspend the technical eligibility certificate of a Scheduling Coordinator for a Generating Unit, System Unit, Load or System Resource, which repeatedly fails to perform. The ISO shall develop measures to discourage repeated non-performance on the part of both bidders and self providers.

**2.5.25 Periodic Testing of Units.**

The ISO may test Generating Units, System Units, Loads and System Resources in the manner described herein. The frequency of testing shall be within such timeframes as are reasonable under all the circumstances. Scheduling Coordinators shall manage the resulting Energy output if notification of testing permits the Energy to be scheduled. If a Generating Unit, System Unit, Load, or System Resource fails to meet requirements in a

**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, 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 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, 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 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 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, 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 BEEP Interval under Section 2.5.26.1.

**2.5.26.2.3 [Not Used]**

**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, System Unit or System Resource would otherwise be entitled to payment. If the amount of Ancillary Service capacity from which the Generating Unit, System 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, System Unit 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 actually 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 is insufficient to supply the amount of Instructed Imbalance Energy associated with a Dispatch instruction issued in accordance with a bid on Spinning Reserve, Non-Spinning Reserve, or Replacement Reserve in any BEEP Interval, then the capacity payment associated with the difference between the total scheduled amount of each Ancillary Service 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 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 Generating Unit, Curtailable Demand, System Unit 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, 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, then payments shall be rescinded in proportion to the amount of each Ancillary Service scheduled in each market.

**2.5.26.4** Penalties applied pursuant to Section 2.5.26.1, and payments rescinded pursuant to Section 2.5.26.2 and 2.5.26.3 shall be redistributed to Scheduling Coordinators in proportion to ISO Control Area metered Demand for the same Trading Day.

**2.5.26.5** If the ISO determines that non-compliance of a Load, Generating Unit, System Unit or System Resource, with an operating order or Dispatch instruction from the ISO, or with any other applicable technical standard under the ISO Tariff, causes or exacerbates system conditions for which the WSCC imposes a penalty on the ISO, then the Scheduling Coordinator of such Load, Generating Unit, System Unit or System Resource shall be assigned that portion of the WSCC penalty which the ISO reasonably determines is attributable to such non-compliance, in addition to any other penalties or sanctions applicable under the ISO Tariff.

**2.5.26.6 Temporary Exemption from Rescission of Energy Payments** Any Participating Load that has entered into a Participating Load Agreement and has responded to a Dispatch instruction will be exempt from the requirements of Section 2.5.26.2.3 in the hour of the Dispatch and for the following two (2) hours during the period beginning on June 15, 2000 and ending on the date specified in a notice ("Notice Terminating Temporary Exemption") to be issued by the ISO. Such notice shall be posted on the ISO Home Page and distributed to

**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.

$EnQInst_{xt}$ = Instructed 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.

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 the settlement for Instructed Imbalance Energy under Section 11.2.4.1:

$$\sum_{i} [(EnQInst_{ixt} * BEEPIntervalExPostPriceinZoneX) + REPAi_{xt}]$$

$REPA_{ixt}$ = 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.

$C_{UP}$ = 0 to 1

$C_{DN}$ = 0 to 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

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

$$DevReplOblig_{xjt} = \left[ Max\left(0, \sum_i GenDev_{ijxt}\right) - Min\left(0, \sum_i LoadDev_{ijxt}\right)\right]$$

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

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

where,

$$TotalDeviations_{xt} = \sum_j \left[ Max\left(0, \sum_i GenDev_{ijxt}\right) - Min\left(0, \sum_i LoadDev_{ijxt}\right)\right]$$

$GenDev_{ijxt}$ = The deviation between scheduled and actual Energy Generation for Generator i represented by Scheduling Coordinator j in Zone x during Settlement Period t as referenced in SABP Appendix D.

$LoadDev_{ijxt}$ = The deviation between scheduled and actual Load consumption for resource i represented by Scheduling Coordinator j in Zone x during Settlement Period t as referenced in SABP Appendix D.

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

$ReplObligTotal_{xt}$ is total Replacement Reserve Obligation in zone x for Settlement Period t.

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

(ii) if the ISO is required to call for the involuntary curtailment of firm Load to maintain Applicable Reliability Criteria during the System Emergency, an additional charge equal to $1,000 for each MWh of the Dispatch instruction with which the Participating Generator does not comply.

**5.6.3.2** A Participating Generator shall not be subject to penalties pursuant to Section 5.6.3.1 if the Participating Generator can demonstrate to the ISO that it failed to comply with such a Dispatch instruction either because: (a) the Generating Unit, System Unit or System Resource that was the subject of the Dispatch instruction was physically incapable of responding in accordance with the instruction, provided that if such Participating Generator has not notified the ISO in advance that the Generating Unit, System Unit or System Resource was unavailable or de-rated, such Generating Unit, System Unit or System Resource will be presumed to be available; or (b) compliance with such Dispatch instruction would have resulted in a violation of an applicable requirement of state or Federal law, which requirement cannot be waived. A Participating Generator must notify ISO operations staff of its reason for failing to comply with the Dispatch instruction in accordance with Section 2.3.3.9.2 and must provide information to the ISO that verifies the reason the Participating Generator failed to comply with the Dispatch instruction within 72 hours of the operating hour in which the instruction is issued. Disputes concerning the cause of a Participating Generator's failure to comply with an ISO Dispatch instruction shall be subject to the Dispute Resolution provisions set forth in Section 13 of this ISO Tariff.

### 5.7 Interconnection to the ISO Controlled Grid.

#### 5.7.1 Submitting Requests to Interconnect.

Any existing or prospective Generator that requests interconnection to the ISO Controlled Grid shall submit a request to interconnect to the Participating TO or UDC that will supply the

### 5.11 Must-Offer Obligations

#### 5.11.1 [Not Used]

#### 5.11.2 Available Generation

For the purposes of this Section 5.11, a Generating Unit's "Available Generation" for Generating Units bidding into the Residual Unit Commitment Process shall be: (a) the Generating Unit's maximum operating level adjusted for any outages or reductions in capacity reported to the ISO in accordance with Section 2.3 or 5.11.3 and for any limitations on the Generating Unit's operation under applicable law, including contractual obligations, which shall be reported to the ISO, (b) minus the Generating Unit's scheduled operating point, if any, as identified in the ISO's Final Day-Ahead Schedule, (c) minus the Generating Unit's capacity committed to provide Ancillary Services to the ISO either through the ISO's Ancillary Services market or through self provision by a Scheduling Coordinator, and (d) if the Generating Unit is owned by a load serving entity, minus the capacity of the Generating Unit committed to deliver Energy or provide Operating Reserve to the load serving entity's Native Load. A Generating Unit's "Available Generation" for Generating Units bidding into the ISO Real Time Imbalance Energy Market shall be: (a) the Generating Unit's maximum operating level adjusted for any outages or reductions in capacity reported to the ISO in accordance with Section 2.3 or 5.11.3 and for any limitations on the Generating Unit's operation under applicable law, including contractual obligations, which shall be reported to the ISO, (b) minus the Generating Unit's scheduled operating point, if any, as identified in the ISO's Final Hour-Ahead Schedule, (c) minus the Generating Unit's capacity committed to provide Ancillary Services to the ISO either through the ISO's Ancillary Services market or through self provision by a Scheduling Coordinator, (d) if the Generating Unit is owned

by a load serving entitity, minus the capacity of the Generating Unit committed to deliver Energy or provide Operating Reserve to the load serving entity's Native Load and (e) minus the Generating Unit's capacity committed to provide Energy through the ISO's Residual Unit Commitment Process but not included in the Generating Unit's scheduled operating point as identified in the ISO's Final Hour-Ahead Schedule.

**5.11.3 [Not Used]**

**5.11.4 Obligation To Offer Available Capacity**

All Participating Generators shall offer to sell in the ISO's Residual Unit Commitment Process, in all hours, all Available Generation from non-hydroelectric Generating Units owned or controlled by the Participating Generators. All Participating Generator shall offer to sell in the ISO's Real Time Market, in all hours, all Available Generation from non-hydroelectric Generating Units (except Generating Units with startup times of greater than 10 minutes).

**5.11.5 Submission of Bids and Default Bids**

The Scheduling Coordinators for Participating Generators required to offer Available Generation in the Real Time market under section 5.11.4 shall submit Supplemental Energy bids for such Available Generation for each BEEP Interval. If a Scheduling Coordinator for a Participating Generator required to offer Available Generation in the Real Time market under section 5.11.4 fails tp submit Supplemental Energy bids for any such Available Generation for any BEEP Interval, the unbid quantity of the Available Generation will be deemed by the ISO to be bid at the Default Bid for Energy calculated under Section 5.12.

**5.12 Residual Unit Commitment**

**5.12.1 Purpose.** The Residual Unit Commitment process allows the ISO to acquire enough resources to meet the Demand, including any Operating Reserve or other capacity requirements projected by the ISO for each hour of the next Trading Day.

**5.12.2 Participation.**

**5.12.2.1** Non-hydroelectric Generating Units subject to a Participating Generating Agreement. Scheduling Coordinators must bid all non-hydroelectric Generating Units subject to a Participating Generator Agreement into the Residual Unit Commitment Process as set forth in Section 5.12.5.1.

**5.12.2.2 Hydroelectric Generating Units subject to a Participating Generator Agreement.** Scheduling Coordinators for hydroelectric Generating Units subject to a Participating Generator Agreement or other Generating Units not subject to a Participating Generator Agreement may bid into the Residual Unit Commitment Process as set forth in Section 5.12.5.1.

**5.2.12.3 System Resources.** Scheduling Coordinators may submit System Resources for participation in the Residual Unit Commitment Process as set forth in Section 5.12.5.2.

**5.12.2.4 Curtailable Demand.** Scheduling Coordinators may submit bids for Curtailable Demand in the Residual Unit Commitment Process as set forth in Section 5.12.5.3.

**5.12.2.5 System Units.** Scheduling Coordinators may submit bids for System Units in the Residual Unit Commitment Process as set forth in Section 5.12.5.4.

**5.12.3 Data to be Submitted.**

**5.12.3.1** Scheduling Coordinators for Generating Units required to bid or voluntarily bidding into the Residual Unit Commitment Process shall submit the following information to the ISO in the form as specified by the ISO and posted on the ISO Home Page. Scheduling Coordinators for such Generating Units must also file periodic updates of this data upon the direction of either FERC or the ISO. The ISO will treat the information provided to the ISO in accordance with this Section 5.12.3.1 as confidential and will apply the procedures in Section 20.3.4 of this ISO Tariff with regard to requests for disclosure of such information.

**5.12.3.1.1 Gas-fired Generating Units.** Data to be submitted for these Generating Units shall include: heat input data, minimum load level, start-up fuel data, start-up auxiliary power data, minimum run time, minimum off time, ramp rates, emissions rates and costs, start-up emissions data and costs, energy limitations, and the maximum number of start-ups per day.

**5.12.3.1.2 Non-gas-fired Generating Units.** Data to be submitted for these Generating Units shall include: a cost curve relating the unit's average cost to its output, minimum load level, start-up fuel data, start-up auxiliary power data, minimum run time, minimum off time, ramp rates, emissions rates and costs, start-up emissions data and costs, energy limitations, and the maximum number of start-ups per day.

**5.12.3.1.3 Default information.** If a Scheduling Coordinator for a Non-hydroelectric Generating Unit subject to a Participating Generating Agreement fails to submit the data required by this section 5.12.3, the ISO shall determine the unsubmitted data for that Generating Unit by using data previously submitted to the ISO, by using data from a unit of similar size and technology, or by using data from Schedule 1 in the Participating Generator Agreement in which that Generating Unit is listed.

**5.12.4 Timing of the Residual Unit Commitment Process.**

**5.12.4.1 Submission of bids.** Scheduling Coordinators shall submit bids to the Residual Unit Commitment Process no later than one-half hour after the ISO issues Final Day-Ahead Schedules.

**5.12.4.2 ISO Notification.** The ISO shall conduct the Residual Unit Commitment Process after bids are submitted and shall notify Scheduling Coordinators for those Generating Units, System Units, Curtailable Demands and System Resources selected in the Residual Unit Commitment Process no later than two hours after Final Day-Ahead Schedules are issued.

**5.12.5 Structure of Bids.** Scheduling Coordinators shall submit bids to the Residual Unit Commitment Process in the relevant forms set forth below.

**5.12.5.1 Non-Hydroelectric Generating Units subject to a Participating Generator Agreement.** Scheduling Coordinators shall submit three-part bids to the Residual Unit Commitment Process for each such Generating Unit which consist of the following parts:

**5.12.5.1.1 Start-up Cost.** Scheduling Coordinators shall submit a bid of a figure, in dollars, representing the cost of the fuel and auxiliary power consumed by the Generating Unit during start-up. A Scheduling Coordinator's bid shall be reduced to equal a cost-based bid determined by the ISO using the information provided in accordance with Section 5.12.3, the proxy figure for natural gas costs posted on the ISO Home Page, and recent prices in the ISO Real Time Imbalance Energy Market, if that bid exceeds the bid so determined by the ISO.

**5.12.5.1.2 Minimum Load Cost.** Scheduling Coordinators shall submit a bid of a figure, in dollars, representing the cost of the fuel consumed each hour by the unit when is operating at its minimum load level. This figure shall be the same for each hour. A Scheduling Coordinator's bid shall be reduced to equal a cost-based bid determined by the ISO using the information provided in accordance with Section 5.12.3, a variable operations and maintenance cost of $6.00/MWh and the proxy figure for natural gas costs posted on the ISO Home Page if that bid exceeds the bid so determined by the ISO.

**5.12.5.1.3 Energy bid.** Scheduling Coordinators shall submit a monotonically increasing curve, consisting of no more than 10 segments, representing the energy payment (in $/MW per hour) requested at a particular output over the range from the Generating Unit's lowest stable sustainable output to the Generating Unit's maximum stable sustainable output for each hour. The price for energy at a given output in the curve bid into the ISO's Real Time Imbalance Energy Market for capacity selected by the ISO in the Residual Unit Commitment Process from the same Generating Unit cannot exceed the price for the same output in the energy curve bid into the Residual Unit Commitment Process for the same hour.

**5.12.5.1.4 Default Bids.** If a Scheduling Coordinator for a non-Hydroelectric Generating Unit subject to a Participating Generator Agreement required to bid into the Residual Unit Commitment Process in accordance with Section 5.11.4 fails to submit a bid into the Residual Unit Commitment Process, the ISO shall submit a bid on its behalf which consists of the following parts:

**5.12.5.1.4.1 Gas-Fired Generating Units subject to a Participating Generating Agreement.**

**5.12.5.1.4.1.1 Default Start-Up Costs.** The ISO shall submit a bid, based on the information provided in accordance with Section 5.12.3, the proxy figure for natural gas costs posted on the ISO Home Page, and recent prices in the ISO's Real Time Imbalance Energy market of a figure, in dollars, equal to the cost of the fuel and auxiliary power consumed by the Generating Unit during start-up.

**5.12.5.1.4.1.2 Default Minimum Load Costs.** The ISO shall submit a bid, based on the information provided in accordance with Section 5.12.3 of a figure, in dollars, equal to the sum of 1) the product of a) the Generating Unit's minimum load level as set forth in that Generating Unit's Participating Generator Agreement, b) the heat input characteristic of that Generating Unit at the minimum load level as set forth in Schedule 1 to that Generating Unit's Participating Generator Agreement, and c) the proxy figure for natural gas costs posted on the ISO Home Page and 2) the product of a) the Generating Unit's minimum load level as set forth in that Generating Unit's Participating Generator Agreement and b) $6.00.

**5.12.5.1.4.1.3 Default Energy Bid.** The ISO shall submit a monotonically increasing curve consisting of ten segments, representing the relationship between the Generating Unit's incremental variable operating cost and its output as calculated by the ISO based on the data provided to the ISO in accordance with Section 5.12.3, the proxy figure for natural gas costs posted on the ISO Home Page, and a variable operating and maintenance costs of $6.00/MWh,

over the range from the Generating Unit's lowest stable sustainable output to the Generating Unit's maximum stable sustainable output. This curve shall be the same for each hour of the Trading Day.

**5.12.5.1.4.2 Non-Gas-Fired Non-Hydroelectric Generating Units subject to a Participating Generating Agreement.**

**5.12.5.1.4.2.1 Default Start-Up Costs.** The ISO shall submit a bid, based on the information provided in accordance with Section 5.12.3 and recent prices in the ISO's Real Time Imbalance Energy market of a figure, in dollars, equal to the cost of the fuel and auxiliary power consumed by the Generating Unit during start-up.

**5.12.5.1.4.2.2 Default Minimum Load Costs.** The ISO shall submit a bid, based on the information provided in accordance with Section 5.12.3 of a figure, in dollars, equal to the sum of 1) the product of a) the Generating Unit's minimum load level as set forth in that Generating Unit's Participating Generator Agreement, and b) the cost of that Generating Unit at the minimum load level as set forth in Schedule 1 to that Generating Unit's Participating Generator Agreement and 2) the product of a) the Generating Unit's minimum load level as set forth in that Generating Unit's Participating Generator Agreement and b) $6.00. This bid shall be the same for each hour.

**5.12.5.1.4.2.3 Default Energy bid.** The ISO shall submit a monotonically increasing curve consisting of ten segments, representing the relationship between the Generating Unit's incremental variable operating cost and its output as calculated by the ISO based on the data provided to the ISO in accordance with Section 5.12.3 over the range from the Generating Unit's lowest stable sustainable output to the Generating Unit's maximum stable sustainable output. This curve shall be the same for each hour of the Trading Day.

**5.12.5.2 Hydro-electric Generating Units subject to a Participating Generator Agreement.** Scheduling Coordinators may submit three-part bids to the Residual Unit Commitment Process for each such Generating Unit which consists of the following parts:

**5.12.5.2 Start-up Cost.** Scheduling Coordinators shall submit a bid of a figure, in dollars, representing the cost of the fuel and auxiliary power consumed by the Generating Unit during start-up. A Scheduling Coordinator's bid shall be reduced to equal a cost-based bid determined by the ISO using the information provided in accordance with Section 5.12.3, the proxy figure for natural gas costs posted on the ISO Home Page, and recent prices in the ISO Real Time Imbalance Energy Market, if that bid exceeds the bid so determined by the ISO.

**5.12.5.2.2 Minimum Load Cost.** Scheduling Coordinators shall shall submit a bid of a figure, in dollars, representing the cost of the fuel consumed each hour by the unit when it is operating at its minimum load level. A Scheduling Coordinator's bid shall be reduced to equal a cost-based bid determined by the ISO using the information provided in accordance with Section 5.12.3, a variable operations and maintenance cost of $6.00/MWh and the proxy figure for natural gas costs posted on the ISO Home Page if that bid exceeds the bid so determined by the ISO.

**5.12.5.2.3 Energy bid.** Scheduling Coordinators shall submit a monotonically increasing curve, consisting of no more than 10 segments, representing the energy payment (in $/MW per hour) requested at a particular output over the range from the Generating Unit's lowest stable sustainable output to the Generating Unit's maximum stable sustainable output for each hour. The price for energy at a given output in the curve bid into the ISO's Real Time Imbalance Energy Market for capacity selected by the ISO in the Residual Unit Commitment Process from the same Generating Unit cannot exceed the price for the same output in the energy curve bid into the Residual Unit Commitment Process for the same hour.

**5.12.5.3 System Resources.** Scheduling Coordinators may submit bids to the Residual Unit Commitment Process for System Resources which consist of the following parts:

**5.12.5.3.1 Energy bid.** Scheduling Coordinators shall submit a monotonically increasing curve, consisting of no more than ten segments, representing the energy payment (in $/MW per hour) requested for a given level of output for each hour.

**5.12.5.3.2 Block bids.** Scheduling Coordinators for System Resources may submit separate bids to provide Energy for a number of contiguous hours. Each such bid shall consist of a monotonically increasing curve, consisting of no more than ten segments, representing the energy payment (in $/MW per hour) requested for a given level of output.in dollars per MWh, and the contiguous hours in which the Energy is to be provided. The Energy price curve must be the same for all hours in the same block of contiguous hours. The Energy price curve may be different for different contiguous blocks of hours.

**5.12.5.4 Curtailable Demand.** Scheduling Coordinators may submit three-part bids to the Residual Unit Commitment Process for Curtailable Demand which consist of the following parts:

**5.12.5.4.2 Minimum Curtailment Payment.** A figure, in dollars, representing the minimum payment for initiating a curtailment regardless of the quantity curtailed or the duration of the curtailment.

**5.12.5.4.3 Minimum Hourly Payment.** A figure, in dollars, representing the minimum payment per hour of curtailment at the lowest MW level stated in the first segment of the energy bid curve set forth in accordance with Section 5.12.5.4.2.

**5.12.5.4.4 Energy bid.** A monotonically increasing curve, consisting of no more than ten segments, representing the energy payment (in $/MW per hour) requested to curtail a particular quantity of Demand for an hour beyond the lowest MW level stated in the first segment of the energy bid curve.

**5.12.5.4.5 Additional bid data.** Scheduling Coordinators may also include figures representing (a) the time, in minutes, required for curtailment following notification; (b) minimum off time, in hours, stating the minimum number of hours the Curtailable Demand is willing to be curtailed; and (c) maximum off time, in hours, stating the maximum number of hours the Curtailable Demand is willing to be curtailed.

**5.12.5.5 System Units.** Scheduling Coordinators may submit bids to the Residual Unit Commitment Process for System Units which consist of the following parts:

**5.12.5.5.1 Energy bid.** A monotonically increasing curve, consisting of no more than ten segments, representing the energy payment (in $/MW per hour) requested for a given level of output for each hour.

**5.12.6 ISO Selection of Units in the Residual Unit Commitment Process.**

**5.12.6.1 Procurement Target.**

**5.12.6.1.1 Capacity.** The ISO shall select Generating Units, System Units, System Resources and Curtailable Load in the Residual Unit Commitment Process to meet the difference between the sum of the ISO Adjusted Demand Forecast and the ISO forecast Operating Reserve Requirement for each hour in the Trading Day and the sum of the total scheduled ISO Control Area Demand and the ISO's Operating Reserve requirement as indicated in the Final Day-Ahead Schedules for each hour of the Trading Day.

**5.12.6.1.1.1 ISO Adjusted Demand Forecast.** The ISO Adjusted Demand Forecast is the total forecast Demand for the ISO Control Area less expected additional Energy to be delivered in the Hour Ahead and Real Time Imbalance Energy markets.

**5.12.6.1.2 Energy Procurement.** For each hour of the Trading Day, the sum of the (1) Energy provided as Generation in Final Day-Ahead Schedules, and (2) the Energy output at minimum load for Generating Units selected by the ISO in the Residual Unit Commitment Process and (3) Energy purchased from System Resources in the Residual Unit Commitment Process shall not exceed 95% of the ISO Adjusted Demand Forecast for that hour unless the sum of (1) the Energy provided as Generation in Final Day-Ahead Schedules, and (2) the Energy output at minimum load for Generating Units selected by the ISO in the Residual Unit Commitment Process exceeds 95% of the ISO Adjusted Demand Forecast.

**5.12.6.2 Cost Minimization.** The ISO shall select Generating Units, System Units, System Resources and Curtailable Demand in the Residual Unit Commitment Process to minimize the total of the start-up, minimum load, and estimated Energy costs for the Residual Unit Commitment Process. To estimate Energy costs, the ISO shall project the Energy level to which the ISO will Dispatch those resources selected in the Residual Unit Commitment Process in each hour to fully meet the ISO Adjusted Demand Forecast.

**5.12.6.3 Local Reliability Commitment.** If required, and after using effective RMR units to the extent possible, the ISO shall select Generating Units in the Residual Unit Commitment Process that the ISO determines must be operating to comply with all applicable reliability criteria, including Generating Units that are needed to ensure local reliability.

**5.12.6.4 Resource characteristics.** The ISO shall consider the performance characteristics submitted by Generating Units in accordance with Section 5.12.3, including ramp rates, minimum load levels, energy limitations and other characteristics, of Generating Units,

System Units, System Resources and Curtailable Demand when selecting those resources in the Residual Unit Commitment Process.

**5.12.7 Payments.**

**5.12.7.1 Generating Units.**

**5.12.7.1.1 Unrecovered Commitment Costs.** The ISO shall pay Generating Units selected by the ISO in the Residual Unit Commitment Process their positive Unrecovered Commitment Costs.

**5.12.7.1.1.1** Unrecovered Commitment Costs shall be the Allocated Start-Up Costs plus the sum, for all hours in the ISO Commitment Period, of the Hourly Minimum Load Cost Deficiencies, less the sum, for all hours in the ISO Commitment Period, of the Hourly Market Net Revenue.

**5.12.7.1.1.2** The Allocated Start-Up costs shall be the product of the Unit's Start-Up Cost (as submitted in Section 5.12.5.1.1.1) and a fraction equal to the number of Qualifying Hours divided by the number of the hours in the ISO Commitment Period.

**5.12.7.1.1.2.1 Eligibility to be paid Allocated Start-Up Costs.** A Generating Unit shall be eligible to be paid Allocated Start-Up Costs for the Trading Day if 1) the Unit has no Self-Commitment Periods for that Trading Day, and 2) the Unit actually starts up.

**5.12.7.1.1.2.2 Commitment Period.** The Commitment Period begins when the Generating Unit is synchronized to the grid and ends when the Generating Unit is de-synchronized from the grid.

**5.12.7.1.1.2.3 ISO Commitment Period.** The ISO Commitment Period begins when the Generating Unit is synchronized in response to the ISO selecting that Unit in the Residual Unit Commitment Process and ends at the later of 1) when the ISO notifies the Scheduling Coordinator that the Unit is no longer required; 2) the unit is forced out of service; and 3) the time that is the time the Generating Unit is synchronized plus the Generating Unit's minimum run time, except the ISO Commitment Period shall not extend beyond the end of a Trading Day.

**5.12.7.1.1.2.4 Self-Commitment Period.** The Self-Commitment Period is that portion of a Commitment Period when the Scheduling Coordinator for that Generating Unit submits Energy schedules or is awarded Ancillary Services schedules. Self-Commitment Periods shall also include periods where the Scheduling Coordinator does not submit Energy Schedules or is awarded Ancillary Services Schedules for the Generating Unit if the Generating Unit must remain on in those periods in response to the Scheduling Coordinator having submitted Energy schedules or having been awarded Ancillary Service Schedules to satisfy the Generating Unit's minimum run time or minimum off time.

**5.12.7.1.1.2.5 Qualifying Hour.** A Qualifying Hour shall be an Hour in the ISO Commitment Period in which 1) the Generating Unit is not awarded or does not self-provide an Hour-Ahead Ancillary Services schedule, and 2) the ISO does not Dispatch the Generating Unit in accordance with its RMR Contract.

**5.12.7.1.1.3 Hourly Minimum Load Cost Deficiency.** The Hourly Minimum Load Cost Deficiency for each hour shall be the sum, for all BEEP Intervals in that hour, of the number that is the greater of zero and the Unit's Minimum Load Cost less the product of the Unit's Minimum Load Level and the Market Clearing Price for that BEEP Interval.

**5.12.7.1.1.3.1 Minimum Load Cost.** The Minimum Load Cost shall be the sum of 1) the product of a) the Unit's average heat rate at minimum load; b) the proxy figure for natural gas costs posted on the ISO Home Page and c) the Unit's minimum load; and 2) the Unit's minimum load and $6.00.

**5.12.7.1.1.4 Hourly Market Net Revenue.** The Hourly Market Net Revenue for each hour shall be the sum, for all BEEP Intervals in that hour, of the product of 1) the number that is the Market Clearing Price for that BEEP Interval less the Imputed Cost and 2) the number that is the difference between the operating level instructed by the ISO and the Generating Unit's minimum load level.

**5.12.7.1.1.4.1 Imputed Cost for Gas-Fired Generating Units.** The Imputed Cost for Gas-Fired Generating Units shall be the sum of 1) the product of a) the unit's average heat rate at the operating level instructed by the ISO; b) the operating level instructed by the ISO; and c) the proxy figure for natural gas costs posted on the ISO Home Page; and 2) $6.00.

**5.12.7.1.1.4.2 Imputed Cost for Non-Gas-Fired Generating Units.** The Imputed Cost for Non-Gas-Fired Generating Units shall be the cost at the operating level as instructed by the ISO as provided in accordance with 5.12.3.

**5.12.7.1.2 Payment for Terminated Start-up.** If 1) the ISO selects a Generating Unit in the Residual Unit Commitment Process 2) the ISO instructs the unit to start-up, and 3) the start-up is terminated before the unit is synchronized, the ISO shall pay the Scheduling Coordinator for that Generating Unit a start-up payment equal to the start-up cost in the Generating Unit's bid multiplied by a fraction equal to the number of hours the unit was in start-up when the start-up was terminated divided by the number of hours the unit normally takes to start-up (as provided in accordance with 5.12.3), except that in no case shall this payment exceed the start-up cost provided in accordance with 5.12.3.

**5.12.7.1.3 Capacity Payments.**

**5.12.7.1.3.1 Gas-Fired Generating Units.** For each hour in which the ISO selects capacity from a gas-fired Generating Unit in the Residual Unit Commitment Process the ISO shall pay to the Scheduling Coordinator for that Generating Unit, subject to Section 5.12.7.1.4, a payment equal to the product of

(1) the amount of capacity selected in the Residual Unit Commitment Process and

(2) the proxy figure for natural gas costs; and

(3) the difference between the unit's incremental heat rate at the output at which the ISO determines it expects the unit to be loaded at in the Residual Unit Commitment Process and the greater of a) the unit's minimum load level as set forth in Schedule 1 of the Unit's Participating Generator Agreement and b) the unit's final Day-Ahead Schedule.

**5.12.7.1.3.2 Non-Gas-Fired Generating Units.** For each hour in which the ISO selects capacity from a non-gas-fired Generating Unit in the Residual Unit Commitment Process the ISO shall pay to the Scheduling Coordinator for that Generating Unit, subject to Section 7.1.3.1, a payment equal to the product of

(1) the amount of capacity selected in the Residual Unit Commitment Process and

(2) the difference between the unit's incremental cost at the output at which the ISO determines it expects the unit to be loaded at in the Residual Unit Commitment Process and the greater of a) the unit's minimum load level as set forth in Schedule 1 of the Unit's Participating Generator Agreement and b) the unit's final Day-Ahead Schedule.

**5.12.7.1.3.3 Withdrawing Capacity Payments when Dispatched.** The ISO shall make no capacity payment in a BEEP Interval to the Scheduling Coordinator for a Generating Unit for the capacity from which the ISO Dispatches Energy from a Generating Unit at a level above the greater of the Unit's Day-Ahead Schedule or the Minimum Load for that Unit.

**5.12.7.1.3.4** Withdrawing Capacity Payments for Exports. The ISO shall make no capacity payment in a BEEP Interval to the Scheduling Coordinator for a Generating Unit for the capacity selected by the ISO in the Residual Unit Commitment Process if the Energy from that capacity is being exported from the ISO Control Area.

**5.12.7.2 System Resources.**

**5.12.7.2.1 Energy.** System Resources the ISO selects in the Residual Unit Commitment Process shall be paid, for each hour, the product of 1) the higher of their bid price or the simple average of the six BEEP Interval Market Clearing Prices for that hour and 2) the operating level to which they are Dispatched in the Residual Unit Commitment Process.

**5.12.7.2.2 System Resource Uplift Costs.** The System Resource Uplift Costs shall be the sum, for all contiguous hours in which the System Resource is Dispatched in accordance with its bid into the Residual Unit Commitment Process in the Trading Day, of the number that is the product of 1) the operating level to which the System Resource is dispatched in the Residual Unit Commitment Process and 2) the greater of a) zero and b) the System Resource's energy bid price for the level to which the System Resource is Dispatched by the ISO less the simple average of the BEEP Interval Market Clearing Prices for that hour.

**5.12.7.3 Curtailable Demand.**

**5.12.7.3.1 Minimum Curtailment Payment.** If the ISO selects Curtailable Demand in the Residual Unit Commitment Process, the ISO shall pay the Scheduling Coordinator for that Curtailable Demand the amount of the minimum curtailment payment in that

Curtailable Demand's bid provided the Curtailable Demand successfully reduces its Demand from its Final Hour Ahead Schedule at the time the ISO requests curtailment.

**5.12.7.4 System Units**

**5.12.7.4.1 Capacity Payments.** For each hour in which the ISO selects capacity from a System Unit in the Residual Unit Commitment Process the ISO shall pay to the Scheduling Coordinator for that System Unit, subject to Section 7.4.2, a payment equal to the product of

(1) the amount of capacity selected in the Residual Unit Commitment Process and

(2) the difference between the price at the System Unit's cost curve the output at which the ISO determines it expects the System Unit to be loaded at in the Residual Unit Commitment Process and b) the cost at the operating point reflected in the System Unit's Final Day-Ahead Schedule.

**5.12.7.4.2 Withdrawing Capacity Payments when Dispatched.** The ISO shall make no capacity payment to the Scheduling Coordinator for a System Unit for the capacity from which the ISO Dispatches Energy from a System Unit at a level above the operating point reflected in Final Day-Ahead Schedule.

**5.12.8 Allocation of Residual Unit Commitment Process Charges.**

**5.12.8.1 Total Hourly Residual Unit Commitment Cost.** The Total Hourly Residual Unit Commitment Cost for each hour shall be the sum of 1) the Hourly Generating Unit Commitment Costs, 2) the Hourly System Resource Commitment Costs, 3) the Hourly Curtailable Demand Commitment Costs, 4) the Hourly Capacity Reservation Costs and 5) Hourly Terminated Start-Up Costs.

**5.12.8.1.1** The Hourly Generating Unit Commitment Costs shall be equal to the sum, for all Generating Units selected in the Residual Unit Commitment Process for that hour, of the

Generating Unit's Unrecovered Commitment Costs divided by the number of hours in each Generating Unit's ISO Commitment Period.

**5.12.8.1.2** The Hourly System Resource Costs shall be equal to the sum, for all System Resources selected by the ISO for that hour, of the System Resource's System Resource Uplift Costs divided by the number of contiguous hours the System Resource was Dispatched by the ISO in accordance with the System Resource's bid in the Residual Unit Commitment Process.

**5.12.8.1.3** The Hourly Curtailable Demand Commitment Costs shall be equal to the sum, for all Curtailable Demands Dispatched by the ISO in that hour, of the Curtailable Demand's Curtailable Demand Commitment Costs divided by the number of hours the Curtailable Demand was curtailed by the ISO.

**5.12.8.1.4** The Hourly Capacity Reservation Costs shall be, the sum, for all Generating Units and System Units selected in the Residual Unit Commitment Process for that hour, of the Capacity Payments made that hour in accordance with Section 5.12.7.1.3 and Section 5.12.7.4.1.

**5.12.8.1.5** The Hourly Terminated Start-Up Costs shall be the sum, for all Generating Units selected in the Residual Unit Commitment Process for that hour, of the Terminated Start-Up Payments made in accordance with Section 5.12.7.1.2 divided by the number of hours the unit was in start-up when the start-up was terminated.

**5.12.8.2** Total Underscheduling Hourly Unit Commitment Cost shall be the product of the Total Hourly Residual Unit Commitment Cost and a number equal to the lesser of 1) one (1) and 2) a number that is equal to a) the greater of zero and a number equal to the total ISO hourly Metered Demand less the total ISO Scheduled Demand divided by b) a number equal to the greater of zero and a number equal to the total ISO forecast Demand less the total ISO scheduled Demand, except that if total ISO forecast Demand equals total ISO scheduled Demand, the Total Underscheduling Hourly Unit Commitment Cost shall be zero.

**5.12.8.2.1** Allocation of Total Underscheduling Hourly Unit Commitment Cost. The Total Underscheduling Hourly Unit Commitment Cost shall be allocated each hour to all Scheduling Coordinators based on the ratio of that Scheduling Coordinator's Net Negative Demand Deviations to total Net Negative Demand Deviations.

**5.12.8.2.1.1** Net Negative Demand Deviation shall be the number that is equal to the lesser of zero (0) and the Demand scheduled by that Scheduling Coordinator in the Final Day-Ahead Schedules submitted to the ISO for that Trading Day less the Scheduling Coordinator's actual hourly Metered Demand.

**5.12.8.3** Total Excess Hourly Unit Commitment Cost shall be the Total Hourly Unit Commitment Cost less a) the Total Underscheduling Hourly Unit Commitment Cost and b) the sum of any amounts available pursuant to Section 11.2.4.1.2 for such hour..

**5.12.8.3.1 Allocation of Total Excess Hourly Unit Commitment Cost.** The Total Excess Hourly Unit Commitment Cost shall be allocated each hour to all Scheduling Coordinators based on the ratio of that Scheduling Coordinator's Metered Demand to total Metered Demand.

**5.12.8.3.2 Local Reliability Commitments.** All start-up costs, minimum load costs and Energy costs from Generating Units the ISO selects to meet local reliability requirements shall be charged to the Participating Transmission Owner in whose Service Area the Generating Unit was selected.

## 5.13 Energy Bids.

### 5.13.1 Energy Bid Definition.

A single Energy Bid curve per resource per hour shall be used in: (a) the Residual Unit Commitment Process as set forth in Section 5.12, (b) the Real-Time Hourly Pre-Dispatch as set forth in Dispatch Protocol 8.6.4, and (c) the Real-Time Economic Dispatch (10-minute

Imbalance Energy market). The energy bid, although different than the Adjustment Bid that may be submitted by resources in the Day-Ahead and Hour-Ahead Congestion Management markets, shall also be a staircase price ($/MWh) versus quantity (MW) curve of up to 10 segments. The Energy Bid curve shall be monotonically increasing, i.e., the price of a subsequent segment shall be greater than the price of a previous segment.

**5.13.2 Energy Bid Submission.**

**5.13.2.1 Day-Ahead Residual Unit Commitment.** Energy Bids shall be submitted for use in the Day-Ahead Residual Unit Commitment no later than 30 minutes after the publication of final Day-Ahead Schedules, in accordance with Section 5.12.4. Resources required to offer their Available Generation in accordance with Section 5.11.4 shall be required to submit Energy Bids for all of their Available Generation. In absence of submitted bids, default bids shall be used for resources required to offer their Available Generation in accordance with Section 5.12. Resources not required to offer their Available Generation in accordance with Section 5.11.4 may voluntarily submit Energy Bids. All submitted Energy Bids shall be subject to the Damage Control Bid Cap as set forth in Section 28.1 and to the Mitigation Measures set forth in Appendix A to the Market Monitoring and Information Protocol.

**5.13.2.2 Real Time Market.** Bids shall be submitted for use in the Real-Time Hourly Pre-Dispatch in DP 8.6.4(j) and the Real-Time Economic Dispatch up to 45 minutes prior to the Operating Hour. Resources required to offer their Available Generation in accordance with Section 5.11.4 shall be required to submit Energy Bids for all of their Available Generation. In the absence of submitted bids, default bids will be used for resources required to offer their Available Generation in accordance with Section 5.11.4. Resources not required to offer their Available Generation in accordance with Section 5.11.4 may voluntarily submit Energy Bids.

Submitted Energy Bids in the Real-Time Market may not exceed the price of the corresponding Day-Ahead Energy Bids for capacity selected in the Residual Unit Commitment Process.

Capacity selected in the Residual Unit Commitment process will be associated with the lowest priced portion of the Real-time Energy Bid curve.

**5.13.2.3 Real-time Energy Bid Partition.** The portion of the Energy Bid that corresponds to the high end of the resource's operating range, shall be allocated to any awarded or self-provided Ancillary Services in the following order from higher to lower capacity: (a) Regulation Up; (b) Spinning Reserve; (c) Non-Spinning Reserve; and (d) Replacement Reserve. For resources providing Regulation Up, the upper regulating limit shall be used if it is lower than the highest operating limit. The remaining portion of the Energy Bid (i.e. that portion between capacity selected in the Residual Unit Commitment Process and capacity committed to provide Ancillary Services) shall constitute a Bid to provide Supplemental Energy.

(4) Imbalance Energy charges;

(5) Usage Charges;

(6) High Voltage Access Charges and Transition Charges;

(7) Wheeling Access Charges;

(8) Voltage Support and Black Start charges; and

(9) Reliability Must-Run Charges

**11.2 Calculations of Settlements.**

The ISO shall calculate, account for and settle the following charges in accordance with this ISO Tariff.

**11.2.1 Grid Management Charge.**

The Grid Management Charge will be levied in accordance with Section 8 of this ISO Tariff.

**11.2.2 Grid Operations Charge.**

The Grid Operations Charge will be levied in accordance with Section 7.3.2 of this ISO Tariff.

**11.2.3 Ancillary Services**

The ISO shall calculate, account for and settle charges and payments for Ancillary Services as set out in Sections 2.5.27.1 to 4, and 2.5.28.1 to 4 of this ISO Tariff.

**11.2.4 Imbalance Energy.**

The ISO shall calculate, account for and settle Imbalance Energy in the Real Time Market for each BEEP Interval Period for the relevant Zone or Scheduling Point within the ISO Controlled

Grid. Imbalance Energy is the difference between the Metered Quantity and the Energy that corresponds to the final Hour-Ahead Schedule. Instructed Imbalance Energy is the portion of Imbalance Energy that is produced or consumed due to Dispatch instructions. The Instructed Imbalance Energy will be calculated based on all Dispatch instructions taking into account applicable ramp rates and time delays. All Dispatch instructions shall be deemed delivered. The remaining Imbalance Energy constitutes Uninstructed Imbalance Energy, and will be calculated based on the difference between the Metered Quantity and the Generator's Dispatched Operating Point.

**11.2.4.1 Net Settlements for Uninstructed Imbalance Energy.**

Uninstructed Imbalance Energy attributable to each Scheduling Coordinator 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 in accordance with Section 2.5.23.2.1.

**11.2.4.1.1 Settlement for Instructed Imbalance Energy**

Instructed Imbalance Energy attributable to each Scheduling Coordinator in each BEEP Interval 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 in accordance with Section 2.5.23.

**11.2.4.1.2 Penalties for Uninstructed Imbalance Energy**

The ISO shall charge Scheduling Coordinators Uninstructed Deviation Penalties for Uninstructed Imbalance Energy resulting from resource deviations outside a tolerance band from their dispatched operating point, for dispatched resources, or their final Hour-Ahead Schedule otherwise. The Dispatched Operating Point will take into account the expected ramping of a resource as it moves to a new Hour-Ahead Schedule at the top of each hour and as it responds to Dispatch instructions. The Uninstructed Deviation Penalty will be applied as follows:

a) The Uninstructed Deviation Penalty will be calculated and assessed in each BEEP Interval in hours that Section 5.6.3 is in effect; the ISO has not declared a Staged System Emergency; or parts of hours except when Section 5.6.3 is in effect;

m) The Uninstructed Deviation Penalty for negative Uninstructed Imbalance Energy will be the amount of the Uninstructed Imbalance Energy in excess of the tolerance band multiplied by a price that initially will be initially equal to 25% of the corresponding BEEP Interval Ex Post Price; and the net effect of the Uninstructed Deviation Penalty and Uninstructed Imbalance Energy settlement initially will be that any such Energy will be charged at 125% of the corresponding BEEP Interval Ex Post Price;

n) The Uninstructed Deviation Penalty will not apply to deviations from Energy delivered as part of a scheduled test so long as the test has been scheduled by the Scheduling Coordinator with the ISO or the ISO has initiated as test for the purposes of validating unit performance;

o) The Uninstructed Deviation Penalty will apply to Out of Market (OOM) transactions;

p) Generating Units, Curtailable Demands and dispatchable Interconnection resources with negative Uninstructed Imbalance Energy will be exempted from the Uninstructed Deviation Penalty if the Generating Unit, Curtailable Demand or dispatchable Interconnection resource was physically incapable of delivering the expected Energy, provided that the Generating Unit, Curtailable Demand or dispatchable Interconnection resource had notified the ISO within 30 minutes of the onset of an event that prevents the resource from performing its obligations. A Generating Unit, Curtailable Demand or dispatchable Interconnection resource must notify ISO operations staff of its reasons for failing to deliver the expected Energy in accordance with Section 2.3.3.9.2 and must provide information to the ISO that verifies the reason the resource failed to comply with the Dispatch instruction within 72 hours of the operating hour in which the instruction is issued; and

q) Operational adjustments associated interchange schedules making use of existing contract rights shall not be subject to the uninstructed deviation penalty.

The ISO may modify the value of the Uninstructed Deviation Penalty tolerance band or method for calculation of the rate of the Uninstructed Deviation Penalty, after the ISO Board of Governors approves any 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.

The ISO may modify the value of the Uninstructed Deviation Penalty tolerance band or method for calculation of the rate of the Uninstructed Deviation Penalty, after the ISO Board of Governors approves any 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.

Amounts collected as Uninstructed Deviation Penalties shall first be assigned to reduce the portion of Residual Unit Commitment costs that would otherwise be included in Total Excess Hourly Unit Commitment Cost, pursuant to Section 8.3. Any remaining amounts of collected Uninstructed Deviation Penalties shall next be assigned to reduce the portion of above-MCP costs that would otherwise be assigned pro rata to all Scheduling Coordinators in that BEEP Interval pursuant to Section 11.2.4.2.2. Any remaining portion of amounts collected as Uninstructed Deviation Penalties after satisfying these sequential commitments shall be treated in accordance with SABP 6.5.2.

**11.2.4.2 Payment Options for ISO Dispatch Orders**

With respect to all resources which have not bid into the Imbalance Energy or Ancillary Services markets but which have been dispatched by the ISO to avoid an intervention in market operations, to prevent or relieve a System Emergency, or to satisfy a locational requirement, the ISO shall calculate, account for and, if applicable, settle deviations from the Final Schedule submitted on behalf of each such resource, with the relevant

(b) the amount obtained by multiplying the Scheduling Coordinator's Net Negative Uninstructed Deviation for each BEEP Interval and a weighted average price. The weighted average price is equal to the total above-MCP costs divided by the MWh delivered as a result of ISO instructions with a cost component above the MCP.

The difference between ISO charges to Scheduling Coordinators with Net Negative Uninstructed Deviations and the total above-MCP costs incurred by the ISO due to Instructed Imbalance Energy and Dispatch instructions for reasons other than for a transmission facility outage or a location-specific requirement, as such difference is reduced pursuant to Section 11.2.4.1.2, shall be allocated amongst all Scheduling Coordinators in that BEEP Interval pro rata based on their metered Demand, including Exports.

The Scheduling Coordinator shall be exempt from the allocation of above-MCP costs in a BEEP interval f the Scheduling Coordinator has sufficient incremental Energy bids from physically available resources in the Imbalance Energy market to cover the net negative Uninstructed Deviation in the given interval of a resource and the prices of these Energy bids do not exceed the applicable NECPL.

**11.2.4.3 Unaccounted For Energy (UFE)**

For settlement purposes, UFE is treated as Imbalance Energy. For each BEEP Interval, the ISO will calculate UFE on the ISO Controlled Grid, for each UDC Service Area. The UFE will be settled as Imbalance Energy at the BEEP Interval Ex Post Price. UFE attributable to meter measurement errors, load profile errors, Energy theft, and distribution loss deviations will be allocated to each Scheduling Coordinator based on the ratio of their metered Demand (including exports to neighboring Control Areas) within the relevant UDC Service Area to total metered Demand within the UDC Service Area.

**11.2.4.4** High Voltage Access Charges and Transition Charges will be levied in accordance with Section 7.1 of this ISO Tariff and Appendix F, Schedule 3.

which this Section 27 shall cease to apply, which date shall not be less than seven (7) days after the Notice of Full-Scale Operations is posted.

**27.2** For so long as this Section 27.2 remains in effect, Scheduling Coordinators shall continue to be allowed to specify Adjustment Bids for Dispatchable Loads and exports, conditioned on the rule that the last segment of the Adjustment Bid (i.e., the maximum MW value) must equal the preferred MW operating point specified for the Dispatchable Load or export.

## 28. RULES LIMITING CERTAIN ENERGY AND ANCILLARY SERVICE BIDS

**28.1 [NOT USED]**

**28.1.1 [NOT USED]**

**28.1.2 [NOT USED]**

**28.1.3 [NOT USED]**

**28.1.4 Negative Bids**

Negative bids into the ISO Markets shall be limited to -$30/MWh (minus thirty dollars per MWh).

**28.1.5 [NOT USED]**

**28.2 12-Month Market Competitiveness Index**

The ISO shall compute a 12-month rolling average Market Competitiveness Index as specified in Section 28.2.1 and evaluate that computation against the threshold defined in Section 28.2.1.6. If and when the trigger threshold is exceeded, the mitigation measures specified in Section 28.2.3 will apply for the lesser of: (1) 6 months or (2) until FERC has determined that the market has been restored to competitive conditions. The initial Non-Emergency Clearing Price Limit shall be that last in effect.

**28.2.1 Tracking by DMA**

The ISO Department of Market Analysis will compute a 12-Month Market Competitiveness Index (12MMCI) at the end of each month for the previous 12 months.

**28.2.1.1** The 12MMCI is a 12-month rolling price-cost markup index that compares actual average market cost (AAMC) as specified in Section 28.2.1.2 to a competitive baseline average cost (CBAC) as specified in Section 28.2.1.3, using the following formula:

$$12MMCI = (AAMC - CBAC).$$

**28.2.1.2 Computation of the AAMC.** The actual average market cost is computed as the weighted average of short-term forward and real-time energy prices.

1. The short-term forward energy prices and quantities use the day-ahead and hour-ahead energy market if one is in place. In the absence of forward energy market, the California Energy Resource Scheduler (CERS) day-ahead and hour-ahead scheduled quantities and the corresponding short-term contract prices will be used.
2. The real-time prices and quantities pertain to the real-time incremental dispatch instructions issued by the ISO.
3. The hourly total MWh quantity of the above short-term forward energy and real-time incremental energy will be used as the quantity for calculating total hourly competitive baseline market costs as described in Section 28.2.1.4.

**28.2.1.3 Computation of the CBAC.** The competitive baseline average cost is based on competitive baseline prices that represent the estimated variable operating cost of the marginal (highest cost) thermal generation unit within the ISO system needed to meet system demand each hour. The calculation procedure is as follows:

1. The actual supply from Final Hour-ahead net import schedules, Utility Retained Generation (URG), and other must-take resources within the ISO Control Area are excluded from the computation (i.e. netted out from both supply and demand) for each hour.

2. The operating costs of major non-utility owned thermal generating units within the ISO system are estimated based on unit heat rates, spot market gas prices, opportunity costs for certain energy limited resources, and estimated variable O&M costs of $4/MWh for combustion turbines and $2/MWh for other thermal units.

3. Only the available capacity of the generating units (considering partial or total outages based on ISO's outage coordination database) are used.

4. A thermal supply curve is developed based on the available capacity of non-utility owned thermal units and their average heat rate.

5. A composite supply curve is constructed by combining the thermal supply curve of Step 4 with real-time import bids that were dispatched, at their bid price, and any out-of-market purchases capped at a price corresponding to a 12,000 MMBTU heat rate (plus the O&M adder)

6. The net demand that must be met by these sources of supply is calculated for each hour t as follows:

$$\text{Net Demand}_t = \text{System Energy Demand}_t - \text{HA Net Imports}_t - \text{Residual ISO Supply}_t - \text{Estimated System Losses and Unaccounted for Energy}_t$$

where:

$$\text{System Energy Demand}_t = 1.07 * \text{Actual ISO System Load}_t + \text{Upward Regulation Requirements}_t$$

$$\text{HA Net Imports}_t = \text{SUMi (Final Hour Ahead Energy Schedule}_{i,t})$$

$$\text{Residual ISO Supply}_t = \text{SUMj ( Max [Metered Output}_{j,t}, \text{Final Hour Ahead Energy Schedule}_{j,t}$$

+ Upward Regulation Capacity Scheduled$_{j,t}$
+ Real Time Energy Dispatched$_{i,t}$
+ RMR Schedule Change$_{j,t}$ ] )

i = All Hour-ahead net import schedules into the ISO control area
j = All generating resources within the ISO control area other than non-utility thermal units

7. System losses and Unaccounted For Energy in each hour t are estimated using the difference between: (1) hourly system loads reported by the ISO based on telemetered data and (2) the sum of estimated generation from all sources within the ISO control area plus final (Hour-Ahead) import schedules.

8. A competitive baseline price is calculated based on the supply curve of non-utility thermal generating units and real-time energy import bids and the net demand that must be met from these sources of supply.

9. For energy-limited resources, estimates of opportunity cost shall be used in computing the competitive baseline cost as described below.

   A) Unit owners shall report to the ISO Outage Coordination office when energy-limited resources are not available (for example, once a unit has used up its energy production or its available hours). Annual environmental limitations shall be reported to the ISO Outage Coordination office. The unit will then be flagged so that it is not considered to be physically withholding. Once flagged, the unit will not be included in the calculation of the competitive baseline cost for the relevant period.

   B) The opportunity cost for an energy-limited generation resource is calculated based on the maximum available hours during the constrained period and the corresponding price on the price duration curve of the hourly competitive baseline prices for the constrained

period. The estimated opportunity cost for the energy-limited generation resource will remain constant for all hours in this constrained period. The opportunity cost may be increased to account for other constraints on the resource.

10. The Hourly Competitive Baseline Cost is the product of:

A) the competitive baseline price defined in this section, and

B) the total short-term and real-time incremental Energy defined in 28.2.12.

**28.2.1.4 Computation of the Price-cost Markup.**

The Price-cost markup shall be :

($SUM_h$(Hourly Actual Market Cost) – $SUM_h$(Hourly Competitive Baseline Cost) ) / $SUM_h$(Hourly Competitive Baseline Cost)

where h is each hour in the month;

The 12-Month Market Competitiveness Index (12MMCI) is computed as:

( $SUM_M$(Monthly Actual Market Cost) – $SUM_M$(Monthly Competitive Baseline Cost) ) / $SUM_M$(Monthly Competitive Baseline Cost)

where M is each month of the previous 12 months.

**28.2.1.5 Accounting for Scarcity Rents.** To assess the degree to which high prices may be attributable to absolute scarcity of supply rather than market power, the DMA shall identify the portion of the price-cost markup that occurred during hours of potential resource scarcity. In this analysis, scarcity shall be defined to occur during the hours when the total available supply in the ISO system (including import bids and out-of-market purchases) is less than total system demand for energy plus a margin of 10 percent approximating requirements for three percent upward regulation and seven percent Operating Reserves).

**28.2.1.6 Trigger Threshold.**

The threshold for the 12MMCI shall be $5/MWh.

**28.2.2 POSTING**

The ISO shall calculate and publish the 12MMCI every month.

**28.2.3 CONSEQUNCES FOR EXEEDING THE 12MMCI**

If the threshold for the 12MMCIis exceeded, then the requirements of Sections 28.2.3.1, 28.2.3.2, 28.2.3.3, and 28.2.3.4 shall apply.

**28.2.3.1 Temporary Limitation of BEEP Prices Resulting from 12-Monrth Trigger**

**28.2.3.1.1 Limitation**

Notwithstanding any other provision of the ISO Tariff, including Section 2.5.23.3.1.2, the BEEP Interval Ex Post Price shall equal the highest Proxy Price calculated in accordance with Section 28.2.3.1.4 for a gas-fired Generating Unit that: (i) is eligible to set the Market Clearing Price as set forth in Section 28.2.3.1.8; and (ii) is dispatched by the ISO to provide Imbalance Energy. This Proxy Price shall establish the Market Clearing Price (the "Marginal Proxy Clearing Price") for all Scheduling Coordinators for Generating Units, System Units, and System Resources that submit bids at or below the level of the Marginal Proxy Clearing Price. All bids for the supply of Imbalance Energy submitted by Scheduling Coordinators for resources that do not meet the requirements set forth in Section 28.2.3.1.8 to be eligible to set the Market Clearing Price shall be bids deemed by the ISO to be paid the Marginal Proxy Clearing Price. Subject to Section 28.2.3.1.8, Scheduling Coordinators for Generating Units, System Units, and System Resources that submit bids above the Marginal Proxy Clearing Price for the supply of Imbalance Energy shall be paid in accordance with their bids if accepted for Dispatch by the ISO. Such bids shall be subject to the cost justification requirements and potential refunds as set forth in Section 2.5.23.3.5.

**28.2.3.2 Limitation for Ancillary Services 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 the Hourly Ex Post Price in effect at the deadline for submitting bids to that market, as determined in accordance with Section 28.2.3.1.1.1. Subject to Section 28.2.3.2.4 of this ISO Tariff, Scheduling Coordinators for Generating Units, System Units, Loads, and System Resources that submit bids above the Hourly Ex Post Price in effect at the deadline for submitting bids to that market for the supply of these Ancillary Services shall be paid in accordance with their bids if accepted by the ISO. Such bids shall be subject to cost justification requirements and potential refunds.

**28.2.3.3 Residual Unit Commitment and Must Offer**

The ISO's residual unit commitment process specified in Section 5.12 and the requirements for Generating Units to offer Available Generation in Section 5.11 will continue to apply during the period that the mitigation measures specified in this Section 28.2 are in effect.

**28.2.3.4 Notification to the Commission**

It the 12MMCI threshold in Section 28.2.1 is exceeded, the ISO will, in addition to the reistitution of the California-only mitigation measures contained in Section 28.2.3.1, 28.2.3.2, and 28.2.3.3, notify the Commission as soon as is practical and request the Commission re-institute the West-wide mitigation components of its June 19, 2001 Order in Docket No. EL00-95. The ISO shall also request that,to the extent not already provided, FERC establish liability for refunds in future periods based on the principles provided for in FERC's June 19 2001 Order until FERC makes a finding that rates are just and reasonable.

**29. [NOT USED]**

**30. YEAR 2000 COMPLIANCE**

**30.1 Y2K Compliance**

"Y2K Compliance" or "Y2K Compliant" means hardware, software, firmware, or other systems or processes (hereafter "systems and processes") that correctly manage, calculate, compare and sequence date data from, into and between the 20th and 21st centuries, including leap year calculations, without human intervention. Y2K Compliant systems and processes must utilize input and output date formats that are compatible with the ISO's systems and processes, must conform to the International Organization for Standardization ISO 8601:1988 standards for representation of dates and must not cause incorrect date calculations.

### 30.2 Responsibility for Y2K Compliance

It is the sole responsibility of each Market Participant or other entity that interfaces with the ISO's systems and processes to ensure that the entity's interfacing systems or processes are Y2K Compliant. The ISO will provide joint Y2K test opportunities to ensure interoperability between the ISO systems and external systems that interface with the ISO (e.g., Scheduling Coordinators, and other entities). This proactive test program is an opportunity to minimize the possibilities of transmitting Y2K related erroneous data to the ISO. Participation in this testing program is voluntary, and not a requirement.

### 30.3 Disconnection of Non-Y2K Compliant Systems and Processes

In order to protect and maintain the integrity of the ISO's systems and processes, the ISO shall have the authority to immediately disconnect the systems or processes of any Scheduling Coordinator or other entity that is believed by the ISO to be passing Y2K related erroneous data; i.e., data from systems and processes that do not meet the Section 30.1 standards for Y2K Compliance. The ISO will immediately notify the disconnected Scheduling Coordinator or other entity of the reason for the action taken by the ISO. The ISO shall permit such Scheduling Coordinator or other entity to reestablish interfaces with the ISO after receiving and approving documented test results showing that the disconnected systems or processes are Y2K Compliant and would not otherwise adversely affect the ISO's systems and processes. The ISO will review and approve or reject documented test results within two (2) business days of their receipt. The ISO will reconnect the entity within one (1) business day of the ISO's approval.

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| **Aggregate Final Accepted Schedules** | ISO approved aggregated Final Schedules. |
| **Alert Notice** | A Notice issued by the ISO when the operating requirements of the ISO Controlled Grid are marginal because of Demand exceeding forecast, loss of major Generation, or loss of transmission capacity that has curtailed imports into the ISO Control Area, or if the Hour-Ahead Market is short on scheduled Energy and Ancillary Services for the ISO Control Area. |
| **Allocated Start-Up Costs** | Allocated Start-Up Costs has the meaning set forth in Section 5.12.7.1.1.2. |
| **Ancillary Services** | Regulation, Spinning Reserve, Non-Spinning Reserve, Replacement Reserve, Voltage Support and Black Start together with such other interconnected operation services as the ISO may develop in cooperation with Market Participants to support the transmission of Energy from Generation resources to Loads while maintaining reliable operation of the ISO Controlled Grid in accordance with Good Utility Practice. |
| **Ancillary Service Provider** | A Participating Generator or Participating Load who is eligible to provide an Ancillary Serviced. |
| **Applicable Reliability Criteria** | The reliability standards established by NERC, WSCC, and Local Reliability Criteria as amended from time to time, including any requirements of the NRC. |
| **Applicants** | Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southern California Edison Company and any others as applicable. |

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| **Direct Access Generation** | An Eligible Customer who is selling Energy or Ancillary Services through a Scheduling Coordinator. |
| **Direct Assignment Facility** | The transmission facilities necessary to physically and electrically interconnect a New Facility Operator to the ISO Controlled Grid at the point of interconnection. |
| **Dispatch** | The operating control of an integrated electric system to: i) assign specific Generating Units and other sources of supply to effect the supply to meet the relevant area Demand taken as Load rises or falls; ii) control operations and maintenance of high voltage lines, substations, and equipment, including administration of safety procedures; iii) operate interconnections; iv) manage Energy transactions with other interconnected Control Areas; and v) curtail Demand. |
| **Dispatch Instruction** | An instruction by the ISO to a resource for increasing or decreasing its energy supply or demand from the Hour-Ahead Schedule to a specified operating point. |
| **Dispatch Operating Point** | The expected operating point of a resource that has received a Dispatch Instruction. The resource is expected to operate at the Dispatch Operating Point after completing the Dispatch Instruction, taking into account any relevant ramp rate and time delays. Energy expected to be produced or consumed above or below the Final Hour-Ahead Schedule in response to a Dispatch Instruction constitutes Instructed Imbalance Energy. For resources that have not received a Dispatch Instruction, the Dispatch Operating Point defaults to the corresponding Final Hour-Ahead Schedule. |
| **Dispatchable Loads** | Load which is the subject of an Adjustment Bid. |

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| **Distribution System** | The distribution assets of a TO or UDC. |
| **EEP (Electrical Emergency Plan)** | A plan to be developed by the ISO in consultation with UDCs to address situations when Energy reserve margins are forecast to be below established levels.. |
| **Effective Price** | The price, applied to undelivered Instructed Imbalance Energy, calculated by dividing the absolute value of the total payment or charge for Instructed Imbalance Energy by the absolute value of the total Instructed Imbalance Energy, for the Settlement Period; provided that, if both the total payment or charge and quantity of Instructed Imbalance Energy for the Settlement Period are negative, the Effective Price shall be multiplied by -1.0 (minus one). |
| **Electric Capacity** | The continuous demand-carrying ability for which a Generating Unit, or other electrical apparatus is rated, either by the user or by the manufacturer. |

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| **High Voltage Transmission Standby Serve** | Service provided by a Participating TO which allows a Standby Service Customer to utilize the Participating TO's High Voltage Transmission Facilities as a backup to ensure that Energy may be reliably delivered to the Standby Service Customer in the event of an outage of a Generating Unit located on or near the customer's premise. |
| **High Voltage Wheeling Access Charge** | The Wheeling Access Charge associated with the recovery of a Participating TO's High Voltage Transmission Revenue Requirements in accordance with Section 7.1. |
| **Hour-Ahead** | Relating to an Hour-Ahead Market or an Hour-Ahead Schedule. |
| **Hour-Ahead Market** | The forward market for Energy and Ancillary Services to be supplied during a particular Settlement Period that is conducted by the ISO, the PX and other Scheduling Coordinators which opens after the ISO's acceptance of the Final Day-Ahead Schedule for the Trading Day in which the Settlement Period falls and closes with the ISO's acceptance of the Final Hour-Ahead Schedule. |
| **Hour-Ahead Schedule** | A Schedule prepared by a Scheduling Coordinator or the ISO before the beginning of a Settlement Period indicating the changes to the levels of Generation and Demand scheduled for that Settlement Period from that shown in the Final Day-Ahead Schedule. |
| **Hourly Capacity Reservation Costs** | Hourly Capacity Reservation Costs has the meaning set forth in Section 5.12.8.1.4. |
| **Hourly Curtailable Demand Costs** | Hourly Curtailable Demand Costs has the meaning set forth in Section 5.12.8.1.3. |

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| **Hourly Ex Post Price** | The Energy-weighted average of the BEEP Interval Ex Post Prices in each Zone during each settlement period. The Hourly Ex Post Price will vary between Zones if Congestion is present. This price is used in the Regulation Energy Payment Adjustment and in RMR settlements. |
| **Hourly Generating Unit Commitment Costs** | Hourly Generating Unit Commitment Costs has the meaning set forth in Section 5.12.8.1.1. |
| **Hourly Market Net Revenue** | Hourly Market Net Revenue has the meaning set forth in Section 5.12.7.1.1.4. |
| **Hourly Minimum Load Cost Deficiency** | Hourly Minimum Load Cost Deficiency has the meaning set forth in Section 5.12.7.1.1.3. |
| **Hourly System Resource Costs** | Hourly System Resource Costs has the meaning set forth in Section 5.12.8.1.2. |
| **Hydro Spill Generation** | Hydro-electric Generation in existence prior to the ISO Operations Date that: i) has no storage capacity and that, if backed down, would spill; ii) has exceeded its storage capacity and is spilling even though the generators are at full output, or iii) has inadequate storage capacity to prevent loss of hydro-electric Energy either immediately or during the forecast period, if hydro-electric Generation is reduced; iv) has increased regulated water output to avoid an impending spill. |
| **Identification Code** | An identification number assigned to each Scheduling Coordinator by the ISO. |
| **Imbalance Energy** | Imbalance Energy is Energy from Regulation, Spinning and Non-spinning Reserves, or Replacement Reserve, or Energy from other Generating Units, System Units, System Resources, or Loads that are able to respond to the ISO's request for more or less Energy. |

**Imputed Cost** The imputed cost is the average cost of Generation at a particular output calculated by the ISO from data provided to the ISO.

**Inactive Zone** All Zones which the ISO Governing Board has determined do not have a workably competitive Generation market and as set out in Appendix I to the ISO Tariff.

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| **ISO ADR Procedures** | The procedures for resolution of disputes or differences set out in Section 13 of the ISO Tariff, as amended from time to time. |
| **ISO Audit Committee** | A Committee of the ISO Governing Board appointed pursuant to Article IV, Section 5 of the ISO bylaws to (1) review the ISO's annual independent audit (2) report to the ISO Governing Board on such audit, and (3) to monitor compliance with the ISO Code of Conduct. |
| **ISO Authorized Inspector** | A person authorized by the ISO to certify, test, inspect and audit meters and metering facilities in accordance with the procedures established by the ISO pursuant to the ISO Protocols on metering. |
| **ISO Bank** | The bank appointed by the ISO from time to time for the purposes of operating the Settlement process. |
| **ISO Clearing Account** | The account in the name of the ISO with the ISO Bank to which payments are required to be transferred for allocation to ISO Creditors in accordance with their respective entitlements. |
| **ISO Code of Conduct** | For employees, the code of conduct for officers, employees and substantially full-time consultants and contractors of the ISO as set out in exhibit A to the ISO bylaws; for Governors, the code of conduct for governors of the ISO as set out in exhibit B to the ISO bylaws. |
| **ISO Commitment Period** | ISO Commitment Period has the meaning set forth in Section 5.12.7.1.1.2.3. |
| **ISO Control Area Balancing Function** | The real time Dispatch of Generation (and Curtailable Demand), directed by the ISO, to balance with actual Demand during the current operating hour to meet operating reliability criteria. |

**ISO Control Center** The Control Center established, pursuant to Section 2.3.1.1 of the ISO Tariff.

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| **Master File** | A file containing information regarding Generating Units, Loads and other resources. |
| **Meter Data** | Energy usage data collected by a metering device or as may be otherwise derived by the use of Approved Load Profiles. |
| **Meter Points** | Locations on the ISO Controlled Grid at which the ISO requires the collection of Meter Data by a metering device. |
| **Metered Quantities** | For each Direct Access End-User, the actual metered amount of MWh and MW; for each Participating Generator the actual metered amounts of MWh, MW, MVAr and MVArh. |
| **Minimum Load Cost** | Minimum Load Cost has the meaning set forth in Section 5.12.7.1.1.3.1. |
| **Monthly Peak Load** | The maximum hourly Demand on a Participating TO's transmission system for a calendar month, multiplied by the Operating Reserve Multiplier. |
| **MSS (Metered Subsystem)** | A geographically contiguous system of a New Participating TO, located within a single Zone which has been operating for a number of years prior to the ISO Operations Date subsumed within the ISO Control Area and encompassed by ISO certified revenue quality meters at each interface point with the ISO Controlled Grid and ISO certified revenue quality meters on all Generating Units internal to the system, which is operated in accordance with an agreement described in Section 3.3.1. |
| **MSS Operator** | An entity that owns an MSS and has executed an agreement described in Section 3.3.1. |

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| **Municipal Tax Exempt Debt** | An obligation the interest on which is excluded from gross income for federal tax purposes pursuant to Section 103(a) of the Internal Revenue Code of 1986 or the corresponding provisions of prior law without regard to the identity of the holder thereof. Municipal Tax Exempt Debt does not include Local Furnishing Bonds. |
| **Municipal Tax Exempt TO** | A Transmission Owner that has issued Municipal Tax Exempt Debt with respect to any transmission facilities, or rights associated therewith, that it would be required to place under the ISO's Operational Control pursuant to the Transmission Control Agreement if it were a Participating TO. |
| **Must-Offer Generator** | All entities defined in Section 5.11.1 of the ISO Tariff |
| **Native Load** | Load required to be served by a utility within its Service Area pursuant to applicable law, franchise, or statute. |
| **NERC** | The North American Electric Reliability Council or its successor. |
| **Net Negative Demand Deviations** | Net Negative Demand Deviations has the meaning set forth in Section 5.12.8.2.1.1. |
| **Net Negative Uninstructed Deviation** | The real time change in Generation or Demand associated with underscheduled Load (i.e., Load that appears unscheduled in real time) and overscheduled Generation (i.e., Generation that is scheduled in forward markets and does not appear in real time). Deviations are netted for each BEEP Interval, apply to a Scheduling Coordinator's entire portfolio, and include Load, Generation, Imports and Exports. |

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| **Preliminary Settlement Statement** | The initial statement issued by the ISO of the calculation of the Settlements and allocation of the charges in respect of all Settlement Periods covered by the period to which it relates. |
| **Price Mitigation Reserve Deficiency** | Any clock hour in which the ISO's maximum actual reserve margin is below seven (7) percent. |
| **Price Overlap** | The price range of bids for Supplemental Energy or Energy associated with Ancillary Services bids for any BEEP Interval that includes decremental and incremental Energy Bids where the price of the decremental Energy Bids exceeds the price of the incremental Energy Bids. |
| **Project Sponsor** | A Market Participant or group of Market Participants or a Participating TO that proposes the construction of a transmission addition or upgrade in accordance with Section 3.2 of the ISO Tariff. |
| **Proxy Price** | The value determined for each gas-fired Generating Unit owned or controlled by a Must-Offer Generator in accordance with Section 2.5.23.3.4. |
| **PX (Power Exchange)** | The California Power Exchange Corporation, a state chartered, nonprofit corporation charged with providing a Day-Ahead forward market for Energy in accordance with the PX Tariff. The PX is a Scheduling Coordinator and is independent of both the ISO and all other Market Participants. |
| **PX Auction Activity Rules** | The rules by which bids submitted to and validated by the PX may be modified or withdrawn during a PX Energy market auction. |
| **Qualifying Hours** | Qualifying Hours has the meaning set forth in Section 5.12.7.1.1.2.5. |

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| **Residual Unit Commitment Process** | The process in which the ISO commits Generating Units and reserves service from System Units, System Resources and Curtailable Demands to meet the ISO's projected needs for the next Trading Day. |
| **Responsible Utility** | The utility which is a party to the TCA in whose Service Area the Reliability Must-Run Unit is located or whose Service Area is contiguous to the Service Area in which a Reliability Must-Run Unit owned by an entity outside of the ISO Controlled Grid is located. |
| **Revenue Requirement** | The revenue level required by a utility to cover expenses made on an investment, while earning a specified rate of return on the investment. |
| **Revenue Review Panel** | The panel established by the ISO Governing Board to review the Transmission Revenue Requirement of non-FERC jurisdictional Participating TOs. |
| **Revised Schedule** | A Schedule submitted by a Scheduling Coordinator to the ISO following receipt of the ISO's Suggested Adjusted Schedule. |
| **RMR Owner** | The provider of services under a Reliability Must-Run Contract. |
| **RTG (Regional Transmission Group)** | A voluntary organization approved by FERC and composed of transmission owners, transmission users, and other entities, organized to efficiently coordinate the planning, expansion and use of transmission on a regional and inter-regional basis. |
| **SCADA (Supervisory Control and Data Acquisition)** | A computer system that allows an electric system operator to remotely monitor and control elements of an electric system. |

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| **SC Agreement** | An agreement between a Scheduling Coordinator and the ISO whereby the Scheduling Coordinator agrees to comply with all ISO rules, protocols and instructions, as those rules, protocols and instructions may be amended from time to time. |
| **SC Applicant** | An applicant for certification by the ISO as a Scheduling Coordinator. |

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| **System Emergency** | Conditions beyond the normal control of the ISO that affect the ability of the ISO Control Area to function normally including any abnormal system condition which requires immediate manual or automatic action to prevent loss of Load, equipment damage, or tripping of system elements which might result in cascading outages or to restore system operation to meet the minimum operating reliability criteria. |
| **System Impact Study** | An engineering study conducted to determine whether a New Facility Operator's request for interconnection to the ISO Controlled Grid would require new transmission additions, upgrades or other mitigation measures. |
| **System Planning Studies** | Reports summarizing studies performed to assess the adequacy of the ISO Controlled Grid as regards conformance to Reliability Criteria. |
| **System Reliability** | A measure of an electric system's ability to deliver uninterrupted service at the proper voltage and frequency. |
| **System Resource** | A group of resources located outside of the ISO Control Area capable of providing Energy and/or Ancillary Services to the ISO Controlled Grid. |
| **System Resource Uplift Costs** | System Resource Uplift Costs has the meaning set forth in Section 5.12.7.2.2. |

**System Unit** One or more individual Generating Units and/or Loads within a Metered Subsystem controlled so as to simulate a single resource with specified performance characteristics, as mutually determined and agreed to by the MSS Operator and the ISO. The Generating Units and/or Loads making up a System Unit must be in close physical proximity to each other such that the operation of the resources comprising the System Unit does not result in significant differences in flows on the ISO Controlled Grid.

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| **Take-Out Point** | The metering points at which a Scheduling Coordinator Metered Entity or ISO Metered Entity takes delivery of Energy. |
| **Tax Exempt Debt** | Municipal Tax Exempt Debt or Local Furnishing Bonds. |
| **Tax Exempt Participating TO** | A Participating TO that is the beneficiary of outstanding Tax-Exempt Debt issued to finance any electric facilities, or rights associated therewith, which are part of an integrated system including transmission facilities the Operational Control of which is transferred to the ISO pursuant to the TCA. |
| **TCA (Transmission Control Agreement)** | The agreement between the ISO and Participating TOs establishing the terms and conditions under which TOs will become Participating TOs and how the ISO and each Participating TO will discharge their respective duties and responsibilities, as may be modified from time to time. |
| **Tie Point Meter** | A revenue meter, which is capable of providing Settlement Quality Meter Data, at a Scheduling Point or at a boundary between UDCs within the ISO Controlled Grid. |
| **Total Excess Hourly Unit Commitment Cost** | Total Excess Hourly Unit Commitment Cost has the meaning set forth in Section 5.12.8.2.2. |
| **Total Hourly Residual Unit Commitment Cost** | Total Hourly Residual Unit Commitment Cost has the meaning set forth in Section 5.12.8.1. |
| **TO (Transmission Owner)** | An entity owning transmission facilities or having firm contractual rights to use transmission facilities. |
| **TO Tariff** | A tariff setting out a Participating TO's rates and charges for transmission access to the ISO Controlled Grid and whose other terms and conditions are the same as those contained in the document referred to as the Transmission Owners Tariff approved by FERC as it may be amended from time to time. |

**Trading Day** The twenty-four hour period beginning at the start of the hour ending 0100 and ending at the end of the hour ending 2400 daily, except where there is a change to and from daylight savings time.

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| **Unaccounted for Energy (UFE)** | UFE is the difference in Energy, for each UDC Service Area and Settlement Period, between the net Energy delivered into the UDC Service Area, adjusted for UDC Service Area Transmission Losses (calculated in accordance with Section 7.4.2), 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 is attributable to meter measurement errors, power flow modeling errors, energy theft, statistical Load profile errors, and distribution loss deviations. |
| **Uncontrollable Force** | Any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm, flood, earthquake, explosion, any curtailment, order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities or any other cause beyond the reasonable control of the ISO or Market Participant which could not be avoided through the exercise of Good Utility Practice. |
| **Uninstructed Deviation Penalty** | The penalty as set forth in Section 11.2.4.1.2 of this ISO Tariff. |
| **Uninstructed Imbalance Energy** | The real time change in Generation or Demand other than that instructed by the ISO or which the ISO Tariff provides will be paid at the price for Uninstructed Imbalance Energy. |
| **Unit Commitment** | The process of determining which Generating Units will be committed (started) to meet Demand and provide Ancillary Services in the near future (e.g., the next Trading Day). |
| **Unrecovered Commitment Costs** | Unrecovered Commitment Costs has the meaning set forth in Section 5.12.7.1.1.1. |

**Usage Charge** The amount of money, per 1 kW of scheduled flow, that the ISO charges a Scheduling Coordinator for use of a specific congested Inter-Zonal Interface during a given hour.

(g) time of notification of the Dispatch Instruction; and

(h) any other information which the ISO considers relevant.

**DP 4.4 Acknowledgement of Dispatch Instructions**

The recipient of a Dispatch Instruction shall confirm the Dispatch Instruction. Dispatch Instructions communicated by the ISO either electronically or by fax shall be confirmed electronically in accordance with ISO procedures. Dispatch instructions communicated verbally shall be confirmed by repeating the Dispatch instructions to the ISO. Dispatch Instructions of Imbalance Energy will be deemed delivered and settled as such.

**DP 5 ISO FACILITIES AND EQUIPMENT**

**DP 5.1 ISO Facility and Equipment Outages**

The ISO has installed redundant control centers, communication systems and computer systems. Most, but not necessarily all, equipment problems or failures should be transparent to Participants. This DP 5 addresses some situations when Participants could be affected, but it is impossible to identify and plan for every type of equipment problem or failure. Real time situations will be handled by the real time ISO dispatchers. The ISO control room in Folsom is the Primary ISO Control Center and the ISO control room in Alhambra is the Backup ISO Control Center.

**DP 5.2 WEnet Unavailable**

**DP 5.2.1 Unavailable Critical Functions of WEnet**

During a total disruption of the WEnet several critical functions of the ISO will not be available including:

(a) the Scheduling Infrastructure (SI) computer will not be able to communicate with SCs to receive any type of updated Schedule information;

(b) the SI computer will not be able to communicate Congestion Management information and Schedule changes to the SCs; and

(c) the ISO will not be able to communicate general information, including emergency information, to any Participants.

**DP 5.2.2 Communications during WEnet Unavailability**

During any period of WEnet unavailability, the ISO shall:

(a) make all reasonable efforts to keep Participants aware of current ISO Controlled Grid status using voice communications;

(f) managing Intra-Zonal Congestion in real time after use of available Adjustment Bids.

**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 dispatchable Interconnection schedules providing Regulation service to meet WSCC and NERC Area Control Error (ACE) performance criteria;

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

(c) in each BEEP Interval, the ISO shall dispatch Generating Units, Curtailable Demands and dispatchable Interconnection schedules to meet its balancing Energy requirements and eliminate any Price Overlap between decremental and incremental Energy Bids, thereby, dispatching the relevant 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 dispatchable 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 dispatchable 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 dispatchable 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;

(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;

(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;

(j) Between 10 minutes and 45 minutes prior to the beginning of the operating hour, the ISO shall estimate the interchange bids that need to be dispatched prior to the beginning of the operating hour to: a) ensure resources that require advance notice are provided such notice prior requiring their energy, b) instruct interchange bids far enough in advance to allow the interchange bid to be arranged with external control areas and c) allow resources that have been dispatched in the previous operating hour and are determined to be economic in the upcoming operating hour to maintain their instructed level. During this pre-dispatch evaluation process, any Price Overlap will be economically dispatched. The pre-dispatch evaluation process will consider the forecast Imbalance Energy requirements of the first interval of the upcoming operating hour to determine the amount of energy from dispatchable resources. This pre-dispatch process will also consider the forecast imbalance energy requirement for the each interval of the upcoming operating hour to determine the amount of Energy to be dispatched for hourly resources such as interchange bids.

(k) The ISO will pre-dispatch Energy Bids from Interconnection schedules, subject to hourly pre-dispatch as indicated in SBP 6.1.3, prior to the beginning of each hour consistent with applicable WSCC interchange scheduling practices, assuring that any Price Overlap between such decremental and incremental Energy Bids will be eliminated. Instructed Imbalance Energy from hourly pre-dispatched bids will be paid or charged the simple average of BEEP Interval Ex Post Prices for the hour. To the extent the settlement of the of the pre-dispatched interchange does not allow the interchange bid to recover its bid, an additional settlement wil be made to compensate the interchange for unrecovered costs for the hour in which it was dispatched.

**DP 8.7 Ancillary Services Requirements**

The following requirements apply to the Dispatch of Ancillary Services in real time:

**DP 8.7.1 Regulation**

(a) Regulation provided from Generating Units or System Resources must meet the standards specified in the ASRP;

(b) the ISO will dispatch Regulation in merit order of Energy bid prices as determined by the EMS;

(c) in the event of an unscheduled increase in system Demand or a shortfall in Generation output and Regulation margin drops below a predetermined value, the ISO will use scheduled Operating Reserve, Replacement Reserve or Supplemental Energy to restore Regulation margin; and

(d) when scheduled Operating Reserve is used for restoration of Regulation reserve, the ISO shall arrange for the replacement of that Operating Reserve (see DP 8.7.4);

**DP 8.7.2 Operating Reserve**

(a) Spinning Reserve:

(i) Spinning Reserve provided from Generating Units and Interconnection schedules must meet the standards specified in the ASRP;

(ii) the ISO will dispatch Spinning Reserve as may be required to meet the Applicable Reliability Criteria;

(iii) the ISO may dispatch Spinning Reserve as balancing Energy to return Regulation Generating Units to their Set Points and restore full Regulation margin; and

(iv) the ISO will dispatch Spinning Reserve in merit order of Energy bid prices as determined by BEEP;

(c) type of market (Day-Ahead or Hour-Ahead) and Trading Day;

(d) Generating Unit or System Unit ID code;

(e) preferred bid flag, a "YES" indicates a bid and a "NO" indicates a self-provided schedule;

(f) upward and downward range of Generating Unit or System Unit capacity over which the Generating Unit or System Unit is offering to provide Regulation;

(g) Generating Unit or System Unit operating limits (high and low MW);

(h) Generating Unit or System Unit ramp rate (MW/minute); and

(i) bid price for Regulation capacity ($/MW).

**SBP 5.1.1.2 Regulation: External Imports**

Each SC desiring to self-provide Regulation or to participate in the ISO's Regulation auction will submit the following information for each relevant external import for each Settlement Period of the relevant Trading Day:

(a) type of schedule: (Regulation Ancillary Service);

(b) SC's ID code;

(c) type of market (Day-Ahead or Hour-Ahead) and Trading Day;

(d) Scheduling Point (the name)

(e) interchange ID code (the name of the selling entity, buying entity and a numeric identifier);

(f) external Control Area ID;

(g) Schedule ID (NERC ID number);

(h) complete WSCC tag;

(i) preferred bid flag, a "YES" indicates a bid and a "NO" indicates a self-provided schedule;

(j) in the case of Existing contracts, the applicable contract reference number;

(k) upward and downward range of System Resource capacity over which the System Resource is offering to provide Regulation;

(l) System Resource operating limits (high and low MW);

(m) ramp rate (MW/minute); and

(n) bid price for Regulation capacity ($/MW).

**SBP 5.1.2 Spinning Reserve**

**SBP 5.1.2.1 Spinning Reserve: Generating Units or System Units**

Each SC desiring to self-provide Spinning Reserve or to participate in the ISO's Spinning Reserve auction will submit the following information for each relevant Generating Unit or System Unit for each Settlement Period of the relevant Trading Day:

(a) type of schedule: Spinning Reserve Ancillary Service (ANC_SRVC) or Revised Spinning Reserve Ancillary Service (REVISED_ANC_SRVC);

(b) SC's ID code;

(c) type of market (Day-Ahead or Hour-Ahead) and Trading Day;

(d) Generating Unit or System Unit ID code;

(e) preferred bid flag, a "YES" indicates a bid and a "NO" indicates a self-provided schedule;

(f) Generating Unit or System Unit operating limits (high and low MW);

(g) Spinning Reserve capacity (MW);

(h) Generating Unit or System Unit ramp rate (MW/minute); and

(i) bid price for Spinning Reserve capacity ($/MW).

**SBP 5.1.2.2 Spinning Reserve: External Imports/Exports**

Each SC desiring to bid or self-provide Spinning Reserve will submit the following information for each relevant external import for each Settlement Period of the relevant Trading Day:

(a) type of schedule: Spinning Reserve Ancillary Service (ANC_SRVC) or Revised Spinning Reserve Ancillary Service (REVISED_ANC_SRVC);

(b) SC's ID code;

(c) type of market (Day-Ahead or Hour-Ahead) and Trading Day;

(d) Scheduling Point (the name);

(e) interchange ID code (the name of the selling entity, buying entity and a numeric identifier);

(f) external Control Area ID;

(g) Schedule ID (NERC ID number);

(h) complete WSCC tag;

(i) preferred bid flag, which must be set to "NO", indicating a self-provided schedule, until such time as the ISO's scheduling system is able to support Ancillary Services bids from external imports/exports;

(j) export flag, a "YES" indicates an external export and a "NO" indicates an external import;

(k) In the case of Existing Contracts, the applicable contract reference number;

(l) Spinning Reserve capacity (MW);

(m) ramp rate (MW/minute); and

(n) bid price for Spinning Reserve Energy if called upon ($/MWh).

**SBP 5.1.3 Non-Spinning Reserve**

**SBP 5.1.3.1 Non-Spinning Reserve: Generating Units or System Units**

Each SC desiring to self-provide Non-Spinning Reserve or to participate in the ISO's Non-Spinning Reserve auction will submit the following information for each relevant Generating Unit or System Unit for each Settlement Period of the relevant Trading Day:

(a) type of schedule: Non-Spinning Reserve Ancillary Service (ANC_SRVC) or Revised Non-Spinning Reserve Ancillary Service (REVISED_ANC_SRVC);

(b) SC's ID code;

(c) type of market (Day-Ahead or Hour-Ahead) and Trading Day;

(d) Generating Unit or System Unit ID code;

(e) preferred bid flag, a "YES" indicates a bid and a "NO" indicates a self-provided schedule;

(f) time to synchronize following notification (less than ten (10) minutes mandatory);

(g) Non-Spinning Reserve capacity available within ten (10) minutes following notification (MW);

(h) Generating Unit or System Unit operating limits (high and low MW);

(i) Generating Unit or System Unit ramp rate (MW/minute); and

(j) bid price for Non-Spinning Reserve capacity ($/MW).

**SBP 5.1.3.2 Non-Spinning Reserve: Curtailable Demands**

Each SC desiring to self-provide Non-Spinning Reserve or to participate in the ISO's Non-Spinning Reserve auction will submit the following information for each relevant Curtailable Demand for each Settlement Period of the relevant Trading Day:

(a) type of schedule: Non-Spinning Reserve Ancillary Service (ANC_SRVC) or Revised Non-Spinning Reserve Ancillary Service (REVISED_ANC_SRVC);

(b) SC's ID code;

(c) type of market (Day-Ahead and Hour-Ahead) and Trading Day;

(d) available Curtailable Demand ID code;

(e) preferred bid flag, a "YES" indicates a bid and a "NO" indicates a self-provided schedule;

(f) maximum allocation curtailment duration (hours) (CURT_HR);

(g) time to interruption following notification (minutes);

(h) amount of Curtailable Demand that can be interrupted within ten (10) minutes following notification (MW); and

(i) bid price for Non-Spinning Reserve capacity ($/MW).

**SBP 5.1.3.3 Non-Spinning Reserve: External Imports/Exports**

Each SC desiring to bid or self-provide Non-Spinning Reserve will submit the following information for each relevant external import for each Settlement Period of the relevant Trading Day:

(a) type of schedule: Non-Spinning Reserve Ancillary Service (ANC_SRVC) or Revised Non-Spinning Reserve Ancillary Service (REVISED_ANC_SRVC);

(b) SC's ID code;

(c) type of market (Day-Ahead or Hour-Ahead) and Trading Day;

(d) Scheduling Point (the name);

(e) interchange ID code (the name of the selling entity, buying entity and a numeric identifier);

(f) external Control Area ID;

(g) Schedule ID (NERC ID number);

(h) complete WSCC tag;

(i) preferred bid flag, which must be set to "NO", indicating a self-provided schedule;

(j) export flag, a "YES" indicates an external export and a "NO" indicates an external import;

(k) In the case of Existing Contracts, the applicable contract reference number;

(l) time to synchronize following notification (less than ten (10) minutes mandatory);

(m) Non-Spinning Reserve capacity (MW); and

(n) ramp rate (MW/minute).

**SBP 5.1.4 Replacement Reserve**

**SBP 5.1.4.1 Replacement Reserve: Generating Units or System Units**

Each SC desiring to self-provide Replacement Reserve or to participate in the ISO's Replacement Reserve auction will submit the following information for each relevant Generating Unit or System Unit for each Settlement Period of the relevant Trading Day:

(a) type of schedule: Replacement Reserve Ancillary Service (ANC_SRVC) or Revised Replacement Reserve Ancillary Service (REVISED_ANC_SRVC);

(b) SC's ID code;

(c) type of market (Day-Ahead or Hour-Ahead) and Trading Day;

(d) Generating Unit or System Unit ID code;

(e) preferred bid flag, a "YES" indicates a bid and a "NO" indicates a self-provided schedule;

(f) time to synchronize following notification (less than sixty (60) minutes mandatory);

(g) Generating Unit or System Unit operating limits (high and low MW);

(h) Replacement Reserve capacity available within sixty (60) minutes following notification (MW);

(i) Generating Unit or System Unit ramp rates (MW/minute); and

(j) bid price for Replacement Reserve capacity ($/MW).

**SBP 5.1.4.2 Replacement Reserve: Curtailable Demands**

Each SC desiring to self-provide Replacement Reserve or to participate in the ISO's Replacement Reserve auction will submit the following information for each relevant Curtailable Demand for each Settlement Period of the relevant Trading Day:

(a) type of schedule: Replacement Reserve Ancillary Service (ANC_SRVC) or Revised Replacement Reserve Ancillary Service (REVISED_ANC_SRVC);

(b) SC's ID code;

(c) type of market (Day-Ahead or Hour-Ahead) and Trading Day;

(d) Curtailable Demand ID code;

(e) preferred bid flag, a "YES" indicates a bid and a "NO" indicates a self-provided schedule;

(f) maximum allocation curtailment duration (hours) (CURT_HR);

(g) time to reduction following notification (minutes);

(h) amount of Curtailable Demand that can be interrupted within sixty (60) minutes following notification (MW);

(i) Curtailable Demand reduction rate (MW/minute); and

(j) bid price for Replacement Reserve capacity ($/MW).

**SBP 5.1.4.3 Replacement Reserve: External Imports**

Each SC desiring to bid or self-provide Replacement Reserve will submit the following information for each relevant external import for each Settlement Period of the relevant Trading Day:

(a) type of schedule: Replacement Reserve Ancillary Service (ANC_SRVC) or Revised Replacement Reserve Ancillary Service (REVISED_ANC_SRVC);

(b) SC's ID code;

(c) type of market (Day-Ahead or Hour-Ahead) and Trading Day;

(d) Scheduling Point (the name);

(e) interchange ID code (the name of the selling entity, buying entity and a numeric identifier);

(f) external Control Area ID;

(g) Schedule ID (NERC ID number);

(h) complete WSCC tag;

(i) preferred bid flag, which must be set to "NO", indicating a self-provided schedule, until such time as the ISO's scheduling system is able to support Ancillary Services bids from external imports;

(j) in the case of Existing Contracts, the applicable contract reference number;

(k) time to synchronize following notification (less than sixty (60) minutes mandatory);

(l) Replacement Reserve capacity (MW); and

(m) ramp rate (MW/minute).

**SBP 5.2 Validation of Ancillary Services Bids**

The ISO will verify that each Ancillary Services Schedule or bid conforms to the format specified for the relevant service. If the Ancillary Services Schedule or bid does not so conform, the ISO will send a notification to the SC notifying the SC of the errors in the Schedules and/or bids. SCs will comply with the ISO Data Templates and Validation Rules document, which contains the validation criteria for Ancillary Services Schedules and bids. Shown below are the two stages of validation carried out by the ISO:

**SBP 5.2.1 Stage One Validation**

During stage one validation, each incoming Ancillary Services schedule or bid will be validated to verify proper content, format and syntax. A technical validation will be performed to verify that a schedule or bid quantity of Regulation, Spinning Reserve, Non-Spinning Reserve or Replacement Reserve does not exceed the available capacity for Regulation, Operating Reserves and Replacement Reserve on the Generating Units, System Units, Curtailable Demands and external imports/exports scheduled or bid. The SC will be notified immediately through WEnet of any validation errors. For each error detected, an error message will be generated by the ISO in the SC's notification screen which will specify the nature of the error. The SC can then look at the notification messages to review the detailed list of errors, make changes, and resubmit if it is still within the timing requirements of the SP. The SC is also notified of successful validation via WEnet.

**SBP 5.2.2 Stage Two Validation**

Stage two validation will be conducted by the ISO in accordance with Appendix E of the ISO Tariff.

**SBP 5.2.3 Validation Checks**

The ISO's stage one validation checks are performed automatically whenever Ancillary Services Schedules and bids are submitted, as described in the SP. The ISO's stage two validation is performed automatically in accordance with the timing requirements described in the SP. A SC can also check whether its Ancillary Services Schedules and bids will pass the ISO's stage two validation by manually initiating validation of its Ancillary Services Schedules and bids, as described in the SP, at any time prior to the deadline for submission of Ancillary Services Schedules and bids. It is a SC's responsibility to perform such checks.

**SBP 5.3 Buy Back of Ancillary Services**

A Scheduling Coordinator who has sold or self-provided Regulation, Spinning Reserve, Non-Spinning Reserve or Replacement Reserve capacity to the ISO in the Day-Ahead Market shall be required to replace such capacity to the extent scheduled self-provision is decreased between the Day-Ahead and Hour-Ahead Markets, or to the extent the Ancillary Service associated with a Generating Unit, Curtailable Demand, or System Resoruce successfully bid in a Day-Ahead Ancillary Service Market is reduced in the Hour-Ahead market, for any reason (other than the negligence or willful misconduct of the ISO, or a Scheduing Coordinator's involuntary decrease in such sold capacity or scheduled self-provision on the instruction of the ISO). The price for such replaced Ancillary Service shall be at the Market Clearing Price in the Hour-Ahead Market for the same Settlement Period for the Ancillary Service capacity concerned.

**SBP 6 ENERGY BIDS**

SCs must submit Energy Bids for resources providing Spinning, Non-Spinning, or Replacement Reserves. The upper portion of the Energy Bid that corresponds to the resource's available capacity up to the highest operating limit, shall be allocated to any awarded or self-provided Ancillary Services in the following order from higher to lower capacity: a) Regulation Up; b) Spinning Reserve; c) Non-Spinning Reserve; and d) Replacement Reserve. For resources providing Regulation Up, the upper regulating limit shall be used if it is lower than the highest operating limit. The remaining portion of the Energy Bid, if there is any, shall constitute Supplemental Energy. Supplemental Energy bids are available to the ISO for procurement and use for Imbalance Energy, additional Voltage Support and Congestion Management in the Real Time Market.

**SBP 6.1 Content of Energy Bids**

**SBP 6.1.1 Generation Section of Energy Bid Data**

Each SC offering Spinnin, Non-Spining, or Replacement Reserve, or Supplemental Energy to the ISO will submit the following information for each Generating Unit for each Settlement Period:

(a) SC's ID code;

(b) name of Generating Unit;

(c) Generating Unit operating limits (high and low MW);

(d) Generating Unit ramp rate in MW/minute; and

(e) the MW and $/MWh values for each Generating Unit for which a Supplemental Energy bid is being submitted consistent with this SBP 6.

A Physical Scheduling Plant shall be treated as a single Generating Unit for Supplemental Energy bid purposes.

**SBP 6.1.2 Demand Section of Energy Bid Data**

Each SC offering Spinning, Non-Spinning, or Replacement Reserve, or Supplemental Energy to the ISO will submit the following information for each Demand for each Settlement Period:

(a) SC's ID code;

(b) name of Demand; and

(c) the MW and $/MWh values for each Demand for which a Supplemental Energy bid is being submitted consistent with this SBP 6.

**SBP 6.1.3 External Import Section of Energy Bid Data**

Each SC offering Spinning, Non-Spinning, or Replacement Reserve, or Supplemental Energy to the ISO will submit the following information for each external import for each Settlement Period;

(a) SC's ID code;
(b) name of Scheduling Point;
(c) interchange ID (the name of the selling entity, the buying entity, and a numeric identifier);
(d) external Control Area ID;
(e) Schedule ID (NERC ID number);
(f) complete WSCC tag;
(g) ramp rate (MW/minute); and
(h) the MW and $/MWh values for each external import for which a Supplemental Energy bid is being submitted consistent with this SBP 6; and
(i) minimum block of hours that bid must be dispatched; and
(j) Flag indicating the bid must is capable available for intra-hour redispatch. If this flag is set to no then the bid is indicating that the bid must be pre-dispatched and not re-dispatched during the real-time operating hour.

**SBP 6.2 Format of Energy Bids**

The SC's preferred operating point for each resource must be within the range of the Energy Bids. The minimum MW output level specified for a resource, which may be zero MW (or negative for pumped storage resources), and the maximum MW output level specified for a resource must be physically achievable by the resource. All submitted Energy Bids must be in the form of a monotonically increasing staircase function.

function for Demands. These staircase functions will be composed of up to eleven (11) ordered pairs (i.e., ten (10) steps or price bands) of quantity/price information, with a single ramp rate associated with the

entire MW range. SCs must comply with the ISO Data Templates and Validation Rules document, which contains the format for submission of Energy Bids.

**SBP 6.3 Timing of Submission of Energy Bids**

For specific timeline requirements for the submission of Energy Bids see the Dispatch Protocol.

**SBP 6.4 Validation of Energy Bids**

The ISO will check whether Energy Bids comply with the format requirements and will notify a SC if its bid does not so comply. A SC can check whether its Energy Bids will pass the ISO's validation by manually initiating validation of its Energy Bids at any time prior to the deadline for submission of Energy Bids. It is the SC's responsibility to perform such checks. SCs must comply with the ISO Data Templates and Validation Rules document, which contains the validation criteria for Energy Bids.

**SBP 7 INTERFACE REQUIREMENTS**

**SBP 7.1 WEnet**

WEnet provides the backbone on which any of three communications mechanisms will be utilized. These are:

(a) use of a web browser such as Netscape;

(b) use of File Transfer Protocol (FTP); or

(c) use of an Application Programming Interface (API).

Details of the technical aspects of each of these mechanisms, including information on how to change mechanisms and back-up procedures for individual SC failures, will be made available by the ISO to SCs on request. It is assumed that each SC has made application for and signed a Scheduling Coordinator Agreement. As such, each SC will already be familiar with and have arranged the mechanism, including security arrangements, by which it will initially communicate with the ISO.

**SBP 7.2 Templates**

The ISO Data Templates and Validation Rules document provides a description of the templates which will be utilized to enter data into the ISO's systems. For each of the three communications mechanisms, data entry is as follows:

(a) direct entry of data into the template screens through the use of a browser;

(b) upload of ASCII delimited text through use of an upload button on the template screens which activates the FTP mechanism; or

actual System Emergency. In the event of an unplanned Outage, a Contingency or threatened or actual System Emergency, all Energy bids associated with Spinning and Non-Spinning Reserve may be included in the merit order stack. In the event of Inter-Zonal Congestion, separate merit order stacks will be created for each Zone. The information in the merit order stack shall be provided to the real time dispatcher through the BEEP (Balancing Energy and Ex-Post Pricing) Software.

Where, in any BEEP Interval, the highest decremental Energy Bid in the merit order stack is higher than the lowest incremental Energy Bid, the BEEP Software will eliminate the Price Overlap by actually dispatching for all those incremental and decremental bids which fall within the overlap.

References to incremental Energy Bids include references to Demand reduction bids, and for the purpose of applying this algorithm a reduction in Demand shall be treated as an equivalent increase in Generation.

**SP 11.3 Use of the Merit Order Stack**

The merit order stack, as described in SP 11.2, can be used to supply Energy for:

(a) satisfying needs for Imbalance Energy (differences between actual and scheduled Generation, Demand and external imports/exports) in real time;

(b) managing Inter-Zonal Congestion in real time;

(c) supplying Energy necessary to allow resources providing Regulation service to return to the base point of their regulating ranges in real time;

(d) recovering Operating Reserves utilized in real time;

(e) procuring additional Voltage Support required from resources beyond their power factor ranges in real time; and

(f) managing Intra-Zonal Congestion in real time after use of available Adjustment Bids.

**SP 12 AMENDMENTS TO THE PROTOCOL**

If the ISO determines a need for an amendment to this Protocol, the ISO will follow the requirements as set forth in Section 16 of the ISO Tariff.

**SABP 6.3 Payment Process**

**SABP 6.3.1 Use of the ISO Clearing Account**

(a) Subject to SABP 6.1.2 each ISO Debtor shall remit to the ISO Clearing Account the amount shown on the invoice as payable by that ISO Debtor for value not later than 10:00 am on the Payment Date.

(b) On the Payment Date the ISO shall be entitled to cause the transfer of such amounts held in a Scheduling Coordinator's ISO prepayment account to the ISO Clearing Account as provided in SABP 6.1.2(c).

**SABP 6.3.1.2 Distribution to ISO Creditors**

The ISO shall calculate the amounts available for distribution to ISO Creditors on the Payment Date and shall give irrevocable instructions to the ISO Bank to remit from the ISO Clearing Account to the relevant Settlement Account maintained by each ISO Creditor for same day value the amounts determined by the ISO to be available for payment to each ISO Creditor. If required, the ISO shall instruct the ISO Bank to transfer amounts from the ISO Reserve Account to enable the ISO Clearing Account to clear by the close of banking business on the Payment Date.

**SABP 6.3.1.3 Grid Management Charge**

The ISO is authorized to instruct the ISO Bank to debit the ISO Clearing Account and transfer to the relevant ISO account sufficient funds to pay in full the Grid Management Charge falling due on any Payment Day with priority over any other payments to be made on that or on subsequent days out of the ISO Clearing Account.

**SABP 6.4 Use of the ISO Reserve Account**

If there are insufficient funds in the ISO Clearing Account to pay ISO Creditors and clear the account on any Payment Date, due to payment default by one or more ISO Debtors, the ISO shall transfer funds from the ISO Reserve Account to the ISO Clearing Account to clear it by close of banking business on that Payment Date pursuant to SABP 6.7.2.

**SABP 6.5 Use of the ISO Surplus Account**

**SABP 6.5.1 Establishment**

The ISO shall establish and maintain a bank account in accordance with this Protocol denominated the "ISO Surplus Account".

**SABP 6.5.2 Other Funds in the ISO Surplus Account.**

(a) Any amounts paid to the ISO in respect of acts or defaults giving rise to default interest referred to in SABP 6.10.5 or penalties referred to in SABP 3.1.1, to the extent that the ISO Tariff does not otherwise provide for the allocation of the proceeds of such penalties, shall be credited to the Surplus Account.

(b) The funds referred to in SABP 6.5.2(a) shall first be applied towards any expenses, loss or costs incurred by the ISO. Any