

the ISO's BEEP Software for decremental Generation.

Where a Scheduling Coordinator has identified specific Generating Units, Loads or System Resources as the providers of the additional Operating Reserve required to cover any Interruptible Imports and on-demand obligations which it has scheduled, the Proxy Energy Bid prices of those resources for the incremental Energy, or decremental Demand, dispatched by the ISO from the Operating Reserve provided by those resources, shall not be taken into account in the determination of the Hourly Ex Post Price.

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 **Hourly** 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 ~~Five Minute Ex Post Price and Hourly~~ Ex Post Prices

2.5.23.2.1 BEEP Interval Ex Post Prices. For each ~~five minute period~~ BEEP Interval, the ISO will compute an updated dispatch price curve, using the Generating Units, Loads and System Resources dispatched according to the ISO's BEEP Software during that time period to meet Imbalance Energy requirements. *For each BEEP Interval of the Settlement Period, BEEP will compute an incremental Ex Post Price and a decremental Ex Post Price. The incremental Ex Post Price will equal the highest price bid selected in the BEEP Interval. The decremental Ex Post Price will equal the lowest price bid selected in the BEEP Interval.* The ~~Five Minute~~ Ex Post Prices for each ~~period~~ BEEP Interval will equal the marginal bid of the marginal Generating Unit, Load, or System Resource as described in Section 2.5.23.1.

If the net quantity of Imbalance Energy in the five minute period t is positive then The BEEP Interval incremental Ex Post Price will be computed for each BEEP Interval i as

$$P5Min_i = \text{Max}(EnBid_i)$$

$$Pl_i = \text{Max}(EnBid_i)$$

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

$$PD_i = \text{Min}(EnBid_{r,i})$$

Where

$EnBid_{r,i}$ = Energy bid prices of the ~~Generating Units, Loads and System Resources~~ resource providing Ancillary ~~Services~~ Service Energy, and the or Supplemental Energy bids of other Generating Units, Loads and System Resources dispatched by the ISO during the five minute period.

If the net quantity of Imbalance Energy in the five minute period t is negative then

$$P5Min_t = \text{Min}(Enbid)_t$$

In the event of Inter-Zonal Congestion, the ISO will develop a dispatch price curve, and BEEP Interval Ex Post Prices ~~an Ex Post Five Minute Price P5Min_x~~, for each Zone where congestion exists.

2.5.23.2.2 Hourly Ex Post Price Applicable to Uninstructed Deviations. The Hourly Ex Post Price applicable to Uninstructed Imbalance Energy in Settlement Period t in each zone will equal the Energy weighted average of the BEEP Interval 12 Five Minute Ex Post Prices ~~charges~~ in each Zone, calculated as follows:

$$PHourExPost_x = \frac{\sum_{t=1}^{12} (P5Min_{xt} * SysDev)_t}{\sum_{t=1}^{12} SysDev_t}$$

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

where:

$PHourExPost_x$ = Hourly Ex Post Price in Zone x

BIP_{ix} = BEEP Interval Ex Post Price

j = the number of Scheduling Coordinators with instructed deviations

$IIEC_{jix}$ = the Instructed Imbalance Energy Charges for Scheduling Coordinator j for the BEEP Interval i in Zone x

$IMWH_{jix}$ = the Instructed Imbalance Energy for Scheduling Coordinator j for the BEEP Interval i in Zone x

$P5Min_{xt}$ = Five minute Ex Post Price in Zone x in period t

$SysDev_t$ = the absolute difference (whether positive or negative) between (the deviation between scheduled and metered Demand) and (the deviation between scheduled and metered Generation) in five minute period t in Zone x .

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

11.2.4.1 Net Settlements for Uninstructed Imbalance Energy.

Uninstructed Imbalance Energy attributable to each Scheduling Coordinator in each Settlement Period in the relevant Zone shall be deemed to be sold or purchased, as the case may be, by the ISO and 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 Settlement Period equal to:

IE Charge =

$$\left(\sum_i GenDev_i - \sum_i LoadDev_i \right) * P + \left(\sum_q ImpDev_q \right) * P - \left(\sum_q ExpDev_q \right) * P + UFEC$$

where:

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

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

$L_{a/s}$ = Demand reduction from Ancillary Service resource **or Demand increase or reduction from Supplemental Energy resource** due to ISO dispatch instruction

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

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

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

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

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

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

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

E_a = sum of actual Energy export scheduled through Scheduling Point q for Day-Ahead and Hour-Ahead

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

P = Hourly Ex Post Price for **Uninstructed** Imbalance Energy for the relevant hour, **as defined in Section 2.5.23.2.2**

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

Unaccounted for Energy Charge

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

under Existing Contracts. The functionality necessary to accept such bids does not exist in the ISO scheduling software.

SBP 6.1.1 Generation Section of Supplemental Energy Bid Data

Each SC offering Supplemental Energy to the ISO will submit the following information for each Generating Unit for each Settlement Period:

- (a) SC's ID code;
- (b) name of Generating Unit;
- (c) Generating Unit operating limits (high and low MW);
- (d) Generating Unit ramp rate in MW/minute; and
- (e) the MW and \$/MWh values for each Generating Unit for which a Supplemental Energy bid is being submitted consistent with this SBP 6.

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

23.5 Amendments to the Settlement and Billing Protocol

C 2.1.3—Real-Time Market

Each Scheduling Coordinator will be paid for the real time instructed Energy output from Dispatched Spinning Reserve, Non-Spinning Reserve, and Replacement Reserve¹ resources which it represents at the real time Hourly Ex Post Price, in accordance Appendix D, section D 2.1.2. Each Scheduling Coordinator will also be paid for Supplemental Energy Dispatched from resources which it represents at the same Hourly Ex Post Price. This payment for Scheduling Coordinator j for providing Energy output from a resource i in Zone x for Trading Interval t is calculated as follows:

$$EnQPay_{jt} = EnQ_{jt} * P_{jt}$$

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

¹ For Regulation, differences between instructed and metered Energy shall be settled as Uninstructed Imbalance Energy in accordance with Appendix G2.1.

by Scheduling Coordinator j into zone x during Trading Interval t Settlement Period t is calculated as follows:

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

The deviation between forward scheduled and Real Time adjustments to Energy exports² for Scheduling Point q represented by Scheduling Coordinator j from Zone x during Trading Interval t Settlement Period t is calculated as follows:

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

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

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

Where:

BIP_{ix} = BEEP Interval Ex Post Price

P_{xt} = the Hourly Ex Post Price in Zone x

IIEC_{jix} = the Instructed Imbalance Energy Charges for Scheduling Coordinator j for BEEP Interval i in Zone x

IMWH_{jix} = the Instructed Imbalance Energy for Scheduling Coordinator j for the BEEP Interval i in Zone x

D 2.1.2 Instructed Imbalance Energy Charges on Scheduling Coordinators

The Instructed Imbalance Energy charge for Settlement Period t for Scheduling Coordinator j for Zone x is calculated using the following formula:

$$IIEC_j = IGDC_j + ILDC_j + IIDC_j$$

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

30. YEAR 2000 COMPLIANCE

30.1 Y2K Compliance

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

30.2 Responsibility for Y2K Compliance

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

30.3 Disconnection of Non-Y2K Compliant Systems and Processes

In order to protect and maintain the integrity of the ISO's systems and processes, the ISO shall have the authority to immediately disconnect the systems or processes of any Scheduling Coordinator or other entity that is believed by the ISO to be passing Y2K related erroneous data;

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