

153 FERC ¶ 61,305  
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. ER15-861-006

ORDER ON COMPLIANCE FILING

(Issued December 17, 2015)

1. On August 19, 2015 (August 19 Filing), as amended on October 21, 2015 (Deficiency Response),<sup>1</sup> the California Independent System Operator Corporation (CAISO) submitted proposed tariff revisions to comply with the Commission's July 20, 2015 order in this proceeding.<sup>2</sup> The tariff revisions are intended to enhance the Energy Imbalance Market (EIM) functionality so that the EIM will automatically recognize and account for capacity an entity participating in the EIM (EIM Entity) has available to maintain reliable operations in its own balancing authority area (BAA), but has not bid into the EIM. In this order, we accept the proposed tariff revisions, to become effective January 5, 2016, as requested.

**I. Background**

2. Since its implementation in 2014, the EIM has enabled 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

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<sup>1</sup> As noted below, on September 24, 2015, the Commission issued a deficiency letter directing CAISO to provide additional information regarding certain aspects of CAISO's proposal in the August 19 Filing. On October 21, 2015, CAISO filed its Deficiency Response.

<sup>2</sup> *Cal. Indep. Sys. Operator Corp.*, 152 FERC ¶ 61,060 (2015) (July 20 Order).

within the CAISO BAA.<sup>3</sup> PacifiCorp's two BAAs were the initial participants in the EIM, commencing financially-binding operations on November 1, 2014.<sup>4</sup>

3. Following the implementation of the EIM in November 2014, CAISO reported that certain conditions arose that caused the transmission and power balance constraints described in sections 27.4.3.2 and 27.4.3.4 of the CAISO tariff to bind more frequently than expected. CAISO asserted that the binding of these constraints resulted in atypically high prices in the 15-minute and five-minute markets in the PacifiCorp BAAs, which did not reflect actual physical conditions on the system. As a result, on November 13, 2014, CAISO filed in Docket No. ER15-402-000 a petition seeking limited waiver of the pricing parameters in sections 27.4.3.2 and 27.4.3.4 of its tariff for a 90-day period from November 14, 2014 to February 12, 2015. In several subsequent orders, the Commission granted limited extensions of the waiver of the pricing parameters.<sup>5</sup>

4. On January 15, 2015, in Docket No. ER15-861-000, CAISO filed a proposed tariff amendment to provide a 12-month transition period that would apply to each new entity joining the EIM during its initial year of EIM participation. During this transition period, CAISO proposed that prices for intervals that experience transmission or system balance constraints within the new EIM Entity's BAA would be determined using the last economic bid to establish the market clearing price, rather than using the tariff's \$1,000/MWh penalty price. CAISO also proposed setting the flexible ramping constraint relaxation parameter specified in tariff section 27.10 for the new EIM Entity's BAA between \$0 and \$0.01 (instead of \$60).

5. On March 16, 2015, the Commission issued an order rejecting CAISO's proposal for a 12-month transition period for new EIM Entities.<sup>6</sup> In addition, the Commission

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

<sup>4</sup> *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). NV Energy, the second entity to join the EIM, commenced financially binding operations on December 1, 2015. *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).

<sup>5</sup> *Cal. Indep. Sys. Operator Corp.*, 149 FERC ¶ 61,194 (2014); *Cal. Indep. Sys. Operator Corp.*, 150 FERC ¶ 61,086 (2015).

<sup>6</sup> *Cal. Indep. Sys. Operator Corp.*, 150 FERC ¶ 61,191 (2015) (March 16 Order).

found that the EIM provisions in CAISO's tariff related to the imbalance energy price spikes in PacifiCorp's BAAs were unjust and unreasonable and instituted a proceeding under section 206 of the Federal Power Act (FPA)<sup>7</sup> to address issues related to the imbalance energy price spikes in PacifiCorp's BAAs.<sup>8</sup> The Commission also directed CAISO to revise the EIM provisions in its tariff to include requirements to ensure readiness prior to new EIM Entities commencing EIM operations, and 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.

6. On April 9, 2015, Commission staff held a technical conference to discuss issues related to the underlying causes of the price spikes. On April 23, 2015, CAISO submitted 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. In its comments, CAISO explained that the EIM 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 the capacity an EIM Entity has available to maintain reliable operations in its own BAA.<sup>9</sup> In its April 23, 2015 comments, CAISO set forth conceptual ideas regarding proposed market enhancements to address the EIM price spikes, but did not submit detailed proposed tariff revisions.

7. On July 20, 2015, the Commission issued an order finding that it was unable to review the justness and reasonableness of CAISO's proposal, given that the conceptual proposal was filed in comments to the technical conference and not submitted as the detailed tariff provisions through which CAISO would propose to implement its proposal.<sup>10</sup> The Commission directed CAISO to file within 30 days of the date of the order proposed tariff revisions to establish just and reasonable rates, terms, and conditions of service in compliance with the March 16 Order. The Commission directed 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

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<sup>7</sup> 16 U.S.C. § 824e (2012).

<sup>8</sup> March 16 Order, 150 FERC ¶ 61,191.

<sup>9</sup> Comments of the California Independent System Operator Corporation on Technical Conference, Docket Nos. ER15-861-000, *et al.*, at 7 (filed April 23, 2015).

<sup>10</sup> July 20 Order, 152 FERC ¶ 61,060 at P 25.

CAISO and PacifiCorp, as well as whether there are any underlying issues that remain unaddressed.<sup>11</sup>

8. Since the April 9, 2015 technical conference and the July 20 Order, CAISO has filed, and the Commission has accepted, two additional measures to address the underlying causes of the price spike issues in the EIM and protect consumers from potential price anomalies that do not reflect actual market conditions. Specifically, CAISO has implemented tariff revisions that provide for: (1) requirements and criteria to assess a prospective EIM Entity's readiness prior to commencing EIM operations (in Docket No. ER15-861-004) (Readiness Compliance Filing);<sup>12</sup> and (2) a six-month transition period during which a new EIM Entity is not subject to the pricing parameters that normally apply when the market optimization relaxes a transmission constraint or the power balance constraint in clearing the real-time market (in Docket No. ER15-2565-000) (Six-Month Transition Filing).<sup>13</sup>

## **II. CAISO's August 19 Filing**

9. CAISO seeks to build on its current measures by proposing modifications to its tariff in compliance with the Commission's directives in the July 20 Order. Specifically, CAISO proposes to enhance the EIM functionality so that it will automatically recognize and account for capacity an EIM Entity has available to maintain reliable operations in its own BAA, but has not bid into the EIM, known as "Available Balancing Capacity."<sup>14</sup> According to CAISO, the proposed enhancement will enable the EIM Entity to identify capacity it deems necessary to reliably operate its system and therefore has not bid into the EIM, and to deploy such capacity through the EIM<sup>15</sup> to resolve power balance

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

<sup>12</sup> The Commission issued an order accepting CAISO's Readiness Compliance Filing on November 19, 2015. *Cal. Indep. Sys. Operator Corp.*, 153 FERC ¶ 61,205 (2015).

<sup>13</sup> The Commission issued an order accepting CAISO's Six-Month Transition Filing on October 29, 2015. *Cal. Indep. Sys. Operator Corp.*, 153 FERC ¶ 61,104 (2015).

<sup>14</sup> August 19 Filing at 1.

<sup>15</sup> Deploying such capacity through the EIM means the EIM recognizes the actions the EIM Entity would take to resolve any operational infeasibility in its system. The EIM will continue to provide automatic dispatch instructions to EIM Scheduling Coordinators, which are passed through to specific resources.

infeasibilities in the BAA, and simultaneously participate in congestion management.<sup>16</sup> CAISO states that this will allow CAISO and the EIM Entity to prevent market run infeasibilities that would otherwise arise without this visibility because the enhanced functionality will recognize and use this capacity to meet reliability requirements in the BAA. CAISO asserts that its proposal will significantly reduce the number of intervals in which the EIM results in infeasible solutions due to lack of visibility of capacity available to EIM Entities.<sup>17</sup>

10. CAISO explains that, although the EIM is an extension of CAISO's real-time market, it is unique in important ways. First, under the EIM construct, EIM Entities retain all of their balancing authority responsibilities and must perform their balancing functions in concert with the EIM in real-time. Second, CAISO does not optimize the use of energy and ancillary services through the EIM for BAAs other than its own.<sup>18</sup>

### **III. Commission's September 24, 2015 Deficiency Letter and CAISO's Response**

11. On September 24, 2015, the Commission issued a letter (Deficiency Letter) requesting additional information on various aspects of CAISO's August 19 Filing, including: the meaning of the phrase "full scope of available capacity," the proposed designation requirements for Available Balancing Capacity, the types of capacity that would be considered Available Balancing Capacity, limitations on the participation of resources designated as Available Balancing Capacity in resolving power balance or transmission constraints in an EIM Entity's BAA, inclusion in Available Balancing Capacity of non-affiliated non-participating resources, EIM Entities' ability to bias loads in the EIM market models (which CAISO describes as adjusting load forecasts), the pricing impacts of including Available Balancing Capacity, and the use of Available Balancing Capacity for congestion management.<sup>19</sup>

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<sup>16</sup> August 19 Filing at 1.

<sup>17</sup> *Id.* at 2.

<sup>18</sup> *Id.* at 10.

<sup>19</sup> See September 24, 2015 letter issued in Docket No. ER15-861-003 (Deficiency Letter).

12. On October 21, 2015, CAISO filed its response to clarify aspects of its proposal.<sup>20</sup> CAISO requests an effective date of January 5, 2016 for the Available Balancing Capacity proposal.<sup>21</sup>

#### **IV. Notice and Responsive Pleadings**

13. Notice of CAISO's August 19 Filing was published in the *Federal Register*, 80 Fed. Reg. 51,798 (2015), with interventions and protests due on or before September 9, 2015. PacifiCorp, Puget Sound Energy, Inc. (Puget), Pacific Gas and Electric Company (PG&E), NV Energy, Powerex Corp. (Powerex) (Powerex September 9 Comments), and Bonneville Power Administration (Bonneville) filed comments. Protests were filed by Truckee Donner Public Utility District (Truckee Donner) (Truckee Donner September 9 Protest) and the Western Power Trading Forum (WPTF).<sup>22</sup> CAISO filed answers on October 21, 2015 (CAISO October 21 Answer) and November 24, 2015 (CAISO November 24 Answer). Powerex filed an answer on December 9, 2015 (Powerex December 9 Answer).

14. Notice of CAISO's October 21, 2015 Deficiency Response was published in the *Federal Register*, 80 Fed. Reg. 65,736 (2015), with interventions and protests due on or before November 12, 2015. The comment period was subsequently shortened to November 4, 2015.<sup>23</sup> Timely comments on the Deficiency Response were filed by Powerex (Powerex November 4 Comments) and Truckee Donner (Truckee Donner November 4 Comments). On November 10, 2015, Deseret Generation and Transmission Co-operative, Inc. (Deseret) filed comments out of time.

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<sup>20</sup> CAISO Response to Deficiency Letter Regarding August 19 Filing in Compliance with July 20, 2015 Order, filed October 21, 2015 in Docket No. ER15-861-003 (Deficiency Response).

<sup>21</sup> *Id.* at 2.

<sup>22</sup> Bonneville submitted its comments on the August 19 Filing in Docket No. EL15-53-000, and PacifiCorp and WPTF submitted their comments on the August 19 Filing in Docket No. ER15-861-000. However, since these comments appear to more appropriately belong in the above-captioned docket and were timely filed, we will treat them as if they had been filed in Docket No. ER15-861-003.

<sup>23</sup> *Cal. Indep. Sys. Operator Corp.*, Errata Notice Shortening Comment Period, Docket No. ER15-861-006 (Oct. 23, 2015).

**V. Discussion****A. Procedural Matters**

15. 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 October 21 Answer because it has provided information that assisted us in our decision-making process. We are not persuaded to accept CAISO's November 24 Answer or Powerex's December 9 Answer and will, therefore, reject them.

16. We will reject the comments filed by Deseret as out of time.<sup>24</sup>

**B. Substantive Matters**

17. We address below key elements of CAISO's proposal, as well as respond to comments and protests on those elements. Our review of the aspects of CAISO's proposal that are not contested and not specifically discussed herein indicates our finding that they are just and reasonable and are hereby accepted for filing, effective January 5, 2016, as requested.

**1. CAISO's Proposed Automated Solution to Price Spikes****a. CAISO's Proposal**

18. In the August 19 Filing, CAISO submits its Available Balancing Capacity proposal as an automated solution to the structural market design problem that contributed to the price spikes experienced following the EIM's launch.<sup>25</sup> CAISO states

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<sup>24</sup> We also note that, although Deseret coded its November 10, 2015 comments as an "Intervention" and "Motion to Intervene Out of Time" in eLibrary, the text of its November 10, 2015 comments does not contain a motion to intervene. While Deseret intervened in the ongoing FPA section 206 proceeding in Docket No. EL15-53-000, it has not formally intervened in this proceeding or any subdocket under Docket No. ER15-861-000. Accordingly, Deseret is not a party to this proceeding.

<sup>25</sup> CAISO states that, consistent with the Commission's directive in the July 20 Order, (July 20 Order, 152 FERC ¶ 61,060 at P 26) it evaluated the concerns raised by commenters following the April 9, 2015 technical conference in developing its proposed tariff language. CAISO states that, to the extent it did not modify its tariff proposal to address these comments, it provides an explanation of its response to each comment. August 19 Filing at 26-51.

that the post-go-live experience with PacifiCorp in the EIM demonstrated that, although PacifiCorp has successfully been able to manually dispatch its retained capacity outside of the EIM to address infeasibilities, the EIM has not always been able to recognize the dispatch of the capacity. According to CAISO, to obtain robust market solutions under the EIM paradigm, it is imperative that information exchanges between the EIM Entity and CAISO, as the market operator, timely and accurately account for both balancing authority actions and market operations. CAISO asserts that, if balancing authority actions are not incorporated timely and accurately in the market optimization, false scarcity will occur because the market optimization will not consider this available capacity in determining if the balancing authority has sufficient supply to meet demand.<sup>26</sup>

19. To avoid power balance constraint infeasibilities that result from the false scarcity conditions that occur when the EIM fails to account for capacity available to EIM Entities to ensure reliability, CAISO proposes an enhancement to the EIM functionality to automatically account for such capacity. CAISO explains that, under its current market design, if there is a lack of effective economic energy bids to clear demand, the market software will observe a gap and not reach a feasible solution unless it relaxes the power balance constraint. Similarly, CAISO states that it may need to relax a transmission constraint to resolve a transmission infeasibility. CAISO proposes to modify the EIM optimization process to automatically recognize and account for Available Balancing Capacity identified by the EIM Entity.<sup>27</sup> According to CAISO, once this Available Balancing Capacity is recognized and incorporated into the CAISO market, it will be available for deployment if a potential power balance constraint infeasibility occurs in the EIM Entity's BAA. CAISO states that, under such conditions, the Available Balancing Capacity will be simultaneously available for congestion management, and could also address a potential transmission constraint violation.<sup>28</sup>

20. CAISO states that a key element of this proposal is that the EIM will be able to see and account for capacity the EIM Entity deems necessary to retain in its BAA to serve reliability needs. According to CAISO, this is possible because CAISO's market optimization will deploy the Available Balancing Capacity if a potential power balance infeasibility occurs within an EIM Entity's BAA, while simultaneously using that capacity for general congestion management.<sup>29</sup> CAISO explains that this is important because the EIM Entity has available the Available Balancing Capacity to meet BAA

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<sup>26</sup> *Id.* at 11.

<sup>27</sup> *Id.* at 12.

<sup>28</sup> *Id.* at 13.

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



reliability requirements and it requires assurances that the Available Balancing Capacity is not dispatched to meet such infeasibilities elsewhere.<sup>30</sup>

21. CAISO states that the proposal provides the EIM the ability to rely on the dispatch of such capacity physically being feasible because the capacity is included in the market optimization process. According to CAISO, this allows it to produce feasible solutions and ensure prices reflect the true nature of the deployed capacity. CAISO explains that if, after deploying the Available Balancing Capacity, the EIM Entity still has insufficient participating resource energy bids and Available Balancing Capacity to clear the gap and resolve the infeasibility, the market software will apply the power balance constraint at the relaxation parameter value (i.e., the \$1,000/MWh).<sup>31</sup>

**b. Comments**

22. PacifiCorp, NV Energy, and PG&E support CAISO's proposal because it addresses the structural design problem that the EIM systems do not have visibility to the capacity that is not bid into the EIM, but is available to EIM Entities to reliably meet load in their respective BAAs. NV Energy and PacifiCorp assert that CAISO's proposal will reduce the small number of intervals with modeling infeasibilities by recognizing and incorporating Available Balancing Capacity into CAISO's modeling, dispatch, and settlement processes.<sup>32</sup> PG&E states that, in the absence of a must-offer obligation, CAISO's proposal is a reasonable approach to provide more accurate market prices when an EIM Entity has available non-participating resources.<sup>33</sup>

23. Truckee Donner supports the goal of CAISO's proposal and agrees that it is a step in the right direction, but argues that it is only a part of the solution to address EIM price spikes: robust readiness criteria and transition provisions are also needed.<sup>34</sup> Truckee Donner also requests the Commission require further clarity on certain issues in CAISO's proposal.<sup>35</sup> Similarly, Bonneville appreciates CAISO's efforts to add more automation to

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<sup>30</sup> *Id.* at 13-14.

<sup>31</sup> *Id.* at 14. *See* CAISO, Proposed Tariff § 29.34 (r)(4)(C).

<sup>32</sup> NV Energy Comments at 5; PacifiCorp Comments at 5.

<sup>33</sup> PG&E Comments at 1-2.

<sup>34</sup> Truckee Donner September 9 Comments at 5-6. Those additional issues are discussed below.

<sup>35</sup> *Id.* at 1-2.

its processes, and to account more fully for all resource deployments in the EIM footprint, but argues the Commission should require further demonstration from CAISO that its proposal will address the problems that prompted the Commission's section 206 investigation.<sup>36</sup>

24. Powerex states the Commission faces a fundamental choice regarding the development and operation of the EIM.<sup>37</sup> Noting that the intent of the EIM is to serve “a set of worthy and important goals,” Powerex asserts the EIM “incorporates an unparalleled level of discretion” to EIM Entities that will allow them to “benefit from market outcomes.”<sup>38</sup> Powerex goes on to assert that the present proposal “seeks to look past, rather than resolve this defect.”<sup>39</sup> Powerex argues that CAISO's proposal would fundamentally change the nature of the EIM and impede the application of well-established price formation principles that ensure just and reasonable market outcomes. Powerex states that acceptance of CAISO's proposal would perpetuate a market structure where prices are driven by the operational decisions of the dominant supplier in each BAA and would represent a “significant step backwards” from establishing a well-functioning, competitive market for imbalance energy.<sup>40</sup>

**c. Commission Determination**

25. We accept CAISO's proposed revisions. We find that CAISO's Available Balancing Capacity proposal appropriately addresses the structural market design problem that CAISO identified as one of the underlying causes of the imbalance energy price spikes. Specifically, we agree that the Available Balancing Capacity proposal will reduce the potential for imbalance energy price spikes by providing for greater visibility of the capacity each EIM Entity has available to it to resolve power balance violations within its own BAA, even when that capacity is not being offered into the EIM. As discussed below, we find that this visibility addresses a concrete problem of false scarcity conditions, while still allowing each EIM Entity the flexibility to determine what capacity

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<sup>36</sup> Bonneville Comments at 4.

<sup>37</sup> Powerex November 4 Comments at 1.

<sup>38</sup> *Id.* at 1-2. Powerex disagrees with CAISO's arguments that each EIM Entity must have complete discretion regarding both the quantity and quality of resources bid into the EIM and made available to address supply infeasibilities through CAISO's proposed solution.

<sup>39</sup> *Id.* at 1-2.

<sup>40</sup> *Id.* at 8-10.

it should retain outside of the EIM to maintain reliability within its own BAA. In addition, the informational reports we direct herein help identify possible implementation or design issues not already apparent and provide transparency regarding the effectiveness of the proposal.

**2. Identification of Available Balancing Capacity from Participating and Non-Participating Resources**

**a. CAISO's Proposal**

26. CAISO explains that EIM Entities will identify Available Balancing Capacity from both participating and non-participating resources. According to CAISO, EIM participating resource scheduling coordinators will continue to submit energy bids for EIM participating resources, and such bids can support the Available Balancing Capacity included in the resource plans submitted by EIM Entity scheduling coordinators. CAISO states that, to the extent EIM participating resources are used to support Available Balancing Capacity, the bids from those resources will include a bid curve that spans the range of any Available Balancing Capacity the EIM Entity wants to make available to relieve potential power balance infeasibilities in the EIM BAAs. CAISO will validate these bids and apply the real-time local market power mitigation procedures under the existing tariff-based rules.<sup>41</sup> CAISO explains that, for each trading hour, it will allocate the EIM upward Available Balancing Capacity and the EIM downward Available Balancing Capacity specified in the EIM resource plan using a process that will ensure that the energy bid curves for Available Balancing Capacity align with the various types of uses identified in the EIM resource plan for the resource and the resource's characteristics.<sup>42</sup>

27. CAISO states that the new tariff provisions will also account for the Available Balancing Capacity from non-participating resources.<sup>43</sup> CAISO asserts that it is just and reasonable for it to include Available Balancing Capacity from non-participating resources to the extent that the EIM Entity scheduling coordinator plans to use such resources to address power balance infeasibilities in its own BAA, because the EIM Entity may have that capacity at its disposal for reliability purposes and would actually dispatch that energy if needed to avoid an actual shortage or surplus condition.<sup>44</sup>

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<sup>41</sup> August 19 Filing at 16; CAISO, Proposed Tariff § 29.30(e).

<sup>42</sup> August 19 Filing at 16-17.

<sup>43</sup> *Id.* at 17.

<sup>44</sup> *Id.* at 18.

According to CAISO, from the perspective of avoiding false scarcity, there is no difference between Available Balancing Capacity from participating and non-participating resources. However, CAISO states that it must implement a separate and distinct mechanism to account for Available Balancing Capacity from non-participating resources because such resources do not submit energy bids in the EIM. CAISO proposes to use its existing default energy bid mechanism for this purpose.<sup>45</sup> CAISO's proposal regarding the use of default energy bids for non-participating resources is discussed in detail in section V.B.5 of this order.

**b. Comments**

28. PacifiCorp and NV Energy support CAISO's proposal not to limit Available Balancing Capacity to resources "owned" by an EIM Entity, but instead to include in Available Balancing Capacity any resources with which the EIM Entity has contractual relationships. Both PacifiCorp and NV Energy underscore that the proposal appropriately recognizes and accounts for these resources under the ownership or contractual control of the EIM Entity,<sup>46</sup> and "does not improperly appropriate capacity from third-party transmission customers that might be subject to a [m]annual [d]ispatch instruction in the event of a system emergency."<sup>47</sup>

29. WPTF argues that CAISO's proposal assumes resources are available to be contracted with to provide balancing capacity, yet provides no demonstration of such availability. WPTF also notes that neither PacifiCorp nor NV Energy has proposed in their conforming tariff changes specific language describing the Open Access Transmission Tariff (OATT) or contractual service under which they would consider capacity to be available.<sup>48</sup> WPTF expresses concern that third-party resource owners will be harmed by being deployed under legacy OATT or contract provisions that did not contemplate deployment of those resources in the EIM. In order to rectify this, WPTF recommends that the Commission require CAISO and EIM Entities to report on the use of, effects of, and impacts on third-party resources as Available Balancing Capacity.<sup>49</sup>

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

<sup>46</sup> PacifiCorp Comments at 5-8, NV Energy Comments at 5-8.

<sup>47</sup> PacifiCorp Comments at 8.

<sup>48</sup> WPTF Comments at 3-4.

<sup>49</sup> *Id.* at 7.

**c. CAISO's October 21 Answer**

30. CAISO responds to WPTF's concern that third-party resource owners will be harmed by being deployed under legacy OATT or contract provisions that did not contemplate those resources being deployed in the EIM, stating that nothing in the proposal changes how imbalance energy is settled. CAISO explains that if it dispatches a non-participating resource as Available Balancing Capacity, that resource will be settled using the market-clearing LMP, which would be no lower than the resource's default energy bid.<sup>50</sup>

**d. CAISO's Deficiency Response**

31. In response to the Commission's deficiency letter, CAISO states that its proposal does not prohibit or limit an EIM Entity from designating as Available Balancing Capacity resources owned by third parties that are under contract to the EIM Entity. Under current EIM rules, CAISO states, even if such resources do not participate directly in the EIM, they are reflected in EIM base schedules and can be manually dispatched by EIM Entities outside of the market clearing process. The existing CAISO EIM tariff provisions assume the EIM Entity has the right to dispatch these resources and, presumably, the EIM Entity would be relying on the same legal authority to designate those resources as Available Balancing Capacity under the new proposal. In support of its arguments, CAISO cites NV Energy and PacifiCorp's explanation that the third-party resource could only be designated as Available Balancing Capacity if the contract gives the EIM Entity the ability to call on that resource.<sup>51</sup>

32. CAISO also notes its understanding that NV Energy and PacifiCorp's access to non-affiliate, non-participating resources for Available Balancing Capacity would be limited to those resources with which NV Energy or PacifiCorp has a contractual agreement to obtain load-following or regulation services.<sup>52</sup>

**e. Comments on Deficiency Response**

33. Truckee Donner notes that, consistent with the Commission's *pro forma* OATT, Section 33.2 of PacifiCorp's OATT (and of NV Energy's OATT) allows the transmission

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<sup>50</sup> CAISO October 21 Answer at 40-41.

<sup>51</sup> CAISO Deficiency Response at 18-20 (citing Motion for Leave to Answer and Answer of NV Energy and PacifiCorp, Docket Nos. ER15-1196-004, *et al.* (Oct. 7, 2015) at 7-8).

<sup>52</sup> *Id.* at 21.

provider to redispatch network resources to maintain reliability. Although those resources may not be under contract to the transmission provider expressly for the purpose of providing load-following or regulation service, those resources are available to be redispatched to prevent actual shortages. Truckee Donner asserts, “[t]o the extent that these EIM Entities have the right to manually redispatch network resources to maintain a balance between supply and load, those resources would be designated as [Available Balancing Capacity].”<sup>53</sup>

34. Truckee Donner requests that the Commission clarify whether the capacity from network resources must be designated in an EIM Entity’s resource plan as Available Balancing Capacity or NERC/WECC capacity, in light of an EIM Entity’s rights under its transmission tariff to redispatch those resources.<sup>54</sup> Truckee Donner also requests that the Commission require CAISO and/or EIM Entities to clarify the compensation mechanism for redispatch of network customers’ network resources.<sup>55</sup>

**f. Commission Determination**

35. We find that WPTF’s concerns regarding the language in NV Energy’s and PacifiCorp’s filings of proposed conforming OATT revisions are outside the scope of this proceeding, which is limited to CAISO’s Available Balancing Capacity proposal.

36. Further, we find that it is outside of CAISO’s purview to determine if each third-party contract allows an EIM Entity to identify a resource as Available Balancing Capacity. To the extent that a third-party resource owner believes that its resource was inappropriately identified as Available Balancing Capacity, that is a contractual matter between the resource owner and the EIM Entity, and is subject to the specific provisions of the contract at issue. Further, CAISO as the EIM operator has made its understanding clear — EIM Entities’ access to non-affiliate, non-participating resources for Available Balancing Capacity would be limited to those resources with which EIM Entities have a contractual agreement to obtain the appropriate services. Therefore, we accept as just and reasonable CAISO’s proposal that EIM Entities identify Available Balancing Capacity from both participating and non-participating resources. We reject WPTF’s request that we now require further reporting on the use and impact of third-party resources as Available Balancing Capacity.

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<sup>53</sup> Truckee Donner November 4 comments at 6-7.

<sup>54</sup> *Id.* at 6.

<sup>55</sup> *Id.* at 6-7.

37. We find that Truckee Donner's requests for clarification regarding the identification of network resources as Available Balancing Capacity and the compensation mechanism for such resources are beyond the scope of this proceeding as well. Issues associated with the obligations of network resources interconnecting under an EIM Entity's OATT and the rights of the EIM Entity to use those interconnected network resources are more appropriately addressed in the proceedings addressing the individual conforming tariff proposals made by EIM Entities.

**3. Inclusion of Contingency Reserves in Available Balancing Capacity**

**a. CAISO's Proposal**

38. In the August 19 Filing, CAISO states that it cannot specify that its proposal for use of non-participating resources does not apply to an EIM Entity's contingency reserves. According to CAISO, the manner in which an EIM Entity utilizes its contingency reserves to meet its reliability requirements is within the EIM Entity's discretion. CAISO states that it has no oversight or input into the process.<sup>56</sup>

**b. Comments**

39. Bonneville states that during the stakeholder process leading up to the August 19 Filing, CAISO staff assured Bonneville that the Available Balancing Capacity would not include the EIM Entities' contingency reserves. However, in its August 19 Filing, CAISO claimed that it could not provide this clarification because the utilization of contingency reserves falls under the discretion of the EIM Entity. Bonneville acknowledges that CAISO does not have oversight responsibility of an EIM Entity's use of contingency reserves, but argues that CAISO has the ability to specifically address this matter in its tariff. Further, Bonneville states that it is inconsistent for CAISO to relax market parameters by allowing inclusion of capacity from a resource, which could include capacity retained for contingency reserves, while simultaneously claiming that it has no responsibility to identify what types of capacity should be allowed to be designated as Available Balancing Capacity. Bonneville asks the Commission to direct CAISO to revise the definition of EIM Entity Available Balancing Capacity in Appendix A to specifically state, "the EIM Entity may not include any capacity used for Spinning and Non-Spinning Reserves (Contingency Reserves) in Available Balancing Capacity."<sup>57</sup>

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<sup>56</sup> August 19 Filing at 45-46.

<sup>57</sup> Bonneville Comments at 6.

**c. CAISO's October 21 Answer**

40. CAISO agrees with Bonneville that contingency reserves should not be designated as Available Balancing Capacity, and agrees that further clarification could be helpful.<sup>58</sup> Accordingly, CAISO proposes to modify tariff section 29.34(e)(3) to re-classify the spinning and non-spinning reserve categories as a single category under which the EIM Entity will be required to identify the capacity it maintains to meet its NERC/WECC contingency reserve requirements, and to further clarify that such capacity should not overlap with any of the other categories of the EIM resource plan, including the Available Balancing Capacity category. CAISO asserts that this modification will make clear that capacity used for meeting an EIM Entity's contingency reserve obligations is not eligible to be designated as Available Balancing Capacity.<sup>59</sup>

**d. CAISO's Deficiency Response**

41. In response to the request for CAISO to provide additional detail regarding the types of capacity that will be eligible for designation as Available Balancing Capacity, and how this would be documented, CAISO clarifies that "Available [B]alancing [C]apacity can consist of any capacity available to an EIM Entity that it deems to be in excess of what is necessary to meet its NERC/WECC contingency reserve requirements," and that "capacity necessary to meet its contingency reserves requirements under NERC/WECC criteria should not be designated as [A]vailable [B]alancing [C]apacity."<sup>60</sup> The intent of the proposal, according to CAISO, is that the EIM Entity scheduling coordinator will clearly identify the EIM resource plan category in which its capacity is classified. As noted above, CAISO also proposes to re-classify the spinning and non-spinning reserve categories as a single contingency reserve category, which CAISO argues will help clarify an EIM Entity's capacity designations in the EIM resource plan.<sup>61</sup>

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<sup>58</sup> CAISO October 21 Answer at 36-37.

<sup>59</sup> *Id.* at 37.

<sup>60</sup> CAISO, Proposed Tariff section 29.34(e)(3) ("The EIM Resource Plan shall comprise – (A) EIM Base Schedules of EIM Entities and EIM Participating Resources; (B) Energy Bids (applicable to EIM Participating Resources only); (C) EIM Upward Available Balancing Capacity; (D) EIM Downward Available Balancing Capacity; (E) EIM Reserves to Meet NERC/WECC Contingency Reserves Requirements; and (F) if the EIM Entity Scheduling Coordinator is not relying on CAISO's Demand Forecast, a Demand Forecast.").

<sup>61</sup> CAISO Deficiency Response at 15-17. These proposed tariff revisions were filed in eTariff when CAISO submitted its Deficiency Response.



e. **Commission Determination**

42. The Available Balancing Capacity is capacity the EIM Entity has on hand to help maintain balance within its BAA. We agree that contingency reserves should not be designated as Available Balancing Capacity. As required by Reliability Standard BAL-002-WECC-2, a balancing authority must maintain a minimum amount of contingency reserves at all times.<sup>62</sup> Contingency reserves can only be deployed in certain qualifying events such as the unexpected failure of a generator, transmission line, or other electrical element and must remain available to a balancing authority to satisfy its applicable reliability obligations. Therefore, contingency reserves are not available to provide imbalance energy under non-contingency conditions and are appropriately excluded from Available Balancing Capacity.

43. We find that CAISO's proposed modifications to tariff section 29.34(e)(3) that it proposed in its answer, as further revised in the Deficiency Response, appropriately address Bonneville's concerns, and we accept them. Specifically, by defining "EIM Reserves to Meet NERC/WECC Contingency Reserves Requirements" as a resource "which does not overlap with capacity designated in other parts of the EIM Resource Plan,"<sup>63</sup> CAISO is able to ensure that an EIM Entity does not assign its contingency reserves to its Available Balancing Capacity. Further, we find that the phrase "NERC/WECC Contingency Reserves" in proposed tariff section 29.34(e)(3) is clearer than the previous tariff language of "spinning" and "non-spinning" reserves used in the August 19 Filing.

4. **EIM Entity Discretion in Identifying Capacity in its Resource Plan**

a. **CAISO's Proposal**

44. In the August 19 Filing, CAISO states that, to timely and accurately account for both balancing authority actions and market operations, it must enhance the EIM functionality to ensure the market is automatically informed of and accounts for the "full scope of capacity" available to EIM Entities to ensure reliability in their BAAs.<sup>64</sup> CAISO

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<sup>62</sup> Reliability Standard BAL-002-WECC-2 requires that each balancing authority and each Reserve Sharing Group maintain a minimum amount of contingency reserves at all times, except for within the first 60 minutes following an event that required the activation of contingency reserves.

<sup>63</sup> CAISO, Proposed Tariff, Appendix A (Master Definition Supplement).

<sup>64</sup> August 19 Filing at 11.

further explains that it is not proposing that any specific type of capacity be counted as Available Balancing Capacity, and that it will not verify that the identified capacity can meet the operational infeasibility it is procured to address. According to CAISO, the proposed enhancement provides the EIM Entity an additional tool to use and does not mandate that it actually use the tool.<sup>65</sup>

**b. Comments**

45. Truckee Donner contends that while EIM Entities must register any participating or non-participating resource that they may use for Available Balancing Capacity under CAISO's proposal, they are not required to identify such capacity in their EIM resource plans. Truckee Donner avers that the Available Balancing Capacity tool CAISO has proposed will only be effective if EIM Entities are required to use it and urges the Commission to make the identification of Available Balancing Capacity by each EIM Entity mandatory rather than permissive.<sup>66</sup>

**c. CAISO's October 21 Answer**

46. With regard to Truckee Donner's concern that EIM Entities are not required to identify all their capacity in their EIM resource plans, CAISO states that its proposal ensures that the EIM is informed of an EIM Entity's choices for managing its capacity.<sup>67</sup>

**d. CAISO's Deficiency Response**

47. In its Deficiency Response, CAISO notes that, pursuant to its proposed modifications to tariff section 29.34(e), CAISO expects that the EIM Entity scheduling coordinator will identify all of its capacity in one of the categories of the EIM resource plan,<sup>68</sup> and asserts that "the EIM resource plan provides the appropriate vehicle for the EIM [E]ntity to manage all of its capacity effectively while ensuring the EIM software and systems are fully informed of how [the EIM Entity] choose[s] to balance [its] system."<sup>69</sup>

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<sup>65</sup> *Id.* at 50.

<sup>66</sup> Truckee Donner September 9 Comments at 7-8.

<sup>67</sup> CAISO October 21 Answer at 28, referencing its Deficiency Response at 10-15.

<sup>68</sup> CAISO Deficiency Response at 5.

<sup>69</sup> *Id.* at 13.

48. Specifically, in response to questions about the full scope of available capacity and how systems would be informed of it, CAISO explains that the full scope of available capacity is all the capacity the EIM Entity designates as Available Balancing Capacity in the hourly resources plan.<sup>70</sup> According to CAISO, this is capacity that the EIM software would recognize as capacity that is available to address infeasibilities in the EIM Entity's BAA. This capacity does not include all of the EIM Entity's contingency reserves as the EIM Entity may have determined that it cannot risk that capacity being dispatched to serve load other than its own.<sup>71</sup> CAISO states that this is consistent with the definitions of EIM Downward and Upward Available Balancing Capacity and consistent with the EIM resource plan requirements in its tariff.<sup>72</sup> CAISO also clarifies that it will have full visibility of the capacity available to the EIM Entity and will know what portion of it will be available to resolve infeasibilities.<sup>73</sup> The EIM will also recognize Available Balancing Capacity from non-participating resources if those resources are registered with CAISO by the EIM Entity.<sup>74</sup>

49. In response to a request to clarify why an EIM Entity should have the discretion not to make all of its excess reserves visible as Available Balancing Capacity, CAISO states that it is crucial for an EIM Entity to have this discretion to ensure the EIM Entity's ability to meet its balancing authority's responsibilities.<sup>75</sup> CAISO adds that, although the proposal constrains Available Balancing Capacity to only be available to serve load within the EIM Entity's BAA, the EIM Entity still needs to make the determination of whether particular capacity is available to serve imbalance energy or whether it is more efficient to use that capacity to meet other NERC/WECC reliability needs, including ancillary services, which the EIM does not co-optimize with energy dispatches.<sup>76</sup> CAISO further explains that if an EIM Entity, for example, designated contingency reserves as Available Balancing Capacity, it is possible that the EIM optimization software could dispatch this capacity to serve imbalance needs without any consideration of whether

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<sup>70</sup> *Id.* at 7.

<sup>71</sup> *Id.* at 7.

<sup>72</sup> CAISO, Proposed Tariff § 29.34(e).

<sup>73</sup> CAISO Deficiency Response at 8.

<sup>74</sup> *Id.* at 9.

<sup>75</sup> *Id.* at 10.

<sup>76</sup> *Id.*

there were enough contingency reserves to meet NERC/WECC reliability obligations.<sup>77</sup> CAISO also provides other examples of why EIM Entities must have discretion regarding how they manage their capacity in order to manage their systems reliably, and states that this discretion includes the ability to be part of reserve sharing groups.<sup>78</sup>

**e. Comments on Deficiency Response**

50. Truckee Donner asserts that CAISO's tariff language is unclear as to whether all of an EIM Entity's capacity will be identified in its resource plan.<sup>79</sup> Accordingly, Truckee Donner requests that the Commission require CAISO to revise its tariff to "explicitly state that all capacity must be identified on an EIM Entity's resource plan."<sup>80</sup>

51. Truckee Donner further requests that the Commission require CAISO to confirm that its Department of Market Monitoring will be obligated to monitor EIM Entities' discretionary allocations of capacity between NERC/WECC obligations and Available Balancing Capacity. Moreover, Truckee Donner requests that the Commission clarify that if the Department of Market Monitoring does determine that an EIM Entity is abusing its discretion, "the [Department of Market Monitoring] has the ability to prevent further abuse and direct compensation for past instances of abuse."<sup>81</sup>

**f. Commission Determination**

52. We disagree with Truckee Donner that the language in CAISO's tariff regarding the capacity that must be identified in an EIM Entity's resource plan is not clear. The amended section 29.34(e)(3) of CAISO's tariff sets forth the components of capacity that must be identified in the EIM resource plan as: (1) EIM base schedules of EIM Entities and EIM participating resources; (2) energy bids of EIM participating resources; (3) EIM Upward Available Balancing Capacity; (4) EIM Downward Available Balancing Capacity; and (5) EIM reserves to meet NERC/WECC contingency reserve requirements. We also disagree with Truckee Donner's assertion that section 29.34(e)(3) should be revised to require that an EIM Entity include all of its capacity in its resource plan. The resource plan includes all the capacity that the EIM Entity will rely on in any given hour

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<sup>77</sup> *Id.* at 10-11.

<sup>78</sup> *Id.* at 12.

<sup>79</sup> Truckee Donner November 4 Comments at 3-5.

<sup>80</sup> *Id.* at 5.

<sup>81</sup> *Id.*

to participate in the EIM – subject to the balancing test, ramping test, and a capacity test – and to meet its BAA reliability requirements. CAISO has not proposed, and we do not find it necessary, to require that the EIM Entity include additional capacity beyond that necessary to participate in the EIM and meet its reliability requirements in its resource plan.

53. Truckee Donner expresses concerns regarding the discretionary nature of allocations of capacity between contingency reserves retained to address NERC/WECC contingency reserve requirements and Available Balancing Capacity. We note that balancing authorities outside the EIM have discretion as to which resources are designated as contingency reserves and which are used for other purposes; that discretion does not change when a BAA joins the EIM, and nor is it changed by CAISO's proposal here. CAISO's proposal allows the EIM to see which resources are bid into the EIM to be dispatched directly by the market based on their bids. This Available Balancing Capacity would be deployed during infeasibilities, and does not include capacity providing contingency reserves to meet the EIM Entity's reliability obligations. Given the voluntary nature of bidding and participation in the EIM and the scope of the EIM, we find that the EIM Entity's discretion to designate its capacity into one of these categories is appropriate. Imbalance energy is a small part of an EIM Entity's reliability and load serving functions, and determinations of contingency reserves support these other functions as well. To the extent the Department of Market Monitoring has reason to believe that an EIM Entity's behavior in identifying Available Balancing Capacity is a violation of the tariff or the Commission's regulations, the Department of Market Monitoring must refer the behavior to the Commission under the Commission's regulations.<sup>82</sup> Thus, depending on the facts, the Department of Market Monitoring could refer an EIM Entity for inaccurately identifying Available Balancing Capacity as a potential violation of the Commission's regulations requiring accurate submissions or as a potential violation of the Commission's Anti-Manipulation Rule.<sup>83</sup> Because the Commission, not the Department of Market Monitoring, has the authority to impose civil penalties and any other remedies for such violations, we decline Truckee Donner's request to authorize the Department of Market Monitoring to direct compensation for past instances of abuse.

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<sup>82</sup> 18 C.F.R. § 35.28(g)(3)(iv) (2015).

<sup>83</sup> 18 C.F.R. § 35.41(b) (2015) (requiring accurate submissions); 18 C.F.R. § 1c.2 (2015) (Anti-Manipulation Rule).

## 5. Use of Default Energy Bids for Non-Participating Resources

### a. CAISO's Proposal

54. As noted above in section V.B.2 of this order, CAISO asserts that it must implement a separate and distinct mechanism to account for Available Balancing Capacity from non-participating resources because such resources do not submit energy bids in the EIM. Accordingly, CAISO proposes to require that EIM Entity scheduling coordinators register with CAISO all non-participating resources that the EIM Entity scheduling coordinator may designate as Available Balancing Capacity in its EIM resource plan. CAISO will then create a default energy bid for each such non-participating resource based on the EIM Entity scheduling coordinator's choice of default energy bid calculation methodology, pursuant to the existing process in section 39.7.1 of the CAISO tariff. CAISO will then allocate the default energy bid to the identified capacity.<sup>84</sup>

55. CAISO explains that this process ensures that the EIM reflects the capacity from non-participating resources that is available to EIM Entities to balance their systems and avoid false infeasibilities. However, it does not require that the resource actually participate in the EIM for economic dispatch. CAISO states that its proposal will ensure that the identified Available Balancing Capacity is deployed to avoid a power balance infeasibility in the EIM BAA for which the capacity is designated, and will be simultaneously used for general congestion management. CAISO asserts that, given that this capacity is likely to be deployed by the EIM anyway to address conditions on its system, there is no reason to force the EIM Entity to keep this capacity out of the market clearing process and prevent it from being able to address a false scarcity condition in the market systems.<sup>85</sup>

56. CAISO asserts that using default energy bids for this purpose is just and reasonable for several other reasons. CAISO states that the use of the default energy bid enables it to consider the resource in economic merit order based on a just and reasonable measure of the resource's costs, allowing CAISO to optimize Available Balancing Capacity through the same market clearing process it uses for all dispatch purposes.

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<sup>84</sup> August 19 Filing at 18.

<sup>85</sup> *Id.*

According to CAISO, default energy bids are also a well-understood and Commission-approved means of determining a unit's actual marginal costs of operation in CAISO and other independent system operator or regional transmission organization markets.<sup>86</sup>

**b. Comments**

57. WPTF asserts that CAISO has not sufficiently justified its proposal to use default energy bids as market bids.<sup>87</sup> According to WPTF, the Commission's previous approval of the use of default energy bids was limited to instances when CAISO demonstrated through its local market power mitigation measures that there is a high potential for the exercise of market power. WPTF also contends that the Commission is aware of significant limitations in the default energy bids that have caused them at times to inaccurately reflect generators' costs of service.<sup>88</sup> Furthermore, argues WPTF, "there is no indication whatsoever that the OATT/contractual services under which the capacity that the EIM Entities plan to count and potentially deploy under the available capacity mechanism call for settling the delivered energy at any price close to the CAISO-determined clearing price using the [default energy bids]."<sup>89</sup>

58. WPTF also points out that there are no tariff provisions that would allow a non-participating resource owner to decline the EIM dispatch and thereby avoid providing service for which the compensation is limited to one determined using CAISO's default energy bids, despite CAISO's proposal that the EIM Entity will have the ability to determine whether or not to impose EIM dispatches on non-participating resources. Finally, WPTF states, the EIM Entities' OATTs do not contain any provisions that require them to pay to the resources any difference between their contracted-for compensation and CAISO's EIM energy payments.<sup>90</sup>

59. WPTF expresses concern that there is no clear contractual relationship that has conferred on EIM Entities the rights to count and deploy resources – rights which the resource has no ability to decline. WPTF argues that it is not just and reasonable for

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<sup>86</sup> *Id.* at 19 (citing *Cal. Indep. Sys. Operator Corp.*, 119 FERC ¶ 61,076, at PP 497, 501, 508 (2007); *Cal. Indep. Sys. Operator Corp.*, 147 FERC ¶ 61,231 at PP 221, 224).

<sup>87</sup> WPTF Comments at 5.

<sup>88</sup> *Id.* at 6 (citing the record in ER14-1440-000, including WPTF's comments filed on March 13, 2014 following winter gas price excursions).

<sup>89</sup> *Id.*

<sup>90</sup> *Id.*

CAISO to clear the market not using bids these resources have submitted, but rather using default energy bid-based clearing prices. WPTF maintains that allowing an EIM non-participating resource to transact at a price for services that the resource deems appropriate to account for its cost and risk would be a just and reasonable market solution.<sup>91</sup>

60. WPTF argues that adjusting the EIM market design without properly aligning how the services are counted, contracted, deployed, and paid will simply continue to distort and undermine the EIM markets and those markets' effect on the balance of the CAISO markets. According to WPTF, the proper way to resolve these deficiencies is to define this available capacity service that is being proposed and to let resource owners offer to provide it at a price that is commensurate with the compensation that can be expected from the default energy bid-based EIM deployments. Instead, states WPTF, CAISO and the EIM Entities seem to want to count resources that have been obligated to provide other services under other pre-existing compensation regimes.<sup>92</sup>

61. According to WPTF, this is problematic in two regards: (1) counting resources that are not being properly compensated distorts the market and the market solutions, and (2) there is a specific concern that third-party resources will be harmed by being deployed under legacy OATT or contract provisions under which they did not contemplate being deployed, and then compensated based on default energy bid-driven clearing prices. WPTF asserts that to ensure these outcomes do not occur, the Commission must reject CAISO's proposal until CAISO has modified its proposal to ensure market alignment is in place.<sup>93</sup>

**c. CAISO's October 21 Answer**

62. CAISO defends its proposal to use default energy bids for non-participating resources, explaining that, by definition, non-participating resources do not submit bids in the EIM, and CAISO's proposal will do nothing to change the underlying relationship between non-participating resources and the EIM. According to CAISO, the default energy bids will not be market bids. Rather, they will be indicative of prices necessary to ensure that in the event Available Balancing Capacity can address a potential infeasibility, the market will settle based on the marginal unit.

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<sup>91</sup> *Id.*

<sup>92</sup> *Id.* at 6-7.

<sup>93</sup> *Id.* at 7.



63. CAISO also clarifies that it does not propose to use the default energy bids all of the time, but rather will use them only when it needs to account for Available Balancing Capacity from non-participating resources in the bid stack to optimally clear the market to resolve potential infeasibilities when they arise in the applicable EIM Entity BAA. CAISO asserts that it needs some mechanism to reflect the cost of energy from non-participating resources in the energy bid curves, and using default energy bids provides the necessary mechanism.<sup>94</sup> CAISO explains that it will use the default energy bids to determine the marginal costs of operating non-participating resources in economic merit order. According to CAISO, this will allow it to ensure that the EIM optimizes Available Balancing Capacity from participating and non-participating resources through the same market clearing process it uses for all dispatch purposes and that CAISO thereby dispatches capacity that is the least-cost, most feasible, and effective solution for the system.<sup>95</sup> CAISO asserts that it is just and reasonable to use default energy bids for this purpose because they are a well-established means of determining a resource's actual marginal cost.<sup>96</sup>

64. CAISO also clarifies that it does not propose to change in any way the manner in which imbalance energy is settled. To the extent CAISO dispatches a non-participating resource as Available Balancing Capacity, its market settlements will be based on the market-cleared LMP, which could be higher than the resource's default energy bid. Thus, a non-participating resource's EIM compensation will not be based on its default energy bid, unless the non-participating resource is the marginal resource as a result of providing Available Balancing Capacity, in which case the resource will set the clearing price for all resources.<sup>97</sup>

65. CAISO disagrees with WPTF's suggestion that a non-participating resource could transact at a price that the resource deems appropriate to account for its cost and risk. According to CAISO, such an approach is impracticable because non-participating resources are, by definition, resources that do not submit energy bids and thus do not transact in the EIM. Further, CAISO argues, the EIM is not a cost-of-service market, so it would be infeasible and inappropriate to price Available Balancing Capacity from non-participating resources at a price based on their cost and risk.<sup>98</sup> CAISO also disagrees

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<sup>94</sup> CAISO October 21 Answer at 38.

<sup>95</sup> *Id.* at 38-39.

<sup>96</sup> *Id.* at 39.

<sup>97</sup> *Id.* at 40-41.

<sup>98</sup> *Id.* at 41.

with WPTF's suggestion that CAISO should define Available Balancing Capacity as a new service and allow resource owners to offer to provide it at a price commensurate with the compensation that can be expected from default energy bid-based EIM deployments. CAISO argues that it has developed a procedure that does not require the EIM Entity to offer a new service, but enables the market to recognize capacity that would otherwise be left outside the market. While CAISO may consider enhancements in the future, CAISO asserts that there is no reason at this time to prevent the adoption of its current proposal.<sup>99</sup>

**d. Commission Determination**

66. We find that the use of default energy bids as a way to reflect the cost of Available Balancing Capacity for non-participating resources is just and reasonable. CAISO's proposal addresses the challenge posed by the fact that non-participating resources do not submit bids into the EIM. Since Available Balancing Capacity from non-participating resources is, by definition, not bid into the market, the market needs to use an estimate of this capacity's marginal costs to: (1) determine economic merit order for dispatch, and (2) reflect the effect of this capacity on market prices, when appropriate. In the context of the EIM, default energy bids are used to provide the market with an estimate of the non-participating resources' marginal costs. They are computed using mechanisms in the CAISO tariff which the Commission has already found to be just and reasonable.<sup>100</sup> In this case, the goal is to estimate cost and apply it when this capacity is needed. We also find that default energy bids are not market bids, but rather a mechanism to represent the cost of the marginal energy unit, if that unit comes from Available Balancing Capacity deployed to resolve a power balance infeasibility.

67. With regard to WPTF's concern that third-party resources are not properly compensated under CAISO's proposal and that this distorts the market, we find that non-participating resources do not submit bids to the market and that the compensation of these resources is a contractual matter between the resource and the EIM Entity and falls outside the scope of this proceeding. As discussed above, CAISO's proposal assumes that an EIM Entity has the right to dispatch these resources and, under the same authority, to identify these resources as Available Balancing Capacity.<sup>101</sup> The scope of this proceeding is limited to CAISO's proposed mechanism to ameliorate market distortions

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<sup>99</sup> *Id.* at 42.

<sup>100</sup> *See* CAISO Tariff § 39.7.1.

<sup>101</sup> *See* CAISO Deficiency Response at 18-20 (citing Motion for Leave to Answer and Answer of NV Energy and PacifiCorp, Docket Nos. ER15-1196-004, *et al.* (October 7, 2015) at 7-8).

that arise from the EIM's inability to account for the capacity that is available to an EIM Entity to resolve potential infeasibilities in its own BAA, not to evaluate the rights granted to CAISO in the OATT or individual contracts to dispatch third-party resources.

**6. Market Optimization and Application of Penalty Price**

**a. CAISO's Proposal**

68. CAISO explains that its market clearing software calculates the optimal dispatch of resources in two passes – the scheduling and pricing runs. According to CAISO, the scheduling run is a full optimization run where constraints may be relaxed at penalty prices to avoid infeasibilities. The scheduling run is executed to establish the scheduling priorities in the optimization, but does not establish the financially-binding schedules and prices. CAISO states that the pricing run is a simple economic dispatch in which CAISO establishes the financially-binding schedules and prices. The pricing run is initialized from the scheduling run solution, where the penalty prices are set to administrative prices used for pricing, and any infeasibility is constrained so the ultimate dispatch solution does not significantly vary from the solution of the scheduling run. CAISO's proposed tariff section 29.34(r) sets forth the process for utilizing Available Balancing Capacity in the real-time market's scheduling and pricing runs for both the 15-minute market and real-time dispatch optimization processes.<sup>102</sup>

69. CAISO states that, in each interval of the real-time market, it will use the Available Balancing Capacity from participating and non-participating resources to resolve any potential power balance infeasibility, while simultaneously performing congestion management, based on the economic merit order of the energy bids corresponding to such capacity.<sup>103</sup> CAISO proposes to adjust energy bid prices for resources providing Available Balancing Capacity in the scheduling run by a factor that effectively increases the bid price to ensure effective economic bids are exhausted prior to utilizing Available Balancing Capacity to resolve potential infeasibilities. According to CAISO, this means that capacity that is not actually bid into the EIM will not be eligible to set the clearing price, unless using that capacity is needed to resolve a potential power balance infeasibility. If needed, that capacity will be applied in economic merit order to reach a feasible market solution.<sup>104</sup>

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<sup>102</sup> August 19 Filing at 20.

<sup>103</sup> *Id.*; CAISO, Proposed Tariff §§ 29.34(r)(3)(A).

<sup>104</sup> August 19 Filing at 20-21; CAISO, Proposed Tariff §§ 29.34(r)(3)(A), 29.34(r)(3)(B).

70. CAISO states that it will also add a constraint to the scheduling run to ensure that the amount of Available Balancing Capacity released cannot exceed the supply and demand infeasibility within the BAA. According to CAISO, this will prevent the use of Available Balancing Capacity to support EIM transfers, thereby ensuring that energy dispatched from this Available Balancing Capacity will not be transferred to other BAAs in the EIM.<sup>105</sup> To the extent the Available Balancing Capacity released by the real-time market cannot solve a particular infeasibility, CAISO explains, the constraint will be relaxed in accordance with existing constraint relaxation penalty prices to allow the market to reach a feasible solution and the constraint relaxation penalty prices will be incorporated into market prices.<sup>106</sup>

71. According to CAISO, in the pricing run, the dispatch of Available Balancing Capacity will be limited to the dispatch scheduled in the scheduling run solution. To the extent the scheduling run needs to deploy Available Balancing Capacity to avoid a potential infeasibility, the pricing run will utilize the bid prices from participating and non-participating resources designated as Available Balancing Capacity without the factor added in the scheduling run. CAISO states that there is no need to add a constraint to prevent EIM transfers in the pricing run because Available Balancing Capacity released in the pricing run is limited to the Available Balancing Capacity dispatched in the scheduling run. CAISO explains that the pricing run will change the load forecast for the BAA by a very small amount to allow for price determination. According to CAISO this is necessary to allow the supply and demand curves to intersect to establish the market price.<sup>107</sup> CAISO explains that, if the amount of Available Balancing Capacity is sufficient to address the infeasibility, the market will clear with the benefit of the additional bids for the amount of the deployed capacity, obviating the need to relax the power balance constraint, and instead setting prices consistent with the existing tariff pricing principles. If, on the other hand, the deployed capacity cannot resolve a potential power balance infeasibility, then the penalty price associated with the parameter relaxations will apply in the pricing run.<sup>108</sup>

72. CAISO explains that, when the market optimization dispatches Available Balancing Capacity through the 15-minute and five-minute markets to resolve an

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<sup>105</sup> August 19 Filing at 21; CAISO, Proposed Tariff §§ 29.34(r)(3)(B), 29.34(r)(3)(C).

<sup>106</sup> August 19 Filing at 21; CAISO, Proposed Tariff § 29.34(r)(4)(C).

<sup>107</sup> August 19 Filing at 21; CAISO, Proposed Tariff §§ 29.34(r)(4)(A), 29.34(r)(4)(B).

<sup>108</sup> August 19 Filing at 21-22; CAISO, Proposed Tariff §§ 29.34(r)(4)(C).

infeasibility within an EIM Entity's BAA, CAISO will send a new dispatch operating target to the scheduling coordinator representing the resource. CAISO states that it recognizes that the EIM Entity retains dispatch authority over the resources providing Available Balancing Capacity. However, CAISO asserts that the proposed enhancement will provide the EIM Entity with a reliable, feasible dispatch solution that it can use to operate its system reliably. CAISO explains that this new operating target will be the basis for that resource's imbalance energy settlement for the interval, and CAISO will settle Available Balancing Capacity utilized by the EIM for both participating and non-participating resources in the same manner it settles energy dispatched from such resources.<sup>109</sup>

**b. Comments**

73. NV Energy and PacifiCorp support CAISO's statement that the EIM should not clear based on a penalty price that is substantially higher or lower than the marginal price when there is no actual scarcity.<sup>110</sup> However, NV Energy and PacifiCorp note, while CAISO's proposed tariff amendments should reduce the number of intervals in which infeasibilities remain, there still may be certain infeasible intervals.<sup>111</sup> NV Energy, PacifiCorp, and Puget express concerns regarding the parameter penalty price in those remaining instances where there is actual scarcity and infeasibilities remain.

74. NV Energy and PacifiCorp point out that the current \$1,000/MWh parameter penalty price was adopted by CAISO for purposes of CAISO's energy market prior to the EIM's implementation. PacifiCorp and NV Energy state that they appreciate that stakeholders will be able to examine this issue as part of CAISO's upcoming Stepped Transmission Constraints initiative. NV Energy, PacifiCorp, and Puget support CAISO's commitment to re-examine whether the existing power balance and transmission constraint relaxation rules, which trigger the \$1,000/MWh penalty price in one step when there is insufficient supply to address the constraint relaxation, are still appropriate for the remaining small number of intervals in which the EIM results in infeasible solutions.<sup>112</sup>

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<sup>109</sup> August 19 Filing at 22.

<sup>110</sup> NV Energy Comments at 8; PacifiCorp Comments at 8.

<sup>111</sup> NV Energy Comments at 8; PacifiCorp Comments at 8.

<sup>112</sup> NV Energy Comments at 8-9, noting Scott Harvey's comments at the April 9 technical conference that the MidContinent Independent System Operator and New York Independent System Operator use much lower parameter penalty prices to address the need to relax modeling constraints when faced with the need to balance the system on a five-minute basis using economic bids; PacifiCorp Comments at 8; Puget Comments at 4.

Puget further states that it strongly believes that fixed constraint prices when triggered may not be reasonable in all circumstances, and it supports a stakeholder process to evaluate moving to a graduated price cap as well as potentially lowering the cap for the power balance, transmission, and transfer constraints.<sup>113</sup>

75. According to Bonneville, the risk of infeasibilities should not be placed on transmission customers that have no control over the EIM Entities' decisions. Bonneville states that the EIM Entity has an obligation to use the reserve capacity to balance loads and generation that the transmission customer taking firm service from the EIM Entity is paying for. Bonneville argues that the transmission customer has already paid through the EIM Entity's ancillary service rates the costs associated with resources that should prevent infeasibilities. As such, Bonneville claims it is unjust and unreasonable for transmission customers to pay additional penalty costs when these resources are not available or not used for power balance issues in the EIM. Bonneville asks the Commission to prohibit the EIM Entities from passing through the \$1,000/MWh penalties for power balance infeasibility to transmission customers.<sup>114</sup>

76. Powerex expresses concern that CAISO's proposal will undermine efficient price formation by not applying penalty prices when Available Balancing Capacity is used to address an infeasibility. Powerex states that the Commission has recognized that penalty pricing should apply whenever a utility is required to deploy reserves to meet real-time energy needs, and that such penalty pricing is necessary to reflect the reliability risks associated with deploying reserves.<sup>115</sup> According to Powerex, CAISO does not deny that penalty prices should apply when a utility is required to reduce reserves to meet real-time energy needs, but CAISO instead contends that penalty prices are inappropriate under its proposal because it does not require an EIM Entity to reduce its reserves. Powerex asserts that this statement implies that any balancing capacity to be recognized as Available Balancing Capacity under the proposal cannot be capacity held by the EIM Entity for reliability purposes, but must instead be truly excess to the EIM Entity's needs. Powerex contends that, if this is the case, there is no reason why that capacity cannot be bid into the EIM.<sup>116</sup>

77. Powerex disagrees with CAISO's argument that it would be counterproductive to require an EIM Entity to bid this Available Balancing Capacity into the EIM because it

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<sup>113</sup> Puget Comments at 4.

<sup>114</sup> Bonneville Comments at 7.

<sup>115</sup> Powerex September 9 Comments at 13.

<sup>116</sup> *Id.*

could then be dispatched to service imbalances in an adjacent BAA. Powerex argues that CAISO's logic is not applicable to "excess" capacity that the balancing authority does not need to meet reliability needs. Powerex states that if the EIM Entity cannot reliably meet its balancing authority obligations without withholding this capacity from the market, then the capacity is reserve capacity and its utilization should trigger application of a penalty price.<sup>117</sup> Powerex contends that if CAISO seeks only to recognize capacity that is not being held for any reliability function, then the appropriate way to incorporate that capacity in the EIM price formation process is for the resource to be explicitly bid into the EIM.

**c. CAISO's October 21 Answer**

78. CAISO agrees that it is necessary to evaluate whether the existing power balance and transmission constraint relaxation rules are still appropriate, and states that it has already announced its intent to commence a stakeholder process to consider these issues. CAISO further notes that, in addressing the scarcity pricing proposed by the Commission in its September 17, 2015 Notice of Proposed Rulemaking in Docket No. RM15-24-000, it will be required to consider the triggering events in the context of the constraint parameter relaxation changes it is contemplating.<sup>118</sup>

79. CAISO refutes Powerex's argument that CAISO's proposal is contrary to the Commission's position that penalty pricing should trigger upon deployment of reserves. CAISO asserts that its proposal is consistent with the principles of scarcity pricing and does not prevent CAISO from pursuing additional price formation enhancements in compliance with any final rule the Commission may issue regarding scarcity pricing associated with a shortage of energy or operating reserves in Docket No. RM15-24-000.<sup>119</sup> CAISO explains that Available Balancing Capacity should not include and should not overlap with contingency reserves. CAISO further asserts that the Commission should not reject CAISO's Available Balancing Capacity proposal while the rulemaking proceeding is pending, and that it will be participating in the rulemaking process and will comply with any final rule.

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<sup>117</sup> *Id.* at 14.

<sup>118</sup> CAISO October 21 Answer at 43-44 (citing Notice of Proposed Rulemaking, *Settlement Intervals and Shortage Pricing in Markets Operated by Independent System Operators and Regional Transmission Organizations*, Docket No. RM15-24-000, at P 51 (Sept. 17, 2015)).

<sup>119</sup> *Id.* at 29-30 (citing Notice of Proposed Rulemaking, *Settlement Intervals and Shortage Pricing in Markets Operated by Independent System Operators and Regional Transmission Organizations*, Docket No. RM15-24-000, at P 51 (Sept. 17, 2015)).

**d. CAISO's Deficiency Response**

80. In its Deficiency Response, CAISO provides several examples of pricing impacts under various scenarios where the resulting market-clearing price could increase, decrease, or remain constant. The resulting market-clearing price depends on the availability of resources and the prices at which those resources are bid into the market. Included in these examples are scenarios where the constraint is violated and a penalty price is applied.<sup>120</sup>

**e. Comments on Deficiency Response**

81. Powerex remains concerned that CAISO's proposal is incompatible with basic price formation principles. Specifically, Powerex argues that penalty prices should be applied during periods where reserves are deployed to meet real-time energy needs because this ensures that prices reflect the higher reliability risk associated with the deployment of reserves, encourages existing resources to respond when they are most needed, and encourages additional market entry.<sup>121</sup> According to Powerex, CAISO's proposal would reduce the reserves available to balance load and generation without triggering penalty pricing unless all of the Available Balancing Capacity resources have been exhausted, including regulating reserves set aside to maintain balance within each five-minute interval. Powerex argues that penalty pricing should apply once an EIM Entity begins to deploy regulation reserves to address EIM shortfalls.<sup>122</sup> Powerex asserts that, rather than allow CAISO to implement a proposal that conflicts with basic price formation principles, the Commission should require CAISO to take steps to ensure that sufficient resources are bid into the EIM to meet the imbalance needs under a full range of operational conditions, consistent with EIM Entities' continuing obligation to provide Energy Imbalance Service and Generator Imbalance Service to OATT customers.<sup>123</sup>

**f. Commission Determination**

82. We find that it is appropriate for the EIM to set LMPs at a penalty price, here \$1,000/MWh, when a power balance infeasibility exists. As NV Energy and PacifiCorp note, CAISO's proposal may reduce the number of intervals in which the EIM results in infeasible solutions, but infeasibilities will still remain in intervals where there is actual

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<sup>120</sup> CAISO Deficiency Response at 25-34.

<sup>121</sup> Powerex November 4 Comments at 11.

<sup>122</sup> *Id.* at 12.

<sup>123</sup> *Id.* at 13.



scarcity. While the Commission previously granted a waiver of the \$1,000/MWh penalty price because the Commission determined that those penalty prices were being triggered in error,<sup>124</sup> we believe that the Available Balancing Capacity proposal will result in LMPs that accurately reflect the cost of supplying imbalance energy. Particularly, the Available Balancing Capacity proposal will allow CAISO to resolve potential infeasibilities within the EIM Entities' BAAs by accounting for resources that normally would not participate in the EIM. Consequently, we expect that infeasibilities that occur when Available Balancing Capacity is exhausted will be the result of a legitimate shortage of resources to meet load. Accordingly, we find that it is just and reasonable that the proposal result in a price for infeasibilities when Available Balancing Capacity is exhausted.

83. In contrast, we find that it is not appropriate for a penalty price to apply when no actual scarcity exists. The proposal in front of the Commission aims to ensure that resources that are redispatched in order to avert a power balance constraint are visible to CAISO. This is explicitly meant to avoid a false positive; that is, when there is no actual shortage of resources, no penalty pricing should be applied. The resources being deployed in this scenario are not contingency reserves, but are reserves made visible to CAISO specifically for the purpose of maintaining the power balance. And as illustrated by CAISO,<sup>125</sup> the resulting market-clearing price depends on the availability of resources and the prices at which those resources are bid into the market. While we agree that shortage pricing is important to reflect the marginal costs of energy to address the shortage, or the additional risk of shedding load, CAISO's proposal is not intended to address a situation where a system operator is physically short of operating reserves or is choosing to short its own requirement for operating reserves. The resources at issue here are resources that an EIM Entity is holding specifically to avoid violating a system constraint within its BAA, and therefore no penalty price should apply when those resources are deployed to address such a constraint.

84. We find that the level of the penalty price that will apply when an infeasibility occurs is beyond the scope of this proceeding because there is no proposal in front of us to change the existing CAISO tariff provisions regarding the penalty level. However, we note that CAISO has initiated a stakeholder process to investigate CAISO's transmission constraints<sup>126</sup> and we encourage CAISO and its stakeholders to work together to address these concerns.

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<sup>124</sup> See *Cal. Indep. Sys. Operator Corp.*, 149 FERC ¶ 61,194 at P 23; *Cal. Indep. Sys. Operator Corp.*, 150 FERC ¶ 61,086.

<sup>125</sup> See CAISO Deficiency Response at 25-34.

<sup>126</sup> See August 19 Filing at 47.

## 7. Elimination of All Infeasibilities

### a. CAISO's Proposal

85. CAISO asserts that its proposal will significantly reduce the number of intervals in which the EIM results in infeasible solutions due to lack of visibility of capacity available to EIM Entities.<sup>127</sup>

### b. Comments

86. Bonneville expresses concern that CAISO has not demonstrated that its proposal could have fully prevented the price spikes experienced following the EIM's launch. Accordingly, Bonneville claims that CAISO has not shown that its proposal will result in just and reasonable rates. Bonneville asks the Commission to require CAISO to show that, had CAISO's proposed mechanism been in place during PacifiCorp's EIM implementation, the price spikes would not have occurred so frequently. Similarly, Bonneville asks the Commission to require a showing in Docket No. ER15-861-004, which addresses CAISO's readiness measures, that CAISO would have been alerted to the problems identified in these proceedings had the readiness criteria been in place last fall.<sup>128</sup>

### c. CAISO's October 21 Answer

87. CAISO states that it is unreasonable to require a demonstration that the Available Balancing Capacity proposal would eliminate all infeasibilities because all markets encounter occasional infeasibilities. According to CAISO, it is this reality that led CAISO to adopt – and the Commission to approve – the pricing parameters in the first place, and CAISO's proposal appropriately provides that these parameters will continue to apply during conditions of actual scarcity.<sup>129</sup> CAISO explains that the purpose of its proposal is to prevent artificial scarcity from triggering the pricing parameters.

88. CAISO also notes that it is not presenting the Available Balancing Capacity proposal as a comprehensive solution to the price spikes. Instead, this proposal is merely one component of a three-part solution, which also includes readiness requirements and a six-month transition period, and is designed to work in conjunction with those other enhancements. CAISO further asserts that it cannot rerun the EIM with Available

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<sup>127</sup> *Id.* at 2.

<sup>128</sup> Bonneville Comments at 4.

<sup>129</sup> CAISO October 21 Answer at 26.

Balancing Capacity, as Bonneville requests. According to CAISO, the best analyses of the impact of the Available Balancing Capacity proposal are those it has already performed, which provide an adequate basis for finding that the proposal, in conjunction with the readiness proposal and CAISO's commitment to pursue diligent market monitoring and proactive corrections where necessary, will result in just and reasonable outcomes going forward.<sup>130</sup>

**d. Commission Determination**

89. We will not require CAISO to show that the market would have experienced fewer \$1,000/MWh price spikes if this mechanism had been in place last fall. We understand CAISO's concern that it cannot rerun the EIM based on an after-the-fact assumption that the Available Balancing Capacity solution and enhanced readiness criteria were in place. Moreover, our evaluation of this proposal is limited to the prospective effects it will have on the EIM; we do not believe that demonstrating the effects this proposal may have had on the EIM in the past is necessary to show that the proposal will improve the operation of the EIM going forward. Because we find that CAISO has sufficiently supported its proposal as a solution that will address the issue it has identified as a major cause of the price spikes, we will not require such a demonstration. Further, we find that Bonneville's request with respect to CAISO's Six-Month Transition Filing in Docket No. ER15-861-004 is beyond the scope of this proceeding.

**8. Market Timeline and Scheduling Deadlines**

**a. CAISO's Proposal**

90. CAISO states that, under its proposal, Available Balancing Capacity would automatically be deployed in the CAISO markets to resolve infeasible power balance conditions in the EIM Entity BAA, as follows. First, by 75 minutes prior to the trading hour, the EIM Entity scheduling coordinator would identify the Available Balancing Capacity from each of its EIM participating and non-participating resources. If the EIM Entity scheduling coordinator elects to identify this for CAISO, it will include this capacity in the "regulation up" and "regulation down" fields of the EIM resource plan.<sup>131</sup> CAISO states that the EIM Entity will validate and finalize each EIM resource plan by 40 minutes prior to the trading hour, reflecting any changes based upon the outcome of the resource sufficiency evaluation. CAISO states that it will not consider the Available Balancing Capacity identified by the EIM Entity scheduling coordinator when performing the sufficiency evaluation test, because this test is designed to evaluate

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<sup>130</sup> *Id.* at 27.

<sup>131</sup> August 19 Filing at 15; CAISO, Proposed Tariff § 29.34(e)(3)(C) and (D).

whether the EIM Entity has offered sufficient capacity to meet forecast load and its ramping requirements. In contrast, CAISO explains, the purpose of the Available Balancing Capacity is for the EIM Entity balancing authority to operate its own system reliably. Accordingly, CAISO explains, enhancing the EIM to avoid false scarcity by accounting for Available Balancing Capacity does not affect the resource sufficiency evaluation.<sup>132</sup>

**b. Comments**

91. Bonneville asserts that there may be demand-side issues contributing to the price spike problems. Specifically, Bonneville argues that by finalizing the EIM schedule before the transmission schedule deadline, CAISO introduces more imbalance demand than would be needed if the OATT scheduling timelines were used. According to Bonneville, CAISO and the Commission should consider more ways that the EIM and OATT scheduling timeframes could be harmonized to allow transmission customers to minimize their contributions to imbalances. Accordingly, Bonneville asks that the Commission order CAISO to align scheduling timelines between the EIM and the OATT.<sup>133</sup>

**c. CAISO's October 21 Answer**

92. CAISO asserts that Bonneville's suggestion that EIM scheduling timelines should be aligned with OATT scheduling timelines to reduce imbalance demand exceeds the scope of the current proceeding and seeks to fundamentally redesign the EIM. Furthermore, CAISO explains, synchronizing these timelines would be impractical because it is necessary that EIM Entities submit base schedule information before the market optimization process initializes to allow the market to consider the degree to which the entity is following its load.<sup>134</sup>

**d. Commission Determination**

93. We will not require CAISO to align scheduling timelines between the EIM and the OATT. The Commission has previously addressed the issue of the alignment of the EIM and OATT scheduling timelines and found that, in order for the EIM to operate properly, it is necessary that the EIM Entity and its transmission customers "submit forecast data consistent with timelines established by CAISO in order for CAISO to run its security-

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<sup>132</sup> August 19 Filing at 16; CAISO, Proposed Tariff § 29.34(r)(2).

<sup>133</sup> Bonneville Comments at 5.

<sup>134</sup> CAISO October 21 Answer at 36.

constrained economic dispatch. Schedules submitted at T-20 would not give the market models sufficient time to function.”<sup>135</sup> However, we note that NV Energy has committed to work with PacifiCorp, CAISO, and stakeholders on this issue, and the Commission has encouraged the parties to continue to explore options that would address their concerns about the alignment of the EIM and OATT scheduling timelines.<sup>136</sup>

## **9. Informational Reports on EIM Performance**

### **a. CAISO’s Proposal**

94. CAISO commits to report on the performance of its Available Balancing Capacity proposal for the first four quarters after it is implemented. According to CAISO, once the proposed solution goes into effect, it will no longer be necessary for CAISO to continue to submit monthly informational reports. CAISO asserts that quarterly reports will provide sufficient information about the performance of the proposed solution in resolving the price spikes. Accordingly, CAISO requests that the Commission allow CAISO to cease providing monthly informational reports once the proposed solution is implemented.<sup>137</sup>

### **b. Comments**

95. PG&E supports CAISO’s proposal to report on the performance of its proposed solution quarterly for the first year after it goes into effect. PG&E states this reporting requirement will allow the market to work through any unforeseen implementation issues while still providing an additional safeguard against the artificial scarcity pricing that was triggered in the initial launch of the EIM.<sup>138</sup>

96. Truckee Donner does not object to CAISO’s request to transition from monthly informational reports to quarterly informational reports on EIM performance for PacifiCorp, but it asks that the quarterly reports contain the same information as the current monthly reports and not be limited to the performance of the Available Balancing Capacity tool. Finally, Truckee Donner asks that CAISO, consistent with the

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<sup>135</sup> *Nevada Power Co.*, 151 FERC ¶ 61,131 at P 161. See *PacifiCorp*, 147 FERC ¶ 61,227 at P 191.

<sup>136</sup> *Nevada Power Co.*, 151 FERC ¶ 61,131 at P 164.

<sup>137</sup> August 19 Filing at 48.

<sup>138</sup> PG&E Comments at 2.

commitment it made in Docket No. ER15-2565-000, report monthly on EIM performance for NV Energy once NV Energy joins the EIM.<sup>139</sup>

97. Puget states that it supports the continuation of quarterly reports covering all EIM Entity BAAs for a minimum of one year after CAISO's proposal goes into effect, until such time as the Commission finds that the quarterly reports are not necessary.<sup>140</sup>

**c. CAISO's October 21 Answer**

98. CAISO agrees with Truckee Donner's and Puget's comments, and revises its commitment to: (1) provide monthly informational reports regarding EIM performance in the NV Energy BAA for NV Energy's six-month transition period, and (2) provide quarterly informational reports on the performance of the Available Balancing Capacity proposal for a minimum of one year, until the Commission finds that the reports are no longer necessary. The quarterly reports will cover all EIM BAAs and include the same information that CAISO currently provides in its monthly reports.<sup>141</sup>

**d. Commission Determination**

99. Consistent with CAISO's commitment, we will direct CAISO to provide two separate informational reports. First, we direct CAISO to file monthly informational reports on EIM performance for each balancing authority's six-month transition period. Second, we direct CAISO to file quarterly informational reports on the performance of its Available Balancing Capacity proposal that provide the same information that is currently provided in CAISO's monthly informational reports.<sup>142</sup> The quarterly reports should cover all EIM BAAs and be in effect for a minimum of one year, until the Commission finds that the reports are no longer necessary.

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<sup>139</sup> Truckee Donner November 9 Comments at 9-10.

<sup>140</sup> Puget Comments at 4.

<sup>141</sup> CAISO October 21 Answer at 42-43.

<sup>142</sup> Both the monthly informational reports and the quarterly informational reports will be for informational purposes only and will not be noticed for comment or subject to Commission order.

## 10. Resource Sufficiency

### a. Comments and Protests

100. Bonneville and Powerex both express concerns that CAISO's proposal will not increase the amount of capacity offered into the EIM. Bonneville asserts that CAISO has not shown that its proposed revisions will solve the problem that prompted the Commission to initiate the section 206 proceeding in Docket No. EL15-53-000. Bonneville claims that the proposal does not ensure robust participation in the EIM or address the supply deficiencies CAISO has previously acknowledged. According to Bonneville, CAISO's assertion that the infeasibilities leading to the price spikes were not due to a lack of sufficient resources to meet PacifiCorp's BAA responsibilities is misleading. Specifically, Bonneville explains that while the EIM is a five-minute market, NERC requirements give balancing authorities 30 minutes to return within limits if resource shortfalls or other constraints are causing a problem. Bonneville argues that even if the market operator accounts for all Available Balancing Capacity, the market could show infeasibility for five consecutive five-minute market calculations without a NERC violation if the EIM Entity brings its system back in line within the 30-minute requirement. Bonneville asserts that, because EIM Entities price their imbalance services using EIM LMPs, it is important for EIM Entities to have sufficient capacity in the EIM to ensure both reliability and just and reasonable prices.<sup>143</sup>

101. Powerex also has serious concerns regarding CAISO's proposed solution to the supply infeasibilities that have been experienced in the EIM. Powerex asserts that each EIM Entity will have sole discretion to determine the quantity of additional balancing capacity outside the EIM that CAISO will use to resolve supply infeasibilities in the EIM.<sup>144</sup> According to Powerex, there is no dispute that it has been the lack of resources available through the EIM in certain intervals that has triggered the need to relax power balance and flexible ramping constraints.<sup>145</sup>

102. Powerex argues that CAISO's proposal does nothing to increase the quantity of resources offered into the EIM, and instead focuses on avoiding the application of parameter prices when the EIM software exhausts available bid-in resources. Powerex states that CAISO's proposed solution makes no effort to ensure robust participation in the EIM or to require EIM Entities to bid sufficient resources to meet the imbalance

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<sup>143</sup> Bonneville Comments at 3.

<sup>144</sup> Powerex September 9 Comments at 9.

<sup>145</sup> *Id.* at 7.

needs of their customers.<sup>146</sup> Instead, Powerex contends that EIM Entities will be free to choose between bidding sufficient resources into the EIM to meet the needs of their customers and balancing their systems through out-of-market purchases or capacity withheld from the EIM.<sup>147</sup>

103. Powerex further argues that the price spikes experienced in the PacifiCorp BAAs require a solution that addresses the lack of sufficient resources bid into the EIM. Powerex states that the Commission should direct CAISO to implement solutions that address the underlying issues in a manner that ensures the type of robust participation and economically-driven price signals contemplated in the March 16 Order.<sup>148</sup>

104. Powerex states that contrary to what CAISO now suggests, the EIM was never presented as merely “one tool among many” available to EIM Entities to meet the imbalance needs of their customers. Powerex argues that a primary justification offered by PacifiCorp to support its proposal to settle imbalances under Schedules 4 and 9 of its OATT using EIM prices was that the “EIM is the manner in which PacifiCorp will continue to provide the required imbalance services under Schedules 4 and 9 to all its Transmission Customers.”<sup>149</sup> Powerex contends that if EIM Entities are permitted to serve only a portion of their imbalance needs through the EIM, there is no basis for concluding that EIM prices accurately reflect the EIM Entity’s actual cost of serving imbalances within its footprint. Instead, Powerex argues that EIM prices will reflect a selected subset of the EIM Entity’s cost of providing imbalance service, which is inconsistent with Commission precedent.<sup>150</sup> Powerex states that, to ensure LMPs calculated through the EIM are just and reasonable, the EIM Entity must be required to ensure that there are sufficient resources bid into the EIM to meet the imbalance needs of its transmission customers under a broad range of conditions.

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<sup>146</sup> *Id.* at 8.

<sup>147</sup> *Id.*

<sup>148</sup> *Id.* at 9.

<sup>149</sup> *Id.* at 10 (citing PacifiCorp, Filing for Revisions to the OATT to Implement the Energy Imbalance Market, Docket No. ER14-1578-000, Transmittal Letter at 3-4 (filed Mar. 25, 2014)).

<sup>150</sup> *Id.* at 11 (citing *PacifiCorp*, 147 FERC ¶ 61,227 at P 160 (“PacifiCorp’s current approach of using a proxy price to determine imbalance energy costs using four liquid trading hubs only provides a proxy for PacifiCorp’s actual cost of providing imbalance energy, whereas the EIM LMP will reflect the actual cost that PacifiCorp pays for imbalance service.”), *order on reh’g and clarification*, 149 FERC ¶ 61,057).



**b. CAISO's October 21 Answer**

105. In its answer, CAISO refutes Powerex's and Bonneville's arguments that the only just and reasonable solution is to compel CAISO to adopt rules that require more capacity to be bid into the EIM. In response, CAISO states that there is no evidence that the price excursions observed following the launch of the EIM are due to the unwillingness of either EIM Entities to include additional capacity in the EIM or of EIM resources to offer their capacity into the EIM.<sup>151</sup> In fact, CAISO asserts, all of the evidence indicates this is not the case. CAISO states that the power balance infeasibilities experienced in the PacifiCorp BAAs were not the result of any actual capacity insufficiencies, but rather were the result of learning curve challenges, which are the subject of separate proceedings before the Commission,<sup>152</sup> and a structural limitation in the current design of the EIM, which CAISO proposes to address here.<sup>153</sup> CAISO further asserts that there has been a significant decrease in the number of infeasibilities observed in the EIM without any significant increase in participation of resources in the EIM, largely due to improvements in dealing with learning curve issues.<sup>154</sup>

106. CAISO also argues that the existing EIM design already requires load-serving entities in the EIM Entity BAA to include in the EIM sufficient capacity to cover their load and range of operational outcomes, and CAISO's proposal merely enhances these existing design elements.<sup>155</sup> CAISO explains that, as part of the operation of the EIM: (1) an EIM Entity must provide a balanced EIM resource plan; (2) the EIM resource plan must have sufficient bids to meet the difference between balanced demand and the load forecast; and (3) the EIM resource plan must meet ramping requirements. CAISO explains that these tests ensure that the EIM Entity's BAA has available resources to balance the load in its BAA with adequate bid ranges from its participating resources.<sup>156</sup> CAISO asserts that the Commission should reject Powerex's suggestion that CAISO be required to raise the flexible ramping sufficiency requirement because there is no

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<sup>151</sup> CAISO October 21 Answer at 8.

<sup>152</sup> See *Cal. Indep. Sys. Operator Corp.*, 153 FERC ¶ 61,205 (accepting CAISO's Readiness Compliance Filing); *Cal. Indep. Sys. Operator Corp.*, 153 FERC ¶ 61,104 (accepting CAISO's Six-Month Transition Filing).

<sup>153</sup> CAISO October 21 Answer at 10-11.

<sup>154</sup> *Id.* at 12-13.

<sup>155</sup> *Id.* at 8.

<sup>156</sup> *Id.* at 17.

evidence that current system conditions require such adjustments.<sup>157</sup> CAISO also explains that the Available Balancing Capacity proposal will not dilute the efficacy of the sufficiency tests because CAISO will not consider Available Balancing Capacity designated by an EIM Entity in determining whether it meets the resource sufficiency evaluation.<sup>158</sup>

107. In response to Bonneville's assertions that it is misleading for CAISO to conclude that PacifiCorp has been sufficiently resourced based on the fact that it has avoided reliability violations, CAISO states that its monthly reports show the availability of capacity above the NERC required reserves, which in many cases may have been available to meet the power balance infeasibilities reported in those intervals.<sup>159</sup> In response to Powerex's assertion that CAISO's proposal is an option for the EIM Entity to withhold capacity from the EIM, CAISO explains that the Available Balancing Capacity proposal enables an EIM Entity to identify capacity to be made available to the EIM, but does not incentivize the EIM Entity to keep capacity out of the EIM.<sup>160</sup>

108. CAISO also asserts that the sweeping changes Powerex and Bonneville propose are inconsistent with the Commission's findings on other EIM-related matters. CAISO states that the Commission has rejected Powerex's attempts to modify the EIM rules to include similar must-offer requirements.<sup>161</sup> Furthermore, CAISO contends that the Commission did not halt actions toward integrating new EIM Entities, even when it established a section 206 investigation into the root causes of the price spikes.<sup>162</sup> CAISO also argues that the significant reformations sought by Powerex and Bonneville could cause entities that are currently considering joining the EIM to reevaluate participation.<sup>163</sup> Finally, CAISO contends that any fundamental changes to the EIM along the lines

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<sup>157</sup> *Id.* at 17-21.

<sup>158</sup> *Id.* at 21.

<sup>159</sup> *Id.* at 24-26.

<sup>160</sup> *Id.* at 29.

<sup>161</sup> *Id.* at 21 (citing *Cal. Indep. Sys. Operator Corp.*, 147 FERC ¶ 61,231 at P 123, *order on reh'g*, 149 FERC ¶ 61,058 at P 54).

<sup>162</sup> *Id.* at 22 (citing *Nev. Power Co.*, 151 FERC ¶ 61,131; *Cal. Indep. Sys. Operator Corp.*, 151 FERC ¶ 61,158 (2015); *Cal. Indep. Sys. Operator Corp.*, 152 FERC ¶ 61,090 (2015)).

<sup>163</sup> *Id.* at 22-23.

proposed by Powerex and Bonneville should be considered through a robust stakeholder process, which has not occurred.<sup>164</sup>

**c. Commission Determination**

109. We decline to direct CAISO to adopt measures to increase participation in the EIM. While we agree that increased participation would benefit the market, the Commission's June 19, 2014 order conditionally accepting CAISO's proposal to implement the EIM stated that "EIM participation is voluntary and the EIM Participating Resource has a great deal of flexibility in determining how much of its resource's capacity it is willing to offer into the EIM."<sup>165</sup> Accordingly, we reject Powerex's and Bonneville's arguments that we should compel CAISO to adopt rules that require more capacity to be bid into the EIM as a collateral attack on the Commission's June 19, 2014 order approving CAISO's EIM market as a voluntary market where participation in that market is therefore voluntary.<sup>166</sup>

110. Moreover, we note that CAISO's investigation into the root causes of the price spikes experienced following the EIM's implementation did not identify resource insufficiency in the EIM as a root cause. In fact, CAISO has repeatedly attested that the infeasibilities have not been caused by a lack of resources sufficient to meet PacifiCorp's balancing authority responsibilities.<sup>167</sup> We also note that, according to CAISO, there has been a significant decline in the number of infeasibilities observed in the EIM in recent months without any significant increase in participation of resources in the EIM, largely due to improvements in dealing with learning curve issues.<sup>168</sup> We therefore find it appropriate for CAISO's proposal to address the structural design problem that CAISO

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<sup>164</sup> *Id.* at 23.

<sup>165</sup> *Cal. Indep. Sys. Operator Corp.*, 147 FERC ¶ 61,231 at P 224, *order on reh'g*, 149 FERC ¶ 61,058.

<sup>166</sup> The Commission has previously explained that collateral estoppel "forecloses a party from relitigating the same question decided adversely to him by a prior judgment on another cause of action." *Pac. Gas & Elec. Co.*, 149 FERC ¶ 61,276, at P 62 n.88 (2014) (citing *Brian Hamilton v. El Paso Natural Gas Co.*, 141 FERC ¶ 61,229, at P 37 & n.44 (2012); *McCulloch Interstate Gas Corp.*, 9 FERC ¶ 61,152, at 61,305 (1979); *Gulf Oil Corp. v. F.P.C.*, 563 F.2d 588, 602 (3rd Cir. 1977)).

<sup>167</sup> *See, e.g.*, CAISO August 19 Filing at 3, CAISO April 23 Comments on Technical Conference at 2.

<sup>168</sup> *See* August 19 Filing at 23-24; CAISO October 21 Answer at 11-12 & n.16.

did identify as a major cause of the price spikes by providing it with increased visibility of the capacity an EIM Entity retains to resolve power balance infeasibilities within its own BAA.

111. We do not share Bonneville's concerns regarding the validity of CAISO's assertions that the price spikes were not caused by a lack of sufficient resources to meet PacifiCorp's BAA responsibilities. We find that CAISO has sufficiently demonstrated that, for the majority of infeasibilities, excess capacity available to PacifiCorp would have addressed the infeasibilities that led to price spikes had it been identified by the market.<sup>169</sup>

112. We agree with Bonneville that it is important for EIM Entities to have sufficient capacity in the EIM to ensure both reliability and just and reasonable prices. However, we disagree that CAISO's Available Balancing Capacity proposal must mandate increased resource participation in order to meet these needs. CAISO's proposal is intended to ensure that the EIM can automatically account for and recognize the capacity available to resolve power balance infeasibilities, thus avoiding unjust and unreasonable prices through the triggering of false scarcity pricing. We find that CAISO's existing tariff measures – including the balancing test, the ramping test, and a capacity test – serve to both require and incentivize resource sufficiency in the EIM.<sup>170</sup> We believe that CAISO's proposal will address the structural visibility issue identified by CAISO without compromising an EIM Entity's ability to fulfill its balancing authority responsibilities. We are not persuaded that requiring CAISO to increase the existing flexible ramping sufficiency requirement is necessary to address the structural design issue the proposal is intended to remedy, and therefore deny Powerex's request that we do so.

113. We do not share Powerex's concern that EIM Entities will be free to choose between bidding sufficient resources into the EIM and balancing their systems through out-of-market purchases or capacity withheld from the EIM. Moreover, we disagree that the proposal is structured in a way that will incentivize EIM Entities to intentionally submit insufficient bids into the EIM. CAISO's proposal grants an EIM Entity the necessary discretion to identify certain capacity as available in the event of a potential power balance infeasibility in its BAA. However, the proposal does not include any incentives for an EIM Entity to retain additional capacity beyond that which it needs to ensure reliability in its BAA. As noted above, CAISO's existing EIM design requires load-serving entities in the EIM Entity's BAA to include in the EIM sufficient capacity to cover their load. Furthermore, the existing tariff provides incentives for resource

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<sup>169</sup> See CAISO October 21 Answer at 25.

<sup>170</sup> CAISO, Tariff §§ 29.34(k), (l), and (m).

sufficiency, including, for example, penalties for under-scheduling and the freezing of EIM transfers into an EIM Entity BAA when the BAA fails resource sufficiency.

114. We do not agree with Bonneville's argument that, because the existing EIM design already includes a means for accounting for available, non-participating capacity through tracking manual dispatches, the Available Balancing Capacity proposal may not address the problem of infeasibilities. CAISO's proposed new functionality differs significantly from its existing method of accounting for manual dispatches, which requires EIM Entity operators to manually communicate dispatches to CAISO. Under the existing method of reactive manual intervention, the EIM has not always been able to recognize the dispatch of PacifiCorp's retained capacity outside of the EIM. In contrast, under the Available Balancing Capacity proposal, EIM Entities will identify Available Balancing Capacity in advance to CAISO so that market optimization will be able to recognize such capacity automatically. Thus, CAISO's systems should be able to automatically formulate feasible solutions in which the Available Balancing Capacity may be used to address potential infeasibilities, as opposed to requiring operators to manually inform CAISO of dispatches of retained capacity for CAISO to subsequently reflect in the market.

## **11. Load Biasing and Adjustments to Load Forecasts**

### **a. Comments**

115. Powerex expresses concerns regarding the ability of EIM Entities to bias load in the EIM. According to Powerex, CAISO's proposal permits EIM Entities to influence EIM market results and prices in ways that could benefit themselves or their affiliates. Powerex contends that EIM Entities will be able to bias the load forecasts that CAISO will use to calculate EIM prices, with CAISO applying a "load bias limiter" to override such adjustments if the adjustment would trigger penalty pricing.

116. Powerex argues that CAISO's approach to load biasing is flawed. According to Powerex, while CAISO has automated systems to produce a load forecast for each market run, it affords EIM Entities the discretion to adjust these forecasts through the use of "load biasing" to help ensure the forecasts more accurately reflect anticipated real-time conditions.<sup>171</sup> Powerex also points out that CAISO proposes to use a "load bias limiter" to prevent the application of those adjustments if doing so would exhaust the resources available through the EIM and trigger application of penalty pricing. Powerex argues that CAISO's reasoning for its use of the load bias limiter is inconsistent, and contends that if CAISO believes that an EIM Entity should be able to adjust the load forecast then CAISO should implement these adjustments as submitted. According to Powerex,

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<sup>171</sup> Powerex September 9 Comments at 15.

CAISO's approach to load biasing is another tool designed to prevent the lack of resources offered into the EIM from being reflected in EIM prices. Powerex argues that if the load bias limiter was intended to avoid "coarse adjustments" from the EIM Entity from leading to an inaccurate load forecast, as CAISO has asserted, then it would be appropriate to limit operator load adjustments based on a factor such as the magnitude of the adjustment and not just when the adjustments trigger penalty prices.<sup>172</sup> Powerex contends that CAISO's implementation of the load bias limiter in EIM Entity BAAs is another avenue to avoid the application of the general pricing provisions of its tariff.

**b. CAISO's October 21 Answer**

117. CAISO answers that the EIM Entity as the balancing authority – not the EIM Entity's merchant function – conducts the load forecast adjustment. CAISO states that the balancing authority and merchant functions and the personnel responsible for them are separated. CAISO also states that the EIM Entity balancing authority is adjusting the load forecast to ensure the system is balanced reliably and consistent with what it perceives system conditions to be. CAISO explains that it likely will not be as familiar with the conditions in the EIM Entity's BAA because it is not the EIM Entity's balancing authority, and the balancing authority's purpose is to maintain reliability without an economic interest in the adjustments.<sup>173</sup>

118. In response to Powerex's argument that CAISO should not artificially limit load forecast adjustments to avoid the application of penalty prices using its load bias limiter functionality, CAISO explains that the load bias limiter is an existing automated functionality currently used in the CAISO BAA solely to ensure that any operator adjustments to load forecasts are consistent with actual system conditions.<sup>174</sup> CAISO explains that, although the load bias limiter has been available to the EIM since March 20, 2015, CAISO will begin to apply it to the EIM only after the expiration of the waiver of penalty pricing currently in effect. During the time that the waiver of penalty pricing has been in place, the existence of the waiver has made it unnecessary for CAISO to apply the load bias limiter.<sup>175</sup> CAISO states that the load bias limiter is necessary because operators' load adjustments tend to be coarse adjustments because operators cannot always precisely predict real-time system conditions. Such adjustments can result

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<sup>172</sup> *Id.* at 16.

<sup>173</sup> CAISO October 21 Answer at 32.

<sup>174</sup> *Id.* at 33.

<sup>175</sup> *Id.* at 34 n.49.

in infeasible market solutions.<sup>176</sup> CAISO explains that, to prevent such over-adjustments and any infeasibilities they may cause, the load bias limiter currently applied in the CAISO BAA limits coarse operator adjustments to actual system capability as long as the megawatt quantity of the infeasibility is less than, and in the same direction as, the operator adjustment.

119. CAISO states that load forecast adjustments can impact the outcome of the market, so it is appropriate for CAISO to ensure that coarse adjustments do not create spurious infeasibilities that are not consistent with actual system conditions. In addition, CAISO notes that its monthly EIM informational reports will describe the use of the load bias limiter.<sup>177</sup> CAISO also explains that, where the megawatt quantity of an infeasibility is greater than or in the opposite direction of the operator adjustment, the load bias limiter will not apply and the infeasibility may trigger penalty prices. According to CAISO, this is reasonable because such circumstances indicate a true infeasibility.<sup>178</sup>

**c. CAISO's Deficiency Response**

120. In its Deficiency Response, CAISO explains that an EIM Entity does not communicate when or why it adjusts load in the 15- or five-minute markets, but logs the reasons for the adjustments pursuant to its own procedures at the time the adjustment is made.<sup>179</sup> CAISO states that the log that an EIM Entity maintains in biasing load is not provided to CAISO, but a summary of this log is shared with CAISO upon request.<sup>180</sup>

121. According to CAISO, there are many situations in which an EIM Entity may notice persistent high or low Area Control Error (ACE) and may choose to adjust load forecasts to bring ACE within the normal range.<sup>181</sup> Because of the time-sensitive nature

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<sup>176</sup> *Id.* at 33.

<sup>177</sup> *Id.* at 34.

<sup>178</sup> *Id.* at 35.

<sup>179</sup> CAISO Deficiency Response at 22-23.

<sup>180</sup> *Id.* at 23.

<sup>181</sup> CAISO provides numerous examples of situations in which the EIM Entity may need to bias load, including: (1) a forced outage or partial outage of a generating resource; (2) persistent inaccuracies in network models, until such inaccuracies are resolved; (3) behind the-meter generation that is seen by the EIM Entity's automatic generation control system but not seen by the market because such generation is not included in the network model until the actual net load values that the EIM Entity sends (*continued ...*)

of these adjustments after noticing persistent ACE deviations, the EIM Entity does not seek CAISO approval before adjusting load forecasts. CAISO states that maintaining ACE and reliability, more generally, is the responsibility of the EIM Entity, which has the balancing authority function in its BAA.

122. Because load biasing can have market impact, however, CAISO explains that it has adopted a load bias limiter, which, as noted in CAISO's October 21 Answer, is an existing automated functionality currently used in CAISO's BAA.<sup>182</sup> CAISO asserts that load biasing cannot be used for strategic purposes in the market because it directly affects the capability of an EIM Entity to maintain ACE in the normal range.

**d. Comments on Deficiency Response**

123. In its comments on CAISO's Deficiency Response, Powerex continues to assert that the existing use of load biasing and the load bias limiter in the EIM is unjust and unreasonable. According to Powerex, CAISO has proposed a design that would permit EIM Entities to engage in opaque and highly subjective load forecast adjustments that directly affect EIM clearing prices, without proposing any tariff provisions regarding load biasing that would subject the practice to formal review by the Commission.<sup>183</sup> Powerex contends that CAISO has not justified allowing commercially-interested entities to exert such influence over the EIM's market clearing and price formation processes. According to Powerex, the examples CAISO has provided to justify the use of load biasing suggest that the focus should be on ensuring timely communications between EIM Entities and CAISO rather than granting EIM Entities the ability to make subjective adjustments to the load forecasts used to clear the EIM.<sup>184</sup> Powerex requests that the Commission direct CAISO to eliminate the ability of EIM Entities to directly engage in load biasing and

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to the CAISO are adjusted, and reasonable forecasted load accuracy is achieved; (4) persistent resource deviation from dispatch operating targets; (5) problems with telemetry values provided by supervisory control and data acquisition systems; (6) inaccuracy of variable energy resource forecasts; (7) movements or deviations of non-conforming loads from their hourly EIM base schedule values; (8) dynamic resources that are shared between EIM BAA and non-EIM BAA can deviate significantly from their hourly base schedule values; and (9) multi-stage generation configuration determination mismatch between the 15-minute market and the five-minute market due to telemetry discrepancy or software defect). *Id.*

<sup>182</sup> *Id.* at 33.

<sup>183</sup> Powerex November 4 Comments at 14.

<sup>184</sup> *Id.* at 15.



require any use of load biasing to be expressly set out in the CAISO tariff. Powerex argues that each EIM Entity should be required to timely communicate objective information to CAISO regarding conditions in its BAA, allowing CAISO as the market operator to determine what adjustments, if any, are necessary to reflect real-time conditions.<sup>185</sup>

124. Powerex also remains concerned about CAISO's use of a load bias limiter to artificially suppress EIM prices. Powerex states that it does not object to the implementation of a limiter function that is specifically designed to identify and prevent erroneous operator adjustments from adversely impacting market operations. However, Powerex argues, it is highly inappropriate to design and apply a load bias limiter to prevent load biasing from triggering the application of Commission-approved penalty prices set out in the CAISO tariff. According to Powerex, CAISO's proposed load bias limiter may make the load forecast less accurate in order to avoid penalty pricing, and may falsely mask actual scarcity conditions.<sup>186</sup>

125. Powerex asks the Commission to direct CAISO to revise its tariff to: (1) include provisions regarding load biasing and any load bias limiter, to the extent these will be used at all; (2) prohibit any entity other than CAISO from biasing load; (3) identify the limited purposes for which load biasing may be used; and (4) set out the specific criteria that will result in the application of a load bias limiter.<sup>187</sup>

e. **Commission Determination**

126. We will not require revisions to CAISO's tariff in this proceeding to address adjustments to load forecast or load biasing and to address CAISO's use of a load bias limiter. Neither CAISO's August 19 Filing nor its Deficiency Response propose any changes to CAISO's existing tariff regarding load forecast adjustments, load biasing, or the load bias limiter. While Powerex's concerns regarding these practices have come to light in this proceeding, those issues are not part of CAISO's Available Balancing Capacity proposal. Accordingly, we find that these issues are beyond the scope of this proceeding.

127. While we decline Powerex's request, we recognize the tension, inherent in the EIM market design, between an EIM Entity's continued reliability responsibilities as a balancing authority, CAISO's role as the market operator, and the impact of each EIM

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<sup>185</sup> *Id.* at 16.

<sup>186</sup> *Id.* at 17-18.

<sup>187</sup> *Id.* at 19.

Entity's load forecast adjustments or load biasing on efficient EIM dispatch and prices. Furthermore, we agree that the impact on the EIM of load forecast adjustments by EIM Entities is not transparent. We believe added transparency in the EIM Entities' use of load forecast adjustments or load biasing would benefit the Commission and the market by giving the Commission and market participants more insight into market outcomes. CAISO notes that its use of the load bias limiter will be described in its monthly EIM informational reports. However, we believe more transparency is appropriate.

128. Therefore, we direct CAISO to collect relevant data from each EIM Entity, for both the 15- and five-minute markets, on the frequency and magnitude of an EIM Entity's use of load biasing, load forecast adjustments, the reason for the adjustments,<sup>188</sup> as well as any alternatives considered (e.g., use of manual dispatch). CAISO should also retain documentation regarding the reliability needs that were addressed by these load forecast adjustments or load bias actions.

129. Additionally, we expect CAISO's Department of Market Monitoring to monitor and evaluate this information and include an analysis of the impacts of EIM Entities' load forecast adjustments or load bias actions on the EIM in its public Quarterly Report on Market Issues and Performance. Inclusion of this information in the Department of Market Monitoring's quarterly reports will assist the Commission in assessing the effects these actions have on market outcomes.

The Commission orders:

(A) CAISO's proposed tariff revisions are hereby accepted for filing effective January 5, 2016, as discussed in the body of this order.

(B) The Commission directs CAISO to submit monthly informational reports on EIM performance for each balancing authority's six-month transition period, as discussed in the body of this order.

(C) The Commission directs CAISO to submit quarterly informational reports on the performance of CAISO's Available Balancing Capacity proposal, as discussed in the body of this order.

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<sup>188</sup> See, e.g., CAISO Deficiency Response at 23 (providing examples of situations in which adjustments to load forecasts may also be required).

(D) The Commission directs CAISO to collect data from each EIM Entity on the frequency and magnitude of an EIM Entity's use of load biasing, load forecast adjustments, the reason for such adjustments, and any alternatives considered, as discussed in the body of this order.

By the Commission.

( S E A L )

Nathaniel J. Davis, Sr.,  
Deputy Secretary.