

149 FERC ¶ 61,256
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

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

California Independent System
Operator Corporation

Docket No. ER15-50-000

ORDER ACCEPTING TARIFF REVISIONS

(Issued December 18, 2014)

1. On October 6, 2014, the California Independent System Operator Corporation (CAISO) filed, pursuant to section 205 of the Federal Power Act (FPA),¹ revisions to its tariff to set the real time flexible ramping constraint relaxation parameter. In this order, we accept the proposed tariff revisions, to become effective January 15, 2015, as requested.

I. Background

2. CAISO administers both day-ahead and real-time wholesale electricity markets to procure energy and ancillary services to serve its load. CAISO states that the real-time market includes a 15-minute market that produces financially binding prices for energy and ancillary services for all internal resources and for imports and exports that choose to schedule on a 15-minute basis.² CAISO states that its real-time market also includes a real-time dispatch that runs every five minutes to dispatch available resources to economically meet load. CAISO explains that, in the 15-minute market, it enforces a flexible ramping constraint within the market optimization software, when necessary, to ensure that the commitment and dispatch of resources provide sufficient ramping capability in a subsequent five-minute real-time dispatch.³ CAISO states that the flexible ramping constraint relaxation parameter, which CAISO set at \$247 in its business

¹ 16 U.S.C. § 824d (2012).

² CAISO October 6, 2014 Filing at 2-3 (CAISO Proposal).

³ *Id.* at 10-11.

practice manual, defines the marginal cost above which the real-time market optimization software will forego procuring additional flexible ramping capacity.⁴

3. CAISO proposed the flexible ramping constraint in 2011, stating that the primary objective of the flexible ramping constraint is to ensure sufficient upward ramping capacity between the 15-minute real-time market and five-minute real-time dispatch. CAISO explained that the flexible ramping constraint addresses situations where regulation capacity and operating reserves procured in the real-time market, combined with the units dispatched in the real-time unit commitment process, do not provide sufficient upward ramping capacity to meet conditions in the five-minute real-time dispatch.⁵ In an order issued on December 12, 2011, the Commission accepted and suspended for a nominal period the proposed flexible ramping constraint and established hearing and settlement judge procedures to consider contested factual issues, including the appropriate level of compensation to those resources that assist in resolving the flexible ramping constraint and the allocation of flexible ramping constraint costs.⁶

4. CAISO and its stakeholders resolved the issues set for hearing and filed an uncontested offer of settlement. The settlement included new tariff language in section 11.25.1 of CAISO's tariff to reflect the formula that will be used to derive the compensation to resources resolving the flexible ramping constraint. In October 2012, the Commission approved the settlement and accepted the associated revised tariff sheets.⁷ At that point, CAISO's 15-minute market energy prices were not financially binding and, therefore, enforcing the flexible ramping constraint had an indirect effect on prices that were only advisory.⁸

⁴ *Id.* at 10.

⁵ *Id.* at 3-5. During conditions of real-time imbalance flexibility shortages, CAISO will first use regulation capacity and available operating reserves not designated for use in case of a contingency. CAISO's next available options are to request generation from other balancing authority areas in the interconnection or to dispatch its operating reserves. *Id.*

⁶ *Cal. Indep. Sys. Operator Corp.*, 137 FERC ¶ 61,191 (2011) (December 2011 Order).

⁷ *Cal. Indep. Sys. Operator Corp.*, 141 FERC ¶ 61,012 (2012) (October 2012 Settlement Order).

⁸ CAISO Proposal at 11.

5. In November 2013, CAISO proposed further revisions to its tariff to align its market structure with certain reforms established in Order No. 764⁹ and implement additional market enhancements. As explained in CAISO's filing here, those tariff revisions included the implementation of a 15-minute market that produces financially binding 15-minute prices for energy and ancillary services for all internal transactions and for transactions of market participants that choose to schedule on the interties on a 15-minute basis.¹⁰ In response to CAISO's Order No. 764 proposal, commenters raised concerns regarding the interaction between these new market enhancements and the flexible ramping constraint. Specifically, they noted that the 15-minute advisory prices tended to be significantly higher than five-minute prices. As such, commenters expressed concern that the observed divergence may carry through to the financially binding 15-minute market. The Commission found that CAISO had adequately explained how the flexible ramping constraint contributed to the price divergence between the 15-minute and five-minute prices, and recognized CAISO's further commitment to fine-tune its use of the flexible ramping constraint.¹¹

6. On November 1, 2014, CAISO commenced the energy imbalance market, which has expanded the footprint of CAISO's real-time market beyond the CAISO balancing authority area.¹² The PacifiCorp West and PacifiCorp East balancing authority areas are two energy imbalance market balancing authority areas participating in CAISO's real-time market.¹³

⁹ *Integration of Variable Energy Resources*, Order No. 764, FERC Stats. & Regs. ¶ 31,331, *order on reh'g*, Order No. 764-A, 141 FERC ¶ 61,232 (2012), *order on reh'g*, Order No. 764-B, 144 FERC ¶ 61,222 (2013) (Order No. 764).

¹⁰ CAISO Proposal at 7.

¹¹ *Cal. Indep. Sys. Operator Corp.*, 146 FERC ¶ 61,204, at P 55 (2014).

¹² *Cal. Indep. Sys. Operator Corp.*, 147 FERC ¶ 61,231, *order on reh'g and compliance*, 149 FERC ¶ 61,058 (2014) (conditionally accepting CAISO's proposed tariff revisions to implement an energy imbalance market).

¹³ In the future, CAISO's real-time market may be expanded to include other energy imbalance market balancing authority areas. *See, e.g., Cal. Indep. Sys. Operator Corp.*, 147 FERC ¶ 61,200 (2014) (accepting implementation agreement between CAISO and NV Energy setting forth the terms under which CAISO will modify and extend its real-time market to provide energy imbalance service to NV Energy).

II. CAISO's Filing

7. Pursuant to its commitment to fine-tune its use of the flexible ramping constraint, CAISO states that it has evaluated its use of the flexible ramping constraint parameter and determined that it is appropriate to (1) lower the flexible ramping constraint parameter from \$247 to \$60, and (2) include the parameter in the tariff. CAISO explains that based upon its evaluation, the current \$247 level of flexible ramping constraint relaxation parameter indirectly increases the price for energy in the 15-minute market and causes an unwarranted price divergence between 15-minute market prices and the five-minute market prices.¹⁴ CAISO explains that the flexible ramping constraint applies upward pricing pressure on the 15-minute market because as the constraint reserves flexible ramping resources, the pool of generation resources with economic bids in the 15-minute market decreases, causing the price for energy in that interval to increase. CAISO states that an increased price in the 15-minute market is justified when it provides effective ramping capacity.¹⁵

8. Based on CAISO's analysis of 2013 market data, however, CAISO states that it determined that when the flexible ramping constraint relaxation parameter is above \$60, the flexible ramping constraint is less effective in procuring needed flexible capacity because the market optimization software relies on more out-of-merit-order redispatches (rather than additional, operationally binding unit commitments). According to CAISO, out-of-merit-order redispatches do not always provide usable flexible ramping capacity because they are not operationally binding and may be partially undone in the five-minute market.¹⁶ CAISO states that this outcome is not warranted because although the flexible ramping constraint constrains the 15-minute market and puts upward pressure on prices, it provides no extra assured benefits to the five-minute real-time dispatch.¹⁷ According to CAISO, its market analysis also indicates that when the flexible ramping constraint relaxation parameter is set above \$60, violations of the power balance constraint¹⁸ increase because, as discussed above, the flexible ramping constraint relies

¹⁴ CAISO Proposal at 1-2, 12-14.

¹⁵ *Id.* at 11-12.

¹⁶ *Id.* at 2, 11-12, 17.

¹⁷ *Id.* at 2, 13.

¹⁸ The power balance constraint is enforced in the real-time market to ensure that electric generation and demand in real time markets are balanced. CAISO explains that the relationship between the flexible ramping constraint and the power balance constraint is important because it reflects the tradeoff of using the flexible ramping constraint to

(continued ...)

on more out-of-merit-order redispatches which do not always provide usable ramping capacity during the five-minute dispatch intervals. CAISO explains that this analysis indicates that, although flexible ramping resources are constrained in the 15-minute market, these resources are not resolving supply shortages in the five-minute market. In addition, CAISO states that when the flexible ramping constraint relaxation parameter is set below \$60, it results mostly in unit commitments that help reduce power balance constraint violations.¹⁹

9. Thus, CAISO states that its analysis demonstrates that the flexible ramping constraint relaxation parameter is not effective at \$247 and, therefore, it must be adjusted. CAISO states that by setting the flexible ramping constraint relaxation parameter at \$60, it achieves the desired effect of committing additional resources, and can avoid unnecessarily constraining the 15-minute market and unnecessarily increasing 15-minute market prices.²⁰ CAISO states that, because this flexible ramping constraint relaxation parameter affects prices, it proposes to include this parameter in its tariff.²¹

10. CAISO requests an effective date for its proposed tariff revisions of January 15, 2015.

III. Notice of Filing and Responsive Pleadings

11. Notice of CAISO's filing was published in the *Federal Register*, 79 Fed. Reg. 62,128 (2014), with protests and interventions due on or before October 27, 2014. Timely motions to intervene were filed by NRG Companies; Calpine Corporation; Southern California Edison Company; the California Department of Water Resources; State Water Project; Northern California Power Agency; the City of Santa Clara, California; Powerex Corp.; and Modesto Irrigation District. Pacific Gas and Electric Company (PG&E) and the Cities of Anaheim, Azusa, Banning, Colton, Pasadena, and Riverside, California (collectively, Six Cities) submitted timely motions to intervene and comments. Western Power Trading Forum (WPTF) submitted a timely motion to intervene and protest.

hold back capacity in order to avoid violations of the power balance constraint (i.e., locational marginal prices of \$1000/MWh). *Id.* at 14-16.

¹⁹ *Id.* at 15-18.

²⁰ *Id.* at 1-2, 17.

²¹ *Id.* at 2, 18.

12. On November 12, 2014, CAISO submitted an answer to WPTF's protest and Six Cities' comments.

A. Comments and Protests

13. PG&E and Six Cities support CAISO's proposal to set the flexible ramping constraint relaxation parameter at \$60 and include it in the tariff, stating that this revision will result in effective procurement of ramping capacity and reduce the amount of positive power balance violations.²² Also, Six Cities contends that, because CAISO demonstrated that the flexible ramping constraint relaxation parameter at the current level may increase prices in the 15-minute market without providing any additional effective upward ramping capacity, the Commission should direct CAISO to implement the tariff amendment upon satisfaction of the Commission's 60-day notice period, i.e., on December 5, 2014, in advance of CAISO's requested effective date of January 15, 2015.²³

14. WPTF states that it has no objection to CAISO using the \$60 flexible ramping constraint relaxation parameter to support the efficient procurement of ramping and ancillary services, especially when additional procurement is not likely to produce benefits to the CAISO market. However, WPTF argues that the proposal will unjustifiably reduce the compensation paid to resources that help resolve the flexible ramping constraint. WPTF states that the flexible ramping constraint relaxation parameter affects an input to the formula used to determine compensation paid to these resources,²⁴ and notes that the compensation formula was determined as part of the black box settlement approved in the October 2012 Settlement Order. WPTF contends that, while it may be appropriate to reduce the quantity of flexible ramping capacity procured under certain circumstances, CAISO has not demonstrated or provided any basis to show that it is reasonable to reduce the price paid to suppliers for such service.²⁵

²² Six Cities October 27, 2014 Comments at 1-2 (Six Cities Comments); PG&E October 27, 2014 Comments at 3.

²³ Six Cities Comments at 3.

²⁴ The flexible ramping constraint "shadow price" is one of the inputs to the compensation formula. CAISO sets the flexible ramping constraint shadow price at the flexible ramping constraint relaxation parameter—e.g., under the proposal, the flexible ramping constraint shadow price would be \$60. CAISO Proposal at 17. The shadow price is defined as "the marginal value of relieving a particular constraint." *Id.* n. 23.

²⁵ WPTF October 27, 2014 Protest at 4-5.

15. In order to meet CAISO's objective of not buying flexible ramping capacity at levels that would be counterproductive, while not lowering the compensation to suppliers satisfying the flexible ramping capacity procurement requirement, WPTF proposes that CAISO lower the flexible ramping constraint relaxation parameter in its scheduling run to \$60 to determine when to stop procuring flexible ramping capacity, but for compensation purposes, CAISO should continue to use \$247 as the shadow price when the constraint is relaxed. According to WPTF, this will meet CAISO's objective of not procuring capacity that is ineffective without compromising the compensation for resources providing flexible ramping capacity that is effective.²⁶

16. WPTF asks the Commission to reject the compensation portion of the proposal and, alternatively, adopt WPTF's proposal to set the flexible ramping capacity shadow price at \$247 for purposes of compensating resources.²⁷ Finally, WPTF states that because the flexible ramping constraint relaxation parameter has an effect on flexible ramping constraint procurement and associated compensation, it is appropriate to include it in the tariff. WPTF also asserts that the flexible ramping constraint parameter is not the only market optimization parameter that affects compensation paid for service provided under the tariff, and, therefore, market participants and CAISO would benefit from Commission guidance with respect to other market optimization parameters that should be included in the tariff instead of the business practice manual.²⁸

B. CAISO Answer

17. CAISO notes that WPTF does not object to adjusting the flexible ramping constraint parameter in order to limit procurement of capacity under conditions when incremental procurement will not produce benefits to the market. CAISO contends that WPTF's proposal inappropriately severs the link between the level of capacity needed and the price paid for that capacity, as it fails to recognize that since the flexible ramping requirement is lower, the marginal cost of procuring the needed flexible capacity is also lower. Therefore, CAISO states that it is not appropriate to maintain the current parameter level as part of the compensation process.²⁹

²⁶ *Id.* at 5-6.

²⁷ *Id.* at 5-7.

²⁸ *Id.* at 3-4.

²⁹ CAISO November 12, 2014 Answer at 2, 4-5 (CAISO Answer).

18. In addition, CAISO contends that WPTF's alternative proposal is not just and reasonable, because it would require customers to pay a higher price based on the \$247 flexible ramping constraint relaxation parameter for the capacity CAISO procures, without regard to the amount of capacity needed and procured. CAISO asserts that WPTF fails to demonstrate why customers should be required to pay a higher price for that capacity.³⁰

19. Moreover, CAISO argues that the Commission should reject WPTF's request to provide guidance as to other market optimization parameters that could be included in the tariff instead of the business practice manual. CAISO contends that WPTF does not provide any support for its request and, in any event, such request is beyond the scope of this proceeding. CAISO asserts that this proceeding addresses the flexible ramping constraint parameter and does not involve any other market optimization parameter.³¹

20. Finally, CAISO states that it does not object to Six Cities' request to implement the flexible ramping constraint at an earlier date, as long as CAISO is provided three days' notice.³²

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 (2014), the timely, unopposed motions to intervene serve to make the entities that filed them parties to this proceeding.

22. Rule 213(a)(2) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.213(a)(2) (2014), prohibits answers to protests unless otherwise ordered by the decisional authority. We will accept CAISO's answer because it has provided information that assisted us in our decision-making process.

B. Substantive Matters

23. We accept CAISO's proposed tariff revisions to become effective January 15, 2015, as requested. We find that CAISO has demonstrated that setting this parameter at \$60 will result in more efficient procurement of flexible ramping capacity, and will avoid

³⁰ *Id.* at 6.

³¹ *Id.* at 7.

³² *Id.*

unnecessary price increases under conditions when additional incremental procurement is not likely to produce benefits to the CAISO market.³³ More specifically, we find that setting the flexible ramping constraint parameter at \$60 is just and reasonable, as it strikes an appropriate balance between ensuring sufficient flexible ramping capacity without unnecessarily constraining the 15-minute market and increasing the price for energy in the 15-minute market.

24. Further, we disagree with WPTF that the proposal will unjustifiably reduce the compensation that would be paid to flexible ramping constraint providers. CAISO's analysis shows that setting the flexible ramping constraint relaxation parameter at \$60 will result in an appropriate reduction in flexible ramping capacity that is procured, which, in turn, appropriately lowers the marginal cost of resolving the flexible ramping constraint.³⁴ Having found that CAISO has supported its proposed tariff revisions as just and reasonable, we reject WPTF's alternative proposal to set the flexible ramping constraint parameter shadow price at \$247 for purposes of compensating resources when the flexible ramping constraint is resolved when the parameter is set at \$60. Furthermore, we decline to provide additional guidance with respect to other market optimization parameters. WPTF's request is beyond the scope of this proceeding, which addresses the flexible ramping constraint relaxation parameter.

25. Additionally, we note that the analysis supporting the flexible ramping constraint parameter is based on actual CAISO balancing authority area market data for 2013.³⁵ However, with the start of CAISO's energy imbalance market on November 1, 2014, the footprint of CAISO's real-time market is expanded beyond the CAISO balancing authority area and now includes multiple energy imbalance market balancing authority areas. Accordingly, we encourage CAISO to monitor the performance of the new flexible ramping constraint relaxation parameter within the context of the energy imbalance market and to propose further enhancements, if necessary.

26. Finally, we reject Six Cities' request that we accept CAISO's proposed tariff revisions with a December 5, 2014 effective date. Although CAISO states in its answer that it does not object to the request for an earlier effective date,³⁶ "[i]t is the utilities' responsibility to propose an effective date when they file tariff sheets with the

³³ CAISO Proposal at 17-18.

³⁴ *Id.* at 13, 17-18.

³⁵ *Id.* at 15.

³⁶ CAISO Answer at 3.

Commission.”³⁷ Here, CAISO, as the applicant, submitted tariff sheets with a requested January 15, 2015 effective date, and its submission was noticed for comment accordingly.³⁸ Therefore, we accept the proposed tariff revisions to become effective January 15, 2015, as requested by CAISO.

The Commission orders:

CAISO’s proposed tariff revisions are hereby accepted, to become effective January 15, 2015, as requested, as discussed in the body of this order.

By the Commission.

(S E A L)

Kimberly D. Bose,
Secretary.

³⁷ *Designation of Electric Rate Schedule Sheets*, Order No. 614, FERC Stats. & Regs. ¶ 31,096, at 31,506 (2000) (citing section 205 of the FPA, 16 U.S.C. § 824d).

³⁸ In addition, we find that accepting the tariff revisions with the requested effective date no earlier than January 15, 2015, ensures that all potential parties had sufficient notice of the proposed effective date.