153 FERC ¶ 61,087
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Norman C. Bay, Chairman;
Philip D. Moeller, Cheryl A. LaFleur,
Tony Clark, and Colette D. Honorable.

California Independent System Operator Corporation — Docket No. ER15-1919-002

ORDER CONDITIONALLY ACCEPTING PROPOSED TARIFF REVISIONS

(Issued October 26, 2015)

1. On June 15, 2015 (June 15 Filing), as amended on June 25, 2015 (June 25 Amendment), July 1, 2015 (July 1 Amendment), and August 21, 2015 (Deficiency Response),[1] the California Independent System Operator Corporation (CAISO) submitted proposed tariff revisions under section 205 of the Federal Power Act (FPA),[2] resulting from Phase One of CAISO's Energy Imbalance Market (EIM) Year One Enhancements initiative. As discussed below, we accept the proposed tariff revisions, subject to condition, to become effective October 27, 2015, as requested.

# I. **Background**

2. The EIM enables entities with balancing authority areas (BAAs) outside of CAISO to voluntarily take part in the imbalance energy portion of the CAISO locational marginal price (LMP)-based real-time market alongside participants from within the CAISO BAA.[3] PacifiCorp's two BAAs—PacifiCorp East and PacifiCorp West—were the initial participants in the EIM, commencing financially-binding operations on

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[1] As noted below, on July 30, 2015, Commission staff issued a deficiency letter directing CAISO to provide additional information regarding certain of CAISO's proposals in the June 15 Filing. On August 21, 2015, CAISO filed its Deficiency Response.

[2] 16 U.S.C. § 824d (2012).

[3] *Cal. Indep. Sys. Operator Corp.*, 147 FERC ¶ 61,231, *order on reh'g*, 149 FERC ¶ 61,058 (2014).

November 1, 2014.[4] NV Energy, the second entity to join the EIM, is currently undertaking preparations to join the EIM,[5] and Puget Sound Energy, Inc. (Puget) and the Arizona Public Service Company (APS) have stated their intentions to join the EIM on October 1, 2016. Both Puget and APS have executed implementation agreements with CAISO.[6] In addition, Portland General Electric[7] and Idaho Power Company[8] have announced plans to explore EIM participation.

## II. <u>CAISO's Filing</u>

3. CAISO proposes modifications to its tariff resulting from the EIM Year One Enhancements stakeholder initiative intended to improve functionality, allow participation of additional BAAs, address issues encountered during the first year of EIM operations, and comply with Commission directives in the order approving the implementation of the EIM.[9] Specifically, as discussed in more detail below, the proposed revisions seek to: (1) reflect several changes to accommodate the use of

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[4] *PacifiCorp*, 147 FERC ¶ 61,227 (conditionally accepting in part and rejecting in part revisions to PacifiCorp's open access transmission tariff to enable participation in the EIM), *order on reh'g,* 149 FERC ¶ 61,057 (2014), *reh'g rejected*, 150 FERC ¶ 61,084 (2015).

[5] *Nevada Power Co.*, 151 FERC ¶ 61,131 (2015) (conditionally accepting revisions to NV Energy's open access transmission tariff to enable participation in the EIM).

[6] *See Cal. Indep. Sys. Operator Corp.*, 151 FERC ¶ 61,158 (2015) (accepting EIM implementation agreement between CAISO and Puget); *Cal. Indep. Sys. Operator Corp*, 152 FERC ¶ 61,090 (2015) (accepting EIM implementation agreement between CAISO and APS).

[7] CAISO September 18, 2015 Market Notice: ISO Welcomes Portland General Electric Plans to Pursue EIM, available at: https://www.caiso.com/Documents/ISOWelcomesPortlandGeneralElectricPlanstoPursueEIM.htm.

[8] CAISO September 25, 2015 Market Notice: ISO Welcomes Idaho Power Plan to Explore EIM, available at: https://www.caiso.com/Documents/ISOWelcomesIdahoPowerPlanToExploreEIM.htm.

[9] *Cal. Indep. Sys. Operator Corp.*, 147 FERC ¶ 61,231, at PP 239-40 (2014) (CAISO EIM Order).

available transfer capability (ATC) for EIM Transfers; [10] (2) provide a cost-based greenhouse gas bid adder mechanism, as previously directed by the Commission;[11] (3) align the EIM administrative charge with the grid management charge to ensure CAISO market participants and EIM market participants pay the same rate for similar real-time services; (4) improve the evaluation of resource sufficiency;[12] and (5) revise the settlement of imbalance energy and bid cost recovery.

### A. Use of ATC for EIM Transfers

4. CAISO proposes several tariff revisions to facilitate the use of ATC for EIM Transfers. CAISO explains that it must modify the EIM design to accommodate NV Energy's plan to use ATC for EIM Transfers instead of using transmission capacity provided by interchange rights holders, as PacifiCorp has done. First, CAISO proposes to revise tariff section 29.17(f) to provide for consideration of EIM Transfer limits at each intertie scheduling point in order to maximize EIM Transfers among BAAs.[13] CAISO explains that it was originally appropriate to limit EIM Transfers according to the aggregate transmission rights made available to support EIM Transfers between CAISO and PacifiCorp, because there is a single path between each BAA. However, CAISO states that as additional BAAs participate in the EIM, there will be a greater number of potential transfer paths among the BAAs, and not all BAAs will use the interchange rights holder mechanism adopted by PacifiCorp.[14]

5. Under the proposed revisions, CAISO will apply the same intertie scheduling limits currently enforced in the 15-minute market and real-time dispatch in the EIM to

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[10] CAISO's tariff defines an EIM Transfer as "[t]he transfer of Energy in Real-Time between an EIM Entity Balancing Authority Area and the CAISO Balancing Authority Area, or between EIM Entity Balancing Authority Areas, using transmission capacity made available to the Real-Time Market through the Energy Imbalance Market. The EIM Transfer is not a Real-Time Interchange Export Schedule or a Real-Time Interchange Import Schedule." *See* CAISO Tariff, Appendix A (Master Definition Supplement).

[11] CAISO EIM Order, 147 FERC ¶ 61,231 at P 240.

[12] CAISO June 25Amendment at 1.

[13] *Id*. at 4-5; CAISO, Proposed Tariff § 29.17(f).

[14] CAISO notes that NV Energy will use ATC over multiple intertie scheduling points to support EIM Transfers between itself, CAISO, and PacifiCorp East.

ensure energy schedules do not exceed each intertie's transmission capability. CAISO states that it will continue to enforce EIM Transfer limits to ensure that EIM Transfers across EIM interties do not exceed transmission available to support EIM Transfers— through either interchange rights or ATC— and the intertie scheduling limit. In addition, CAISO proposes to set the intertie scheduling limit for an intertie shared by two EIM Entities[15] equal to the lowest ATC value, as determined by the EIM Entity that submits the e-Tag for the transfer on that intertie.[16] Further, CAISO proposes to enforce the individual EIM Transfer limit for each EIM Entity while allowing energy to wheel through the respective EIM Entities based on transmission made available for use in the real-time market.[17]

6. CAISO states that its proposal includes a transfer-related cost as a parameter in the market optimization because there may be multiple potential intertie scheduling paths for scheduling EIM Transfers.[18] CAISO states that the objective of the EIM Transfer schedule cost is to enable the optimization to select the optimal path or paths for EIM Transfers. CAISO proposes to set the schedule 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 as opposed to less optimal paths. CAISO proposes to determine the transfer schedule cost, which will be capped at $0.10 per MWh, by balancing the benefits of including transfer costs with the impact to LMPs.[19] CAISO notes that, although the transfer schedule cost will not be explicitly settled, it can affect LMPs in the following ways: (1) if an individual EIM

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[15] An EIM Entity is a balancing authority that opts to participate in the EIM. *See* CAISO Tariff, Appendix A (Master Definition Supplement).

[16] CAISO states that it will include the implementation details of this procedure in the business practice manual. CAISO June 25 Amendment at 6; CAISO, Proposed Tariff § 29.17(f).

[17] CAISO, Proposed Tariff § 29.17(f)(4).

[18] CAISO June 25 Amendment at 6; CAISO, Proposed Tariff § 29.17(g).

[19] CAISO proposes to document the applicable transfer schedule costs for individual paths in the business practice manual to ensure transparency, while providing CAISO flexibility to adjust the transfer schedule costs. CAISO Transmittal Letter at 7; CAISO, Proposed Tariff § 29.17(g).

Transfer limit is binding, the transfer cost will be reflected in the LMPs; and (2) the transfer schedule cost can affect market dispatch, and thus, affect LMPs.[20]

7. CAISO also proposes to revise tariff section 11.5.4 to improve 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 BAA in the EIM. Previously CAISO used the LMP of the pricing node at the corresponding EIM internal intertie to calculate the financial value of EIM Transfers, which includes congestion and losses. CAISO proposes to now use the system marginal energy cost, which is a component of LMP, to represent the value of the energy of the EIM Transfer.[21] CAISO explains that this is appropriate because 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.[22]

8. In addition, CAISO proposes to reduce the number of flexible ramping requirements and constraints. Specifically, CAISO proposes to revise tariff section 29.34(m) such that CAISO will only calculate a flexible ramping requirement and enforce a flexible ramping constraint for each individual BAA and for the combination of all BAAs in the EIM area.[23] Under the proposal, the individual BAA constraint will be set to the individual BAA's flexible ramping requirement minus the EIM Transfer capability with other BAAs in the EIM.[24]

### B. Greenhouse Gas Bidding by EIM Participating Resources

9. To comply with the Commission's directive to implement a cost-based greenhouse gas bid adder, CAISO proposes tariff revisions to enable an EIM participating resource

[20] CAISO June 25 Amendment at 6.

[21] CAISO June 25 Amendment at 8; CAISO, Proposed Tariff § 11.5.4.1.

[22] CAISO June 25 Amendment at 8.

[23] CAISO currently 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. CAISO June 25 Amendment at 8.

[24] CAISO notes that it will not enforce the individual BAA's constraint if the EIM Transfer capability exceeds the individual BAA's flexible ramping requirement. CAISO June 25 Amendment at 8; CAISO, Proposed Tariff § 29.34(m).

scheduling coordinator to submit an hourly bid adder at or below its daily maximum greenhouse gas cost cap as determined by CAISO, but not less than zero.[25] Under proposed section 29.32, an EIM participating resource will be able to submit a single megawatt quantity and single bid price on an hourly basis to express its interest in serving as the source of an EIM Transfer into the CAISO BAA subject to California's greenhouse gas regulations.[26]

10. CAISO states that an entity can express that it is unwilling to be considered for EIM Transfers into CAISO by either not submitting a bid adder or submitting a bid adder with a zero megawatt quantity.[27] Under the revisions, if an EIM participating resource outside of the CAISO BAA submits an EIM bid adder with a zero megawatt quantity, the EIM participating resource will not be dispatched for delivery into the CAISO BAA or other EIM Entity BAAs in California.[28] Similarly, if an EIM participating resource does not submit a bid adder, CAISO will assume the EIM participating resource will not be selected for delivery to the CAISO BAA.[29] According to CAISO, although its proposal is not an explicit flag, its proposal can accomplish the same objective of enabling an EIM participating resource to not be considered for EIM Transfers into California. CAISO states that this satisfies the Commission's directive in a way that provides additional flexibility to participants to transfer or not transfer energy into CAISO.[30]

11. CAISO proposes to calculate a single daily maximum greenhouse gas cost cap for each EIM participating resource. Similar to the process CAISO uses to calculate the greenhouse gas cost included in CAISO resources' default energy bids, CAISO proposes

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[25] CAISO EIM Order, 147 FERC ¶ 61,231 at PP 239-40 (directing CAISO to implement a cost-based greenhouse gas adder and a flag mechanism to allow an EIM participating resource to opt out from consideration for EIM Transfers into CAISO).

[26] The revisions also provide that: (1) the price portion of the bid adder must be equal to or less than 110 percent of the EIM participating resource's greenhouse gas maximum compliance cost; and (2) the sum of the price component of the EIM bid adder and the energy cost portion of the bid cannot exceed $1,000 per MWh. CAISO, Proposed Tariff §§ 29.32(a)(2)(A), 29.32(a)(4).

[27] CAISO June 25 Amendment at 9.

[28] CAISO, Proposed Tariff § 29.32(b)(2).

[29] *Id*. §29.32(a)(2)(B).

[30] CAISO June 25 Amendment at 9.

to include a variable cost option and a negotiated rate option. Under the variable cost option, CAISO proposes to calculate each unit's maximum greenhouse gas cost based on a unit's maximum heat rate as registered with CAISO, the applicable greenhouse gas allowance price, and the emission rate of the resource.[31] Under the negotiated rate option, CAISO will base the maximum greenhouse gas cost for a resource based on a price determined in accordance with the negotiated rate option procedures in section 39.7.1.3.1 of its tariff. In addition, CAISO proposes to apply a 10 percent adder to the calculated maximum cost, similar to the 10 percent adder used in the context of default energy bid calculation in the CAISO market.[32]

### C. EIM Administrative Charge

12. CAISO proposes revisions to section 29.11(i) of its tariff to align the EIM administrative charge with the CAISO grid management charge.[33] Specifically, CAISO proposes to revise the EIM administrative charge to consist of an EIM market services charge and an EIM system operations charge, each of which would be calculated as the product of the parallel CAISO charge and a real-time market percentage set forth in Appendix F of the CAISO tariff.[34] Consistent with the billing determinants for the market services and system operations components of the CAISO grid management charge, CAISO proposes to allocate the EIM market services charge to gross instructed imbalance energy and allocate the EIM system operations charge to gross real-time energy flow. According to CAISO, this will result in charging CAISO market participants and EIM market participants the same rate for real-time services. CAISO proposes to assess the existing minimum charge only to EIM Entities that withdraw from

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[31] CAISO, Proposed Tariff § 29.32(a)(3)(A).

[32] CAISO notes that the Commission previously found that the greenhouse gas adder component of the default energy bid was just and reasonable and would give suppliers a reasonable opportunity to recover costs. CAISO June 25 Amendment at 10-11 (citing *Cal. Indep. Sys. Operator Corp*., 141 FERC ¶ 61,237 (2012)).

[33] On March 13, 2015, the Commission accepted CAISO's filing of a tariff amendment revising the EIM administrative charge to recover from EIM scheduling coordinators the existing EIM minimum administrative charge as an interim measure pending the redesign of the charge as part of the Year One Enhancements initiative. *Cal. Indep. Sys. Operator Corp.,* 150 FERC ¶ 61,185 (2015).

[34] The EIM portions of the CAISO system operations rate and market services rate are those costs attributable to the real-time market. CAISO June 25 Amendment at 14; CAISO, Proposed Tariff § 29.11(i).

the EIM, which will allow CAISO to recover the operating costs associated with such withdrawal.[35]

**D. <u>Resource Sufficiency Evaluation</u>**

13. Currently, the CAISO tariff includes a resource sufficiency evaluation to ensure that each EIM Entity BAA has sufficient energy bid range from participating resources to meet its 15-minute net load forecast and ramping requirements independently prior to the start of the operating hour. CAISO proposes revisions to section 29.34(m) of its tariff to enable it to perform a resource sufficiency evaluation for the CAISO BAA, in order to ensure equitable treatment among all of the BAAs. Specifically, the test will ensure there is sufficient ramping capability within CAISO to meet 15-minute net load changes following the hour ahead scheduling process.[36]

14. In addition, to ensure that differences between intertie schedules at 40 minutes prior to the operating hour (T-40) and the final tagged schedule do not allow leaning on the EIM, CAISO proposes to enhance the resource sufficiency evaluation by including the historical scheduling error of imports and exports included in the base schedules for each EIM Entity BAA.[37] As CAISO does not require hourly base schedules from EIM Entities to be tagged until 20 minutes before the top of the operating hour (T-20), the assumed hourly schedules used in the resource efficiency evaluation may differ from those that are tagged at T-20. CAISO proposes two mechanisms to address this. First, CAISO proposes to calculate and publish the hourly scheduling error of imports and exports whose final tagged schedules differ from either the EIM base schedule or CAISO

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[35] In such circumstances, CAISO would allocate the EIM market services charge and EIM system operations charge to five percent of the EIM Entity's load and exports plus five percent of its generation and imports during the six-month termination period following the EIM Entity's notification of withdrawal from the EIM. CAISO June 25 Amendment at 14; CAISO, Proposed Tariff §§ 29.11(i)(4), 29.11(i)(5).

[36] CAISO notes that if it fails the tests, additional EIM Transfers into CAISO above the last 15-minute market interval of the previous operating hour will not be allowed, consistent with the treatment of all other BAAs in the EIM area. CAISO June 25 Amendment at 14; CAISO, Proposed Tariff § 29.34(m).

[37] CAISO proposes to calculate, on a monthly basis, 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 accordance with procedures it plans to set forth in the business practice manual. CAISO June 25 Amendment at 15; CAISO, Proposed Tariff, § 29.34(m)(4)(E).

hourly schedules. CAISO proposes to calculate the hourly scheduling error between the 15th day of the prior month and the 15th day of the current month. In order to provide sufficient time for EIM Entities to make arrangements to increase its bid range of EIM participating resources prior to the start of the upcoming month, CAISO proposes to include the hourly scheduling error in the hourly capacity test of the following month.[38] Second, under its proposal, CAISO will add an hourly block schedule difference to the capacity test of the resource sufficiency evaluation if a BAA had historically high import or export schedule changes between T-40 and T-20.[39]

### E. Settlement of EIM Non-Participating Resources

15. CAISO also proposes revisions to the portions of its tariff governing the settlement of imbalance energy and bid cost recovery to align the calculation of expected energy across the EIM area.[40] CAISO explains that while CAISO resources that self-schedule in the real-time market are operationally equivalent to non-participating resources with base schedules, there is currently an inconsistency in the determination of uninstructed imbalance energy for these similarly situated resources. The tariff currently treats non-participating resources 15-minute schedules as block schedules, which does not reflect the operational characteristics of the non-participating resource, such as the resource's ramp rate. CAISO explains that 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.[41] CAISO further explains that this inconsistency affects the determination of each BAA's *pro rata* share of bid cost recovery uplift and real-time imbalance energy offset, because uninstructed imbalance energy is the denominator used in those determinations. To address this settlement inconsistency, CAISO proposes revisions incorporating the five expected energy categories that it uses in its 15-minute market and real-time dispatch to appropriately reflect the operational characteristics of non-

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[38] CAISO Transmittal Letter at 14-15.

[39] The capacity test ensures that the bid range from participating resources is able to meet the 15-minute net load forecast for an operating hour. *Id*.

[40] Expected energy is the total energy that the market expects a resource will generate or consume, based on the dispatch of that resource. The five categories of expected energy used in the 15 minute market and real-time dispatch to reflect the operational characteristics of non-participating resources are: 1) standard ramping energy; 2) ramping energy deviation; 3) derate energy; 4) manual dispatch energy; and 5) optimal energy. *Id*. at 16.

[41] CAISO June 25 Amendment at 16.

participating resources. Specifically, under the revisions to tariff sections 29.11(b) and 29.11(f) and new section 29.11(o), CAISO proposes to adopt the calculations used for instructed and uninstructed imbalance energy and bid cost recovery set forth in section 11.5 of the tariff, but to treat EIM base schedules as day-ahead schedules.[42] CAISO notes that the revisions include or exclude manual dispatch energy as needed in order to ensure CAISO self-schedules and EIM non-participating resources are treated comparably.[43]

16. Finally, CAISO notes that its Board of Governors approved a pricing enhancements proposal that includes revisions to the administrative pricing rules used during market disruptions. CAISO plans to propose comparable administrative pricing rules to apply to the EIM, given that the EIM is an extension of the CAISO real-time market. CAISO states that it will file its proposed revisions to section 29.7 at the same time it files revisions to section 7 of its tariff pertaining to the administrative pricing rules.[44]

### F. Effective Date and Request for Waivers

17. In its June 25 Amendment, CAISO requests that the Commission allow all changes other than those to sections 11.5.4.1, 29.17, and 29.32 relating to greenhouse gas, EIM transfer limits and the calculation of EIM transfer schedule costs to become effective October 1, 2015, which was the date that NV Energy was scheduled to begin participation in the EIM at the time of the filing.[45] CAISO's June 25 Amendment also requests that the revisions to sections 11.5.4.1, 29.17, and 29.32 become effective September 15, 2015.[46] As these tariff sections will support planned parallel operations with NV Energy and are subject to implementation schedules, CAISO states that it will

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[42] CAISO, Proposed Tariff, §§ 29.11(b), 29.11(f), and 29.11(o).

[43] CAISO June 25 Amendment at 16-17.

[44] *Id*. at 17.

[45] On July 31, 2015, CAISO issued a market notice stating that the NV Energy implementation date changed from October 1, 2015 to November 1, 2015. http://www.caiso.com/Documents/SupplementalStakeholderProcessPlanned_EIM_ReadinessCriteriaTariffLanguage.htm.

[46] CAISO's July 1 Amendment stated that the proposed revisions to section 11.5.4 should be effective coincident with the revisions to section 29.17, which CAISO requested become effective September 15, 2015.

submit a further filing if the actual effective date is delayed to account for implementation planning.[47] In its Deficiency Response, CAISO revises its requested effective date for the proposed tariff provisions. Specifically, CAISO requests that the Commission accept all proposed tariff revisions, as amended by its Deficiency Response, effective October 27, 2015.

18. Finally, because the proposed EIM administrative charge is a formula rate, CAISO requests waiver of section 35.13 of the Commission's 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).[48] According to CAISO, these waivers are justified because the EIM administrative charge is derived from CAISO's Commission-approved grid management charge, which is based on a revenue requirement vetted through a stakeholder process and trued up with actual costs.[49]

## III. Notice and Responsive Pleadings

19. Notice of CAISO's June 15 Filing was published in the *Federal Register*, 80 Fed. Reg. 35,646 (2015), with interventions and protests due on or before July 7, 2015. Notice of the June 25 Amendment was published in the *Federal Register*, 80 Fed. Reg. 38,187 (2015), with interventions due on or before July 16, 2015. Notice of the July 1 Amendment was published in the *Federal Register*, 80 Fed. Reg. 40,053 (2015), with interventions and protests due on or before July 22, 2015. The Commission subsequently shortened the comment period to July 16, 2015. Timely motions to intervene were filed by NRG Power Marketing, LLC and GenOn Energy Management, LLC; the Alliance for Retail Energy Markets; Puget; the Modesto Irrigation District; the Cities of Santa Clara, California and Redding, California, and the M-S-R Public Power Agency; California Municipal Utilities Association; Balancing Authority of Northern California; Portland General Electric Company; California Department of Water Resources State Water Project; Northern California Power Agency; and the Bonneville Power Administration. Pacific Gas and Electric Company (PG&E); the Transmission Agency of Northern California (TANC); NV Energy, Inc. (NV Energy); PacifiCorp; Powerex Corporation (Powerex); and Southern California Edison Company (SoCal Edison) filed timely motions to intervene and comments. On July 21, 2015, APS filed a motion to intervene out-of-time. Western Power Trading Forum (WPTF) filed a motion to intervene out-of-

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[47] CAISO June 25 Amendment at 18; CAISO July 1 Amendment at 1-2.

[48] 18 C.F.R. §§ 35.13(c), 35.13(d)(1), (2), and (5), and 35.13(h) (2015).

[49] CAISO June 25 Amendment at 18.

time on August 3, 2015. The Cities of Anaheim, Azusa, Banning, Colton, Pasadena, and Riverside, California (Six Cities) filed a motion to intervene out-of-time on September 11, 2015. CAISO filed an answer to PG&E's and TANC's comments on July 17, 2015 (July 17 Answer), and a subsequent answer to the comments filed by Powerex, PacifiCorp, and SoCal Edison on August 4, 2015 (August 4 Answer).

20. On July 30, 2015, Commission staff issued a deficiency letter directing CAISO to provide additional information about CAISO's proposed EIM Transfer schedule cost and proposed revisions to the greenhouse gas adder. Concurrently, the Commission issued a notice of informal conference to further explore the questions raised in the deficiency letter. The conference was held on August 11, 2015. On August 21, 2015, CAISO filed its Deficiency Response. Notice of CAISO's Deficiency Response was published in the *Federal Register*, 80 Fed. Reg. 52,269 (2015), with interventions and protests due on or before September 11, 2015. None were filed.

## IV. Discussion

### A. Procedural Matters

21. Pursuant to Rule 214 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214 (2015), the timely, unopposed motions to intervene serve to make the entities that filed them parties to the proceeding. Pursuant to Rule 214(d) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214(d) (2015), the Commission will grant APS's, WPTF's, and Six Cities' late-filed motions to intervene, given their interests in the proceeding, the early stage of the proceeding, and the absence of undue prejudice or delay.

22. Rule 213(a)(2) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.213(a)(2) (2015), prohibits an answer to a protest unless otherwise ordered by the decisional authority. We will accept the answers submitted by CAISO because they have provided information that assisted us in our decision-making process.

### B. Substantive Matters

#### 1. Use of Available Transfer Capacity for EIM Transfers

##### a. Comments and Protests

23. PacifiCorp supports CAISO's proposal to use ATC to facilitate EIM Transfers between EIM Entity BAAs over interfaces that are not fully subscribed, and states that it is the Transmission Customer or PacifiCorp Interchange Rights Holder that determines

how much of its interchange transmission rights to make available for EIM Transfers. PacifiCorp further notes that it plans to propose complementary revisions to its OATT in order to facilitate such EIM Transfers.[50] PacifiCorp also supports the proposal to consider EIM transfer limits separately for each intertie scheduling point in order to maximize the EIM Transfers among BAAs, regardless of whether the EIM Transfer is supported by the PacifiCorp Interchange Rights Holder mechanism or ATC.

24. NV Energy also supports CAISO's proposal to facilitate the use of ATC for EIM Transfers to provide for consideration of EIM transfer limits separately for each intertie scheduling point. NV Energy states that CAISO's proposal is fully consistent with the approved provisions of its own OATT.[51] NV Energy supports CAISO's proposal to only calculate a flexible ramping requirement and enforce a flexible ramping constraint for each individual BAA and for the combination of all BAAs in the EIM area. NV Energy states the proposal is a reasonable accommodation to the additional complexity due to additional BAAs participating in the EIM.[52]

25. PG&E raises concerns regarding CAISO's proposed EIM Transfer schedule cost. PG&E agrees with the goals of the design, but claims that CAISO has not sufficiently demonstrated, or discussed with stakeholders, how the proposal will impact LMPs. PG&E asserts that the transfer cost will become significant as the number of intertie scheduling points to support EIM Transfers increases, which may have an impact on CAISO's calculation of LMPs. According to PG&E, it has not yet been possible to understand the impact of the transfer schedule cost on LMPs based on the information CAISO has presented to date. Therefore, PG&E requests that the Commission require CAISO to demonstrate through a stakeholder process, prior to implementation, that CAISO has correctly calculated LMPs with the proposed EIM Transfer schedule cost included as a parameter in the market optimization.[53] In addition, PG&E requests that the Commission require CAISO to provide stakeholders with detailed results of the market simulation related to the EIM Transfer cost prior to implementation. Finally, PG&E asks

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[50] PacifiCorp submitted a filing on July 31, 2015 in Docket No. ER15-2365-000 in which it proposed tariff revisions to use ATC to facilitate EIM Transfers. The Commission accepted PacifiCorp's filing by delegated letter order issued September 29, 2015. *PacifiCorp*, Docket No. ER15-2365-000 (September 29, 2015) (delegated letter order).

[51] NV Energy Comments at 4.

[52] *Id.* at 5.

[53] PG&E Comments at 7.

the Commission to require CAISO to include this market design element in the EIM readiness criteria and require CAISO to certify that its market simulation has demonstrated that this market design is ready for operations before the next EIM Entity joins the EIM.[54]

26. PG&E also raises concerns that stakeholders did not have the opportunity to adequately consider CAISO's proposed use of the system marginal energy cost to determine the financial value of EIM Transfers in the real-time imbalance energy offset calculation. PG&E states that, following the CAISO Board of Governors' approval of the EIM Year One Enhancements proposal, CAISO changed its proposal to use the default generation aggregation point of the exporting BAA to determine the financial value of the EIM Transfers in the calculation to the system marginal energy cost. As this change was proposed during the second round of the tariff review process, PG&E claims that stakeholders did not have enough time to consider and discuss the impacts of this change. PG&E asserts that, based on its limited review of this proposal, the use of the system marginal energy cost to value EIM Transfers may not adequately compensate the source BAA for the energy produced and would result in an increased real-time imbalance energy offset burden to the source BAA's participants.[55] Accordingly, PG&E requests that the Commission require CAISO to provide additional detail on the use of the system marginal energy cost to determine the real-time imbalance energy offset and demonstrate that this is the appropriate approach.[56]

27. PacifiCorp supports CAISO's proposal to use the system marginal energy cost component of the LMP to calculate the real-time imbalance energy offset for each BAA. SoCal Edison also supports changing the current valuation of the EIM Transfer in the real-time energy imbalance offset formula to the system marginal energy cost, given CAISO's explanation that the current method can lead to double-counting, and further requests that the Commission issue an order requiring that, if the value of the current error this change is intended to correct exceeds $500,000 per month, then CAISO should implement the change on an expedited basis rather than waiting until October 2015.[57]

28. TANC states that, during the CAISO Year One Enhancements stakeholder process, it expressed concerns that CAISO's proposed approach to facilitate EIM

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[54] *Id.* at 7-8.

[55] *Id.* at 8.

[56] *Id.* at 8.

[57] SoCal Edison Comments at 5-6.

Transfers using ATC could increase the amount of unscheduled or loop flow within the Western Electricity Coordinating Council (WECC) footprint, noting that NV Energy's participation will greatly increase the transfer capability of the EIM. TANC claims that CAISO did not respond to TANC's concerns regarding the impacts that establishing EIM Transfer limits may have on non-EIM participants' transmission facilities.[58] Noting that the Commission has previously used informational reports as a way to ensure that certain aspects of the EIM are just and reasonable, TANC requests that the Commission require CAISO to provide monthly reports for two years identifying the hourly operating limits on each EIM path where ATC is used for EIM Transfers and showing hourly congestion on each EIM path.[59]

29. TANC notes that it is not asserting that CAISO's proposed revisions will, as a matter of fact, negatively impact non-participating transmission owners. However, given the complex issues associated with transitioning to the EIM, TANC believes it would be prudent for CAISO to provide information for non-participating transmission owners to identify and raise issues that may arise.[60] TANC believes that these reports would help ensure that the EIM is working as intended and not to the detriment of non-EIM participants, and would allow TANC to better understand CAISO's proposal on incremental loop flow as well as unscheduled flow. Finally, TANC requests that, if the Commission requires this monitoring obligation of CAISO, the Commission keep this docket open during CAISO's two-year reporting time frame to allow CAISO to propose any needed revisions and allow interested parties to raise concerns after the relevant data is analyzed.[61]

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[58] TANC Comments at 10.

[59] *Id.* at 11-12 (citing CAISO EIM Order, 147 FERC ¶ 61,231 at PP 61,216.

[60] According to TANC, CAISO has previously explained that it has submitted its "post-operation learning curve" filings to correct certain issues following the EIM's implementation not necessarily because of inherent problems with the EIM, but because CAISO sought to address learning-curve issues and ensure that the EIM's benefits are realized to the greatest extent possible. TANC asserts that the same rationale should apply to the reporting requirements it requests. *Id.* at 11 (citing CAISO Reply Comments, Docket Nos. EL15-53-000, *et al.,* at 5, (filed May 21, 2015)).

[61] *Id.* at 11.

**b. Answers**

30. Regarding PG&E's concerns related to the EIM Transfer schedule cost, CAISO states that it plans to provide stakeholders with information concerning the results of market simulation and specifically describe the results of any tests involving the EIM Transfer cost proposal. CAISO further states that it will discuss the results with stakeholders during its regular market simulation results meetings.[62]

31. CAISO does not believe it is necessary for it to include a readiness criterion associated with the EIM Transfer schedule cost functionality, noting that the Commission's directives regarding readiness requirements focused on the systems and processes of the EIM Entity. CAISO emphasizes that its normal market simulation procedures combined with the EIM readiness requirements are sufficient. Furthermore, CAISO explains, it will include details regarding the identified minimum transfer cost in the EIM business practice manual, including whether the identified transfer cost must differ for any specific EIM Transfer schedule, such as a 15-minute market-only schedule or a real-time market schedule. CAISO maintains that this practice, combined with the open market simulation process, should provide the transparency PG&E requests.[63]

32. With respect to PG&E's concern regarding CAISO's decision to use the system marginal energy costs when determining the financial value of EIM Transfers instead of the default generation aggregation price, CAISO states that this late change was necessitated by certain discoveries it made after the policy development process. Specifically, CAISO states that during the concurrent Year One Enhancements implementation activities associated with settlement system configuration changes, CAISO identified a potential problem of double counting of real-time congestion offset costs under the original default generation aggregation price proposal.[64]

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[62] CAISO July 17 Answer at 6-7.

[63] *Id.*

[64] CAISO states that, because the other components of the LMP are taken care of in the settlement of neutrality accounts, it would not be appropriate to include them in addition to the system marginal energy costs for the financial value of the EIM Transfer in the real-time imbalance energy offset. Further, CAISO explains that using the default generation aggregation price would require settlement configuration modifications to first "back out" the congestion component of the other charges before including the default aggregation generation price. According to CAISO, this would require significant effort and produce essentially the same result as using the system marginal energy cost. *Id.* at 8-9.

33. CAISO asserts that it informed stakeholders of the advantages of using the system marginal energy cost at its earliest opportunity during the tariff development process and contends that the timing of its decision does not undermine the reasoning for the proposal. According to CAISO, no Commission directive is needed to resolve PG&E's request, as PG&E does not question the substance of the proposal, but asks for additional confirmation that the system marginal energy cost is the appropriate value for CAISO to use. Accordingly, CAISO commits to providing more information on this issue during the process of revising the EIM business practice manual and through the planned market simulation settlement results meetings.

34. CAISO notes that the business practice manual for the settlements changes associated with each of these charge codes, including the associated financial calculations and determinations, has been posted for stakeholder comment. CAISO explains that these settlement configurations do not include the marginal cost of congestion calculation by BAA, which are produced by the market operations and not the settlement systems. However, CAISO states that it will provide the congestion offset by BAA through the settlement statements issued during market simulation. Therefore, CAISO asserts that no further reporting obligation is necessary.[65]

35. In response to TANC's concerns that CAISO's proposal will increase loop flow within the WECC footprint, CAISO states that it provided stakeholders a technical paper that explained the formulations for the proposed EIM Transfer changes and discussed this information with stakeholders. CAISO claims that TANC did not present specific examples during the stakeholder process as to how the proposed formulation could violate intertie scheduling limits or increase unscheduled flows, and has not done so in its comments. CAISO therefore asserts that additional reporting requirements are not justified.[66]

36. In addition, CAISO explains that the Commission has previously found that the established unscheduled flow procedures that WECC administers are the appropriate mechanisms for managing unscheduled flows in the WECC footprint. CAISO asserts that the CAISO EIM Order accepted the premise that CAISO and each EIM Entity would follow WECC unscheduled flow management practices,[67] as CAISO currently requires in

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[65] *Id*.

[66] *Id*. at 10.

[67] *Id*. at 11 (citing CAISO EIM Order, 147 FERC ¶ 61,231 at P 268; *Cal. Indep. Sys. Operator Corp.*, 149 FERC ¶ 61,058; *Cal. Indep. Sys. Operator Corp.*, 149 FERC ¶ 61,005 (2014)).

its tariff.[68] CAISO disagrees with TANC's suggestion that the CAISO EIM Order somehow reopened this question, arguing that TANC fails to recognize Commission precedent on this point.

37. CAISO reiterates that it will test the use of ATC for EIM Transfers during the market simulation and provide stakeholders additional information regarding this feature. If CAISO identifies any shortcoming of the planned functionality to manage EIM Transfers within intertie scheduling limits or other network model constraints it enforces, CAISO will try to resolve the issues during market simulation and take appropriate actions if the issues are not resolved. Accordingly, CAISO asserts that additional reporting requirements are unnecessary, and that there is no reason to heed TANC's request to hold this proceeding open.[69]

### c. <u>CAISO Deficiency Response</u>

38. In its Deficiency Response, CAISO provides additional information regarding the need for the EIM transfer schedule cost[70] and how it will be used. CAISO explains that the EIM transfer schedule cost is needed to identify which contract path the EIM Entity will use to schedule its net interchange for energy accounting purposes to comply with WECC e-Tagging requirements. CAISO states that the proposal does not alter flow-based optimization under the EIM or determine where any physical flows will occur; the transfer schedule cost will only affect the manner in which CAISO can assign the results of the flow-based optimization to specific scheduling paths to meet WECC e-Tagging requirements.[71]

39. CAISO explains that this functionality will be critical as additional EIM entities join the EIM, because the number of contract paths may increase significantly. Specifically, CAISO states that where there are multiple interties, there can be multiple feasible EIM Transfer schedules for any particular net EIM Transfer; this is problematic because there is no existing parameter by which CAISO's optimization can distinguish among the possible pathways. According to CAISO, the optimization could select one path for EIM Transfers in one five-minute interval and a different path in the next, which

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[68] CAISO Tariff, § 29.7(k).

[69] CAISO July 17 Answer at 11.

[70] CAISO refers to the EIM Transfer cost as an EIM Transfer schedule cost in its Deficiency Response.

[71] CAISO Deficiency Response at 10.

could require unnecessary updates to e-Tags. CAISO asserts that frequent, unexplained changes in the transfer schedules could unnecessarily increase the administrative costs of e-Tag accounting for EIM Transfers.[72]

40. CAISO states that the EIM Transfer schedule cost will be used to ensure the optimization selects the most optimal EIM scheduling path. This is accomplished by assigning more optimal paths a lower EIM Transfer schedule cost relative to less optimal paths. CAISO has amended its proposal to include the following criteria by which it assesses the optimality of an EIM scheduling path: (1) maximizes the use of capacity made available for EIM Transfers in the 15- and five minute markets; (2) minimizes the number of e-Tags required to comply with WECC scheduling practices; and (3) minimizes the impact of outages and curtailments on the e-Tags used to account for EIM Transfers.[73] In addition, CAISO proposes to include in its tariff the following circumstances that may require revisions of the EIM Transfer schedule costs when: (1) an EIM Entity BAA is added or subtracted from the EIM Area; (2) there is a seasonal transmission system ratings change; or (3) the transmission system topology changes.[74]

41. In addition, to ensure that the impact of the EIM Transfer schedule cost is *de minimis*, CAISO proposes to amend its proposal to (1) require that the EIM Transfer schedule cost be less than \$0.01/MWh instead of the \$0.10/MWh cap proposed in the June 15 Filing; and (2) provide that the EIM Transfer schedule cost will be the lowest cost that enables the CAISO's security constrained economic dispatch to uniquely identify a scheduling path that optimizes the objective of satisfying three criteria specified in the tariff.[75]

42. Finally, CAISO notes that while it will determine the priorities of various paths based on information provided by the EIM Entity and the criteria it proposes to include in its tariff, it will also consult with the EIM Entity as it is responsible for determining which interties can be used for EIM Transfers as well as the capacity available for such transfers. CAISO states that it will exercise its independent judgment to ensure that the

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[72] *Id.* at 8.

[73] CAISO Proposed Tariff § 29.17(g)(2)(A)-(C).

[74] CAISO Deficiency Response at 12; CAISO, Proposed Tariff § 29.17(g)(4).

[75] CAISO Deficiency Response at 11-12; CAISO, Proposed Tariff §§ 29.17(g)(1) and 29.17(g)(2).

path priorities and determination of EIM Transfer schedule costs are consistent with the tariff criteria and do not favor any market participant.[76]

### d. Commission Determination

43. We accept, subject to condition, CAISO's proposed changes to address EIM Transfers, as discussed below. First, we recognize this will be the first time CAISO has used ATC in operating the EIM. In accepting CAISO's proposal, it is important to note that the EIM market optimization includes, and fully models, both the physical and the individual intertie constraints between EIM BAAs with the relevant ATC amounts. Further, the marginal price of congestion in EIM LMPs, even with the use of the transfer schedule cost, will reflect the shadow price of all binding transmission constraints[77] including: (1) binding physical constraints; (2) binding ATC intertie constraints between EIM BAAs; and (3) the transfer schedule cost. Indeed, this is important in order to ensure that CAISO's market power mitigation procedures for interties functions in accordance with the existing tariff provisions. However, we find that Attachment C of CAISO's tariff is unclear as to whether and how ATC will be reflected in LMP calculations, especially the congestion component of the LMP. For example, CAISO's current definition of Transmission Constraint does not appear to reflect the usage of the value of ATC at any particular interface and how that value would flow through the marginal price of the congestion component in determining LMPs. Accordingly, we direct CAISO to make a compliance filing within 30 days of the date of this order proposing revisions to Attachment C of its tariff to clarify that the marginal price of congestion in EIM LMPs will reflect the shadow price of all binding transmission constraints including binding physical and ATC intertie constraints.

44. We find that CAISO's proposal appropriately addresses the added complexity of EIM Transfers that result from the increase in the number of transmission interfaces among a growing number of EIM Entity BAAs. We find it reasonable for CAISO to consider EIM Transfer limits separately for each intertie scheduling point in order to accommodate participation of NV Energy and other future potential entities in the EIM, a consideration not necessary in the more linear interfaces existing in the original EIM footprint of CAISO and PacifiCorp. If two EIM Entities share an intertie, CAISO will set the intertie scheduling limit equal to the lowest ATC value as determined by the EIM entity submitting the e-Tag. This more conservative approach to establishing the intertie scheduling limit will ensure that CAISO does not overstate the transfer limit.

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[76] CAISO Deficiency Response at 19.

[77] CAISO's tariff defines Shadow Price as "[t]he marginal value of relieving a particular constraint." *See* CAISO Tariff, Appendix A (Master Definition Supplement).

45. We also accept CAISO's proposal to utilize an EIM Transfer schedule cost and find that the modifications proposed in CAISO's Deficiency Response provide an appropriate means of determining which interfaces will be used to facilitate EIM Transfers. The proposal will not impact or determine where any physical flows will occur. Instead, adding a small transfer cost allows the optimization to choose among otherwise equally viable transfer paths based on the criteria set forth in CAISO's tariff. Without the transfer cost, there is no means by which CAISO's optimization can distinguish among the possible contract paths and therefore the optimization will randomly select the path and randomly distribute the scheduled energy among the selected paths. This increases the administrative cost of accounting for EIM Transfers consistent with WECC e-Tagging practices. CAISO's proposal is a reasonable solution to reducing this operational burden.

46. We further accept the amended tariff language in CAISO's Deficiency Response requiring that the EIM Transfer schedule cost be less than $0.01/MWh. In the example provided in CAISO's Deficiency Response, the LMP in a BAA could decrease from $40.0000 to $39.9999 or increase from $40.0000 to $40.0001 due to the EIM Transfer limit binding, imposing the cost of the EIM Transfer limit on transferring energy from one BAA to another.[78] Since the EIM Transfer schedule cost cannot be above $0.01/MWh, the impact to LMPs is negligible. In addition, given that the operation of the EIM by its very nature will affect LMPs, the EIM Transfer schedule cost is an effective tool for CAISO to more efficiently dispatch the system to fully utilize available transfer capacity, avoid costs related to curtailments, and ease the administrative burden of e-Tagging.

47. Finally, the inclusion in CAISO's tariff of the specific criteria used in determining path priority ensures that the EIM Entity does not have the ability to unduly influence how paths are prioritized. We note that CAISO has committed to provide stakeholders with information concerning the results of market simulation and to specifically describe the results of any tests involving the EIM Transfer schedule cost. We will not require CAISO to include in its tariff a readiness criterion associated with the EIM Transfer schedule cost, because we find that the EIM Transfer schedule cost, as modified, will have a negligible impact on LMPs and that CAISO's open market simulation process should provide adequate transparency to stakeholders on the issue.

48. We also accept CAISO's proposal to revise section 11.5.4 of its tariff to improve 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 BAA in the EIM. To calculate the real-time imbalance energy offset for a BAA, CAISO's settlement

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[78] Deficiency Response at 12.

calculations must consider the financial value of the EIM Transfer in order to balance supply and demand settlements within the BAA. We find it is reasonable for CAISO to use the system marginal energy cost to represent the value of the energy EIM Transfer. We find it appropriate that the system marginal energy cost is accounted for in the real-time imbalance energy offset settlement, as the other components of LMP are already addressed in the settlement of neutrality accounts for the real-time marginal congestion offset and real-time losses. Currently, CAISO's real time energy imbalance offset formula adjusts the EIM Transfer value using the LMP, which already includes a congestion component. CAISO's proposal to use the system marginal energy cost to represent the value of the energy EIM Transfer is a more appropriate calculation. We will not require CAISO to adopt SoCal Edison's request that CAISO implement the change on an expedited basis if the value of real-time imbalance energy offset using LMPs as the EIM Transfer value exceeds $500,000. CAISO has requested an effective date of October 27, 2015, which is a reasonably expedient timeframe for implementing the change.

49. Finally, we find that TANC's concerns that facilitating EIM Transfers using ATC could increase the amount of unscheduled or loop flow within the WECC footprint are unsupported and we will not require CAISO to provide monthly reports nor hold this proceeding open. The Commission has previously accepted NV Energy's proposal to use ATC to support EIM Transfers[79] and has found that the EIM will not subject non-participants to unreasonable increases in unscheduled flows.[80] NV Energy will use dynamic e-Tags with the same curtailment priority as the underlying transmission service reservations consistent with the existing WECC Unscheduled Flow Mitigation Plan, which ensures that curtailments of EIM schedules over qualified paths are implemented based on transmission service priority. In addition, the Commission explained in the CAISO EIM Order that changes to market operations may indeed result in changes to flows on the integrated transmission system. This, however, is not reason to prevent improvements to market operations that will result in increased efficiencies and benefits to customers.[81]

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[79] *Nevada Power Co.*, 151 FERC ¶ 61,131 (2015).

[80] CAISO EIM Order, 147 FERC ¶ 61,231 at P 268.

[81] *Id*. P 268.

### 2. Greenhouse Gas Bidding by EIM Participants

#### a. Comments and Protests

50. NV Energy supports CAISO's proposed greenhouse gas proposal.[82] Powerex also supports CAISO's proposal to permit participating resources to be bid into the EIM in a manner that protects them from being deemed to have imported power into California.[83] Powerex submits that CAISO's proposal is consistent with the voluntary nature of the EIM and notes that failure to afford resources the flexibility to avoid being dispatched into California could deter participation by resources in external BAAs.[84]

51. SoCal Edison supports the use of a cost-based bid limit on the California greenhouse gas compliance bid adder. However, SoCal Edison objects to CAISO's plan to permit EIM participants to vary the quantity they are willing to have delivered into California.[85] SoCal Edison contends that this aspect of CAISO's proposal goes beyond the Commission's direction in the CAISO EIM Order and could create the potential for inefficiencies in the market. SoCal Edison further contends that this element of the proposal is not justified, as there is no reason to allow a generator to limit the amount it is willing to sell to California if it is willing to be subject to possible greenhouse gas compliance.[86] SoCal Edison claims that neither of the reasons presented by CAISO for this aspect of this proposal at a February 2015 stakeholder meeting—accommodating resources with multiple owners and renewable resources with requirements to serve a state's native load—requires an option giving the resource the ability to vary the amount of energy they are willing to sell in California. Should EIM participants be permitted to vary the amount bid to California, SoCal Edison asserts that the default amount should be the maximum energy bid amount, to encourage participants to make the maximum amount of energy available to the entire market.[87]

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[82] NV Energy Comments at 6.

[83] Powerex Comments at 11-12.

[84] *Id*. at 12.

[85] SoCal Edison Comments at 2-4.

[86] *Id*. at 3.

[87] *Id*. at 4.

### b. CAISO Deficiency Response

52. In its Deficiency Response, CAISO explains that the greenhouse gas compliance costs, calculated by CAISO based on the heat rate for an EIM participating resource's operating level in any single market interval when it is dispatched to serve California load, may not reflect the resource's actual compliance costs on which its annual greenhouse gas compliance obligation is based. According to CAISO, the EIM participating resource could be exposed to the risk that its compliance costs could be greater than the cost determined by CAISO according to its heat rate curve. CAISO contends that it would be unjust and unreasonable to deprive the EIM participating resource of the opportunity to recover as close as possible to its actual compliance costs. Accordingly, CAISO states that it proposes to base the daily maximum compliance cost on a resource's maximum heat rate because it allows the EIM participating resource scheduling coordinator the ability to submit a greenhouse gas cost adder that it concludes is reflective of a resource's actual greenhouse gas compliance costs.[88]

53. CAISO explains that the Commission has previously concluded under similar circumstances—in the context of CAISO's calculation of default energy bids—that a 10 percent adder is just and reasonable and presents market participants with a reasonable opportunity to recover their costs.[89] CAISO contends that this is necessary to address inherent cost uncertainty and avoid a potentially confiscatory rate. Furthermore, CAISO states that the 10 percent adder is even more necessary in this context than that of the default energy bid process. The default energy bid process ensures that resources recover their costs, whereas the cap on bid adders for EIM participating resources does not; there is no "make whole" process after the fact for EIM resources' actual incurred greenhouse gas compliance costs.[90]

54. Without the ability to ensure their costs will be covered, CAISO contends that EIM participating resource scheduling coordinators may elect to not make resources available for delivery into CAISO, decreasing market efficiency and liquidity and reducing the pool of resources to support EIM Transfers into CAISO. CAISO asserts that EIM participating resources have an incentive to bid as close as possible to their compliance costs. CAISO states that the reason for this is that the market is expected to be highly competitive considering that all EIM participating resources across the entire

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[88] CAISO Deficiency Response at 27-28.

[89] *Id.* 28 (citing *Cal. Indep. Sys. Operator Corp.*, 116 FERC ¶ 61,274, at PP 1045 - 1046 (2006); *Cal. Indep. Sys. Operator Corp.*, 142 FERC ¶ 61,191, at P 29 (2013)).

[90] *Id.* at 28.

EIM area are eligible to be deemed delivered to CAISO and the greenhouse gas payment is based upon the marginal greenhouse gas bid adder. Furthermore, according to CAISO, to the extent resources do bid above their estimated costs and are accepted in the optimization, the level of the adder will serve to limit the impact.[91] Regarding its proposal to provide EIM participating resources the ability to change the greenhouse gas adder hourly, CAISO states that this is appropriate to ensure a level playing field and prevent undue discrimination, as internal resources are provided this flexibility. Because internal resources already have this flexibility, CAISO asserts that it does not anticipate any unforeseen issues with extending this to EIM participating resources.[92]

55. In response to SoCal Edison's concern about potential market inefficiencies arising from allowing EIM Entity scheduling coordinators to change the amount of energy they are willing to sell into California on an hourly basis, CAISO asserts that this concern is misplaced. CAISO contends that this argument fails to recognize that the existing tariff allows market participants importing energy into California from a non-EIM BAA to decide what quantity of energy they are willing to offer as an import to CAISO for each hour. Furthermore, CAISO states that it has not identified any market inefficiencies that result from this practice.[93]

56. CAISO also disagrees with SoCal Edison's argument that CAISO was not justified in its decision to not propose a greenhouse gas flag. CAISO states that it would not be just and reasonable to require a generation owner to bear greenhouse gas compliance costs in connection with energy for which they are not compensated. According to CAISO, this would occur under SoCal Edison's suggestion that, in the case of generation owned by multiple owners, the party willing to sell into California could agree to be responsible for greenhouse gas compliance. Further, in response to SoCal Edison's argument that having a varying quantity to sell to California will not satisfy the objective of ensuring a generator is serving its native load, CAISO asserts that EIM participating resources must be able to vary the amount of energy eligible for export to California on an hourly basis as their obligations to serve native load also vary on the hour.[94]

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[91] *Id.* at 29.

[92] *Id.* at 30.

[93] *Id.* at 30-31.

[94] *Id.* at 31.

#### c. Commission Determination

57. We accept CAISO's proposal regarding the greenhouse gas bid adder enhancements. We find that CAISO's greenhouse gas bid adder proposal complies with the Commission's directives to propose a mechanism that would act as a flag for resources to signal that they do not wish to be dispatched for sales into California.[95] The proposed enhancement allows a resource to recover its greenhouse gas compliance costs by submitting a single megawatt quantity and a corresponding bid price on an hourly basis to express its interest in serving as the source of an EIM Transfer into the CAISO BAA. The proposal also allows a resource to express its unwillingness to be considered for selling into California by either not submitting a bid adder or submitting a bid adder with a zero megawatt quantity. The proposal addresses the issue of potential over-recovery by allowing hourly bids that can be only as high as the maximum greenhouse gas cost cap for each EIM participating resource that CAISO proposes to calculate daily.

58. SoCal Edison objects to CAISO's plan to permit EIM participants to vary the quantity they are willing to have delivered into California arguing that this could lead to inefficiencies in the market. SoCal Edison has not identified the market inefficiencies that may arise from this practice. We find that CAISO's proposal is just and reasonable, as well as an improvement over what is in place today. In particular, the proposal provides needed flexibility for resources to avoid being dispatched into California and unwillingly exposed to greenhouse gas compliance costs that could deter resource participation in the EIM. For resources with joint ownership, the proposal will accommodate one owner's willingness to bid into California and incorporate a bid adder reflecting only the costs of the portion of energy the owner wants to be considered for dispatch into California. Conversely, a flag would not allow the flexibility for resources owned by multiple owners to only bid a portion of energy into California.

### 3. EIM Administrative Charge

#### a. Comments and Protests

59. PacifiCorp, NV Energy, and SoCal Edison support CAISO's proposed changes to the EIM administrative charge, grid management charge, and minimum EIM administrative charge, as well its proposals regarding the settlement of EIM non-participating resources.

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[95] CAISO EIM Order, 147 FERC ¶ 61,231 at PP 239-40.

#### b. Commission Determination

60. We find that CAISO's proposed revisions to the calculation of the EIM administrative charge will ensure that CAISO market participants and EIM market participants are charged the same rate for similar real-time services. As the Commission has previously stated, it is appropriate that EIM market participants should be assessed administrative charges consistent with the charges assessed to CAISO market participants for the same real-time services.[96] In addition, we find that CAISO has justified its proposal to allocate the EIM market services charge to gross instructed imbalance energy and allocate the EIM systems operation charge to gross real-time energy flow, as this will ensure consistency with CAISO's respective billing determinants for those components of the CAISO grid management charge, which has been accepted by the Commission. Furthermore, we find CAISO's proposal to only assess the existing minimum charge to an EIM Entity that withdraws from the EIM during the six-month termination period following the notice of withdrawal is a reasonable means by which CAISO can recover its operating costs associated with an EIM Entity's departure from the EIM.

61. We also grant CAISO's request for waiver of section 35.13 of the Commission's regulations, including the requirements to submit 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). As previously noted, the EIM administrative charge is derived from the grid management charge, which is based on a revenue requirement and is trued up with actual costs. We find that granting waiver is appropriate in these circumstances, because CAISO has sufficiently justified, and the Commission has accepted, the grid management charge in a prior proceeding.[97]

### 4. Resource Sufficiency Evaluation

#### a. Comments and Protests

62. NV Energy supports CAISO's modifications to the resource sufficiency test and states that it is important that all participating BAAs be subject to the same standards.

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[96] *Cal Indep. Sys. Operator Corp.*, 150 FERC ¶ 61,185 at P 13 ("As revised, the tariff provisions appear to strike an appropriate balance between ensuring that CAISO is able to cover the costs of providing EIM service and protecting EIM market participants from charges that are inconsistent with those assessed to non-EIM market participants for the same real-time market services.").

[97] *Cal. Indep. Sys. Operator Corp*., 149 FERC ¶ 61,232 (2014).

NV Energy also states that the proposed data compilation and publication will enhance each BAA's balancing of its hourly schedules.[98]

63. PacifiCorp states that CAISO's proposed approach to use prior month data may not accurately capture seasonal usage or transaction patterns, and requests the Commission require CAISO to reevaluate its approach once it has acquired a full year's worth of scheduling error actual data.[99]

64. PG&E asserts that CAISO's proposal to perform the resource sufficiency evaluation on the CAISO BAA is unnecessary given the California Public Utilities Commission's resource adequacy program applicable to the CAISO BAA. PG&E contends that the resource sufficiency test is reasonable to apply to EIM Entity BAAs that do not have resource adequacy provisions, like those applicable in the CAISO BAA, to ensure that sufficient resources are available and offered into the EIM. However, as CAISO already has measures in place to ensure resource sufficiency within the CAISO BAA, such as must-offer obligations for resource adequacy resources that count toward the CAISO BAA's capacity requirements, PG&E argues that applying the resource sufficiency test to the CAISO BAA is unnecessary. Moreover, PG&E asserts, the EIM benefits associated with utilizing increased resource diversity to address flexibility needs will be reduced in the event CAISO fails the evaluation, as additional EIM Transfers into CAISO above the 15-minute market interval preceding the operating hour will be prohibited—even though the resource adequacy provisions ensure sufficient resources are available in real-time to meet the CAISO BAA's demand. PG&E thus recommends that the Commission reject this element of CAISO's proposal.[100]

65. Powerex supports CAISO's decision to use a transparent, data-driven approach to account for the impact that the delivery performance of interchange schedules can have on its need for flexible real-time resources in its resource sufficiency evaluation.[101]

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[98] NV Energy Comments at 7-8.

[99] PacifiCorp Comments at 8.

[100] While PG&E recognizes that the resource adequacy construct does not guarantee that CAISO would pass the resource sufficiency evaluation in every operating hour and that CAISO may rely on other BAAs to meet ramping needs at times, it contends that the resource adequacy construct ensures that CAISO has done its due diligence to prevent inappropriate or over-leaning on other EIM BAAs. PG&E Comments at 5-6.

[101] Powerex Comments at 6-7.

However, Powerex expresses concern with the level of detail used in the analysis. First, Powerex posits that, by failing to consider the difference between base schedules and deliveries for each 15-minute and five-minute interval, CAISO's proposed mechanism will provide an incomplete picture of the actual performance of exports and imports, and will thus underestimate the amount of flexible ramping capacity needed to address the potential non-performance of imports and exports.[102]

66. Powerex provides an example of an EIM Entity BAA with base schedules that include 500 MW of imports to illustrate its concern.[103] According to Powerex, if 50 MW of those imports do not submit an e-Tag and are not delivered, CAISO would be required to dispatch 50 MW of alternative supply on short notice and, should this pattern recur frequently, would need to increase the BAA's required quantity of flexible ramping capacity by as much as an additional 50 MW. By contrast, Powerex asserts that if 50 MW of imports are curtailed by an external transmission provider after T-20 (for one or more 15-minute and/or five-minute intervals), CAISO would still need to dispatch 50 MW of alternative supply on short notice, but its proposed mechanism would not recognize the need for additional flexible capacity. Powerex therefore requests that the Commission direct CAISO to calculate the hourly scheduling error of imports and exports for each EIM Entity BAA based upon schedule changes between the base schedules submitted at T-40 and the minimum amount of energy actually delivered in any 15-minute or five-minute interval within the hour.[104]

67. Powerex further asserts that CAISO should engage with its stakeholders to develop a detailed methodology for calculating the additional flexible ramping capacity requirement.[105] Powerex argues that the stakeholder process preceding the June 15 Filing revealed gaps in how the historical evaluation of import and export performance would be performed, as well as in how this historical assessment would translate into a forward-looking requirement.[106] Powerex notes, as one example, that CAISO initially proposed to analyze each delivery hour separately, but later removed the details of how the scheduling error for imports and exports would be calculated from the proposal entirely

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[102] *Id*. at 5-9.

[103] *Id*. at 8.

[104] *Id*. at 9.

[105] *Id*. at 9-11.

[106] *Id*. at 9.

after stakeholders express concerns.[107] Powerex contends that the methodology should account for the specific attributes of the imports and exports, including: (1) whether the transaction has already been e-Tagged prior to the base schedule deadline of T-40; (2) whether the energy associated with the schedule has been identified as "firm" generation or can be curtailed at the discretion of the seller; and (3) the type of transmission reservation supporting the schedule (e.g., firm or non-firm).[108]

#### b. Answers

68. In response to PacifiCorp, CAISO commits to review the historical data and consider whether a different data sample is appropriate as part of its overall monitoring of EIM performance.[109] CAISO also states that it will consider proposals for different data samples through its business practice manual change management process after additional information on the historical samples becomes available.

69. In response to PG&E's comments regarding CAISO's proposal to perform the resource sufficiency test on the CAISO BAA, CAISO agrees that under most circumstances its existing resource adequacy requirements should ensure that the CAISO BAA would pass the resource sufficiency evaluation imposed on EIM BAAs. CAISO also agrees with PG&E that interregional dispatch benefits could be reduced during an interval when the CAISO BAA fails the resource sufficiency evaluation. However, CAISO contends that none of these arguments change the fact that each EIM Entity BAA should be subject to the same requirements to receive and share in the diversity benefits of the EIM. CAISO notes that it considered PG&E's concerns during the stakeholder process, but did not think those concerns warranted rejection of stakeholders' general agreement that CAISO should be subject to the resource sufficiency evaluation.[110]

70. CAISO asserts that Powerex's argument that the proposal will underestimate the amount of additional flexible ramping capacity needed to address the potential non-performance of imports and exports conflates two elements of a series of three tests that CAISO performs.[111] CAISO emphasizes that it only proposes changes to improve the

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[107] *Id*. at 9-10.

[108] *Id*. at 10.

[109] CAISO August 4 Answer at 6.

[110] CAISO July 17 Answer at 4-5.

[111] The three elements include a balancing test, a capacity test, and a ramping test. CAISO August 4 Answer at 4.

capacity test portion of the resource sufficiency evaluation.[112] According to CAISO, it must account for hourly schedule changes because an inconsistency between the hourly base schedule and the e-Tag submitted by the WECC tagging deadline for the operating hour (T-20) will increase the bid range necessary in all 15-minute intervals of the operating hour. CAISO states that the historical changes in hourly block schedules between T-40 and T-20 provides the best data to allow it to account for hourly schedule changes.[113]

71. CAISO contends that its resource sufficiency evaluation already includes a test that addresses Powerex's concern. CAISO explains that the existing flexible ramping test, which is the third element of the resource sufficiency evaluation, ensures that EIM participating resources have sufficient ramping capability to move and meet the 15-minute interval load forecast plus historical variability and uncertainty between the 15-minute schedule and actual delivery. CAISO asserts that taking into account the differences within the operating hour between the values at T-20 and actual tagged quantity relative to the 15-minute market schedule would increase variability and uncertainty and ultimately increase the flexible ramping requirement used in the flexible ramping test. Because the flexible ramping test already captures this variability, CAISO contends that Powerex has not demonstrated why CAISO should introduce redundancy among two of the three elements of the evaluation by including this variability in the capacity element of the test as well.[114]

### c. Commission Determination

72. We accept CAISO's proposed improvements to the evaluation of resource sufficiency that it uses to ensure that each EIM BAA 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. We find that it is appropriate to apply this evaluation to all EIM Entities on an equivalent basis, and we find that CAISO's proposal to perform the resource sufficiency test on the CAISO BAA as well as on others will achieve this goal. PG&E asserts that if the CAISO BAA were to fail the resource sufficiency evaluation, the EIM benefits associated with utilizing increased

[112] The capacity test ensures that the bid range of participating resources is sufficient to meet the differences between the T-40 base schedules and the 15-minute interval load forecast of the EIM BAA. *Id.* at 4.

[113] *Id*. at 4-5.

[114] The flexible ramping requirement captures the historical differences between final tagged values and assumed delivery in the 15-minute market. *Id*. at 5-6.

resource diversity to address flexibility needs could be reduced. However, under most circumstances, CAISO's existing resource adequacy requirements should ensure that the CAISO BAA will pass the resource sufficiency evaluation because of the measures that CAISO already has in place, including the must-offer obligation for resource adequacy resources that count toward the CAISO BAA's capacity requirements. And to the extent that the existing resource adequacy requirements do not ensure that CAISO BAA passes the resource sufficiency evaluation in all market intervals, there is no compelling reason to exempt the CAISO BAA from resource sufficiency requirements and allow it to potentially lean on other EIM BAAs. Therefore, we find that all EIM Entity BAAs should be subject to the same resource sufficiency requirements.

73. We also accept CAISO's proposal to include the historical scheduling error of imports and exports in the base schedules for each EIM Entity BAA, to ensure that differences between intertie schedules at T-40 and the final tagged schedule do not allow "leaning" on the EIM.[115] CAISO does not require hourly base schedules to be tagged until 20 minutes before the top of the operating hour which could result in the hourly schedules used in the resource efficiency evaluation to be different from those that are tagged at T-20. The enhancement to add an hourly block schedule difference to the capacity test of the resource sufficiency evaluation if a BAA had historically high import or export schedule changes between T-40 and T-20 will reduce the potential for "leaning" on the EIM between T-40 and T-20.[116] While Powerex and PacifiCorp proposed further enhancements to CAISO's proposed methodology, neither party objects to the proposal on its face. In submitting proposed tariff changes pursuant to FPA section 205, it is well settled that a public utility need only demonstrate that its proposed revisions are just and reasonable, not that its proposal is the most just and reasonable among all possible alternatives.[117] CAISO has shown that its proposal will provide just and reasonable enhancements to EIM operations. Therefore, we need not address Powerex's and PacifiCorp's alternate proposals here. Additionally, we note that CAISO addressed the substance of both parties' suggestions in its Answer. With respect to Powerex, CAISO demonstrated that the data it proposes to use is appropriate, and that an existing test already addresses Powerex's concern. With respect to PacifiCorp, CAISO committed to review the data available, and to update its business practice manual through its change management process with stakeholders if using a different data set is appropriate. We expect CAISO will follow through on this commitment.

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[115] CAISO Transmittal Letter at 14.

[116] The capacity test ensures that the bid range from participating resources is able to meet the 15-minute net load forecast for an operating hour. *Id*.

[117] *See City of Bethany v. FERC*, 727 F.2d 1131, 1136 (D.C. Cir. 1984).

### 5. Settlement of EIM Non-Participating Resources

#### a. Comments and Protests

74. NV Energy supports CAISO's proposed revisions to section 29.11(b) of CAISO's tariff regarding the settlement of non-participating resources. NV Energy states that CAISO's proposal will ensure that the calculation of uninstructed imbalance energy is consistent between CASIO and EIM Entity BAAs. NV Energy explains that the Commission has already approved this settlement approach in schedule 9 of its OATT.[118]

75. Although SoCal Edison does not object to CAISO's proposal to make settlement for EIM non-participants consistent with settlement for self-scheduled resources in the CAISO BAA, it does not agree that non-participants should receive payments of bid cost recovery as a result of the calculation of optimal energy under certain circumstances, as proposed.[119] SoCal Edison asserts that it is illogical to provide an uplift payment to an entity that has explicitly acknowledged that its transaction may not make it whole, and therefore requests that the Commission direct CAISO to revise the tariff to exclude bid cost recovery payments to non-participating resources.

#### b. Commission Determination

76. We accept CAISO's proposed revisions to 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. We find that CAISO's revisions will ensure consistent treatment of similarly situated resources. Although SoCal Edison raises concern about non-participating resources receiving bid cost recovery, section 29.11(f)(1) of CAISO's tariff specifically states that "CAISO will provide EIM *Participating* Resources RTM [Real-Time Market] Bid Cost Recovery" (emphasis added). We find that this tariff language only allows bid cost recovery for participating resources.

The Commission orders:

(A) CAISO's proposed tariff revisions are hereby accepted, subject to condition, effective October 27, 2015, as discussed in the body of this order.

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[118] NV Energy Comments at 5.

[119] SoCal Edison Comments at 5.

(B) CAISO is hereby directed to submit a compliance filing within 30 days of the date of this order, as discussed in the body of this order.

By the Commission.

( S E A L )

Kimberly D. Bose,
Secretary.