152 FERC ¶ 61,060
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 Nos. ER15-861-000, EL15-53-000

ORDER ON TECHNICAL CONFERENCE

(Issued July 20, 2015)

1. On January 15, 2015, the California Independent System Operator Corporation (CAISO) filed proposed tariff revisions (January 15 Filing) intended to address imbalance energy price spikes experienced by PacifiCorp's balancing authority areas (BAAs) following implementation into the Energy Imbalance Market (EIM). By order dated March 16, 2015 (March 16 Order),[1] the Commission rejected the proposed tariff revisions, instituted a proceeding under section 206 of the Federal Power Act (FPA)[2] to investigate the justness and reasonableness of the EIM provisions in CAISO's existing tariff related to the price spikes, and directed a technical conference to develop a record regarding the issues underlying the price spikes and facilitate the development of a just and reasonable solution. The technical conference was held on April 9, 2015, and, on April 23, 2015 CAISO submitted comments on the technical conference, including a description of market enhancements it proposed to implement to address the "pricing excursions" (April 23 Proposal).[3] In this order, the Commission directs CAISO to file within 30 days of the date of this order proposed tariff provisions to establish just and reasonable rates, terms, and conditions of service in compliance with the March 16 Order.

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[1] *Cal. Indep. Sys. Operator Corp.*, 150 FERC ¶ 61,191 (2015).

[2] 16 U.S.C. § 824e (2012).

[3] April 23 Proposal at 1.

I. Background

2. The EIM enables entities with 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.[4] PacifiCorp's two BAAs—PacifiCorp East and PacifiCorp West—were the initial participants in the EIM.[5] NV Energy, the second entity to join the EIM, has stated that it plans to commence financially binding EIM operations on October 1, 2015.[6]

3. PacifiCorp commenced financially binding participation in the EIM on November 1, 2014, following a one-month period of parallel operation, during which CAISO ran a real-time representation of the EIM in a parallel but non-binding production environment. On November 13, 2014, CAISO filed a petition (Initial Waiver Petition), in Docket No. ER15-402-000, seeking limited waiver of the pricing parameters in sections 27.4.3.2 and 27.4.3.4 of its tariff for the 90-day period from November 14, 2014 to February 12, 2015. In the Initial Waiver Petition, CAISO explained that transitional conditions in the EIM caused the transmission and system energy-balance constraints described in these tariff sections to bind more frequently than expected since the EIM began operation, resulting in high prices that were not always indicative of actual physical conditions on the system.[7] CAISO asserted that these high prices reflected challenges PacifiCorp had in providing timely and complete data to ensure CAISO had system visibility under the new procedures, exacerbated by limitations on the resources available to PacifiCorp for use in the EIM and several forced outages of large EIM participating resources.[8]

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[4] *Cal. Indep. Sys. Operator Corp.*, 147 FERC ¶ 61,231, *order on rehearing, clarification, and compliance*, 149 FERC ¶ 61,058 (2014).

[5] *PacifiCorp*, 147 FERC ¶ 61,227 (June 19 PacifiCorp EIM Order), *order on reh'g, clarification, and compliance*, 149 FERC ¶ 61,057 (2014) (October 20 EIM Rehearing Order), *reh'g rejected*, 150 FERC ¶ 61,084 (2015) (conditionally accepting in part and rejecting in part revisions to PacifiCorp's open access transmission tariff (OATT) to enable participation in the EIM).

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

[7] Initial Waiver Petition at 3, 11.

[8] *Id*. at 8-11.

4. On December 1, 2014, the Commission granted the requested limited waiver for the period from November 14, 2014 through February 12, 2015[9] and directed CAISO to file informational reports at 30-day intervals during the waiver period providing supporting data demonstrating progress towards identifying and eliminating the problems giving rise to the Initial Waiver Petition.[10]

5. In the January 15 Filing, CAISO proposed to address the imbalance energy price spikes in EIM BAAs by applying the waiver of the pricing parameters to all new EIM Entities[11] for a 12-month period and setting the flexible ramping constraint relaxation parameter to a range between $0 and $0.01 (instead of $60) for each new EIM Entity's BAA during such period. CAISO proposed that the new provisions would also apply to the PacifiCorp BAAs for the remainder of their first 12 months of participation in the EIM.

6. The March 16 Order rejected CAISO's proposed tariff revisions, extended the waiver of EIM pricing parameters granted in the December 1 Order,[12] and instituted an investigation pursuant to section 206 of the FPA[13] into the justness and reasonableness of the EIM pricing provisions of CAISO's tariff in Docket No. EL15-53-000.[14] The Commission found that CAISO had not shown that its proposal was responsive to the issues causing the price spikes, and shared protestors' concerns that waiving parameters intended to send price signals to the market could mask the effects of issues underlying

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[9] On December 31, 2014, CAISO filed an additional waiver petition, in Docket No. ER15-817-000, which seeks to apply the same relief granted in the December 1 Order to the period from November 1, 2014 through November 13, 2014. This petition is currently pending.

[10] *Cal. Indep. Sys. Operator Corp.*, 149 FERC ¶ 61,194, at PP 22-23, 25-26 (2014) (December 1 Order).

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

[12] The Commission issued an earlier order in the proceeding on February 12, 2015, extending the waiver granted in the December 1 Order, effective February 13, 2015 and subject to further order in that proceeding. *Cal. Indep. Sys. Operator Corp.*, 150 FERC ¶ 61,086 (2015) (February 12 Order).

[13] 16 U.S.C. § 824e (2012).

[14] *Cal. Indep. Sys. Operator Corp.*, 150 FERC ¶ 61,191 (2015).

the price spikes without fully addressing those issues.[15] In light of the imbalance energy price spikes in PacifiCorp's BAAs and CAISO's repeated requests for waiver of the EIM pricing parameters, the Commission determined that it was "necessary to address the underlying issues affecting imbalance energy prices in PacifiCorp's BAAs, and to identify and resolve those issues affecting new entrants to the EIM prior to the start of market operations for new EIM Entities."[16] Accordingly, pursuant to its authority under section 206 of the FPA, the Commission found that the existing EIM provisions in CAISO's tariff related to the imbalance energy price spikes in PacifiCorp's BAAs are unjust and reasonable, and the Commission directed staff to convene a technical conference to develop a record on which the Commission could address issues related to the price spikes, and to facilitate the development of a just and reasonable solution. The Commission established a refund effective date of 90 days from the date that notice of initiation of the section 206 proceeding was published in the *Federal Register*, which is June 22, 2015. In addition, the Commission directed CAISO to submit a compliance filing within 60 days of the March 16 Order incorporating requirements in its tariff to ensure readiness prior to new entities commencing operations in the EIM.[17]

II. <u>Technical Conference</u>

7. As directed in the March 16 Order, Commission staff convened a technical conference, in Docket Nos. ER15-861-000 and EL15-53-000, on April 9, 2015. CAISO, its Department of Market Monitoring, and PacifiCorp provided information requested by staff regarding the following categories of causes of the imbalance energy price spikes identified in the Department of Market Monitoring's March 4, 2015 informational report in Docket No. ER15-402-000: resource data alignment, resource outages, manual dispatches, imports/exports, load changes, renewable deviation, and transfer constraints/congestion.[18] The technical conference also explored actions that CAISO and PacifiCorp had taken to address some of the underlying causes of the price spikes, as well as a proposed market enhancement, the implementation of which would require tariff revisions.

8. Following the technical conference, on April 15, 2015, CAISO filed a motion seeking to: (1) revise the refund effective date established in the March 16 Order from

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[15] *Id*. P 30.

[16] *Id*. P 31.

[17] CAISO submitted this compliance filing on May 6, 2015.

[18] *See* Notice of Technical Conference, Docket Nos. ER15-861-000 and EL15-53-000 (issued Mar. 24, 2015).

June 22, 2015 to August 24, 2015, the latest refund effective date permitted under section 206(b) of the FPA; and (2) extend the waiver granted in the December 1 Order until the date of implementation of the directives in a Commission order addressing the April 23 Proposal. The Commission issued an order granting this relief on June 19, 2015.[19]

III. Notice and Responsive Pleadings

9. Notice of the institution of the section 206 investigation and the refund effective date was published in the *Federal Register*, 80 Fed. Reg. 15,594 (2015). Notice of the deadline for intervening in Docket No. EL15-53-000 was published in the *Federal Register*, 80 Fed. Reg.17,742 (2015), with interventions due on or before April 15, 2015. Timely motions to intervene were filed by NextEra Energy Resources, LLC; Portland General Electric Company; the Transmission Agency of Northern California; PacifiCorp; Arizona Public Service Company; Deseret Generation & Transmission Co-operative, Inc. (Deseret); Powerex Corporation (Powerex); Puget Sound Energy, Inc. (Puget); Northern California Power Agency; DC Energy, LLC; Iberdrola Renewables, LLC (Iberdrola); Office of the Nevada Attorney General, Bureau of Consumer Protection; California Department of Water Resources State Water Project; Western Power Trading Forum (WPTF); California Municipal Utilities Association; Balancing Authority of Northern California; Imperial Irrigation District; Nevada Power Company and Sierra Pacific Power Company (collectively, NV Energy); Utah Associated Municipal Power Systems; Truckee Donner Public Utility District (Truckee Donner); Pacific Gas and Electric Company (PG&E); Public Power Council; Modesto Irrigation District; the Cities of Santa Clara, California and Redding, California and the M-S-R Public Power Agency; Sacramento Municipal Utility District; Bonneville Power Administration (BPA); and Southern California Edison Company (SoCal Edison). A notice of intervention was filed by the Washington Utilities and Transportation Commission (Washington Commission). On May 6, 2015, the Cities of Anaheim, Azusa, Banning, Colton, Pasadena, and Riverside, California (Six Cities) filed a motion to intervene out-of-time.

10. Portland General Electric Company, SoCal Edison, the Transmission Agency of Northern California, Office of the Nevada Attorney General, Bureau of Consumer Protection, and Public Power Council also filed motions to intervene out-of-time in Docket No. ER15-861-000.

11. Notice of the technical conference was published in the *Federal Register*, 80 Fed. Reg. 16,672 (2015), with post-technical conference comments due on or before April 23, 2015.[20] The schedule for post-conference comments was subsequently

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[19] *Cal. Indep. Sys. Operator Corp.*, 151 FERC ¶ 61,247 (2015).

[20] Supplemental notice of the technical conference was published in the *Federal Register*, 80 Fed. Reg. 20,218 (2015).

extended to April 23, 2015 for CAISO to submit its post-technical conference proposal, to May 7, 2015 for parties to comment on CAISO's proposal, and to May 21, 2015 for reply comments.

A. CAISO's April 23 Comments

12. On April 23, 2015, CAISO filed its post-technical conference comments in response to questions posed by Commission staff at the technical conference and described proposed market enhancements to address the imbalance energy price spikes. According to CAISO, PacifiCorp has been sufficiently resourced to balance its system and meet load consistent with North American Reliability Corporation (NERC) requirements during this period.[21] However, CAISO notes that the EIM currently does not consider additional capacity that is available to an EIM Entity to remediate power balance violations.[22] As a result, CAISO explains, if there is lack of effective economic ramp constrained bids to clear demand in the EIM, the current market software will observe a gap—known as an infeasibility—and will relax the power balance constraint, triggering the $1,000/MWh administrative pricing parameters.[23] CAISO attributes the small number of intervals during which there were infeasibilities to "imperfect or delayed information that left the market systems to conclude that there were infeasibilities, when in fact [PacifiCorp] was sufficiently resourced and used those resources to balance the system reliably."[24] Specifically, CAISO states that the market systems observed an insufficient amount of effective economic ramp constrained bids to clear the 15- and five-minute markets, due to limited visibility resulting partially from PacifiCorp's learning curve with the new systems, but also from a market structure issue that prevents the EIM from observing available capacity.[25]

13. CAISO's April 23 Proposal would automatically recognize and account for regulation and load following capacity from both EIM participating resources as well as capacity from resources not participating in the EIM—generally referred to as "available capacity"—and use this available capacity in the scheduling run to address potential infeasibilities that may give rise to transmission or power balance constraint violations.[26]

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[21] April 23 Proposal at 2.

[22] *Id*. at 11.

[23] *Id*. at 12.

[24] *Id*. at 2, 7-8.

[25] *Id*. at 7.

[26] *Id*. at 12-13.

If an infeasibility is not resolved after implementing the available capacity in the scheduling run, only then would the market software relax the transmission and/or power balance constraint at the existing $1,000/MWh parameter price.[27]

14. Specifically, the scheduling run will use available capacity, based on the bid curves submitted by EIM scheduling coordinators, to address potential power balance infeasibilities.[28] CAISO will add a factor to the bid prices of the deployed capacity so that available capacity is used after bids from EIM participating resources are exhausted but before relaxing the power balance or transmission constraints. In order to ensure that available capacity is not inappropriately used to support EIM transfers, CAISO will add a constraint to the scheduling run to prevent the amount of available capacity released from exceeding the supply and demand infeasibility within the BAA in the absence of an EIM transfer.[29] According to CAISO, this will prevent available capacity from being used to support EIM transfers to other BAAs, thereby ensuring that the additional energy dispatched is used only to solve the BAA's apparent supply shortfall. CAISO states that the dispatch of available capacity in the pricing run will be limited to the dispatch scheduled in the scheduling run solution, and that it will then reduce the load forecast for the BAA by a small tolerance to allow for price determination. The market will then either clear with the benefit of the additional bids for the amount of deployed available capacity, setting prices consistent with the pricing principles already contained in the tariff, or the $1,000/MWh penalty price will be triggered if the deployed capacity cannot resolve the potential infeasibility. Energy dispatched from non-participating resources to resolve constraints in the 15- and five-minute markets will be settled as instructed imbalance energy at the 15-minute price, and as uninstructed imbalance energy at the five-minute price, respectively.[30]

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[27] *Id*. at 14. CAISO states that it will add a surplus variable to the EIM transfer equation in the scheduling run at a high penalty price to ensure that the constraint will be relaxed should a particular infeasibility not be able to be resolved through the deployment of available capacity. *Id*. at 20.

[28] *Id*.

[29] CAISO notes that a similar constraint is not necessary for the pricing run, because the available capacity released in the pricing run is limited to the available capacity dispatched in the scheduling run. *Id*. at 20-21.

[30] *Id*. at 21-22. CAISO plans to file a proposed EIM year one enhancement that would result in energy from non-participating resources dispatched in the five-minute market being settled as instructed imbalance energy at the five-minute price after October 1, 2015. *Id.* at 22 n.11.

15. CAISO claims that it and PacifiCorp have made significant progress addressing PacifiCorp's learning curve with coordinating EIM and balancing authority operations and adjusting to new operational challenges and have already undertaken enhancements to market systems visibility, extensive training, and various operational and process improvements for PacifiCorp.[31] CAISO believes that an automated process is nevertheless necessary to reduce the potential for human error from manual operator actions and the use of estimated potential infeasibilities in base schedules and bids. CAISO asserts that the automated process will reduce price excursions by automatically accounting for balancing authority actions rather than waiting for the balancing authority to inform the EIM manually.[32]

16. CAISO claims that the April 23 Proposal will allow the EIM Entity to retain the capacity it needs to safely and reliably operate its systems, while allowing the EIM Entity to demonstrate the ability of such capacity to be recognized through the EIM to avoid infeasibilities.[33] CAISO further asserts that its proposed enhancement will allow the EIM dispatch to rationally price the available capacity needed to resolve potential infeasibilities, recognizing the fact that PacifiCorp has sufficient capacity to balance its BAAs at a cost far below the $1,000/MWh that the CAISO tariff imposes for power balance constraint violations.[34]

17. CAISO asserts that it can implement its proposed solution as soon as August 24, 2015. CAISO requests that the Commission issue an order directing CAISO to implement this solution.[35]

18. Finally, in response to a request at the technical conference, CAISO provides figures showing the percentage of intervals during which PacifiCorp passed the flexibility sufficiency test, but still encountered infeasibilities.[36] CAISO states that infeasibilities may occur even when the flexibility sufficiency test is passed because the flexible requirements cover imbalances up to a 95 percent confidence interval and conditions may change after the last flexibility sufficiency test.

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[31] *Id*. at 9.

[32] *Id*. at 10-11.

[33] *Id*. at 13-14, 22.

[34] *Id*. at 22-23.

[35] *Id*. at 3-4.

[36] *Id*. at 27-29.

B. Initial Comments

19. Comments on the April 23 Proposal were filed by Truckee Donner, SoCal Edison, NV Energy, PG&E, Iberdrola, Six Cities, Deseret, PacifiCorp, WPTF, Powerex, BPA, and Puget. NV Energy, Iberdrola, and PacifiCorp support accepting CAISO's proposal without delay or substantial modification as an improvement to EIM operations and appropriate response to the imbalance energy price spikes.[37]

20. Truckee Donner, SoCal Edison, PG&E, Deseret, BPA, and Puget request various modifications and clarifications to CAISO's proposal, while Powerex and WPTF request that the Commission reject CAISO's proposed solution. Commenters raise numerous issues, including issues generally related to: the types of capacity that will be included as available capacity (including whether available capacity will include contingency reserves);[38] potential impacts of the proposal on third parties;[39] whether the proposal will permit EIM Entities to collect additional revenue for resources already accounted for in cost-based ancillary service rates;[40] whether the $1,000/MWh parameter penalty price continues to be appropriate;[41] and whether additional measures, such as some period of transition pricing, are needed to address the imbalance energy price spikes.[42] In particular, Powerex and WPTF express concerns that CAISO's proposal does not address resource sufficiency.[43] Several commenters assert that customers and the Commission

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[37] *See* NV Energy Comments at 3, 6; Iberdrola Comments at 3; PacifiCorp Comments at1-3. PacifiCorp's comments include proposed revisions to Schedule 9 of the PacifiCorp OATT to incorporate the payment of instructed imbalance energy prices to non-participating resources, consistent with CAISO's proposal. PacifiCorp Comments at 5-6, and Attachments A and B.

[38] *See* Puget Comments at 4, 6-7; BPA Comments at 9-10; WPTF Comments at 7. *See also* Washington Commission Reply Comments at 3.

[39] *See* SoCal Edison Comments at 1-4; PG&E Comments at 2-3; BPA Comments at 8-9; Six Cities Comments at 2; WPTF Comments at 7.

[40] *See* Deseret Comments at 12-14; BPA Comments at 7-8, 10;

[41] *See* NV Energy Comments at 9-10; Iberdrola Comments at 3-4, Puget Comments at 5.

[42] *See* Truckee Donner Comments at 1, 5-7; Deseret Comments at 2-11, 12; NV Energy Comments at 7-9; BPA Comments at 2-3; WPTF Comments at 8. *See also* Washington Commission Reply Comments at 4.

[43] *See* Powerex Comments at 15-16, 18-19; WPTF Comments at 8-9.

cannot assess the viability of CAISO's proposal without seeing the details of how CAISO proposes to implement the proposal in its tariff beyond the outline presented in the April 23 Proposal.[44]

C. Reply Comments and Answers

21. Reply comments were filed by CAISO, PacifiCorp, SoCal Edison, Powerex, WPTF, and the Washington Commission, addressing many of the same issues discussed in the initial comments.

22. CAISO and Powerex filed answers to the reply comments on June 5, 2015 and June 8, 2015, respectively.

IV. Discussion

A. Procedural Matters

23. Pursuant to Rule 214 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214 (2014), the notice of intervention and timely, unopposed motions to intervene serve to make the movants 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) (2014), the Commission will grant the late-filed motions to intervene of Portland General Electric Company, SoCal Edison, the Transmission Agency of Northern California, Office of the Nevada Attorney General, Bureau of Consumer Protection, and Public Power Council in Docket No. ER15-861-000, and the late-filed motion to intervene of Six Cities in Docket No. EL15-53-000, given their interests in the proceeding, the early stage of the proceeding, and the absence of undue prejudice or delay.

24. Rule 213(a) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.213(a)(2) (2014), prohibits an answer to a protest or answer unless otherwise ordered by the decisional authority. We are not persuaded to accept the answers filed by CAISO and Powerex and will, therefore, reject them.

B. Commission Determination

25. The Commission appreciates the time and insight provided by CAISO and the intervenors in exploring these issues at the technical conference and in post-conference comments. CAISO has presented conceptual ideas in the April 23 Proposal that may address in whole or in part the concerns giving rise to the FPA section 206 investigation in this proceeding. However, the Commission is unable to review the justness and

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[44] *See* PG&E Comments at 1; BPA Comments at 10; WPTF Comments at 3-4.

reasonableness of a conceptual proposal. The Commission would only be able determine whether CAISO's proposal is just and reasonable after reviewing, and allowing comment on, the detailed tariff revisions through which CAISO would seek to implement its proposal. Accordingly, we direct CAISO to file, within 30 days of the date of this order, proposed tariff revisions to address the imbalance energy price spike concerns identified in the March 16 Order. We also direct CAISO to include in its filing an explanation of how each of the underlying causes of the price spikes is addressed by its proposed tariff revisions and/or by other actions taken by CAISO and PacifiCorp, as well as whether there are any underlying issues that remain unaddressed.[45]

26. We find that addressing the concerns raised by commenters regarding CAISO's conceptual proposal is premature prior to reviewing the proposed tariff provisions. However, we expect CAISO to consider the concerns raised by commenters in developing its proposed detailed tariff language, and to ensure that commenters' concerns are addressed, as appropriate, in either the proposed tariff language itself or the accompanying transmittal letter. CAISO's proposed tariff sheets will be noticed for comment, and the Commission will address relevant comments in a subsequent order.

The Commission orders:

CAISO is hereby directed to file proposed tariff revisions 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.

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[45] We note that CAISO states its intention to explore whether the transmission constraint parameter should be calibrated at different levels, as well as the advantages and disadvantage of reducing the $1,000/MWh parameter price, as part of its planned Stepped Transmission Constraint stakeholder initiative, and encourage CAISO to follow through on its consideration of this potential EIM enhancement.