

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

**The California Independent System
Operator Corporation**

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**Docket Nos. EC96-19-____
and ER96-1663-____**

AMENDMENT NO. 8

**SUBMITTED ON
May 19, 1998**

PART ONE – TEMPORARY AMENDMENTS

The following new Section 29 of the ISO Tariff and changes to the Settlement and Billing Protocol are temporary amendments.

ISO TARIFF AMENDMENTS

29 Temporary Changes to Payments for Regulation

29.1 Application

Notwithstanding any other provision of the ISO Tariff, the amendments to the ISO Tariff set forth in Section 29 shall continue in effect until such time as:

- (a) the ISO has filed with FERC new, long-term changes to the ISO Tariff in regard to the ISO's Regulation auction to provide incentives to Market Participants to bid into the auction; and
- (b) FERC has accepted for filing and made effective such new, long-term changes to the ISO Tariff in regard to the ISO's Regulation auction.

29.2 ISO Tariff Amendments

29.2.1 Amendments to the Body of the ISO Tariff

2.5.27.1 Regulation.

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

$AGCQDA_{xt}$ = the Scheduling Coordinator's total quantity of Regulation capacity in Zone X sold through the ISO auction, and scheduled Day-Ahead j for Settlement Period t.

~~$EnQInst_{xt}EnQAGC_{ixt}$ = instructed the net Energy increase or decrease (deviation from Scheduled output) from a Generating Unit i providing Regulation in Zone X in real-time Dispatch for in~~ Settlement Period t, determined in accordance with the ISO Protocols.

Prices. The prices in the Settlement process for Regulation shall be those determined in Section 2.5.14.

Penalty: penalty described in Section 2.5.26.

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

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

$$AGCPay_{xt} = AGCQDA_{xt} * PAGCDA_{xt} - Penalty$$

Scheduling Coordinators for Generating Units shall receive the following payment for Energy output from Regulation:

~~$EnQInst_{xt} * Hourly Ex Post Price in Zone X$~~

$$\sum_i [(EnQAGC_{ixt} * HourlyExPostPriceinZoneX) + REPA_{ixt}]$$

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

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

Where

R_{UP} = 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.

R_{DN} = 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.

C_{UP} = 1

C_{DN} = 1

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

The ISO may modify the value of the constants C_{UP} or C_{DN} within a range of 0-1 either generally in regard to all hours or specifically in regard to particular times of the day, after the ISO Governing Board approves such modification, by a notice issued by the Chief Executive Officer of the ISO and posted on the ISO Internet "Home Page," at <http://www.caiso.com>, or such other Internet address as the ISO may publish from time to time, specifying the date and time from which the modification shall take effect, which shall be not less than seven (7) days after the Notice is issued.

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

11.2.9.1 Neutrality Adjustments

(d) amounts required with respect to payment adjustments for Regulation Energy as calculated in accordance with Section 2.5.27.1. These charges will be allocated amongst the Scheduling Coordinators who traded on that Trading Day pro rata to their metered Demand (including exports) in MWh for that Trading Day.

29.2.2 Amendments to the Settlement and Billing Protocol

SABP 3.1.1. Additional Charges and Payments

(d) amounts required with respect to payment adjustments for Regulation Energy as calculated in accordance with Section 2.5.27.1 of the ISO Tariff. These charges will be allocated amongst the Scheduling Coordinators who traded on that Trading Day pro rata to their metered Demand (including exports) in MWh for that Trading Day.

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 Reserve⁴ resources which it represents at the real-time Hourly Ex Post Price. 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:~~

$$\del{ENQPay}_{ijxt} = \del{ENQ}_{ijxt} * P_{xt}$$

~~The total payment to each Scheduling Coordinator for real-time 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~~

⁴ For Regulation, differences between instructed and metered Energy shall be settled as Imbalance Energy in accordance with Appendix G2.1.

~~Scheduling Coordinator in the Zone for the Trading Interval. This payment for Scheduling Coordinator j in Zone x for Trading Interval t is calculated as follows:~~

$$\text{EnQPayTotal}_{ijxt} = \sum_i \text{EnQPay}_{ijxt}$$

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

$$\text{REPA}_{ijxt} = [(\text{RUP}_{ijxt} * \text{CUP}) + (\text{RDN}_{ijxt} * \text{CDN})] * \max (\$20/\text{MWh}, P_{xt})$$

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

C 2.2.4 Real-Time Market

- (a) The ISO will charge the costs of purchasing ~~real-time instructed~~ Instructed Imbalance Energy output from Dispatched ~~Regulation~~, Spinning Reserve, Non-Spinning Reserve, Replacement Reserve and Supplemental Energy Resources through the Instructed Imbalance Energy settlement process.
- (b) The ISO will charge the costs of purchasing Uninstructed Imbalance Energy (including incremental and decremental Energy from Generating Units providing Regulation) through

the Uninstructed Imbalance Energy settlement process.

- (c) The ISO will charge the costs of Regulation Energy payment adjustments as calculated in accordance with Section 2.5.27.1 of the ISO Tariff, in accordance with SABP 3.1.1(d).

C 3 Meaning of terms of formulae

C 3.20A REPA_{ijxt} - \$

The Regulation Energy payment adjustment payable for real time incremental or decremental Energy provided from Regulation resource i of Scheduling Coordinator j in Zone x in Trading Interval t.

C 3.20B RUP_{ijxt} – MW

The upward Regulation capacity of Regulation resource i in Zone x included in the Final Schedule for Ancillary Services of Scheduling Coordinator j for Trading Interval t, weighted in proportion to the ISO's need for upward Regulation.

C 3.20C RDN_{ijxt} – MW

The downward Regulation capacity of Regulation resource i in Zone x included in the Final Schedule for Ancillary Services of Scheduling Coordinator j for Trading Interval t, weighted in proportion to the ISO's need for downward Regulation.

C 3.20D CUP - number

The constant established by the ISO and subject to change by resolution of the ISO Governing Board. Initially this shall be set at 1. The ISO may modify the value of CUP 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 modifications, 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.

C 3.20E CDN – number

The constant established by the ISO and subject to change by resolution of the ISO Governing Board. Initially this shall be set at 1. The ISO may modify the value of CDN 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 modifications, 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.

PART TWO – CLARIFICATION AMENDMENTS

The following changes to Sections 2.5.22.3.1, 2.5.22.3.2 and 23.2.2 of the ISO Tariff and to the Dispatch Protocol and the Schedules and Bids Protocol are not temporary (except to the extent that Section 23 of the ISO Tariff is a temporary provision).

ISO TARIFF AMENDMENTS

2.5.22.3.1 Competitively Procured Ancillary Services. Except for Generating Units providing Regulation, Generating Units and Loads selected in the ISO competitive auction shall be dispatched based on their Energy bid prices as described in their Ancillary Service schedule.

2.5.22.3.2 Self Provided Ancillary Services. Where a Scheduling Coordinator has chosen to self provide the whole of the additional Operating Reserve required to cover any Interruptible Imports which it has scheduled and has identified specific Generating Units, Loads or System Resources as the providers of the additional Operating Reserve concerned, the ISO shall Dispatch only the designated Generating Units, Loads or System Resources in the event of the ISO being notified that the Interruptible Import is being curtailed. For ~~all~~ other Ancillary Services which are being self provided (except for Regulation) the Proxy Energy Bid shall be used to determine the position of the Generating Unit, Load or System Resource in the merit order for real time Dispatch. If the Proxy Energy Bid is higher than the highest Energy bid of the competitively procured Generating Units, Loads, or System Resource, the self provided Generating Unit, Load or System Resource shall be deemed to have a Dispatch price equal to the highest competitively bid Generating Unit, Load or System Resource. If the Proxy Energy bid is lower than the lowest Energy price of a competitively bid Generating Unit, Load or System Resource, the self provided Generating Unit, Load or System Resource shall be deemed to have a Dispatch price equal to the lowest Energy bid price of the competitively procured Generating Unit, Load or System Resource.

23.2.2 Amendments to the Master Definitions in the ISO Tariff.

Instructed Imbalance Energy The real time change in Generation output or Demand (from dispatchable Generating Units or Loads) which is instructed by the ISO to ensure that reliability of the ISO Control Area is maintained in accordance with Applicable Reliability Criteria. Sources of

Instructed Imbalance Energy include Regulation, Spinning and Non-spinning Reserves, Replacement Reserve, and Energy from other Generating Units that are able to respond to the ISO's request for more or less Energy.

AMENDMENT TO THE DISPATCH PROTOCOL

DP 8.7.1 Regulation

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

AMENDMENT TO THE SCHEDULES AND BIDS PROTOCOL

SBP 5.1.1 Regulation

- (j) bid price for Regulation Energy ~~if called upon~~ (\$/MWh) (required for validation of bid only).

