



California Independent
System Operator Corporation

September 10, 2014

The Honorable Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

**Re: California Independent System Operator Corporation
ISO Tariff Amendments to the Energy Imbalance Market
Docket No. ER14-____-000**

Dear Secretary Bose:

The California Independent System Operator Corporation (“CAISO”) proposes this amendment to the CAISO tariff to address a settlements issue that came to the CAISO’s attention during market simulation in preparation for implementation of the Energy Imbalance Market on October 1, 2014.¹ The Energy Imbalance Market is the set of rules and procedures governing the inclusion of balancing authority areas other than the CAISO’s balancing authority area in the operation of the CAISO’s real-time market. During market simulation, the CAISO determined that the real-time imbalance energy offset calculation included in the tariff produced results that differed from those intended by the market design and were contrary to cost causation principles. The proposed amendment will correct that anomaly. The CAISO requests waiver of the 60-day notice requirement of section 205 of the Federal Power Act and an October 1, 2014 effective date for the amendment, concurrent with the implementation date of the Energy Imbalance Market.²

I. Background

In a June 19, 2014 Order, the Commission conditionally accepted the terms under which other balancing authority areas will have the opportunity to

¹ The CAISO submits these amendments pursuant to section 205 of the Federal Power Act, 16 U.S.C. § 824d (2012).

² See *Cal. Indep. Sys. Operator Corp.*, 147 FERC ¶ 61,231 (2014) (“June 19 Order”).

participate voluntarily in the Energy Imbalance Market.³ On July 21, 2014, the CAISO submitted its compliance filing consistent with the Commission's directives. That filing remains pending. The changes proposed in this filing complement that compliance filing and clarify certain elements in anticipation of the October 1, 2014 implementation date. On July 23, 2014, the CAISO filed a tariff amendment with two additional tariff revisions in connection with the Energy Imbalance Market: one to clarify settlement procedures and one to facilitate the participation of multi-stage resources. That filing also remains pending.

In the Energy Imbalance Market, the CAISO will collect two types of neutrality charges from EIM market participants to recover the difference between receipts from load and payments to supply for energy in the real-time market: a real-time imbalance energy offset charge and a real-time congestion offset charge. The real-time imbalance energy offset has two components. Under the existing tariff provision, the first component is based on the sum of the net value of EIM transfers and the settlements of imbalance energy, less the real-time congestion offset.⁴ The CAISO adjusts this initial calculation of the EIM Entity balancing authority area charge to reflect flows between EIM Entity balancing authority areas and align the allocation more closely with causation.⁵ The second component distributes any residual neutrality amount among EIM market participants based on measured demand.⁶

During market simulation, the CAISO determined that subtracting the real-time congestion offset in the initial calculation could result in double charging an EIM Entity for congestion offset costs under certain scenarios or double charging CAISO customers under other scenarios. This would not only violate cost causation principles, but it could incentivize market behavior that would further distort market outcomes. The CAISO did not intend the Imbalance Market design approved by the CAISO Governing Board and filed with the Commission to have such results. The proposed amendment will address this issue and align the tariff with the results expected when the CAISO developed and filed the Energy Imbalance Market tariff provisions with the Commission.

II. Proposed Amendment

The CAISO proposes to correct the unintended results discussed above by eliminating the tariff language that provides for subtraction of real-time congestion offsets charges in the initial step of calculating the real-time imbalance energy offset charge. This requires deleting tariff language as follows:

³ *Id.*

⁴ Section 11.5.4.1(b).

⁵ Section 11.5.4.1(c).

⁶ Section 11.4.5.1(d).

11.5.4.1 Real-Time Imbalance Energy Offset

- (b) **Initial Calculation.** The CAISO will initially calculate the Real-Time Imbalance Energy Offset to be recovered on a 5-minute basis for each Balancing Authority Area in the EIM Area as the sum of the financial value of EIM Transfers and the Settlement amounts for FMM Instructed Imbalance Energy and RTD Instructed Imbalance Energy, Uninstructed Imbalance Energy, EIM Bid Adders, and Unaccounted For Energy, and for the CAISO, Real-Time Virtual Bid Settlement, ~~less the Balancing Authority Area Real-Time Congestion Offset determined under Section 11.5.4.1.1, and for the CAISO,~~ plus the Real-Time Ancillary Services Congestion revenues and Virtual Awards settlements in the Real-Time Market in accordance with Section 11.3, less the Real-Time Congestion Offset and less the Real-Time Marginal Cost of Losses Offset.

The purpose of a market simulation is, of course, to reveal any issues in software and market design. In this instance, the market simulation revealed a flaw in the settlements calculation that produced an unintended and unjust result that was not apparent when the CAISO developed, and the Commission approved, the proposed tariff provisions.

Specifically, if an EIM Entity balancing authority area's initial real-time energy settlement were to net to zero because supply and demand were equal, reducing the real-time imbalance energy offset cost by the real-time congestion offset allocation amount would result in the real-time imbalance energy cost being artificially increased in that balancing authority area. Attachment C hereto provides an example of this unintended consequence under the previously approved tariff provisions, as well as the outcome of the same example under the approach proposed in this filing. The amendment will ensure that offset costs are allocated in an equitable manner consistent with cost causation and remain in alignment with stakeholder expectations.

The CAISO raised this matter with stakeholders through its training and business practice manual and charge code configuration discussions, which are integral to the market simulation process and other "go-live" preparations. Based on feedback to date, the CAISO does not anticipate that stakeholders will object to the proposed change, although time constraints limited the opportunity to fully explore stakeholders' positions prior to this filing. In any event, the current structure is contrary to cost causation principles and the intended market outcomes when the CAISO originally developed the allocation of these costs with stakeholders. It was only through market simulation that the CAISO identified the configuration change necessary to align the actual outcome with expectations.

III. Effective Date and Request for Waivers

The CAISO requests an effective date of October 1, 2014, *i.e.*, the first trading date of the Energy Imbalance Market. This will allow the CAISO to settle real-time imbalance offset charges equitably from the commencement of the imbalance energy market. Accordingly, the CAISO requests waiver of the 60-day notice requirement of section 205 of the Federal Power Act and section 35.13 of the Commission's regulations.⁷

In addition, in the event that the Commission does not issue an order by October 1, the CAISO will provisionally settle the real-time imbalance energy offset consistent with the market design, as reflected in the amendment. This action will be taken by the CAISO in lieu of a request for expedited treatment since changes to settlements rules prior to a Commission order have been implemented by the CAISO under similar circumstances provided resettlement is an adequate remedy.⁸ The CAISO will in any event settle the market consistent with the Commission's ultimate direction.

Also, the CAISO submits that this filing substantially complies with the requirements of section 35.13 of the Commission's regulations, 18 C.F.R. § 35.13, applicable to filings of this type. The CAISO respectfully requests waiver of any such requirement to the extent this filing does not satisfy that requirement.

IV. Service

The CAISO has served copies of this filing upon all scheduling coordinators, the California Public Utilities Commission, and the California Energy Commission. In addition, the CAISO has posted the filing on the CAISO website.

V. Contents of this Filing

In addition to this transmittal letter, this filing includes the following attachments:

| | |
|--------------|---|
| Attachment A | Clean CAISO tariff sheets incorporating this tariff amendment |
| Attachment B | Red-lined document showing the revisions contained in this tariff amendment |
| Attachment C | Numerical example of the real-time imbalance energy offset allocation |

⁷ 18 C.F.R. § 35.13 (2014).

⁸ See generally *Cal. Indep. Sys. Operator Corp.* 126 FERC ¶ 61,150 (2009)

VI. Correspondence

The CAISO requests that all correspondence, pleadings, and other communications concerning this filing be served upon the following:

Roger E. Collanton
General Counsel
*John C. Anders
Lead Counsel
250 Outcropping Way
Folsom, CA 95630
Tel: (916) 351-4400
Fax: (916) 608-7222

Kenneth G. Jaffe
*Michael E. Ward
Alston & Bird LLP
The Atlantic Building
950 F Street, NW
Washington, DC 20004
Tel: (202) 239-3300
Fax: (202) 654-4875

* Individuals designated for service pursuant to Rule 203(b)(3),
18 C.F.R. § 203(b)(3).

VII. Conclusion

The CAISO respectfully requests that the Commission accept this filing and permit the proposed tariff changes to be made effective as requested herein.

Respectfully submitted,

By: /s/John C. Anders

Kenneth G. Jaffe
Michael E. Ward
Alston & Bird LLP
The Atlantic Building
950 F Street, NW
Washington, DC 20004
Tel: (202) 239-3300
Fax: (202) 654-4875

Roger E. Collanton
General Counsel
Anthony J. Ivancovich
Deputy General Counsel
John C. Anders
Lead Counsel
California Independent System
Operator Corporation
250 Outcropping Way
Folsom, CA 95630
Tel: (916) 608-7287
Fax: (916) 608-7222

Counsel for the California Independent System Operator Corporation

Dated: September 10, 2014

Attachment A – Clean Tariff Sheets

Tariff Amendments to the Energy Imbalance Market

California Independent System Operator Corporation

11.5.4.1 Real-Time Imbalance Energy Offset

- (a) **Financial Value of EIM Transfers.** The CAISO will calculate the Real-Time Market financial value of EIM Transfers as the product of the MWh, either positive or negative, and the Locational Marginal Price of the pricing node at the corresponding EIM Internal Intertie.
- (b) **Initial Calculation.** The CAISO will initially calculate the Real-Time Imbalance Energy Offset to be recovered on a 5-minute basis for each Balancing Authority Area in the EIM Area as the sum of the financial value of EIM Transfers and the Settlement amounts for FMM Instructed Imbalance Energy and RTD Instructed Imbalance Energy, Uninstructed Imbalance Energy, EIM Bid Adders, and Unaccounted For Energy, and for the CAISO, Real-Time Virtual Bid Settlement, plus the Real-Time Ancillary Services Congestion revenues and Virtual Awards settlements in the Real-Time Market in accordance with Section 11.3, less the Real-Time Congestion Offset and less the Real-Time Marginal Cost of Losses Offset.
- (c) **Adjustment.** The CAISO will adjust the initial calculation of the Real-Time Imbalance Energy Offset by—
 - (1) dividing the sum of net EIM Transfers out of an EIM Entity Balancing Authority Area by the sum of the absolute value of Uninstructed Imbalance Energy due to Demand, the absolute value of Uninstructed Imbalance Energy due to Supply, the absolute value of Unaccounted For Energy, and the net EIM Transfers out of the Balancing Authority Area;
 - (2) multiplying the initial calculation of the Real-Time Imbalance Energy Offset by the ratio calculated in Section 11.5.4.1(c)(1); and
 - (3) reducing the Real-Time Imbalance Energy Offset of the EIM Entity Balancing Authority Area with the net transfer out by the amount calculated in Section 11.5.4.1(c)(2) and adding that amount to the EIM

Entity Balancing Authority Area with the net transfer in to determine the final Real-Time Imbalance Energy Offset.

- (d) **Allocation.** The CAISO will allocate the adjusted Real-Time Imbalance Energy Offset—
- (1) for the CAISO Balancing Authority Area, to Scheduling Coordinators in the CAISO Balancing Authority Area according to Measured Demand; and
 - (2) for EIM Entity Balancing Authority Areas, to the applicable EIM Entity Scheduling Coordinator.
- (e) **Residual Neutrality Amounts.** The CAISO will allocate any residual Real-Time Imbalance Energy Offset amount to Scheduling Coordinators in the EIM Area based upon EIM Measured Demand.

Attachment B – Marked Tariff Sheets

Tariff Amendments to the Energy Imbalance Market

California Independent System Operator Corporation

11.5.4.1 Real-Time Imbalance Energy Offset

- (a) **Financial Value of EIM Transfers.** The CAISO will calculate the Real-Time Market financial value of EIM Transfers as the product of the MWh, either positive or negative, and the Locational Marginal Price of the pricing node at the corresponding EIM Internal Intertie.
- (b) **Initial Calculation.** The CAISO will initially calculate the Real-Time Imbalance Energy Offset to be recovered on a 5-minute basis for each Balancing Authority Area in the EIM Area as the sum of the financial value of EIM Transfers and the Settlement amounts for FMM Instructed Imbalance Energy and RTD Instructed Imbalance Energy, Uninstructed Imbalance Energy, EIM Bid Adders, and Unaccounted For Energy, and for the CAISO, Real-Time Virtual Bid Settlement, ~~less the Balancing Authority Area Real-Time Congestion Offset determined under Section 11.5.4.1.1, and for the CAISO,~~ plus the Real-Time Ancillary Services Congestion revenues and Virtual Awards settlements in the Real-Time Market in accordance with Section 11.3, less the Real-Time Congestion Offset and less the Real-Time Marginal Cost of Losses Offset.
- (c) **Adjustment.** The CAISO will adjust the initial calculation of the Real-Time Imbalance Energy Offset by—
- (1) dividing the sum of net EIM Transfers out of an EIM Entity Balancing Authority Area by the sum of the absolute value of Uninstructed Imbalance Energy due to Demand, the absolute value of Uninstructed Imbalance Energy due to Supply, the absolute value of Unaccounted For Energy, and the net EIM Transfers out of the Balancing Authority Area;
 - (2) multiplying the initial calculation of the Real-Time Imbalance Energy Offset by the ratio calculated in Section 11.5.4.1(c)(1); and
 - (3) reducing the Real-Time Imbalance Energy Offset of the EIM Entity Balancing Authority Area with the net transfer out by the amount calculated in Section 11.5.4.1(c)(2) and adding that amount to the EIM

Entity Balancing Authority Area with the net transfer in to determine the final Real-Time Imbalance Energy Offset.

- (d) **Allocation.** The CAISO will allocate the adjusted Real-Time Imbalance Energy Offset—
- (1) for the CAISO Balancing Authority Area, to Scheduling Coordinators in the CAISO Balancing Authority Area according to Measured Demand;
and
 - (2) for EIM Entity Balancing Authority Areas, to the applicable EIM Entity Scheduling Coordinator.
- (e) **Residual Neutrality Amounts.** The CAISO will allocate any residual Real-Time Imbalance Energy Offset amount to Scheduling Coordinators in the EIM Area based upon EIM Measured Demand.

Attachment C – Example

Tariff Amendments to the Energy Imbalance Market

California Independent System Operator Corporation

In this example, we have two balancing authority areas in the EIM area which are balanced (supply = demand) entering the real-time market. After market clearing, the CAISO dispatch 600 MW of additional supply in the balancing authority areas to meet increased demand in the total EIM Area.

Assumptions:

- Energy price of \$40/MW and marginal loss \$0/MW
- No supply uninstructed imbalance energy
- No unaccounted for energy
- All allocations are to measured demand

BAA1 Conditions:

- Supply incremental energy = 300 MWs @ \$44 Location Marginal Price
 - Total Marginal Cost of Congestion: \$4
 - Marginal Cost of Congestion Breakdown: \$2.60 BAA1, \$1.40 BAA2
- Demand Increase = 400 MWs @ \$41 Location Marginal Price
 - Total Marginal Cost of Congestion: \$1
 - Marginal Cost of Congestion Breakdown: \$0.50 BAA1, \$0.50 BAA2

BAA2 Conditions:

- Supply incremental energy = 300 MWs @ \$38 Location Marginal Price
 - Total Marginal Cost of Congestion: (\$2)
 - Marginal Cost of Congestion Breakdown: (\$1.00) BAA1, (\$1.00) BAA2
- Demand increase = 200 MWs @ \$41 Location Marginal Price
 - Total Marginal Cost of Congestion: \$1
 - Marginal Cost of Congestion Breakdown: \$0 BAA1, \$1 BAA2

EIM Transfers:

- Net scheduled interchange = 100 MWs @ \$40 Locational Marginal Price
 - Total Marginal Cost of Congestion: \$0
 - Marginal Cost of Congestion Breakdown: \$0 BAA1, \$0 BAA2

Real Time Imbalance Energy Offset Calculation

| | Locational Marginal Price | BAA1 Marginal Cost of Congestion | BAA2 Marginal Cost of Congestion |
|-----------------------|----------------------------------|---|---|
| BAA 1 | | | |
| Supply (Payment) | \$13,200 [300 MW x \$44] | \$720 [300 MW X \$2.60] | \$480 [300 MW X \$1.40] |
| Demand (Charge) | (\$16,400) [(400 MW X \$41)] | (\$200) [(400 MW X \$0.50)] | (\$200) [(400 MW X \$0.50)] |
| Financial Transfer In | \$4,000 [100 MW X \$40] | 0 [100 MW X \$0] | 0 [100 MW X \$0] |
| Total | \$800 | \$520 | \$280 |

| | Locational Marginal Price | BAA1 Marginal Cost of Congestion | BAA2 Marginal Cost of Congestion |
|------------------|----------------------------------|---|---|
| BAA 2 | | | |
| Supply (Payment) | \$11,400 [300 MW X \$38] | (\$300) [300 MW X \$(1)] | (\$300) [300 MW X \$(1)] |

| | | | |
|------------------------|-----------------------------|--------------------|--------------------------|
| Demand (Charge) | (\$8,200) [(200 MW X \$41)] | 0 [(200 MW X \$0)] | (\$200) [(200 MW X \$1)] |
| Financial Transfer Out | (\$4,000) [(100 MW X \$40)] | 0 [(100 MW X \$0)] | 0 [(100 MW X \$0)] |
| Total | (\$800) | (\$300) | (\$500) |

Current Real-Time Imbalance Energy Offset Settlement based upon Marginal Cost of Congestion Breakdown

- BAA1 Real-time Imbalance Energy Offset = $\$800 - (\$520 + (\$300)) = \580 charge to BAA1 Measured Demand
- BAA2 Real-time Imbalance Energy Offset = $(\$800) - (\$280 + (\$500)) = (\$580)$ payment to BAA2 Measured Demand

Proposed Real-Time Imbalance Energy Offset Settlement based upon Total Marginal Cost of Congestion

- BAA1 Real-time Imbalance Energy Offset = $\$800 - (\$520 + \$280) = \0 charge to BAA1 Measured Demand
- BAA2 Real-time Imbalance Energy Offset = $(\$800) - ((\$300) + (\$500)) = \0 payment to BAA2 Measured Demand