

155 FERC ¶ 61,039  
UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

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

California Independent System  
Operator Corporation

Docket No. ER16-1019-000

ORDER GRANTING PETITION FOR  
LIMITED TARIFF WAIVER

(Issued April 18, 2016)

1. On February 26, 2016, the California Independent System Operator Corporation (CAISO) submitted a request for a limited, one-time waiver of section 35.2 of its tariff, which requires that price corrections for each trading day be completed no later than the fifth calendar day following the trading day. CAISO requests waiver of this price correction provision in order to correct prices for various pricing locations and market intervals in the period between October 15, 2014 and April 30, 2015. In this order, we grant CAISO's limited waiver request to recalculate the prices for the identified intervals, as discussed herein.

**I. Background**

2. CAISO states that, due to several interrelated system issues experienced in the first seven months of implementing CAISO's expanded full network model and the Energy Imbalance Market (EIM), certain prices posted on CAISO's OASIS are either based on data errors or are otherwise inconsistent with the tariff.<sup>1</sup> CAISO states that the system errors occurred in the context of two significant market software and modeling enhancements, and they were not apparent from market simulation and testing.<sup>2</sup>

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<sup>1</sup> CAISO Petition for Waiver of Tariff Provisions at 1-2, Docket No. ER16-1019-000 (Feb. 26, 2014) (CAISO Petition).

<sup>2</sup> *Id.* at 2.

Moreover, CAISO asserts that it is confident that these problems stem from implementation issues surrounding the EIM and full network model expansion rather than design issues. CAISO also states that it has taken measures to mitigate for such issues in the future.<sup>3</sup>

3. CAISO states that, approximately two weeks after implementing the EIM, CAISO found potential errors with some of the prices it calculated and posted.<sup>4</sup> CAISO states that it immediately began analyzing the root causes of, and investigating potential solutions for, the observed system issues to prevent their recurrence. After extensive analysis, CAISO affirms that it identified and implemented all solutions for prospective market runs effective May 1, 2015.<sup>5</sup> But CAISO also maintains that it was not, at that time, able to determine exactly how the multiple issues that may have affected the quality of the price calculations for each interval interacted, nor what corrections were needed retroactively.<sup>6</sup> According to CAISO, this meant that it could not correct all the prices within the timeframe permitted under its tariff. CAISO states that the reasons for the delay in correcting the issues were its need to focus on resolving the issues prospectively to prevent further pricing errors, the complexity of the issues, data processing challenges, and the fact that some of the issues had a cascading effect and required careful management in processing.<sup>7</sup> Thus, CAISO explains, it worked on resolving issues retroactively to October 15, 2014 only after resolving all possible issues prospectively.<sup>8</sup>

4. CAISO states that it focused its efforts on analyzing the past market runs and prices and resolving identified pricing issues prior to the 18-month recalculation settlement statement so that it could minimize the time for resettlement based on corrected prices. CAISO explains that the issues arose because implementing those two projects significantly changed data structures and altered business processes, and that the

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<sup>3</sup> *Id.* at 7.

<sup>4</sup> *Id.*

<sup>5</sup> *Id.* at 2. CAISO states it was able to implement some of the solutions within the tariff-defined timeframes for price corrections. During the relevant period, CAISO explains it timely processed approximately 6.4 million price corrections for PNodes and approximately 500,000 price corrections for scheduling point/intertie combinations.

<sup>6</sup> *Id.* at 4, 6.

<sup>7</sup> *Id.* at 6.

<sup>8</sup> *Id.*

changes in turn resulted in prices that were either incomplete or erroneous.<sup>9</sup> Specifically, CAISO found two types of errors: (1) incorrect locational marginal prices for some scheduling point/intertie (SP/TIE) combinations; and (2) a mismatch between some of the prices posted on CAISO's OASIS and the corresponding prices in CAISO settlements for the same intervals and locations.<sup>10</sup>

5. With regard to the errors related to some SP/TIE combinations, CAISO states that these errors stem from the fact that CAISO either erroneously added something to a price it should not have added, or failed to include something that should have been included.<sup>11</sup> CAISO explains that its full network model is a detailed model used in its market processes that reflects the interconnected power system of the CAISO-controlled grid and certain parts of the external grid. On October 15, 2014, CAISO implemented an expanded full network model that increased the scope of the topology of the full network model to include internal and external schedules, which, CAISO explains, was a necessary prerequisite for implementing the EIM.<sup>12</sup>

6. With the expanded full network model, CAISO started settling interchange schedules based on the locational marginal price for a combination of the scheduling point and intertie. The concept behind an SP/TIE combination locational marginal price is that, with the expanded full network model, CAISO markets can account for multiple interchange schedules at the same scheduling point, using different interties, and even potentially interconnecting to different balancing authority areas.<sup>13</sup> With this expansion, interchange transactions must specify both a scheduling point and an intertie, which gives CAISO added flexibility necessary to dispatch the EIM. The scheduling point is used to model the injection (for import) or withdrawal (for export) of power, which are relevant for determining the power flow solution and therefore also in enforcing physical limits in congestion management. The intertie, on the other hand, designates the contract path where the intertie schedule is tagged and it is relevant for enforcing scheduling limits in

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<sup>9</sup> *Id.* at 7.

<sup>10</sup> *Id.*

<sup>11</sup> *Id.* at 9.

<sup>12</sup> The EIM, which commenced on November 1, 2014, provides balancing authority areas in the Western Interconnection the opportunity to participate in the real-time market for imbalance energy that CAISO operates in its own balancing authority area.

<sup>13</sup> CAISO Petition at 8-9.

congestion management. Therefore, the locational marginal price for the SP/TIE combination for a given intertie transaction captures the marginal impact of both physical and scheduling limits. CAISO calculates prices for approximately 110 SP/TIEs, although not all 110 of those are affected by the pricing errors addressed in this filing. Moreover, according to CAISO, the issue here was related to errors that dealt with data processing and applications and not flawed rules for calculating interchange transactions.<sup>14</sup>

7. With regard to OASIS discrepancies, the issue CAISO identified concerned mismatches between some of the prices posted on CAISO's OASIS and the prices used in CAISO settlements.<sup>15</sup> When the market process is working properly, CAISO will calculate the correct price and then both: (1) post that correct price to OASIS; and (2) use that correct price in its settlements system. Both the OASIS and the settlements system draw their data from a common source to facilitate this process and any discrepancy between the two systems for the same price record indicates some form of error in CAISO process.<sup>16</sup> If the prices do not match, then the CAISO tariff requires CAISO to settle on the price posted on OASIS.

## II. CAISO Petition

8. As noted above, the pricing errors for which CAISO seeks waiver fall into two general categories: (1) SP/TIE price errors, where CAISO calculated incorrect locational marginal prices for some scheduling point/intertie combinations, posted those incorrect prices to OASIS, and generated market settlements based on those incorrect prices; and (2) OASIS to settlements discrepancies, where the prices CAISO posted on its OASIS do not match the prices that exist in CAISO settlements system for the same interval and location.<sup>17</sup> Between these two categories, CAISO identified approximately 1.9 million price records for correction, out of approximately 643 million total records from October 15, 2014 to April 30, 2015, representing less than half of one percent of the total records. Each price record requiring correction represents a locational marginal price (locational marginal price) for a market type (day-ahead market, fifteen-minute market, or real-time market), a market interval (for the fifteen-minute and real-time markets a fifteen-minute or five-minute interval within a particular hour), and a particular location (e.g., a specific PNode).

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<sup>14</sup> *Id.* at 9-10.

<sup>15</sup> *Id.* at 7.

<sup>16</sup> *Id.* at 15.

<sup>17</sup> *Id.* at 7-8.

**A. Scheduling Point/Intertie Combination Price Errors**

9. With regard to the SP/TIE price category, CAISO states that, to identify errors in SP/TIE prices, its evaluation focused on analyzing the actual locational marginal price differences at the specific SP/TIE combinations between what is posted currently on OASIS and what CAISO has determined the price should have been.<sup>18</sup> CAISO compiled a clean data set of market price components and then, using the same logic as the market application should have used during the relevant period, derived the “correct” SP/TIE price. CAISO then reconciled the posted prices with the recalculated prices to determine which locations had discrepancies in which intervals.

10. CAISO states there were several different types of errors that caused CAISO to post these nearly two million incorrect SP/TIE price records; generally, these errors reflect that CAISO either added something to a price it should not have added or failed to include something that should have been included.<sup>19</sup> First, according to CAISO, 97 percent of the errors were due to a software issue where CAISO failed to include the greenhouse gas shadow price<sup>20</sup> and the EIM transfer shadow price<sup>21</sup> in calculating overall SP/TIE locational marginal prices.<sup>22</sup>

11. Second, according to CAISO, 2.22 percent of the errors involve flaws in the price correction tool. CAISO states that the price correction tool was meant to mimic the market rules, and to recalculate the price when correction is warranted.<sup>23</sup> But CAISO explains there were several instances of a time lag between when CAISO implemented the market rule and when it reflected those rule changes in the price correction tool. As

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<sup>18</sup> *Id.* at 9.

<sup>19</sup> *Id.* CAISO states that it identified 1,977,471 SP/TIE price records that require correction, and listed the relative frequency, and whether the error occurred for the day-ahead market, real time market or both in Table 1.

<sup>20</sup> *Id.* at 10. CAISO explains that greenhouse shadow price is a new pricing element created as part of the EIM and is used to reflect that generating units outside California do not face compliance costs of California’s state greenhouse gas regulations.

<sup>21</sup> *Id.* CAISO explains that the EIM transfer shadow price is used to reflect the scarcity of transfer capacity between EIM balancing authority areas.

<sup>22</sup> *Id.* at 10-11.

<sup>23</sup> *Id.* at 11.

real-time updates to the software were identified, CAISO explains it experienced challenges in ensuring that the necessary updates to the price correction tool were made in a timely manner.<sup>24</sup>

12. Third, CAISO states that 0.15 percent of the pricing errors occurred with the “price fill” process.<sup>25</sup> CAISO explains that when a market run fails, CAISO fills in the prices from the last valid market run. But for some market intervals, CAISO explains, that process failed, and, instead, filled in the wrong data for SP/TIEs. The next category of errors involved 0.05 percent of errors and 988 market intervals at the Mona and Crag scheduling points, where CAISO’s software inadvertently calculated the price at these locations as if they were EIM locations; thus, CAISO states, the Mona and Crag scheduling points were assigned EIM transfer shadow prices erroneously.<sup>26</sup> In another category of SP/TIE errors, there were 849 cases where the congestion component for the SP/TIE price in the day-ahead market should have been the same as the congestion component for the corresponding PNode in the day-ahead market, but was not.<sup>27</sup> Thus, CAISO asserts these particular errors also need correction.

13. Finally, 0.01 percent of SP/TIE errors involve a specific SP/TIE price: 128 price records do not have the MALIN\_ISL interface shadow price in calculating the overall congestion in the locational marginal price at the MALIN\_5\_N101/MALIN500 SP/TIE (pricing node).<sup>28</sup>

14. CAISO also states that, if the Commission grants the waiver, it will correct the incorrectly calculated prices, repost the prices as corrected, and recalculate the settlement statements for all affected scheduling coordinators with the corrected prices for those intervals in which settlements were also based on the incorrect price.<sup>29</sup> CAISO estimates 62 entities would face varying degrees of settlement impact if the waiver were granted,

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<sup>24</sup> *Id.*

<sup>25</sup> *Id.*

<sup>26</sup> *Id.* at 12.

<sup>27</sup> *Id.*

<sup>28</sup> *Id.* MALIN\_ISL refers to the name of the interface and MALIN\_5\_N101/MALIN500 refers to the SP/TIE pricing node.

<sup>29</sup> *Id.* at 13.

38 of which would face a settlement impact of less than \$10,000 over the relevant period, and 24 of which would face a net settlement impact of over \$10,000.

**B. OASIS to Settlements Discrepancies**

15. CAISO asserts that, where the market process is working properly, CAISO will calculate the correct price and then both post that correct price to OASIS and use that correct price in its settlements system.<sup>30</sup> CAISO explains that both the OASIS and the settlements system draw their data from a common source to facilitate this process and any discrepancy between the two systems for the same price record indicates some form of error in CAISO's process. When such a problem occurs, the CAISO tariff requires CAISO to settle on the price posted on OASIS.<sup>31</sup> CAISO states that the primacy of OASIS prices can be problematic because there are cases where CAISO knows that the price posted on OASIS is incorrect but it already has processed market settlements based on the correct prices.<sup>32</sup> Because of this circumstance, CAISO asserts the waiver would maintain the status quo and thus would not create a market impact. Absent the waiver, however, CAISO states it must resettle market participants based on the incorrect prices posted on OASIS.

16. CAISO identified two categories of discrepancies between OASIS and the settlements system. CAISO identified 192,295 PNode price records and 193,690 SP/TIE price records that show a discrepancy between OASIS and settlement. CAISO does not believe that all of these will require changes to the price posted on OASIS because sometimes the discrepancy was caused by an error in the settlements system, and thus will be addressed through CAISO's settlements recalculation process. CAISO, however, states it is unable, at this point, to determine the cause of the discrepancy, and has no reasonable basis upon which to determine whether the discrepancy is due to an error in the OASIS price, the settlements price, or both.<sup>33</sup> CAISO accordingly requests that all

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<sup>30</sup> *Id.* at 15.

<sup>31</sup> *Id.* (citing to the CAISO tariff, section 35.3.2 (“...in the event of a discrepancy between the prices posted on CAISO's OASIS and prices provided to Scheduling Coordinators through other means, CAISO will use the price posted on OASIS for Settlement purposes unless as directed by the Commission.”)).

<sup>32</sup> CAISO states it is also aware of instances where the error is with the price used in the settlements system. CAISO states that because it has authority to correct these through recalculation statements, the resolution of any such discrepancies is not the subject of this filing. *Id.* n.20.

<sup>33</sup> *Id.* at 17.

232,648 discrepancies that may result from an error in the OASIS price be considered within this waiver.<sup>34</sup>

### C. Waiver Criteria

17. CAISO asserts it meets all the Commission's requirements for waiver. First, it states that its errors were made in good faith.<sup>35</sup> CAISO asserts that the interrelated system issues that created the pricing errors covered by this waiver request were not apparent, and thus not foreseeable, from the EIM market simulation or other pre-production activities, nor were they of the sort that market simulation is designed to uncover.

18. Second, CAISO asserts the waiver is of limited scope.<sup>36</sup> CAISO states that the waiver would apply during a defined period of time to the specified pricing records<sup>37</sup> and further identified in datasets posted on CAISO's website and to two million out of 643 million pricing records. Third, CAISO asserts the requested waiver will remedy a concrete and clearly defined problem: CAISO has posted and settled on prices it knows are erroneous.<sup>38</sup> With regard to the OASIS discrepancies, CAISO argues the waiver will allow it to maintain the status quo and allow it to avoid having to recalculate settlement statements to reflect prices it knows to be incorrect.

19. For the same reasons, CAISO asserts the waiver meets the fourth criterion, namely, the prevention of harm to market participants.<sup>39</sup> CAISO states that the vast majority of affected market participants will face relatively limited settlements recalculations if this waiver is granted, and asserts that the price correction will impose reasonably manageable administrative burdens since it has already addressed the system

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<sup>34</sup> *Id.* at 16. CAISO states that, to the extent it can identify the correct price in time for the relevant 18-month recalculation settlement statement, CAISO requests permission to make the correction to OASIS. If CAISO cannot make a determination by that point, then, per its tariff, it states it would process the 18-month recalculation settlement statement to follow whatever price is posted on OASIS.

<sup>35</sup> *Id.* at 18.

<sup>36</sup> *Id.*

<sup>37</sup> The pricing records are attached to CAISO's petition as Attachment A.

<sup>38</sup> CAISO Petition at 19.

<sup>39</sup> *Id.*

issues that caused the pricing errors involved with this waiver filing and thus does not anticipate the need for similar waivers.<sup>40</sup> In addition, CAISO states these circumstances were anomalous, because they were tied to implementation of the EIM in conjunction with the expanded full network model, and because CAISO states it is unlikely to implement two changes of this magnitude on a near-simultaneous basis again.

20. CAISO requests that the waiver be made effective as of April 18, 2016 to allow it to correct the prices on OASIS and process such price changes in its settlement system in time to meet the April 25, 2016 publication deadline for the first of the relevant 18-month recalculation settlement statements.<sup>41</sup> CAISO also states that, should the Commission grant the requested waiver after April 18, then CAISO will only be able to reflect some of the corrections in the 35-month recalculation settlement statement for the affected trading day, rather than the 18-month statement. CAISO explains that a Commission order by April 27, 2016, i.e., 61 days after filing, would allow CAISO to reflect the recalculation for the October 25, 2014 trading day, when the most significant dollar recalculations begin, onwards on the 18-month recalculation settlement statement, thus allowing CAISO to correct the most significantly impacted trade dates at the earliest practicable time.

### **III. Notice of Filing and Responsive Pleadings**

21. Notice of CAISO's filing was published in the *Federal Register*, 81 Fed. Reg. 12,897 (2016), with interventions and protests due on or before March 18, 2016. Timely motions to intervene were filed by the Cities of Santa Clara and Redding, California and the M-S-R Public Power Agency, the City of Los Angeles Department of Water & Power, the Modesto Irrigation District, the Pacific Gas and Electric Company, Sempra Generation, LLC, Valley Electric Association, Inc., NRG Power Marketing, LLC and GenOn Energy Management, LLC, the Northern California Power Agency, and DC Energy, LLC. Southern California Edison Company (SoCal Edison), Shell Energy North America (U.S) L.P. (Shell) and Powerex Corporation (Powerex) filed timely motions to intervene and comments, while the Western Power Trading Forum (WPTF) filed a timely motion to intervene and protest. CAISO filed a motion for leave to answer and answer to the comments and protest on March 30, 2016, WPTF and Powerex filed motions for leave to answer and answer to the CAISO's answer on April 1, 2016, and on April 5, 2016, respectively. CAISO filed an answer on April 8, 2016.

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<sup>40</sup> *Id.* at 20.

<sup>41</sup> *Id.* at 3.

22. WPTF protests CAISO's proposal arguing that it fails to "recognize the full scope of the potential market impacts from the proposed price corrections" and because it fails to "reflect and resolve the root cause of the deficiencies in CAISO's market deployment process."<sup>42</sup> WPTF states that CAISO ignores the impacts of its proposed resettlements in the bilateral market,<sup>43</sup> that CAISO's argument that the payments are concentrated in just a few parties and multiple smaller parties will have to pay is not a valid criterion for the Commission to endorse these resettlements,<sup>44</sup> and that CAISO does not know the full effect of the proposed SP/TIE resettlement because it has not determined the full scope of the effects, which include bid cost recovery and Congestion Revenue Rights revenues.<sup>45</sup> Moreover, WPTF argues that resettling the markets this far beyond the trade day undermines market participant confidence in the reliability of CAISO's settlement process.<sup>46</sup>

23. WPTF asks that the Commission reject the petition, require CAISO to describe the full effects of the resettlement before accepting any resettlement, and require CAISO to conduct an in-depth root cause analysis of the causes of the problem so appropriate remedies can be in place before new systems are deployed.<sup>47</sup>

24. SoCal Edison supports the petition, and requests that the Commission grant CAISO's waiver request by April 18, 2016 so to meet CAISO's publication deadline of April 25, 2016 for the resettlement statements.<sup>48</sup> SoCal Edison states it appreciates CAISO's commitment to identifying and resolving these issues, including correcting the posted prices and recalculating settlements consistent with those corrections.<sup>49</sup>

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<sup>42</sup> WPTF Protest at 3.

<sup>43</sup> *Id.*

<sup>44</sup> *Id.* at 4.

<sup>45</sup> *Id.*

<sup>46</sup> *Id.* at 5.

<sup>47</sup> *Id.* at 1, 8.

<sup>48</sup> SoCal Edison at 3.

<sup>49</sup> *Id.*

25. Both Powerex and Shell support CAISO's corrections of the data and processing errors in transferring market clearing prices to OASIS or CAISO's settlement systems to align published prices with CAISO market actions.<sup>50</sup> Powerex and Shell protest CAISO's proposal, however, to the extent it may seek to rerun the market and recalculate market clearing prices upon which market participants relied and were scheduled during the affected period.<sup>51</sup> Powerex and Shell argue that the rule against retroactive ratemaking and the filed rate doctrine allow for retroactive changes only in exceptional or rare circumstances.<sup>52</sup>

26. While acknowledging CAISO's assertion that there would be limited financial impact on any one particular market participant, Powerex argues, and Shell agrees, that allowing CAISO to recalculate dispatch prices would undermine settled expectations and generate additional uncertainty.<sup>53</sup> Powerex asserts that the Commission's goal should be to avoid further harm to market participants, restore market confidence, and encourage more robust participation in CAISO markets.<sup>54</sup>

27. In its answer, CAISO clarifies that it is not requesting authority to conduct market re-runs, and therefore its waiver request does not constitute retroactive ratemaking or otherwise violate the filed rate doctrine.<sup>55</sup> CAISO asserts that the waiver is a reasonable approach to correcting data errors and other processing issues from the incorrect prices posted on OASIS.<sup>56</sup> CAISO reiterates that without the waiver, it will be obliged to rerun its settlements based on incorrect prices posted on OASIS.<sup>57</sup> CAISO asserts that Powerex and Shell's concerns are based on a misunderstanding of CAISO's request and how CAISO would actually conduct the price corrections under a waiver.<sup>58</sup> CAISO

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<sup>50</sup> Powerex at 4-5, Shell at 3.

<sup>51</sup> Powerex at 7-8, Shell at 3-4.

<sup>52</sup> Powerex at 8, Shell at 3-4.

<sup>53</sup> Powerex at 7-9, Shell at 3.

<sup>54</sup> Powerex at 7-8.

<sup>55</sup> CAISO Answer at 1-2, 6.

<sup>56</sup> *Id.* at 2.

<sup>57</sup> *Id.*

<sup>58</sup> *Id.* at 5-6; CAISO Petition at 17.

explains that the circumstances of this waiver are simply that of CAISO asserting its normal price correction authority beyond the time limit given under section 35.2 of its tariff.<sup>59</sup>

28. In response to concerns raised by WPTF, CAISO states it has characterized the settlement impacts to the extent possible and that it will not know the actual settlement outcome until it has been granted the waiver, completes the price corrections, and processes the recalculation statements.<sup>60</sup> CAISO asserts it should not be held responsible for ensuring bilateral transactions settlements are not disturbed because the parties may or may not have protected themselves against potential CAISO price corrections.<sup>61</sup> CAISO notes that a settlement impact statement has not been previously necessary for granting a waiver of a time limitation in an independent system operator tariff.<sup>62</sup> CAISO states that it provided the distribution of estimated settlement impacts not, as WPTF states, to demonstrate the relative concentration of “winners and losers,” but to support the fourth prong of the Commission’s waiver standard (preventing overall harm to market participants).<sup>63</sup> Finally, CAISO refutes WPTF’s assertion that the Commission must require CAISO to conduct and file a thorough root cause analysis in order to provide an incentive to CAISO to redouble its efforts to ensure that the systems necessary to effectuate timely resettlements are developed and implemented.<sup>64</sup>

#### IV. Discussion

##### A. Procedural Matters

29. Pursuant to Rule 2014 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 this proceeding.

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<sup>59</sup> CAISO Answer at 6-7.

<sup>60</sup> *Id.* at 10.

<sup>61</sup> CAISO notes that all parties are on notice that price corrections may occur beyond the time horizons given by the tariff and that settlement statements may be corrected up to 36 months after the trading day. *Id.*

<sup>62</sup> *Id.* at 10-11.

<sup>63</sup> *Id.* at 12-13.

<sup>64</sup> *Id.* at 13-15.

30. 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 or answer unless otherwise ordered by the decisional authority. We will accept CAISO's March 30, 2016 answer because it has provided information that assisted us in our decision-making process. However, we are not persuaded to accept the answers filed by WPTF and Powerex, as well as CAISO's April 8, 2016 answer, and therefore reject them.

### **B. Substantive Matters**

31. The Commission grants CAISO's request for a limited waiver of the price correction timing provisions in section 35.2 of the CAISO tariff. The Commission has previously granted waiver of tariff provisions where: (1) the applicant acted in good faith; (2) the waiver is of limited scope; (3) the waiver addresses a concrete problem; and (4) the waiver does not have undesirable consequences, such as harming third parties.<sup>65</sup>

32. We find that CAISO's requested waiver satisfies the foregoing criteria. First, we find CAISO acted in good faith because the system errors occurred in the context of two significant market software and modeling enhancements, and they were not apparent from market simulation and testing. Furthermore, the errors appear to have required lengthy and detailed analysis that could not be completed in time under the tariff.

33. CAISO's request for waiver is also limited both in scope and application. As CAISO has explained, the waiver would apply during a defined period of time to specific pricing records. While CAISO acknowledges that this waiver would cover over two million pricing records, which seems to belie CAISO's argument that the waiver is limited in scope, CAISO explains that, over the relevant time period, it generated 643 million pricing records and thus this waiver would actually cover less than half of one percent of the pricing records generated during this period.<sup>66</sup> Accordingly, we find that the waiver would cover a limited set of pricing records.

34. Next, the waiver will remedy a concrete and clearly defined problem, that of erroneous prices that CAISO was unable to correct within the tariff-prescribed timeline. With respect to the OASIS discrepancies, the waiver will also allow CAISO to maintain the status quo and allow it to avoid having to recalculate settlement statements to reflect prices it knows to be incorrect. We note also that section 35.4 of the CAISO tariff allows

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<sup>65</sup> See, e.g., *Midcontinent Indep. Sys. Operator, Inc.*, 154 FERC ¶ 61,059, at P 14 (2016); *Calpine Energy Serv., L.P.*, 154 FERC ¶ 61,082, at P 12 (2016); *New York Power Auth.*, 152 FERC ¶ 61,058, at P 22 (2015).

<sup>66</sup> CAISO Petition at 19.

it to make exactly these sorts of price corrections for software problems.<sup>67</sup> The problem that CAISO faced was being unable to research the extent of the problem within the time limit set forth in tariff section 35.2. As discussed below, we find that the actions that CAISO took to analyze the pricing errors were reasonable.

35. Moreover, we conclude the waiver will not lead to undesirable consequences. While CAISO acknowledges that many market participants will be affected by the price correction, the scope of the impacts appears to be relatively limited.<sup>68</sup> Moreover, we find that market participants generally will benefit from the accuracy of posted prices for the intervals at issue. While some parties have raised concerns regarding a possible market rerun or a recalculation of dispatch prices that would undermine settled expectations and generate additional uncertainty, we note that our granting of a limited waiver here is premised on our understanding, based on our review of the filing and on CAISO's representations in both its petition and in its answer, that a waiver would simply allow CAISO to correct the erroneous prices, in a way such that no other financially binding prices are affected by the correction, and not engaging in a market rerun. CAISO only requests a limited waiver of the limitation on timing for price corrections in section 35.2 of the CAISO tariff<sup>69</sup> and only with respect to the pricing records specified in Attachment A of CAISO's petition<sup>70</sup> and further identified in datasets posted on the CAISO's website.<sup>71</sup>

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<sup>67</sup> CAISO tariff section 35.4 states: "The circumstances in which the CAISO may determine that an invalid market solution or invalid prices exist include ... the occurrence of hardware or software failure...." Moreover, the Commission has found that, consistent with the filed rate doctrine, an entity such as CAISO has the authority to correct erroneous prices resulting from a software failure. *See, e.g., NRG Power Marketing, Inc. v. New York Indep. Sys. Operator, Inc.*, 91 FERC ¶ 61,346, at 62,166 (2000).

<sup>68</sup> *See* CAISO Petition at 13-14 (estimating that 62 entities would face settlement impact, and that 38 of these entities would face a settlement impact, either positive or negative, of less than \$10,000, while 24 entities would face a settlement impact, either positive or negative, of over \$10,000).

<sup>69</sup> *Id.* at 1.

<sup>70</sup> *Id.* at 18.

<sup>71</sup> *See*

<http://www.caiso.com/Documents/PriceCorrectionFERCWaiverDataFiles.zip>.

36. To address WPTF's concern that CAISO has not properly considered the full effects of the proposed SP/TIE resettlement, we note that CAISO focused its efforts on identifying and implementing all solutions for prospective market runs effective May 1, 2015, and subsequently on correcting the errors retrospectively within its markets.<sup>72</sup> In addition, as CAISO explained, it was unable to file this petition for waiver sooner precisely because it had focused its efforts on analyzing the pricing errors to be able to resolve the identified pricing issues prior to the 18-month recalculation settlement statement.<sup>73</sup> While filing this petition earlier may have mitigated some of the concerns, we find that it was reasonable for CAISO to investigate the causes of the errors so that it could fully understand the causes of the problems that occurred. In addition, we find persuasive CAISO's argument that the pricing errors arose because implementing the full network model and EIM together significantly changed data structures and altered business processes in unexpected ways, and that it has taken measures to mitigate for such issues in the future. We encourage CAISO to continue its efforts in this regard and work with stakeholders to mitigate these issues going forward. In so doing, CAISO should consider analyzing and providing to stakeholders the information that WPTF suggests would be helpful, such as an explanation of why the pricing issues were not discovered during the market simulation and testing processes.<sup>74</sup>

37. For these reasons, we grant CAISO's request for waiver effective April 18, 2016, so that it can correct the prices on OASIS and process such price changes in its settlement system in time to meet the April 25, 2016 publication deadline for the first of the relevant 18-month recalculation settlement statements.

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<sup>72</sup> CAISO Petition at 2.

<sup>73</sup> *Id.*

<sup>74</sup> *See* WPTF Protest at 6-7.

The Commission orders:

CAISO's request for limited waiver of section 35.2 of its tariff from October 15, 2014 to April 30, 2015 is hereby granted, as discussed in the body of this order.

By the Commission.

( S E A L )

Nathaniel J. Davis, Sr.,  
Deputy Secretary.