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June 25, 2015

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

**RE: California Independent System Operator Corporation
Docket No. ER15-1919-000
Errata**

Dear Secretary Bose:

Enclosed for filing please find a corrected version of the transmittal letter for the tariff filing of June 15, 2010, by the California Independent System Operator Corporation in the above-identified docket. The errata is necessary in order to add a section of the transmittal letter (section III.E of the transmittal as corrected) that described one of the tariff changes and was inadvertently omitted during editing. In addition to the service list, the CAISO is serving all parties served with the original filing.

Respectfully submitted,

/s/ Michael E. Ward

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California Independent
System Operator Corporation

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

**Re: California Independent System Operator Corporation
Docket No. ER15- 1919-000**

**Energy Imbalance Market Year One Enhancements – Phase 1
Corrected Transmittal Letter**

Dear Secretary Bose:

The California Independent System Operator Corporation (“CAISO”) submits this tariff amendment to revise the CAISO tariff governing the Energy Imbalance Market. The proposed modifications, resulting from Phase 1 of the CAISO’s Energy Imbalance Market Year One Enhancements initiative, enhance functionality, accommodate participation of additional Balancing Authority Areas, address issues encountered during the first year of operations, and comply with certain Commission directives in its order approving implementation of the Energy Imbalance Market. Specifically, the proposal (1) allows the use of available transfer capability for EIM transfers, (2) provides a cost based approach for greenhouse gas bidding by EIM participating resources and a means for such resources to avoid being dispatched to serve load in California, (3) aligns the EIM administrative charge with the grid management charge, and (4) includes additional elements for the evaluation of resource sufficiency.¹

The CAISO requests that the Commission permit this tariff amendment to become effective October 1, 2015, except for the amendments to sections 29.17 and 29.32, for which the CAISO requests an effective date of September 15, 2015. NV Energy is scheduled to begin participating in the Energy Imbalance Market on October 1, 2015, and the earlier effective date for some provisions is necessary to support the planned period of parallel operation in September. Even if NV Energy’s participation as an EIM entity were delayed, the proposed

¹ The CAISO submits this filing pursuant to Rule 205 of the Commission’s Rules of Practice and Procedure, 18 C.F.R. § 385.205 (2014) and section 205 of the Federal Power Act, 16 U.S.C. § 824d (2012).

effective dates would still apply to PacifiCorp's participation in the Energy Imbalance Market. The CAISO further requests that the Commission issue an order by September 1, 2015. The sooner the Commission can issue its order the sooner the CAISO and market participants will have certainty with respect to the rules in effect on September 15, 2015 and October 1, 2015.

I. BACKGROUND

The Energy Imbalance Market provides other balancing authority areas the opportunity to participate in the real-time market for imbalance energy that the CAISO operates in its own balancing authority area. PacifiCorp's two balancing authority areas were the first to join the Energy Imbalance Market. The CAISO's market rules went into effect on October 24, 2014, with the initial trading day of November 1, 2014.²

With one exception, the Energy Imbalance Market has functioned as expected.³ The CAISO and PacifiCorp have estimated that the Energy Imbalance Market has yielded over \$11 million in benefits since its implementation.⁴ Three additional balancing authorities—NV Energy, Puget Sound Energy, and Arizona Public Service Company—have signed agreements under which they will become EIM entities and participate in the Energy Imbalance Market.⁵ NV Energy will begin participation on October 1, 2015. Puget Sound Energy and the Arizona Public Service Company intend to join the Energy Imbalance Market on October 1, 2016.

Even before the Energy Imbalance Market commenced operations, the CAISO anticipated that the first year of actual operations would reveal potential market modifications to improve functionality as well as issues that the CAISO would need to address. For that reason, on October 28, 2014, the CAISO

² See *Cal. Indep. Sys. Operator Corp.*, 147 FERC ¶ 61,231 (2014) ("June 19 Order") (conditionally accepting tariff revisions to implement Energy Imbalance Market); *Cal. Indep. Sys. Operator Corp.*, 149 FERC ¶ 61,058 (2014) (order denying requests for rehearing, granting in part and denying in part requests for clarification, and conditionally accepting tariff revisions on compliance with regard to order listed above); Letter Order, 149 FERC ¶ 61,005 (Oct. 2, 2014) (order granting CAISO request to extend effective date of Energy Imbalance Market tariff revisions from September 23, 2014, to October 24, 2014, for trading day November 1, 2014).

³ The exception involves infrequent anomalous pricing at times when the CAISO must relax transmission or power balancing constraints. The CAISO and other parties are addressing these issues in on-going proceedings in Docket Nos. ER15-861 and EL15-53.

⁴ See April 30, 2015 [Press Release](#).

⁵ See *Cal. Indep. Sys. Operator Corp.*, 143 FERC ¶ 61,298 (2013); *Cal. Indep. Sys. Operator Corp.*, 147 FERC ¶ 61,200 (2014), and *Cal. Indep. Sys. Operator Corp.*, 151 FERC ¶ 61,158 (2015).

announced an Energy Imbalance Market Year One Enhancements initiative. The CAISO is considering enhancements in two phases. This filing represents the completion of the first phase.

II. STAKEHOLDER PROCESS AND BOARD CONSIDERATION

As part of the Energy Imbalance Market Year One Enhancements initiative, the CAISO posted an issue paper and straw proposal on November 11, 2014,⁶ and followed up with a stakeholder meeting on November 17, 2014. The CAISO conducted an online conference and stakeholder meeting on December 19, 2014, and January 8, 2014, respectively. The CAISO solicited comments after each of these events.⁷

On January 23, 2015, the CAISO issued a technical paper on energy transfer scheduling in the Energy Imbalance Market⁸ and discussed it in a January 30, 2015 online conference. Subsequently, the CAISO solicited comments on the technical paper.⁹ The CAISO issued a Draft Final Proposal on February 11, 2015,¹⁰ and held a meeting on the proposal on February 18, 2015. The CAISO again solicited and considered stakeholder comments.¹¹

The CAISO presented the proposal to its Board of Governors on March 26, 2015.¹² The CAISO's Department of Market Monitoring informed the Board of its support for the proposed enhancements.¹³ The Board unanimously approved the proposal.¹⁴

Following Board approval, on April 14 and 21, 2015, the CAISO posted draft tariff language. Following the receipt of stakeholder comments,¹⁵ the CAISO conducted an online conference to discuss the comments on May 4, 2015 and posted its responses to comments. The CAISO posted revised tariff

⁶ [Issue Paper and Straw Proposal – Energy Imbalance Market Year 1 Enhancements.](#)

⁷ See [comments on issue paper and straw proposal](#) and [comments on January 8, 2015 presentation.](#)

⁸ [Technical Paper – Energy Transfer Scheduling in the Energy Imbalance Market.](#)

⁹ See [comments on technical paper.](#)

¹⁰ [Draft Final Proposal – Energy Imbalance Market Year 1 Enhancements.](#)

¹¹ See [comments on draft final proposal.](#)

¹² Board material included a [memorandum](#) and [presentation.](#)

¹³ [Department of Market Monitoring Report](#) – March 2015.

¹⁴ See [motion approving proposed enhancements.](#)

¹⁵ See [comments on tariff language.](#)

language on May 12, 2015.¹⁶ The CAISO again reviewed the draft tariff language with stakeholders and received their comments on May 19 and May 26, respectively.¹⁷ The proposed tariff language reflects input received in this process.

III. PROPOSED TARIFF REVISIONS

A. Use of available transfer capability for EIM transfers.

The initial implementation of the Energy Imbalance Market relied upon PacifiCorp's making available merchant transmission ownership and contractual rights to support EIM transfers. This is known as the PacifiCorp interchange rights holder mechanism and is as embodied in both the PacifiCorp OATT¹⁸ and the CAISO tariff.¹⁹ This mechanism worked well for the PacifiCorp implementation, but other EIM Entities have expressed an interest in making unused transmission capability under their OATTs eligible for EIM transfers. Accordingly, the CAISO and stakeholders developed a mechanism to allow EIM Entities to use available transfer capability, as defined under an EIM Entity OATT, to support EIM transfers if it is not being used by transmission customers. This mechanism provides all EIM Entities the opportunity to realize the benefits of participating in the Energy Imbalance Market by using unscheduled transmission in an efficient manner.

Using available transfer capability for EIM transfers is the essence of the CAISO's proposal. Because NV Energy will use available transmission capacity for EIM transfers (as opposed to PacifiCorp's use of transmission capacity provided by interchange rights holders), the CAISO must modify the EIM design to accommodate such an approach. NV Energy included the necessary supporting provisions in its OATT, and the Commission approved them.²⁰ The Commission expressly found that using available transfer capacity to support EIM transfers does not confiscate the rights of NV Energy's OATT customers.²¹ Here the CAISO simply proposes to make a conforming change to its tariff to facilitate the use of available transfer capability for EIM transfers and effectively implement a general concept that the Commission has already approved.

¹⁶ See [revised tariff language](#).

¹⁷ See [further comments on tariff language](#).

¹⁸ PacifiCorp OATT, Attachment T, section 5.2.

¹⁹ CAISO Tariff, section 29.17(f).

²⁰ *NV Energy*, 151 FERC ¶ 61,131 at PP 116-18 (2015).

²¹ *Id.* at P 116.

1. EIM transfer limit constraints.

The EIM transfer limit ensures that imbalance energy transfers between EIM balancing authority areas are within the transmission capability made available to the Energy Imbalance Market. Currently, tariff section 29.17(f) limits EIM transfers according to the aggregate transmission rights made available to support EIM transfers. This limit was appropriate for transfers among the CAISO and PacifiCorp balancing authority areas because there is a single path between each balancing authority area. However, as more balancing authority areas participate in the Energy Imbalance Market, there will be multiple potential transfer paths among the balancing authority areas, and not all balancing authority areas will use the same interchange rights holder mechanism as PacifiCorp. For example, as noted, NV Energy will use available transmission capability over multiple intertie scheduling points to support EIM transfers between itself, the CAISO, and PacifiCorp East. The CAISO must modify its tariff to accommodate the approach approved for NV Energy in order to maximize the EIM transfers among balancing authority areas. Thus, the CAISO is proposing to revise section 29.17(f) to provide for consideration of EIM transfer limits separately for each intertie scheduling point. In order to accommodate NV Energy's participating in the Energy Imbalance Market in October 2015, the proposed changes are needed by that time.

Currently, in the fifteen-minute market and in the real-time dispatch, the CAISO enforces intertie scheduling limits to ensure energy schedules do not exceed each intertie's transmission capability. Under the proposed tariff revisions, the CAISO will similarly apply these intertie scheduling limits to interties used in the Energy Imbalance Market. In addition, the CAISO will continue to enforce EIM transfer limits to ensure that EIM transfers across EIM interties do not exceed transmission available to support EIM transfers (either through interchange rights or available transfer capability) and the intertie scheduling limit. All resources within the EIM footprint and at EIM interties compete equally to ensure the most economically efficient use of transmission up to intertie scheduling limits.

Generally, the CAISO will establish the EIM transfer limit based on information from the EIM entity. If two EIM Entities share an intertie, the CAISO will set the intertie scheduling limit equal to the lowest available transfer capability value, as determined by the EIM entity that submits the e-tag for the transfer on that intertie, and will enforce the individual EIM transfer limit for each EIM entity while allowing energy to wheel through the respective EIM entities based on the transmission made available for use in the Real-Time Market. The CAISO discussed the details of the procedure with stakeholders and will include

them in the business practice manual for the Energy Imbalance Market.²² These procedures appropriately belong in the business practice manual because they are mere implementation details.

Taken together, these rules ensure that EIM transfers, regardless of whether supported by interchange rights or available transfer capability, remain within path limits, are managed consistent with Western Electricity Coordinating Council scheduling practices, and only use the transmission capability made available to the Energy Imbalance Market.

2. EIM Transfer Parameter

In addition, because there may be multiple potential intertie scheduling paths for scheduling EIM transfers, the proposed tariff provisions enable the CAISO to include a de minimis transfer-related cost as a parameter in the optimization that will enable the optimization to function more effectively. Stated differently, because the optimization can account for EIM transfers on multiple paths with different transfer limits, the CAISO needs a parameter to determine efficiently on which E-tags to schedule the EIM transfer for accounting purposes. The objective of the EIM transfer parameter is not to recover transmission revenues between EIM balancing authority areas; rather, the optimization uses the cost to select the optimal path or paths for EIM transfers.

The CAISO will set the parameter, which is not an explicit cost, at a level that reflects the relative priorities of various paths for scheduling EIM transfers and will allow the market optimization to differentiate the value of scheduling on more optimal paths rather than less optimal paths. This will enable the calibration to produce a more robust solution. The CAISO will administratively determine the parameter costs and set them as low as possible while allowing various paths' priorities to be recognized; these costs will reflect efficiency gains of scheduling over the most optimal paths.

Although the transfer parameter cost will not be explicitly settled, it can affect locational marginal prices in two ways: (1) the transfer cost will be reflected in locational marginal prices if an individual EIM transfer limit is binding; and (2) the transfer parameter cost can influence the market dispatch and consequently affect locational marginal prices. Any impact on rates will be insignificant for the reasons discussed below.

Because the market optimization includes the transfer parameter cost, during market simulation prior to the effective date of the proposed tariff revisions, the CAISO will determine the appropriate level of the transfer cost by balancing the benefits of including transfer costs with the impact to locational

²² *Supra*, n. 9 and 10.

marginal prices. The CAISO will document the applicable transfer parameter costs for individual paths in the Business Practice Manual for the Energy Imbalance Market. In addition, in response to stakeholder concerns regarding the potential level of the transfer parameter cost, the CAISO proposes in new section 29.17(h) to cap the cost of any transfer parameter at \$0.10 per MWh. Publication in the Business Practice Manual will ensure full transparency of the implementation detail, with the goal of implementing the lowest values possible, while producing a robust solution. The maximum transfer cost is not a rate *per se*, is not associated with a particular charge to ratepayers, is not associated with a particular cost, and its purpose is not cost recovery. Rather, its purpose is merely to ensure optimal and efficient use of and scheduling of EIM transfers in the market software.

With NV Energy and other balancing authority areas joining the Energy Imbalance Market, the number of intertie schedules to support EIM transfers will increase substantially, resulting in a large number of individual transfer paths. This will require a large number of transfer cost parameters that the CAISO will need to re-calibrate from time to time for reasons such as changes in network topology, changes in transmission rights, and seasonality. Under these circumstances, the CAISO needs flexibility. It would be administratively unwieldy, and unduly limit the CAISO's ability to make timely and necessary changes to the transfer parameters, if the CAISO were to include each and every one of the specific transfer cost parameters in the tariff. Including a maximum transfer parameter value cost in the tariff will ensure that despite this increase in the number of transfer paths, the market can keep pace with changes and reach a unique and efficient solution that optimizes the use of transmission capability made available to the Energy Imbalance Market. Further, capping the potential level of any individual transfer cost parameter at \$0.10 in the tariff ensures that any impact on rates will be *de minimis* because all individual path transfer cost parameters must be between \$0.0001 cents and \$0.10. Thus, the individual transfer cost parameters themselves cannot impact rates beyond what is specified in the tariff.

3. Financial Value of EIM Transfer in the Real Time Imbalance Energy Offset

The CAISO also proposes to revise section 11.5.4 to provide for the calculation of the financial value of EIM transfers that will be used as part of the financial settlement of the real-time imbalance energy offset for each balancing authority area in the Energy Imbalance Market. The CAISO does not settle EIM transfers explicitly because a transfer represents the imbalance energy of resources supporting the EIM transfer, which the CAISO settles with the applicable scheduling coordinators at its location. However, to calculate the real-time imbalance energy offset for a balancing authority area, the CAISO settlement calculations must consider the financial value of the EIM transfer in

order to balance supply and demand settlements within the balancing authority area. The CAISO proposes to use the system marginal energy cost, which is a component of the locational marginal price, to represent the value of the energy of the EIM transfer. This is appropriate because the CAISO will already have settled the real-time congestion offset and real-time loss offset, leaving energy as the only component of the locational marginal price that remains and can cause a neutrality adjustment that will be settled through the real-time imbalance energy offset.

4. Flexible ramping constraint combinations.

Under current section 29.34(m), the CAISO calculates a flexible ramping requirement and enforces a flexible ramping constraint for each balancing authority area in the EIM area and for all combinations of such balancing authority areas. Currently, there are seven combinations among the CAISO and PacifiCorp balancing authority areas. As new entities join the EIM, however, the number of requirements and constraints will rapidly increase. The number of combinations will increase to fifteen with the addition of NV Energy, thirty-one with the addition of Puget Sound Energy, and then sixty-three with the addition of Arizona Public Service Company. The number will increase as the number of EIM entities increases further, resulting in an unmanageable number of combined constraints.

Therefore, the CAISO proposes to reduce the number of flexible ramping requirements and constraints to a manageable number. Under the proposed revision to section 29.34(m), the CAISO will only calculate a flexible ramping requirement and enforce a flexible ramping constraint for each individual balancing authority area and for the combination of all balancing authority areas in the EIM area. The individual balancing authority constraint is set to the individual balancing authority area's flexible ramping requirement minus the EIM transfer capability with other balancing authority areas in the EIM. If the EIM transfer capability exceeds the individual balancing authority area's flexible ramping requirement, the CAISO will not enforce the individual balancing authority area's constraint. As the transfer capability within the EIM area increases, the need to meet a balancing authority area's flexible ramping requirement with resources internal to its balancing authority area or a combination of EIM balancing authority areas is reduced. However, the CAISO must still maintain the individual balancing authority area constraint because if the balancing authority area fails the resource sufficiency evaluation, incremental EIM transfers are restricted and the flexible ramping requirement must be met by resources internal to the balancing authority area.

B. Greenhouse gas bidding by EIM participating resources.

Energy generated in California or imported into California is subject to California's greenhouse gas ("GHG") regulations. Current section 29.32 of the

CAISO tariff allows EIM resources to include an adder in their bids to obtain compensation for costs incurred under California GHG regulations for energy transferred into California. In this way, GHG costs do not affect the locational marginal price in the balancing authority area of an EIM Entity outside of California. The GHG adder is not mitigated, and the only restriction is that the combined energy bid and GHG adder must be less than or equal to the \$1000 energy bid cap.

The CAISO initially contemplated that EIM participating resources desiring to avoid being deemed to support EIM transfers into California could do so by submitting high bid adders to price themselves out of the market. The Commission did not accept this proposal and, in the June 19 Order, directed the CAISO to add a mechanism to allow an EIM participating resource scheduling coordinator to opt out completely from consideration for EIM transfer into the CAISO. In addition, the Commission directed the CAISO to implement a cost-based GHG bid adder mechanism.²³

Proposed section 29.32 complies with this directive in a way that also provides some additional flexibility requested by stakeholders. Under the revisions, an EIM participating resource may submit a single MW quantity and single bid price on an hourly basis to express its willingness to serve as the source of an EIM transfer into the CAISO balancing authority area and be subject to California's GHG regulations. If the EIM participating resource does not submit a bid adder, or submits a bid adder with a zero MW quantity, the market will not deem the EIM participating resource delivered into CAISO.²⁴ Thus, although the CAISO is not proposing an explicit flag, an EIM participating resource, through its bid, can accomplish the same objective of not being considered for EIM transfers by bidding zero MW. This satisfies the Commission's directive in a way that provides enhanced flexibility to participants to transfer or not transfer energy into the CAISO.

To comply with the Commission's directive to implement a cost-based GHG bid adder, the CAISO proposes tariff revisions that allow an EIM participating resource scheduling coordinator to submit an hourly bid adder at or below its daily maximum GHG cost cap as determined by the CAISO, but not less than zero.

²³ June 19 Order at PP 239-40.

²⁴ The MW quantity is independent of the resource's energy bid curve; thus, only the output of the EIM participating resource up to the MW quantity bid is eligible for delivery to the CAISO balancing authority area.

The CAISO will calculate a daily maximum GHG cost using a process similar to the process the CAISO uses to calculate the GHG cost included in the default energy bids of CAISO resources.²⁵ This includes a variable cost option and a negotiated rate option. However, rather than calculating a cost curve as is done for default energy bids within the CAISO,²⁶ the CAISO will calculate a single daily maximum cap for the EIM participating resource.

Under the variable cost option, on a daily basis, the CAISO proposes to calculate each unit's maximum GHG cost based on the unit's maximum heat rate as registered with the CAISO, the applicable GHG allowance price, and the resource's emission rate. These are the same three components that the CAISO uses to calculate the greenhouse gas cost included in the default energy bid curves of CAISO resources. The standard GHG emission rate is documented in the US EPA Subpart C default emission factors.²⁷ Similar to the default energy bids of CAISO resources, the CAISO will apply a 10 percent adder to the calculated maximum cost.²⁸ The EIM participating resource scheduling coordinator must submit a GHG bid price equal to or less than the maximum GHG cap calculated under this approach, but not less than zero. This proposal complies with the Commission's guidance that the GHG bid adder be based on the expected cost of GHG compliance obligations.

Some stakeholders expressed concern that the proposed GHG bidding rules provide more flexibility than is necessary to comply with Commission's order and could limit EIM transfers into California. The CAISO has concluded that the flexibility will enhance, rather than deter, EIM transfers into California. The Commission did not dictate exactly how the CAISO was to comply with its directives in the June 19 Order, and the CAISO's proposed approach is within the scope of compliance directives

²⁵ See section 39.7.1 of the CAISO tariff.

²⁶ Unlike energy bids which can use a ten segment bid curve, the GHG bid adder contains only one MW value and one bid price for the operating hour.

²⁷ CARB's regulation referenced these [USA EPA figures](#) as published in the Federal Register on December 17, 2010.

²⁸ In addition to approving a 10 percent adder for purposes of calculating default energy bids in the CAISO market, the Commission has approved 10 percent adders in other contexts. See, e.g., *San Diego Gas & Elec. Co. v. Sellers of Energy and Ancillary Services*, 96 FERC ¶ 61,120 at 61,519 (2001); *Public Serv. Co. of New Mexico*, 95 FERC ¶ 61,481 at 62, 714 (2001); *Niagara Mohawk Power Corp.*, 86 FERC ¶ 61,009 at 61,025 (1999); *Terra Comfort Corp.*, 52 FERC ¶ 61,241 at 61,841 (1990). The 10 percent adder can account for costs that are inexact or difficult to quantify, can serve as a margin of error, and can ensure cost recovery.

The CAISO notes that the Department of Market Monitoring (“DMM”) supports the CAISO’s proposal for the GHG flag and cost-based bid adder. The DMM noted that some stakeholders expressed concerns about the need for flexibility to adjust the GHG flag on an hourly basis (rather than daily) and requested DMM to review this proposed design feature for potential gaming or other detrimental market impacts. DMM reviewed this issue and saw “limited value or need for this additional hourly flexibility” and did “not have any significant concerns about potential gaming or other detrimental impacts of this bidding flexibility.”²⁹

The CAISO notes that in the June 19 Order, the Commission recognized that any concerns about possible abuse of the GHG adder would be limited by competition among resources bidding into California.³⁰ Specifically, bids with high GHG adders will not be dispatched for sales in California unless their total bid price is less than the marginal price for energy on the CAISO system. The Commission also recognized that such competition would lessen concerns regarding any over-recovery of GHG compliance costs. The CAISO agrees that resources will be expected to bid below the cap because the compliance obligation is based upon the average annual emissions, which will always be less than the maximum emission rate, not on the emission in a given 15-minute or 5-minute interval. Finally, the Commission noted that its directive that the CAISO implement a cost-based GHG adder, which the CAISO proposes herein, would address any other concerns regarding over-recovery.³¹ The Commission found the greenhouse gas adder component of the default energy bid to be just and reasonable and provide suppliers with a reasonable opportunity to recover their costs.³² For similar reasons, the Commission should approve the proposed GHG adder for EIM.

C. EIM administrative charge.

The CAISO grid management charge is the mechanism by which the CAISO recovers ongoing operational costs from CAISO market participants. The EIM administrative charge is the mechanism the CAISO uses to recover ongoing operational costs from EIM market participants. The CAISO’s objective in the EIM administrative charge is to charge CAISO market participants and EIM market participants the same cost for similar real-time market services. Currently, the CAISO’s grid management charge is made up of three components or services: (1) market services; (2) system operations; and (3)

²⁹ [Comments on Energy Imbalance Market Year 1 Enhancements Draft Final Proposal](#), Department of Market Monitoring, March 17, 2015.

³⁰ June 19 Order at P 239.

³¹ *Id.*

³² *Cal. Indep. Sys. Operator Corp.*, 141 FERC ¶61,237 (2012).

congestion revenue rights services. The market services charge encompasses all activities involved with clearing supply and demand in both the day-ahead and real-time markets. The system operations charge encompasses all activities associated with dispatching energy on the grid and balancing area activities such as transmission planning. The third component, congestion revenue rights services, encompasses activities involving congestion revenue rights.

When the CAISO implemented the Energy Imbalance Market, it charged EIM market participants an EIM administrative rate of \$0.19/MWh applied to the sum of (1) the total gross absolute value of 15-minute market instructed imbalance energy, gross absolute value of real-time dispatch energy imbalance, and gross absolute value of uninstructed imbalance energy of the EIM market participant's supply; and (2) the gross absolute value of uninstructed imbalance energy of all the EIM market participant's demand. The CAISO derived the \$0.19/MWh fee by determining the amount attributable to the real-time activities for the market services and systems operation cost components of the grid management charge. The EIM tariff also included a minimum EIM administrative charge to ensure that the CAISO was able to cover the costs of providing EIM service regardless of the quantity of instructed and uninstructed imbalance energy. Pursuant to tariff section 29.11(i)(2), the CAISO calculated the minimum EIM administrative charge by applying \$0.19/Mwh to the sum of (1) five percent of the total gross absolute value of supply of all EIM market participants, plus (2) five percent of the total gross absolute value of demand of all EIM market participants. If the amount of the EIM administrative charges to the EIM market participants was less than minimum EIM administrative charges, the CAISO would assess the difference to each EIM entity scheduling coordinator.

During the initial months of the Energy Imbalance Market's operation, the CAISO assessed EIM market participants considerably more in EIM administrative charges than the CAISO had anticipated under the EIM administrative charge rate structure. The unanticipated amounts of EIM administrative charges that the CAISO assessed were inconsistent with the CAISO's and stakeholders' intent to design a charge that would bill EIM market participants an amount comparable to CAISO market participants using the same real-time services. In response, on January 14, 2015, the CAISO filed a tariff amendment, which the Commission accepted,³³ as an interim measure, under which the CAISO would no longer assess EIM market participants an administrative charge based on volumes of imbalance energy and would instead only charge EIM scheduling coordinators the existing minimum EIM administrative charge pending redesign of the EIM administrative charge in the stakeholder initiative that resulted in the instant tariff amendment filing. The CAISO also noted that applying a single EIM administrative charge to all

³³ *Cal. Indep. Sys. Operator Corp.*, 150 FERC ¶ 61,185 (2015) (Letter Order).

imbalances in the EIM balancing authority area, allocated cost to EIM market participants that is greater than the charge that would otherwise be allocated for the same services to CAISO market participants. This occurs because the billing determinant volumes used for the CAISO market services rate and system operations rate are lower than the EIM administrative rate determinant.

The CAISO proposes in this amendment to align the EIM administrative charge with the CAISO grid management charge. This will result in the CAISO charging CAISO market participants and EIM market participants the same rate for similar real-time services. Under revised tariff section 29.11(i), the EIM administrative charge will comprise two separate charges: the EIM market services charge and the EIM system operations charge. This is warranted because the billing determinants differ between the two charges. Each charge will consist of the product of the parallel CAISO charge (market services or system operations) and a real-time market percentage set forth in Appendix F of the CAISO tariff. The CAISO will allocate the EIM market services charge to gross instructed imbalance energy and allocate the EIM system operations charge to gross real-time energy flow, which is the absolute difference between the meter and the base schedule. These billing determinants for the two charges are consistent with the Commission-approved billing determinants for the market services and system operations components of the CAISO Grid Management Charge.

The CAISO proposes not to charge active EIM market participants a minimum charge because if CAISO costs or forecasted volumes change, the CAISO will update the EIM market services rate or EIM systems operations rate when it updates the CAISO grid management charge rates. The CAISO notes that, under the CAISO's existing tariff, it can update the rates for the CAISO market services charge and CAISO systems operation charge, as needed, on a quarterly basis if actual revenue collected changes by the greater of two percent or \$1 million.

In the 2015 cost of service study underlying the CAISO's Commission-approved 2015 GMC, the CAISO calculated the percentage of costs that would apply to the energy imbalance market. The EIM portion of the CAISO market services rate is those costs attributable to the real-time market and not the day-ahead market. The EIM portion of the CAISO system operations rate is those costs attributable to the real-time market and not balancing authority area services. The CAISO calculates the EIM market services rate by multiplying the CAISO market services charge by the real-time market percentage which is 61%. The EIM system operations rate is calculated by multiplying the CAISO system operations charge by the real-time market percentage of 45%. The cost support for this charge is included as Attachment C to this filing. This is the same type of data the CAISO has used to justify the market services and systems operations components of its grid management charge.

The CAISO now proposes to assess the existing minimum charge only if an EIM entity notifies the CAISO that it is withdrawing from the Energy Imbalance Market and requests suspension of the Energy Imbalance Market in the EIM entity's control area. During the six month termination period following notification of withdrawal, the CAISO will allocate both the EIM market services charge and the EIM system operations charge to five percent of the EIM entity's load and exports plus five percent of its generation and imports. As discussed above, the tariff already includes a minimum charge. However, the CAISO now would only apply it to entities that are exiting the Energy Imbalance Market. This reflects that the CAISO will incur operating costs in connection with the EIM entity transferring out.

D. Resource sufficiency evaluation.

Section 29.34(m) of the CAISO tariff includes a resource sufficiency evaluation to ensure that each EIM balancing authority area has sufficient energy bid range from participating resources to meet the 15-minute net-load forecast and ramping requirements independently prior to the start of the operating hour. If a balancing authority area fails the resource sufficiency evaluation, incremental EIM transfers with other EIM balancing authority areas are not allowed. To provide equitable treatment among all EIM balancing authority areas, the CAISO proposes to revise section 29.34(m) so that it will also perform the resource sufficiency evaluation on the CAISO balancing authority area. The test will ensure there is sufficient ramping capability within the CAISO to meet 15-minute net load changes following the Hour Ahead Scheduling Process. In the event the CAISO fails the tests, additional EIM transfers into the CAISO above the last FMM interval of the preceding operating hour will not be allowed. This is the same treatment for all balancing authority areas in the EIM area.

In addition, the CAISO proposes to enhance the resource sufficiency evaluation by including the historical scheduling error of imports and exports included in the base schedules. The CAISO does not require hourly CAISO schedules from day-ahead and Hour Ahead Scheduling Process to be tagged until T-20. Likewise, the CAISO does not require hourly base schedules from EIM entities to be tagged until T-20. As a result, the assumed hourly schedules used in the resource sufficiency evaluation may differ from those that are actually tagged. When there is a difference, a balancing authority area may have insufficient upward or downward bid range from participating resources to meet its imbalance energy.

Failure to tag an hourly schedule at the base schedule amount will increase the need for imbalance energy. The CAISO proposes two additional mechanisms to ensure that differences between intertie schedules at T-40 and the final tagged schedule do not allow leaning on the EIM.

First, the CAISO proposes to calculate and publish, for each balancing authority area, the hourly scheduling error of imports and exports whose final tag schedules differ from either the EIM base schedule or CAISO hourly schedules. The CAISO will calculate this hourly scheduling error between the 15th day of the prior month and the 15th day of the current month and will include it in the hourly capacity test of the following month. This will ensure transparency across the EIM area regarding the difference between schedules considered in the hourly resource sufficiency evaluation and will allow the EIM entity to make necessary arrangements to increase the bid range of EIM participating resources prior to the start of the upcoming month. The CAISO considered calculating the hourly scheduling error on a rolling basis; however, this would provide insufficient time for the EIM entity to make business process or other changes to increase the bid range from participating resources which could result in additional failures of the resource sufficiency evaluation.

Second, under the proposed revisions, if a balancing authority area has historically high import or export schedule changes between T-40 and T-20, the CAISO will add an hourly block schedule difference to the capacity test of the resource sufficiency evaluation. The capacity test ensures that the bid range from participating resources can meet the 15-minute granular net load forecast for the operating hour. For example, assume a balancing authority area historically has 100 MW of imports which it has not tagged consistently with the base schedules. The balancing authority area would need to have a sufficient upward bid range of EIM participating resources to meet the load forecast, plus an additional 100 MW available to replace the potential 100 MW reduction in supply from imports.

On a monthly basis, according to procedures that the CAISO will set forth in the business practice manual for the Energy Imbalance Market, the CAISO will calculate for each EIM Entity Balancing Authority Area histograms of the percentage of the difference between imports and exports scheduled at T-40 and the final imports at T-20 based on the E-Tags submitted at T-40 and T-20. In addition, the CAISO will document the hours used to establish the histogram in the business practice manual for the energy imbalance market.³⁴ These are implementation details that do not significantly affect rates and, thus, appropriately belong in a business practice manual. Based on this information, the CAISO will calculate any additional incremental and decremental requirements for the capacity test component of the resource sufficiency evaluation and apply them prospectively.

³⁴ This is discussed further in the [Draft Final Proposal](#) at 25-26

E. Settlement of EIM non-participating resources.

Under the Energy Imbalance Market structure, non-participating resources can receive fifteen minute market schedule changes resulting from manual dispatches or physical changes in the resource known prior to the start of the fifteen minute market interval. The tariff considers these fifteen minute market schedule changes as instructed imbalance energy, and the CAISO settles the deviation from base schedules at the fifteen minute market price. In the real-time dispatch, the CAISO considers any known manual dispatch different than the fifteen minute schedule and treats it as instructed imbalance energy that is settled at the real-time dispatch price. The CAISO settles any remaining difference between the fifteen minute schedule and the metered demand as uninstructed imbalance energy at the real-time dispatch price.

This process treats fifteen minutes schedules as block schedules, which do not reflect the operational characteristics of the non-participating resource, such as the resource's ramp rate. This is not consistent with the calculation of expected energy from CAISO resources that self-schedule their day-ahead award into the real-time market, even though CAISO resources that self-schedule in the real-time are operationally equivalent to a non-participating resource with a base schedule. The resulting inconsistency in determining uninstructed imbalance energy affects the determination of each balancing authority area's pro-rata share of bid cost recovery uplift and the real-time imbalance energy offset, because uninstructed imbalance energy is used as the denominator in those determinations. Therefore, the CAISO proposes to revise sections 29.11(b) and 29.11(f), which govern the settlement of imbalance energy and bid cost recovery, to align the calculation of expected energy across the EIM area. This will ensure consistent treatment of similarly situated resources. The proposed revision includes additional energy categories that apply to CAISO resources that self-schedule in the real-time market in determining changes from base schedule of EIM nonparticipating resources.

Expected energy is the total energy that the market anticipates that a resource will generate or consume, based on the dispatch³⁵ of that resource as calculated by the real-time market RTM and modified by any applicable dispatch operating point corrections. Expected energy includes the energy scheduled in the hourly base schedule and it is calculated "after-the-fact," *i.e.*, after the operating day.

³⁵ Non-participating resources, while not providing economic bids, have a dispatch instruction that the market calculates according to the physical characteristics of the resource. While the non-participating resource is not responding to the dispatch instruction, the calculated value is used to settle deviations from base schedules

The market calculates expected energy from generating units, system resources, resource-specific system resources, non-generator resources, and participating loads (e.g., pumps) based on the hourly base schedule and the dispatch operating point trajectory for (1) the three-hour period around the target trading hour (including the previous and following hours), (2) the applicable fifteen minute market or real-time dispatch locational marginal price for each dispatch interval of the target trading hour, and (3) any manual dispatch. All dispatch intervals are five minutes in duration.

The CAISO uses five expected energy categories in the fifteen minute market and real-time dispatch to reflect the operational characteristics of a non-participating resource: standard ramping energy; ramping energy deviation; derate energy; manual dispatch energy; and optimal energy.³⁶

The proposed revisions to section 29.11(b) and 29.11(f), and new section 29.11(o), incorporate these types of expected energy by adopting the calculations used for instructed and uninstructed imbalance energy and bid cost recovery in section 11.5 of the CAISO tariff, but treat EIM base schedules as day-ahead schedules. The revisions include or exclude manual dispatch energy as necessary in order to ensure comparable treatment of CAISO self-schedules and EIM non-participating resources.

F. Administrative Prices.

On December 18, 2014, the CAISO Board approved a pricing enhancements proposal stemming from a stakeholder initiative on administrative pricing rules³⁷ that includes revisions to the administrative pricing rules used during market disruptions. Because the Energy Imbalance Market is an extension of the CAISO real-time market, comparable administrative pricing rules should apply to the Energy Imbalance Market. The energy imbalance market year one enhancements approved by the CAISO Board in March 2015 include revisions to EIM tariff section 29.7, regarding the establishment of administrative prices in market disruptions, to conform the section with revisions to section 7 of the CAISO tariff adopted by the Board in December 2014 and in compliance with Commission directives. Because the CAISO has not yet filed the section 7 tariff revisions, revising section 29.7 would be premature. The CAISO will file the revision to section 29.7 when it files the revisions to section 7.

³⁶ Additional information on the calculation of energy types is available in [Attachment C of the Business Practice Manual for Market Operations](#)

³⁷ See [Administrative Pricing Rules Initiative](#).

IV. Effective Date and Request for Waivers

The CAISO requests that the Commission permit all changes other than those to sections 29.17 and 29.32 to become effective October 1, 2015, *i.e.*, the day in which NV Energy is scheduled to begin participation in the Energy Imbalance Market. The CAISO requests that the Commission make the proposed amendment to sections 29.17 and 29.32 effective on September 15, 2015. In addition, because the requested effective date associated with sections 29.17 and 29.32 supports planned parallel operations with NV Energy and remain subject to implementation schedules, the CAISO commits to submit a further filing if the actual effective date slips by a few days to account for implementation planning.

In addition, because the proposed EIM administrative charge included in this filing is a formula rate, the CAISO requests a waiver of section 35.13 of the Commission regulations, including waivers of the requirements to submit full Period I and Period II data and workpapers and cost-of-service statements in sections 35.13(c), 35.13(d)(1), (2), and (5), and 35.13(h). These waivers are justified because the EIM administrative charge derives from the Commission-approved CAISO's grid management charge, which is based on a revenue requirement vetted through the budget process with stakeholders and trued up to actual costs. The CAISO has also provided details about the cost of service analysis that is the basis for the EIM administrative charge. The Commission has previously granted waivers of the requirements to provide such data in a number of cases involving transmission formula rates.³⁸

³⁸ See, e.g., *PPL Elec. Utils. Corp.*, 125 FERC ¶ 61,121, at PP 40-41 (2008); *Pub. Serv. Elec. & Gas Co.*, 124 FERC ¶ 61,303, at PP 23-24 (2008); *Okla. Gas & Elec. Co.*, 122 FERC ¶ 61,071 (2008) at PP 6, 41; *Commonwealth Edison Co.*, 119 FERC ¶ 61,238, at P 94 (2007).

V. COMMUNICATIONS

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VI. SERVICE

The CAISO has served copies of this filing on the California Public Utilities Commission, the California Energy Commission, and all parties with scheduling coordinator agreements under the CAISO tariff. In addition, the CAISO has posted a copy of the filing on the CAISO website.

VII. CONTENTS OF 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	Declaration of Michael Epstein and Cost of Service Discussion Papers

VIII. CONCLUSION

For the reasons set forth in this filing, the CAISO respectfully requests that the Commission grant waiver of its notice requirements and issue an order on an expedited basis that accepts the tariff revisions proposed in the filing effective as of September 15, 2015 and October 1, 2015, as set forth herein.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that I have caused the foregoing document to be served upon the parties listed on the official service list in the captioned proceeding, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2010).

Dated at Washington, D.C. this 25th day of June, 2015.

/s/ Michael E. Ward

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