

**ATTACHMENT A**

**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;

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**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  $x$ .

**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  $UnavailAncServMW_{it}$ , 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  $UnavailDispLoadMW_{it}$ , 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:

$AGCUpQDA_{st}$  = 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.

$AGCDownQDA_{st}$  = 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.

$EnQInst_{st}$  = 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.

$PAGCUpDA_{st}$  = 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:

$$\sum_i [(EnQInst_{ixt} * BEEPIntervalExPostPriceinZoneX) + REPA_{ixt}]$$

REPA<sub>ixt</sub> = 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<sub>UPixt</sub> = 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

- (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.

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

Notwithstanding the foregoing or any other provision in this Tariff, Uninstructed Imbalance Energy attributable to any Scheduling Coordinator for any System Resource Dispatched by the ISO shall be settled at the appropriate Instructed Imbalance Energy BEEP Interval Ex Post Price determined 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

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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;

- b) The Uninstructed Deviation Penalty will not apply to Interconnection Schedules because such Schedules are deemed delivered. However, dynamic Interconnection Schedules, to the extent they deviate without instruction from their final Hour-Ahead Schedule, and real-time instructions for Energy from Interconnection Schedule bids that are declined, will be subject to the Uninstructed Deviation Penalty;
- c) The Uninstructed Deviation Penalty will not apply to Load, other than Participating Load; for Participating Load, the Uninstructed Deviation Penalty will not apply for the duration of the relevant Minimum Down Time;
- d) The Uninstructed Deviation Penalty will not apply to constrained resources for the duration of the relevant startup/shutdown and Minimum Up/Down Times;
- e) The Uninstructed Deviation Penalty will not apply to Regulatory Must-Run Generation or Participating Intermittent Resources that meet the scheduling obligations established in the technical standards for Participating intermittent Resources adopted by the ISO and published on the ISO Home Page or Regulatory Must-Run Generation. No other applicable charges will be affected by this exemption. Uninstructed Deviation Penalty also will not apply to Qualifying Facilities that have not executed a Participating Generator Agreement (PGA), pending resolution of QF-PGA issues at the Commission;
- f) For Metered Subsystems (MSS), the Uninstructed Deviation Penalty will apply to the net injection (System Unit generation plus import minus MSS load and export) into the ISO Controlled Grid;
- g) The Uninstructed Deviation Penalty will not apply to Generators providing Regulation to the extent that the Generators' Uninstructed Deviations are within the range of their actual Regulation range;



- h) The Uninstructed Deviation Penalty will be calculated and assessed for each resource separately, however, resources represented by the same Scheduling Coordinator and connected to the same ISO Controlled Grid bus and voltage level can be aggregated for purposes of Uninstructed Deviation Penalty determination. Other levels of aggregation for purposes of the Uninstructed Deviation Penalty will be considered on a case-by-case basis based on an ISO review of impact on the ISO Controlled Grid;
- i) The tolerance band for the application of the Uninstructed Deviation Penalties to Generators or aggregated Generators initially will be the Energy produced in a BEEP Interval by the greater of five (5) MW or three percent (3%) of the relevant generating unit's maximum output ( $P_{max}$ ), as registered in the Master File;
- j) The tolerance band for the application of the Uninstructed Deviation Penalties to Participating Loads initially will be equal to the Energy produced in a BEEP Interval by the greater of five (5) MW or three percent (3%) of the relevant final Hour-Ahead Schedule;
- k) The Uninstructed Deviation Penalty will not apply when the BEEP Interval Ex Post Price is negative or zero;
- l) The Uninstructed Deviation Penalty for positive 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 equal to 100% of the corresponding BEEP Interval Ex Post Price; and the net effect of the Uninstructed Deviation Penalty and the Settlement for positive Uninstructed Imbalance Energy beyond the tolerance band will be that the ISO will not pay for such Energy;

- 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.

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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.

- (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 if 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.

<b><u>Direct Access Generation</u></b>	An Eligible Customer who is selling Energy or Ancillary Services through a Scheduling Coordinator.
<b><u>Direct Assignment Facility</u></b>	The transmission facilities necessary to physically and electrically interconnect a New Facility Operator to the ISO Controlled Grid at the point of interconnection.
<b><u>Dispatch</u></b>	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.
<b><u>Dispatch Instruction</u></b>	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.
<b><u>Dispatch Operating Point</u></b>	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.
<b><u>Dispatchable Loads</u></b>	Load which is the subject of an Adjustment Bid.

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<b><u>Hourly Ex Post Price</u></b>	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.
<b><u>Hourly Generating Unit Commitment Costs</u></b>	Hourly Generating Unit Commitment Costs has the meaning set forth in Section 5.12.8.1.1.
<b><u>Hourly Market Net Revenue</u></b>	Hourly Market Net Revenue has the meaning set forth in Section 5.12.7.1.1.4.
<b><u>Hourly Minimum Load Cost Deficiency</u></b>	Hourly Minimum Load Cost Deficiency has the meaning set forth in Section 5.12.7.1.1.3.
<b><u>Hourly System Resource Costs</u></b>	Hourly System Resource Costs has the meaning set forth in Section 5.12.8.1.2.
<b><u>Hydro Spill Generation</u></b>	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.
<b><u>Identification Code</u></b>	An identification number assigned to each Scheduling Coordinator by the ISO.
<b><u>Imbalance Energy</u></b>	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.

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<b><u>Preliminary Settlement Statement</u></b>	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.
<b><u>Price Mitigation Reserve Deficiency</u></b>	Any clock hour in which the ISO's maximum actual reserve margin is below seven (7) percent.
<b><u>Price Overlap</u></b>	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.
<b><u>Project Sponsor</u></b>	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.
<b><u>Proxy Price</u></b>	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.
<b><u>PX (Power Exchange)</u></b>	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.
<b><u>PX Auction Activity Rules</u></b>	The rules by which bids submitted to and validated by the PX may be modified or withdrawn during a PX Energy market auction.
<b><u>Qualifying Hours</u></b>	Qualifying Hours has the meaning set forth in Section 5.12.7.1.1.2.5.

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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.



- (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 will 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;

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- (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).

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**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 Resource 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 Scheduling 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 Spinning, Non-Spinning, or Replacement Reserve, or Supplemental Energy to the ISO will submit the following information for each Generating Unit for each Settlement Period:

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- (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 be 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.

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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

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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

Congestion Management process will allocate Congested transmission to those users who value it the most and will charge all SCs for their allocated usage of Congested Inter-Zonal Interfaces on a comparable basis. All SCs within a Zone will see the same price for transmitting Energy across a Congested Inter-Zonal Interface, irrespective of the particular locations of their Generators, Demands and external imports/exports.

- (b) The ISO will determine the prices for the use of Congested Inter-Zonal Interfaces using the Adjustment Bids. The ISO will collect Usage Charges from SCs for their Scheduled use of Congested Inter-Zonal Interfaces. If Adjustment Bids are exhausted and Schedules are adjusted *pro rata*, the ISO will apply a default Usage Charge calculated in accordance with Section 7.3.1.3 of the ISO Tariff.
- (c) The ISO will rebate the Congestion revenues collected through the Usage Charges to the PTOs which own the Congested Inter-Zonal Interface in proportion to their respective ownership rights.

**SP 11 CREATION OF THE REAL TIME MERIT ORDER STACK**

**SP 11.1 Sources of Imbalance Energy**

The following Energy Bids will be considered in the creation of the real time merit order stack for Imbalance Energy:

- (a) Supplemental Energy bids submitted in accordance with the SBP;
- (b) Ancillary Services Energy bids (except for Regulation) submitted for specific Ancillary Services in accordance with the SBP for those resources which have been selected in the ISO's Ancillary Services auction to supply such specific Ancillary Services; and
- (c) Ancillary Services Energy bids (except for Regulation) submitted for specific Ancillary Services in accordance with the SBP for those resources which SCs have elected to use to self-provide such specific Ancillary Services and for which the ISO has accepted such self-provision.

**SP 11.2 Stacking of the Energy Bids**

The sources of Imbalance Energy described in SP 11.1 will be arranged in order of increasing Energy bid prices to create a merit order stack for use in accordance with the DP. This merit order stack will be arranged without regard to the source of the Energy bid except that Energy bids associated with Spinning and Non-Spinning Reserve shall not be included in the merit order stack during normal operating conditions if the capacity associated with such bids has been designated as available to supply Imbalance Energy only in the event of the occurrence of an unplanned Outage, a Contingency or an imminent or

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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.

**ATTACHMENT B**

which are being self provided the Energy Bid shall be used to determine the position of the Generating Unit, Load, System Unit or System Resource in the merit order for real time Dispatch, subject to the limitation on the Dispatch of Spinning Reserve and Non-Spinning Reserve set forth in Section 2.5.22.3.

**2.5.22.4 Supplemental Energy Bids.** In addition to the Generating Units, Loads and System Resources which have been scheduled to provide Ancillary Services in the Day-Ahead and Hour-Ahead markets, the ISO may Dispatch Generating Units, Loads or System Resources for which Scheduling Coordinators have submitted Supplemental Energy bids.

**2.5.22.4.1 Timing of Supplemental Energy Bids.**

Supplemental Energy bids must be submitted to the ISO no later than sixty (60) minutes prior to the operating hour. Bids may also be submitted at any time after the Day-Ahead Market closes. These Supplemental Energy bids cannot be withdrawn after sixty (60) minutes prior to the Settlement Period, except that a bid from a System Resource may specify that any portion of the bid that is not called prior to the beginning of the Settlement Period shall not be called after the beginning of the Settlement Period. The ISO may dispatch the associated resource at any time during the Settlement Period.

**2.5.22.4.2 Form of Supplemental Energy Bid Information.**

Supplemental Energy bids must include the following:

- (a) Bidder name and identification;
- (b) Resource name, identification, and location;
- (c) the positive or negative bid price of incremental and decremental changes in Energy (up to eleven ordered pairs of quantity/price representing up to ten steps);

**14.4 Potomac Economics, Ltd. Limitation of Liability.**

Potomac Economics, Ltd. shall not be liable in damages to any Market Participant for any losses, damages, claims, liability, costs or expenses (including legal expenses) arising from its calculation of reference levels under its Consultant Agreement with the ISO dated as of September 3, 2002, except to the extent that they result from negligence or intentional wrongdoing of Potomac Economics, Ltd.

- (a) verify that each SC's Ancillary Services obligations are scheduled as required. The ISO will procure additional Ancillary Services if insufficient resources are scheduled;
- (b) verify any Supplemental Energy bids received up to thirty (30) minutes prior to the Settlement Period, for increases or decreases in Energy output which it may require for the Settlement Period; and
- (c) verify that with currently anticipated operating conditions there is sufficient transfer capacity on the ISO Controlled Grid to implement all Final Schedules.

**DP 7.2 Confirm Interchange Transaction Schedules (ITSs)**

Also in the hour prior to the beginning of the Settlement Period the ISO will:

- (a) adjust interchange transaction schedules (ITSs) as required under Existing Contracts in accordance with the procedures in the SBP and the SP for the management of Existing Contracts;
- (b) adjust ITSs as required by changes in transfer capability of transmission paths occurring after close of the Hour-Ahead Market; and
- (c) agree on ITS changes with adjacent Control Area Operators.

**DP 7.3 Supplemental Energy Bids**

Supplemental Energy bids may be submitted to the ISO no later than sixty (60) minutes prior to the beginning of the Settlement Period in accordance with the format and content requirements of the SBP. These Supplemental Energy bids cannot be withdrawn after sixty (60) minutes prior to the beginning of the Settlement Period, except that a bid from a System Resource may specify that any portion of the bid that is not called prior to the beginning of the Settlement Period shall not be called after the beginning of the Settlement Period. The ISO may Dispatch the associated resource at any time during the Settlement Period.

**DP 7.4 Intra-Zonal Congestion Management**

In the hour prior to the beginning of the Settlement Period the ISO may adjust SCs' Final Schedules to alleviate Intra-Zonal Congestion. Except in those instances where the ISO calls Reliability Must-Run Units as provided in Section 5.2 of the ISO Tariff, the ISO will adjust resources in accordance with DP 8.4 and DP 8.5.

### 3.1.1.1 Reference Levels

(a) For purposes of establishing reference levels, bid segments shall be defined as follows:

1. the capacity of each generation resource shall be divided into 10 equal Energy bid segments between its minimum (Pmin) and maximum (Pmax) operating point.
2. for Energy bids submitted over the intertie Scheduling Points (import bids), 10 bid segments shall be established for each Scheduling Coordinator at each Scheduling Point based on historical volumes over the preceding 12 months.

A reference level for each bid segment shall be calculated each day for peak and off-peak periods on the basis of the following methods, listed in the following order of preference subject to the existence of sufficient data, where sufficient data means at least one data point per time period (peak or off-peak) for the bid segment. Peak periods shall be the periods Monday through Saturday from Hour Ending 0700 through Hour Ending 2200, excluding holidays. Off-Peak periods are all other hours.

1. The lower of the mean or the median of a resource's accepted bids, excluding bids of \$0/MWh or less, in competitive periods over the previous 90 days for peak and off-peak periods, adjusted for monthly changes in fuel prices using the proxy figure for natural gas prices posted on the ISO Home Page;
2. If the resource is a gas-fired unit that does not have significant energy limitations, the unit's default Energy Bid determined monthly as set forth in Section 5.11.5 (based on the incremental heat rate submitted to the ISO, adjusted for gas prices, and the variable O&M cost on file with the ISO, or the default O&M cost of \$6/MWh).

3. For non gas-fired units and gas-fired units that have significant energy limitations, a level determined in consultation with the Market Participant submitting the bid or bids at issue, provided such consultation has occurred prior to the occurrence of the conduct



**ATTACHMENT C**

**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;

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**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

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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.

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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:

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- (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

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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:

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- (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.

**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.

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**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  $UnavailAncServMW_{ist}$ , 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  $UnavailDispLoadMW_{ist}$ , 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

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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

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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

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**2.5.27.1 Regulation.**

Regulation Up and Regulation Down payments shall be calculated separately.

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

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

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

$EnQInst_{xt}$  = 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.

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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:

$$\sum_i [(EnQInst_{ixt} * BEEPIntervalExPostPriceinZoneX) + REPA_{ixt}]$$

REPA<sub>ixt</sub> = 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<sub>UPixt</sub> = 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

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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.

$R_{DN_{i,t}}$  = 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

$P_{x,t}$  = 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

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

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

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

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

where,

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

$GenDev_{ijxt}$  = 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

- (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

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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.

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**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;

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- b) The Uninstructed Deviation Penalty will not apply to Interconnection Schedules because such Schedules are deemed delivered. However, dynamic Interconnection Schedules, to the extent they deviate without instruction from their final Hour-Ahead Schedule, and real-time instructions for Energy from Interconnection Schedule bids that are declined, will be subject to the Uninstructed Deviation Penalty;
- c) The Uninstructed Deviation Penalty will not apply to Load, other than Participating Load; for Participating Load, the Uninstructed Deviation Penalty will not apply for the duration of the relevant Minimum Down Time;
- d) The Uninstructed Deviation Penalty will not apply to constrained resources for the duration of the relevant startup/shutdown and Minimum Up/Down Times;
- e) The Uninstructed Deviation Penalty will not apply to Regulatory Must-Run Generation or Participating Intermittent Resources that meet the scheduling obligations established in the technical standards for Participating intermittent Resources adopted by the ISO and published on the ISO Home Page or Regulatory Must-Run Generation. No other applicable charges will be affected by this exemption. Uninstructed Deviation Penalty also will not apply to Qualifying Facilities that have not executed a Participating Generator Agreement (PGA), pending resolution of QF-PGA issues at the Commission;
- f) For Metered Subsystems (MSS), the Uninstructed Deviation Penalty will apply to the net injection (System Unit generation plus import minus MSS load and export) into the ISO Controlled Grid;
- g) The Uninstructed Deviation Penalty will not apply to Generators providing Regulation to the extent that the Generators' Uninstructed Deviations are within the range of their actual Regulation range;

- h) The Uninstructed Deviation Penalty will be calculated and assessed for each resource separately, however, resources represented by the same Scheduling Coordinator and connected to the same ISO Controlled Grid bus and voltage level can be aggregated for purposes of Uninstructed Deviation Penalty determination. Other levels of aggregation for purposes of the Uninstructed Deviation Penalty will be considered on a case-by-case basis based on an ISO review of impact on the ISO Controlled Grid;
- i) The tolerance band for the application of the Uninstructed Deviation Penalties to Generators or aggregated Generators initially will be the Energy produced in a BEEP Interval by the greater of five (5) MW or three percent (3%) of the relevant generating unit's maximum output ( $P_{max}$ ), as registered in the Master File;
- j) The tolerance band for the application of the Uninstructed Deviation Penalties to Participating Loads initially will be equal to the Energy produced in a BEEP Interval by the greater of five (5) MW or three percent (3%) of the relevant final Hour-Ahead Schedule;
- k) The Uninstructed Deviation Penalty will not apply when the BEEP Interval Ex Post Price is negative or zero;
- l) The Uninstructed Deviation Penalty for positive 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 equal to 100% of the corresponding BEEP Interval Ex Post Price; and the net effect of the Uninstructed Deviation Penalty and the Settlement for positive Uninstructed Imbalance Energy beyond the tolerance band will be that the ISO will not pay for such Energy;



- 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.aiso.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.aiso.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.

- (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 if 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.

- 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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**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.

<b><u>Preliminary Settlement Statement</u></b>	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.
<b><u>Price Mitigation Reserve Deficiency</u></b>	Any clock hour in which the ISO's maximum actual reserve margin is below seven (7) percent.
<b><u>Price Overlap</u></b>	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.
<b><u>Project Sponsor</u></b>	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.
<b><u>Proxy Price</u></b>	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.
<b><u>PX (Power Exchange)</u></b>	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.
<b><u>PX Auction Activity Rules</u></b>	The rules by which bids submitted to and validated by the PX may be modified or withdrawn during a PX Energy market auction.
<b><u>Qualifying Hours</u></b>	Qualifying Hours has the meaning set forth in Section 5.12.7.1.1.2.5.

**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.

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- (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;

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- (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

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- 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 will 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;

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- (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);

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- (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).

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**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 Resource 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 Scheduling 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 Spinning, Non-Spinning, or Replacement Reserve, or Supplemental Energy to the ISO will submit the following information for each Generating Unit for each Settlement Period:

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- (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 be 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.

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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

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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

Congestion Management process will allocate Congested transmission to those users who value it the most and will charge all SCs for their allocated usage of Congested Inter-Zonal Interfaces on a comparable basis. All SCs within a Zone will see the same price for transmitting Energy across a Congested Inter-Zonal Interface, irrespective of the particular locations of their Generators, Demands and external imports/exports.

- (b) The ISO will determine the prices for the use of Congested Inter-Zonal Interfaces using the Adjustment Bids. The ISO will collect Usage Charges from SCs for their Scheduled use of Congested Inter-Zonal Interfaces. If Adjustment Bids are exhausted and Schedules are adjusted *pro rata*, the ISO will apply a default Usage Charge calculated in accordance with Section 7.3.1.3 of the ISO Tariff.
- (c) The ISO will rebate the Congestion revenues collected through the Usage Charges to the PTOs which own the Congested Inter-Zonal Interface in proportion to their respective ownership rights.

**SP 11 Creation of the Real Time Merit Order Stack**

**SP 11.1 Sources of Imbalance Energy**

The following Energy Bids will be considered in the creation of the real time merit order stack for Imbalance Energy:

- (a) Supplemental Energy bids submitted in accordance with the SBP;
- (b) Ancillary Services Energy bids (except for Regulation) submitted for specific Ancillary Services in accordance with the SBP for those resources which have been selected in the ISO's Ancillary Services auction to supply such specific Ancillary Services; and
- (c) Ancillary Services Energy bids (except for Regulation) submitted for specific Ancillary Services in accordance with the SBP for those resources which SCs have elected to use to self-provide such specific Ancillary Services and for which the ISO has accepted such self-provision.

**SP 11.2 Stacking of the Energy Bids**

The sources of Imbalance Energy described in SP 11.1 will be arranged in order of increasing Energy bid prices to create a merit order stack for use in accordance with the DP. This merit order stack will be arranged without regard to the source of the Energy bid except that Energy bids associated with Spinning and Non-Spinning Reserve shall not be included in the merit order stack during normal operating conditions if the capacity associated with such bids has been designated as available to supply

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Superseding ~~Original~~ First Revised Sheet No. 629

Imbalance Energy only in the event of the occurrence of an unplanned Outage, a  
Contingency or an imminent or

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Issued on: ~~March~~ September 20, 2004 Effective: Upon Written Notice Provided By The ISO To  
FERC and Market Participants ~~Upon notice after May 19, 2004~~

CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION  
FERC ELECTRIC TARIFF  
FIRST REPLACEMENT VOLUME NO. II

~~First~~Second Revised Sheet No. 629A  
Superseding ~~Original~~First Revised Sheet No. 629A

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.

Issued by: Charles F. Robinson, Vice President and General Counsel  
Issued on: ~~May 4~~September 20, 2002 Effective: Upon Written Notice Provided By The ISO To FERC  
and Market Participants ~~October 1, 2002~~

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.

**ATTACHMENT D**

#### **2.5.22.4.1 Timing of Supplemental Energy Bids.**

Supplemental Energy bids must be submitted to the ISO no later than ~~sixty (60)~~ forty-five (45) minutes prior to the operating hour. Bids may also be submitted at any time after the Day-Ahead Market closes. These Supplemental Energy bids cannot be withdrawn after ~~sixty (60)~~ forty-five (45) minutes prior to the Settlement Period, except that a bid from a System Resource may specify that any portion of the bid that is not called prior to the beginning of the Settlement Period shall not be called after the beginning of the Settlement Period. The ISO may dispatch the associated resource at any time during the Settlement Period.

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#### **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 of each Settlement Period equal to the product of the net deviation in the Zone or Zones, as appropriate, and the appropriate BEEP Interval Ex Post Price determined in accordance with Section 2.5.23.2.1.

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

Notwithstanding the foregoing or any other provision in this Tariff, ~~until October 1, 2002,~~ Uninstructed Imbalance Energy attributable to any Scheduling Coordinator for any System Resource Dispatched by the ISO shall be settled at the appropriate Instructed Imbalance Energy BEEP Interval Ex Post Price determined in accordance with Section 2.5.23.2.1.

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### **14.3 Market Participant's Indemnity.**

Each Market Participant, to the extent permitted by law, shall indemnify the ISO and hold it harmless against all losses, damages, claims, liabilities, costs or expenses (including legal expenses) arising from any act or omission of the Market Participant except to the extent that they result from the ISO's default under this ISO Tariff or negligence or intentional wrongdoing on the part of the ISO or of its officers, directors or employees.

### **14.4 Potomac Economics, Ltd. Limitation of Liability.**

Potomac Economics, Ltd. shall not be liable in damages to any Market Participant for any losses, damages, claims, liability, costs or expenses (including legal expenses) arising from its calculation of reference levels under its Consultant Agreement with the ISO dated as of September 3, 2002, except to the extent that they result from negligence or intentional wrongdoing of Potomac Economics, Ltd.

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## **Dispatch Protocol**

### **DP 7.3 Supplemental Energy Bids**

Supplemental Energy bids may be submitted to the ISO no later than sixty (60) forty-five (45) minutes prior to the beginning of the Settlement Period in accordance with the format and content requirements of the SBP. These Supplemental Energy bids cannot be withdrawn after sixty (60) forty-five (45) minutes prior to the beginning of the Settlement Period, except that a bid from a System Resource may specify that any portion of the bid that is not called prior to the beginning of the Settlement Period shall not be called after the beginning of the Settlement Period. The ISO may Dispatch the associated resource at any time during the Settlement Period.

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## Appendix A to the Marketing Monitoring and Information Protocol

### 3.1.1.1 Reference Levels

(a) For purposes of establishing reference levels, bid segments shall be defined as follows:

1. the capacity of each generation resource shall be divided into 10 equal Energy bid segments between its minimum (Pmin) and maximum (Pmax) operating point.
2. for Energy bids submitted over the intertie Scheduling Points (import bids), 10 bid segments shall be established for each Scheduling Coordinator at each Scheduling Point based on historical volumes over the preceding 12 months.

A reference level for each bid segment shall be calculated each day for peak and off-peak periods on the basis of the following methods, listed in the following order of preference subject to the existence of sufficient data, where sufficient data means at least one data point per time period (peak or off-peak) for the bid segment. Peak periods shall be the periods Monday through Saturday from Hour Ending 0700 through Hour Ending 2200, excluding holidays. Off-Peak periods are all other hours.

1. The lower of the mean or the median of a resource's accepted bids, excluding bids of \$0/MWh or less, in competitive periods over the previous 90 days for peak and off-peak periods, adjusted for monthly changes in fuel prices using the proxy figure for natural gas prices posted on the ISO Home Page;

**ATTACHMENT E**



September 18, 2002

To Whom It May Concern:

This letter provides a recommendation to the California ISO ("CAISO") regarding bids to sell energy in the real-time with a bid price at or less than \$0 per MWh ("price-taker bid"). Potomac Economics has been retained to independently calculate reference levels for use in implementing the CAISO's Automated Mitigation Procedure pursuant to the Federal Energy Regulatory Commission's (FERC's) July 17, 2002 Order on The California Comprehensive Market Redesign Proposal.

The CAISO has proposed to exclude price-taker bids for the purposes of calculating reference levels for imports and hydroelectric resources submitted prior to October 1, 2002. This proposal is reasonable because these resources are currently required to bid \$0 as price-takers and do not, therefore, represent the price at which a supplier is willing to sell energy in real-time. If these bids are not excluded, the reference levels will be understated and likely to lead to inappropriate mitigation through the Automated Mitigation Procedure.

In addition to the CAISO's proposed change, I recommend that price-taker bids submitted after October 1, 2002 be excluded from reference level calculations as well. Although the requirement to bid \$0/MWh will expire on September 30, participants that wish to self-schedule may still need the option of bidding as a price-taker. Participants may submit balanced hourly schedules as a means of self-scheduling, but suppliers that do not have a load to serve that wish to supply as a price-taker in the real-time need the option of submitting prices at or less than \$0/MWh. Failure to exclude these bids can serve as a disincentive to offer the supplies and ultimately result in higher prices in California. For these reasons, I also recommend that this exclusion be extended to all types of resources within California.

Please contact me if you have any questions or comments regarding this recommendation.

David B. Patton, Ph.D.  
President  
Potomac Economics, Ltd.

**ATTACHMENT F**

**NOTICE OF FILING SUITABLE FOR PUBLICATION  
IN THE FEDERAL REGISTER**

**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

<b>California Independent System</b>	)	<b>Docket Nos. ER02-1656-000</b>
<b>Operator Corporation</b>	)	<b>ER02-1637-000</b>
	)	<b>ER02-____-000</b>

**Notice of Filing**

[ ]

Take notice that on September 20, 2002, the California Independent System Operator Corporation (ISO) submitted for filing an update to the Comprehensive Market Design (MD02) proposal contained in Amendment No. 44 to the ISO Tariff (Update) and Request for Expedited Consideration of the Update. For the reasons described below, the ISO respectfully submits that good cause exists for the Commission to undertake expedited action on and grant approval of the proposed clarifications and modifications set forth herein. This Update would modify the ISO Tariff to: (1) postpone the effective date for the implementation of Real-Time Economic Dispatch and Uninstructed Deviation Penalties; (2) change the deadline for submitting Supplemental Energy bids; (3) exempt bids \$0/MWh or less from the calculation to determine the reference price for resources; (4) extend the provisions of ISO Tariff Amendment No. 43 to pay pre-dispatched System Resources outside the ISO Control Area the instructed Imbalance Energy price in all intervals; (5) clarify that Automatic Mitigation Procedure reference prices will be calculated daily; and (6) limit the liability of the independent entity calculating such reference prices.

The ISO has served this filing upon the Public Utilities Commission of the State of California, the California Energy Commission, the California Electricity Oversight Board, and all parties with effective Scheduling Coordinator Service Agreements under the ISO Tariff. In addition, the ISO has posted a copy of the filing on its Home Page.

Any person desiring to be heard or to protest said filing should file a motion to intervene or protest with the Federal Energy Regulatory Commission, 888 First Street,

N.E., Washington, D.C. 20426, in accordance with Rules 211 and 214 of the Commission's Rules of Practice and Procedure (18 C.F.R. §§ 385.211, 385.214). All such motions and protests should be filed on or before [ ], 2002. Protests will be considered by the Commission to determine the appropriate action to be taken, but will not serve to make protestants parties to the proceedings. Any person wishing to become a party must file a motion to intervene. Copies of this filing are on file with the Commission and are available for public inspection. This filing may also be viewed on the Internet at <<http://www.ferc.gov>> using the "RIMS" link, select "Docket#" and follow the instructions (call 202-208-2222 for assistance). Comments, protests, and interventions may be filed electronically via the Internet in lieu of paper. See 18 C.F.R. § 385.2001(a)(1)(iii) and the instructions on the Commission's Internet site under the "e-Filing" link.