

**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

**California Independent System            )           Docket No. ER15-861-003**  
**Operator Corporation                    )**

**MOTION FOR LEAVE TO ANSWER AND ANSWER OF THE  
CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION  
TO COMMENTS AND PROTESTS**

The California Independent System Operator Corporation (CAISO) submits this answer<sup>1</sup> to the comments and protests<sup>2</sup> filed in response to the CAISO's August 19, 2015 tariff amendment (August 19 Tariff Filing). In the August 19 Tariff Filing the CAISO submitted its proposal to comply with the Commission's July 20, 2015 order, which directed the CAISO to file tariff revisions to implement its proposed long-term solution to the imbalance energy price excursions experienced in the PacifiCorp balancing authority areas after the Energy Imbalance Market (EIM) went into effect.<sup>3</sup> The comments and protests

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<sup>1</sup> The CAISO files this answer pursuant to Rules 212 and 213 of the Commission's Rules of Practice and Procedure, 18 C.F.R., §§ 385.212, 385.213. The CAISO requests waiver of Rule 213(a)(2) to permit it to address the protests filed in this proceeding. Good cause for this waiver exists here because the answer will aid the Commission in understanding the issues in the proceeding, provide additional information to assist the Commission in the decision-making process, and help to ensure a complete and accurate record in the case. *See, e.g., Equitrans, L.P.*, 134 FERC ¶ 61,250, at P 6 (2011); *Cal. Indep. Sys. Operator Corp.*, 132 FERC ¶ 61,023, at P 16 (2010); *Xcel Energy Services, Inc.*, 124 FERC ¶ 61,011, at P 20 (2008).

<sup>2</sup> The following parties filed comments and protests: Bonneville Power Administration (BPA); Nevada Power Company and Sierra Pacific Power Company, both d/b/a NV Energy (NV Energy); Pacific Gas and Electric Company (PG&E); PacifiCorp; Powerex Corp. (Powerex"); Puget Sound Energy, Inc. (Puget); Truckee Donner Public Utility District (Truckee"); and Western Power Trading Forum (WPTF).

<sup>3</sup> *Cal. Indep. Sys. Operator Corp.*, 152 FERC ¶ 61,060 (2015) (July 20 Order). Some parties filed their comments and protests not only in the proceeding captioned above (Docket No. ER15-861) but also in the other proceeding in which the July 20 Order was issued (Docket No. EL15-53). However, the Commission noticed the August 19 Tariff Filing solely in Docket No.

fail to provide any valid reason why the Commission should not accept the tariff revisions as submitted in the August 19 Tariff Filing, subject to the CAISO's submittal of a compliance filing to make the minor clarifications discussed in this answer.<sup>4</sup> Therefore, the Commission should accept the tariff revisions.

The CAISO has deferred filing this response until now because of the intervening issuance by the Commission of its letter of September 24, 2015, requesting additional information on the August 19 Tariff Filing, and the CAISO's desire to limit overlap and ensure consistency between this answer and its October 21, 2015, response to the September 24 letter (October 21 CAISO Response). To the extent that this response is considered out-of-time, the CAISO respectfully requests that the Commission grant the CAISO leave to file out-of-time. No party will be prejudiced by doing so, as the Commission will treat the CAISO's response to the September 24 letter as an amendment to the August 19 Tariff Filing and initiate a new notice period.<sup>5</sup>

## **I. Executive Summary**

In the August 19 Tariff Filing, the CAISO complied with the Commission's directive in the July 20 Order to submit tariff revisions to implement the long-term solution to imbalance energy price spikes that the CAISO had initially proposed

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ER15-861-003. See Combined Notice of Filings #1, Docket Nos. EC15-192-000, *et al.*, at 1 (Aug. 20, 2015).

<sup>4</sup> The CAISO is also proposing a few clarifying changes in the context of its response to the Commission's September 24 letter requesting additional information regarding the August 19 Tariff Filing.

<sup>5</sup> Consistent with this, the CAISO is requesting in its response to the September 24 letter that the Commission make the amendments proposed in the August 19 Tariff Filing, as modified in this filing and in the response to the September 24 letter, effective as of January 1, 2016.

in the April 23, 2015, comments in this proceeding.<sup>6</sup> The tariff revisions constitute one of three complementary sets of proposed tariff solutions that the CAISO has filed to address the issues encountered after the launch of the EIM last fall. The other two solutions, proposed in separately filed tariff amendments, consist of adopting readiness criteria directed by the Commission and a transition period to address remaining learning curve issues.

Through this proceeding, the CAISO has identified a structural market issue that prevented the market optimization software from recognizing capacity that PacifiCorp, as a separately functioning balancing authority, has available to balance its system. The analysis of root causes, which the CAISO has discussed at length in this proceeding and in the numerous reports, shows that the manual process by which EIM entity balancing authority areas inform the CAISO regarding the management of such capacity resulted in the EIM market software's inability to timely recognize this capacity and contributed to some of the issues observed after the launch of the EIM. The available balancing capacity enhancement proposal will enable the market optimization software to automatically recognize and account for capacity that the balancing authority identifies as available beyond mandatory EIM flexibility requirements to maintain

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<sup>6</sup> See July 20 Order at P 25. The July 20 Order also directed the CAISO to "include in its filing an explanation of how each of the underlying causes of the price spikes is addressed by its proposed tariff revisions and/or by other actions taken by CAISO and PacifiCorp, as well as whether there are any underlying issues that remain unaddressed." *Id.* Further, the July 20 Order stated that the Commission "expect[ed] CAISO to consider the concerns raised by commenters in developing its proposed detailed tariff language, and to ensure that commenters' concerns are addressed, as appropriate, in either the proposed tariff language itself or the accompanying transmittal letter." *Id.* at P 26.

reliable operations. The CAISO's proposal provides a just and reasonable solution to a concrete problem identified in this proceeding.

A number of the parties that filed comments on the August 19 Tariff Filing support Commission acceptance of the tariff revisions.<sup>7</sup> Other parties, however, favor modifying or rejecting the tariff revisions and imposing additional obligations that go far beyond the scope of this proceeding and are not viable solutions to address the concrete issues that have been identified. These parties continue to request significant modifications to the Commission approved principles underlying EIM, including the fundamental principle that in joining the EIM, the EIM entity retains complete balancing area authority responsibility, which includes managing its contingency reserves. Intervenors base their requests on the flawed premise that because penalty pricing was triggered after the launch of the EIM, *ipso facto* the EIM is flawed without a must-offer requirement. However, they offer no evidence to suggest that the existing resource sufficiency evaluations imposed on the EIM entity are inadequate to allow the market to clear at just and reasonable prices.

The existing EIM sufficiency tests consist of a robust set of measures to ensure there are sufficient resources to meet EIM load before an entity can benefit from having resources in other balancing authority areas meet its imbalance energy needs. These measures include a balancing test, a capacity test, and a ramping test. The balancing test ensures that supply and demand in the submitted base schedules are equal and, if necessary, adjusts the base

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<sup>7</sup> See NV Energy at 10; PacifiCorp at 9; PG&E at 2; Puget at 5.

schedule load to ensure balance. The capacity test evaluates whether participating resources have submitted bids that are adequate to meet differences between the hourly balance load and forecasted demand. The ramping test evaluates the ramping capability of participating resources to ensure that the 15-minute interval changes can be met including the flexibility requirements, to address variability and uncertainty in net load, imposed on all EIM participants, including the CAISO. In the event the EIM entity fails the capacity or ramping test, it cannot use participating resources from other balancing authority areas in the EIM to meet its imbalances more economically. These tests are essential components of the EIM design approved by the Commission that do not require the EIM entity to transfer operational control of its balancing authority area to the CAISO or require co-optimization of the EIM entities' imbalance energy and ancillary services requirements.

Powerex further states that in PacifiCorp's tariff amendment proceeding, the Commission accepted PacifiCorp's proposal on the basis that prices calculated through the EIM would more accurately reflect PacifiCorp's actual costs of providing imbalance service than they would under an hourly pricing proxy. Powerex references this to suggest that the EIM pricing does not meet that standard, but offers no evidence in support of their argument. Pricing data reported by the CAISO Department of Market Monitoring shows that there is actually no reason to believe that the EIM pricing is inferior to hourly proxy pricing. The monthly reports filed by the Department of Market Monitoring show that the prices in the fifteen and five-minute markets produced with and without

the current pricing waiver trail closely to the bilateral trading hub prices in PacifiCorp East and PacifiCorp West, respectively.<sup>8</sup> While the CAISO understands that the bilateral trading hub price is not a perfect match to the index price used under schedules 4 and 9, it is a good indicator of the cost of energy in the western markets. The Commission should not lose sight of the benefits the EIM provides in optimizing energy on the EIM entity's system based on real-time indicators such as bids and schedules, optimized in a security constrained economic dispatch that reflects system conditions and honors system constraints in real-time. The Commission has already found this to be a superior method of pricing energy in a given market, and the price trends support the Commission's prior findings.<sup>9</sup> The Commission should disregard Powerex's comments.

Granting protesting parties' requests would require a complete redesign of the EIM. There is no evidence that such drastic changes are necessary. To the contrary, the issues experienced with the first EIM entity diminished significantly after the first six months of operations. Infeasibilities have decreased substantially, and prices have stabilized significantly. This has resulted, in large part, from the CAISO and the EIM entity working through significant "learning curve" issues. Remarkably, these improvements have occurred without any significant increase in capacity bid into the EIM and without any market rule changes to elicit more capacity in the EIM. These facts confirm that the

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<sup>8</sup> See, e.g., Independent Assessment of the Department of Market Monitoring on EIM Issues and Performance for July 2015, Docket No. ER15-402-000, at 5-9 (Sept. 25, 2015).

<sup>9</sup> See *Cal. Indep. Sys. Operator Corp.*, 147 FERC ¶ 61,231, at P 74 (2014); *PacifiCorp*, 147 FERC ¶ 61,227, at P 160 (2014); *Nev. Power Co.*, 151 FERC ¶ 61,131, at P 174 (2015)..

requirements Powerex and BPA seek to impose on the EIM are not necessary to address the issues identified in this proceeding.

Despite the issues experienced after the launch of the EIM, other balancing authorities are seeking to join the EIM and share in the tangible benefits the EIM provides in optimizing imbalance energy across the EIM footprint and lowering costs to ratepayers. The CAISO's most recent EIM benefits report shows \$10,180,000 million in benefits for April, May, and June of 2015 alone.<sup>10</sup> Despite repeated attempts by the protesters to create the impression that the EIM has been a failure, the data and the growing participation testify to the success of the EIM. The Commission should disregard the claims of the protesters and support the western balancing authorities in their efforts to find lower-cost options to meet their imbalance needs through the existing design of the EIM, as enhanced by the recent tariff filings the CAISO has made.

## **II. Answer**

### **A. There Is No Merit to Powerex's and BPA's Repeated Arguments that the Only Just and Reasonable Solution Is to Compel the CAISO to Adopt Rules that Require More Capacity to be Bid into the EIM.**

In opposing the available balancing capacity proposal, Powerex and BPA reiterate their earlier arguments that the only just and reasonable solution to the issues identified in this proceeding is to impose stringent mandatory requirements or incentives for all capacity in the EIM balancing authority area to be bid into the EIM. Powerex fails to suggest any less drastic alternatives to the

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<sup>10</sup> See *Benefits for Participating in EIM* at 4 (July 30, 2015), available on the CAISO website at [http://www.caiso.com/Documents/PacifiCorp\\_ISO\\_EIMBenefitsReportQ2\\_2015.pdf](http://www.caiso.com/Documents/PacifiCorp_ISO_EIMBenefitsReportQ2_2015.pdf).

CAISO's proposal, but continues to assert that the Commission should reject the CAISO's proposal and direct the CAISO to seek an alternative solution.<sup>11</sup> BPA similarly argues that the CAISO's proposal does not go far enough to incent the EIM entity to use its available resources in the EIM.<sup>12</sup> Powerex and BPA conclude that the CAISO's available balancing capacity proposal is deficient because it will not increase the quantity of resources offered into the EIM, which they assert is the problem that prompted the Commission to initiate this proceeding.

As discussed in greater detail below, Powerex's and BPA's arguments are invalid for a number of reasons. First, there is no evidence that the price excursions observed last fall are due to the unwillingness either of EIM entities to include additional capacity in the EIM or of EIM resources to offer their capacity into the EIM. In fact, all of the evidence indicates that this was not the case. Second, the existing EIM design already requires load-serving entities in the EIM balancing authority area to include in the EIM sufficient capacity to cover their load and a reasonable range of operational outcomes. The CAISO's available balancing capacity proposal merely enhances these existing design elements. Third, there is no basis to conclude that increasing capacity in the EIM would have resolved the issues experienced last fall. Finally, the sweeping changes proposed by Powerex and BPA are inconsistent with the Commission's prior findings on other EIM-related matters.

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<sup>11</sup> Powerex at 8-9.

<sup>12</sup> BPA at 2-3.



- 1. There is no evidence that the price excursions observed last fall are due to the EIM entity's unwillingness to include additional capacity in the EIM, or that there is a need for market rules that incentivize more resources to participate in the EIM.**

Powerex and BPA argue that rules beyond those proposed by the CAISO are needed to require increased participation of resources in the EIM. Powerex and BPA base their arguments on the premise that because penalty prices were triggered frequently after the launch of the first EIM, *ipso facto* the EIM design is unjust and unreasonable absent mandatory EIM must-offer requirements for EIM entities.

Measures or incentives to force the EIM entity to include more capacity in the EIM are misplaced. The EIM entity is the balancing authority area, and it does not offer resources in the EIM. The load serving entities and resources participating in the EIM perform these actions through their scheduling coordinator; the balancing authority area does not perform these actions.

Similarly, the resource adequacy-based must-offer requirements in the CAISO balancing authority area apply to the load serving entities and resources, not the CAISO. It is contrary to any organized market paradigm to require the balancing authority area to offer capacity into the market.

In any case, Powerex and BPA provide no evidence to support their conclusion that solutions are *per se* invalid without incentives to increase participation in the EIM. On the other hand, the CAISO has provided ample evidence showing that the CAISO and PacifiCorp have resolved many of the

learning curve issues that triggered the penalty prices after the CAISO launched the EIM.

Consistent with the Commission's direction and in compliance with the Commission's directives in this docket, the CAISO and PacifiCorp undertook significant efforts to understand the root causes of the infeasibilities. The CAISO and PacifiCorp presented their findings in monthly informational reports filed with the Commission in Docket No. ER15-402, in presentations at the technical conference hosted by the Commission on April 9, 2015, and in comments filed subsequent to the technical conference. The analyses performed by the CAISO showed that the infeasibilities did not occur as the result of any actual capacity insufficiencies in the PacifiCorp balancing authority areas, but rather were the result of: (1) learning curve challenges associated with integrating PacifiCorp operations into the EIM, which sometimes caused the market optimization to use imperfect information regarding actual imbalance conditions, and (2) a structural limitation in the current design of the EIM, namely the lack of visibility to the market of capacity that is available to PacifiCorp, as the balancing authority, to meet its balancing area load, but for which it would be imprudent to bid into the EIM.<sup>13</sup>

Based on these findings, the CAISO and its stakeholders developed and recently filed proposed tariff revisions to implement a three-pronged solution to address these findings consisting of the following: (1) enhanced readiness criteria to reduce, as much as possible, the potential for learning curve issues to

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<sup>13</sup> See transmittal letter for August 19 Tariff Filing at 9-10.

occur during an EIM entity's initial operations that could result in market infeasibilities;<sup>14</sup> (2) a proposal for a transition period (shorter than the CAISO's earlier proposal) for new EIM entities to address learning curve issues that cannot be resolved through readiness activities;<sup>15</sup> and (3) the instant proposal to address the structural limitation described above.

The data provided in the informational reports filed by the CAISO also show a significant decrease in the number of infeasibilities observed in the EIM without any significant increase in participation of resources in the EIM. Further, the informational reports also indicate that as the learning curve issues decreased and the CAISO and PacifiCorp implemented solutions, the price excursions decreased commensurately.<sup>16</sup>

These trends are reflected in the diagrams provided below, which are based on the monthly data the CAISO has submitted in the informational reports. The diagrams illustrate the frequency with which the EIM has experienced infeasibilities and the prices that would have applied but for the existing tariff waivers. As Figures 1 and 2 show, the infeasibilities in both the fifteen-minute and the five-minute markets occurred for the most part in the first six months of

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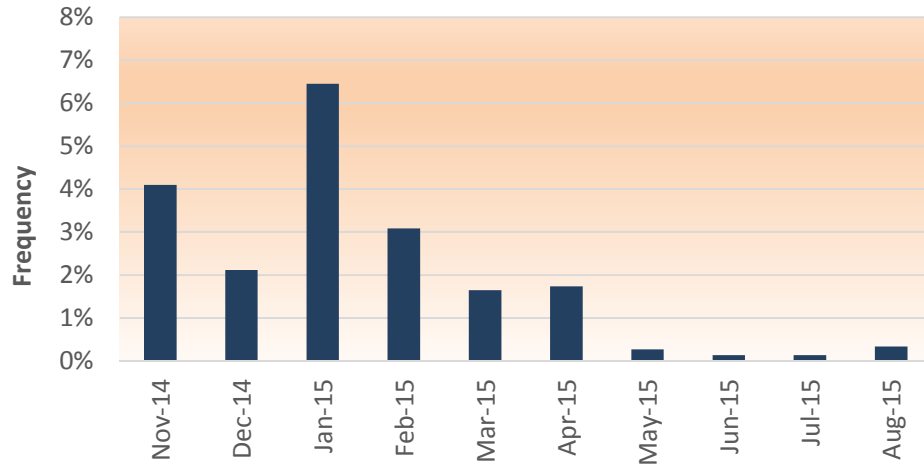
<sup>14</sup> See the CAISO's August 28, 2015, tariff amendment filing submitted in Docket No. ER15-861-004. This filing is pending before the Commission.

<sup>15</sup> See the CAISO's August 28, 2015, tariff amendment filing submitted in Docket No. ER15-2565-000. This filing is pending before the Commission.

<sup>16</sup> See, e.g., June 2015 Informational Report, Docket No. ER15-402-000 (Aug. 6, 2015) (August 6 Informational Report).

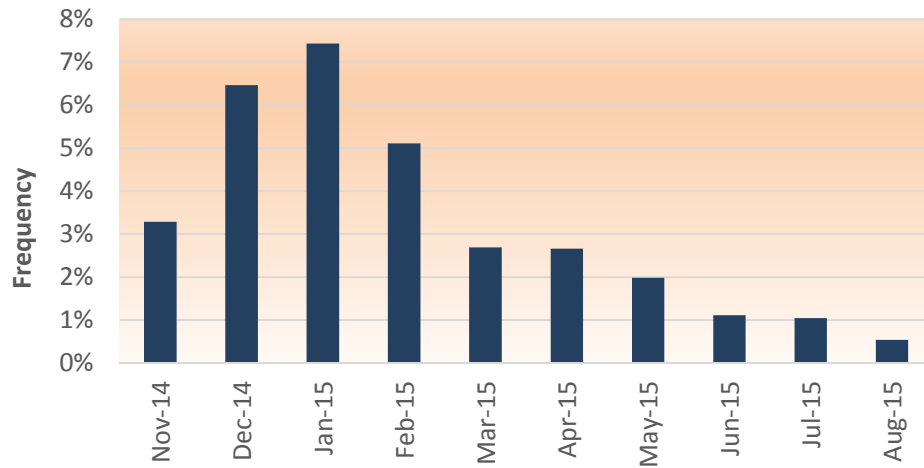
the new EIM. Infeasibilities in both markets tapered off significantly after the sixth month.<sup>17</sup>

**Figure 1: Frequency of EIM infeasibilities in the Fifteen Minute Market.**



<sup>17</sup> The CAISO also relied on this fact in the developing a limited transition period that enables the EIM entity to transition to the new market environment more smoothly as it learns to operate its system reliably in the context of the new market environment. As explained above, the CAISO filed tariff revisions to implement the limited transition period in Docket No. ER15-2565.

**Figure 2: Frequency of EIM infeasibilities in the Five Minute Real-Time Dispatch.**



The observed and notable reduction in infeasibilities is largely due to the significant improvements made by PacifiCorp and the CAISO in dealing with learning curve issues identified after the launch of the EIM. As discussed in the August 19 Tariff Filing, the CAISO also anticipates that the readiness criteria it has developed will go a long way toward reducing the learning curve-related issues for new EIM entities.<sup>18</sup> Finally, the August 19 Tariff Filing will resolve the market structure issue identified in the CAISO’s investigations that contributed to pricing infeasibilities which may continue to arise. Neither Powerex nor BPA raises any valid reason why the CAISO should not use the proposed available balancing capacity proposal to address the market structure issue.

<sup>18</sup> See transmittal letter for August 19 Tariff Filing at 25.

Neither BPA nor Powerex provides any convincing argument or evidence to contradict the CAISO's analyses. Powerex simply asserts, in a conclusory fashion, that the cause of the EIM infeasibilities must be a lack of bid-in resources in the EIM balancing authority area.<sup>19</sup> The only evidence offered by Powerex and BPA to support their request for drastic reformation of the EIM design is the fact that after the start of the first EIM, the market observed scarcity and triggered penalty prices. As discussed above, this fact does not support the need for any drastic reformation of EIM because the data shows that after the initial months of go-live, these infeasibilities significantly declined absent the changes requested by Powerex and BPA.

In particular, a significant decrease in infeasibilities has occurred without any corresponding increase in the number of resources registered as EIM resources or in the amount of capacity bid in by EIM participating resources. Further, there has been no change in the EIM rules targeted to compel load serving entities or exporters to make more capacity from EIM participating resources available to the EIM. These facts clearly demonstrate that resolving

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<sup>19</sup> Powerex cites, in support of its assertion, the CAISO's statement in the August 19 Tariff Filing that the CAISO and PacifiCorp "identified a combination of issues . . . that affected market outcomes and limited or affected the timing and amount of resource capability and flexibility that PacifiCorp could provide to the Energy Imbalance Market." Powerex at 8 & n.30 (citing transmittal letter for August 19 Tariff Filing at 6). Powerex seems to be suggesting that rather than addressing the underlying issues that "limited or affected the timing and amount of resource capability and flexibility that PacifiCorp could provide to the Energy Imbalance Market," which is what this proposal, along with the CAISO's readiness proposal, attempts to do, the CAISO should simply focus on increasing the amount of resources in the EIM. It is, of course, a truism that any power-balance issue can be solved by adding more resources (assuming they possess the appropriate ramping characteristics), but doing so, in lieu of actually solving the underlying problems preventing the efficient utilization of existing resources, would be extremely inefficient.

the issues identified in this proceeding does not require fundamental market rule changes that compel the inclusion of more capacity in the EIM.

**2. Powerex and BPA overlook or misunderstand the existing elements of the EIM that provide appropriate incentives for EIM entities to ensure that sufficient resources participate in the EIM and that produce just and reasonable prices.**

In arguing that additional measures are needed to compel the participation of more capacity in the EIM, Powerex and BPA ignore that the EIM design already includes a number of requirements to ensure that sufficient resources participate in the EIM and that prices in the EIM are robust and send proper economic signals.

Powerex attempts to leverage the CAISO's explanation of the available balancing capacity proposal into an argument that the CAISO is now portraying EIM as an "optional tool" in which EIM entities are free to bid in as much or as little capacity as they wish.<sup>20</sup> This is a mischaracterization. Powerex only quotes four words out of the complete set of statements made by the CAISO. The four words quoted were part of an explanation that the CAISO does not assume EIM entity balancing authority functions and does not co-optimize ancillary services in the EIM entity's balancing authority area. The complete quote in the August 19 Tariff Filing is:

As designed and approved by the Commission, the EIM serves as one tool among many available to balancing authority areas other than the CAISO to utilize to meet their imbalance needs and for resources to compete to serve the balancing authority needs of all

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<sup>20</sup> Powerex at 10-12. It is important to clarify upfront that despite Powerex's mischaracterizations, EIM entities do not bid into the market. As a balancing authority, they have the authority to instruct generators to balance the system, but they do not bid in resources into the EIM.

balancing authority areas in the EIM area. The EIM does not co-optimize ancillary services and energy as the CAISO does in its own balancing authority area. Moreover, the CAISO does not, through the EIM, assume responsibility for ensuring that each EIM entity is adequately resourced to meet all imbalance energy balancing needs in its balancing authority area.<sup>21</sup>

That has always and continues to be a fundamental design feature of EIM.

Powerex is wrong in stating that CAISO is changing its characterization of the EIM.

Powerex is also wrong in trying to use those terms to suggest that the CAISO is stating that the that PacifiCorp can provide imbalance energy services to its customers under options other than Schedule 4 and 9 of their OATT. The CAISO made no statements that would suggest that conclusion. The CAISO understands that Schedules 4 and 9 point to the EIM as the means through which PacifiCorp will price generation and imbalance energy imbalance. This has always been the case under EIM and nothing in the available balancing capacity proposal changes this construct.

Powerex, incorrectly concludes that because the PacifiCorp provides imbalance service under schedules 4 and 9 of its tariff, it also means that PacifiCorp must have *all* capacity in its balancing authority area bid into the EIM to ensure that prices are just and reasonable. Powerex, seems to further suggest that the CAISO and PacifiCorp agreed to this and made such representations to the Commission in their prior filings. But they fail to cite to any statements or other evidence that the EIM was designed in this manner or that

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<sup>21</sup> August 19 Tariff Filing at 27.



the Commission approved the EIM with the expectation that this would be the case. To the contrary, the CAISO has repeatedly represented that the EIM entity retains authority over its balancing authority area and as such there are multiple features that ensure the market operates efficiently, while recognizing that the EIM entity retains its balancing authority functions.

Indeed, the existing CAISO tariff contains measures to evaluate the sufficiency of resources available to meet certain minimum requirements in a given hour and provides for associated consequences if such measures are not met. Indeed, as part of the operation of the EIM: (1) the 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.<sup>22</sup> The CAISO conducts these tests to ensure that the EIM entity's balancing authority area has available resources to balance the load in its balancing authority area with adequate bid ranges from its participating resources.

Powerex suggests that the Commission should direct the CAISO to raise the flexible ramping sufficiency requirement, which is based on a 95 percent confidence interval.<sup>23</sup> This suggestion is beyond the scope of this proceeding, reflects a misunderstanding of the purpose of the 95 percent confidence interval, and does not address the structure issue that the CAISO identified and is the

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<sup>22</sup> See CAISO tariff sections 29.34(e), -(l), -(m), -(n).

<sup>23</sup> Powerex at 9 n.31.

subject of this proceeding.<sup>24</sup> The CAISO responded to Powerex's request in its August 19 Filing and addressed the implications of expanding the requirement.<sup>25</sup>

The CAISO explained in the August 19 filing that the 95 percent confidence interval is part of its determination of the procurement target for flexible ramping capacity. The actual procurement target is left, however, to the CAISO's discretion based on actual operational need and subject to the requirements specified in section 27.10 of the CAISO tariff. Section 27.10 states that the CAISO operators determine the quantity of the flexible ramping capacity for each applicable CAISO market run, which includes the EIM, using tools that estimate (1) the expected level of imbalance variability, (2) uncertainty due to forecast error, and (3) differences between the hourly, fifteen-minute average and historical five-minute demand levels. It does not specify what degree of uncertainty the CAISO should account for in its procurement target, which is what the 95 percent confidence interval specifies.

The CAISO adopted the 95 percent confidence interval to determine the appropriate level of uncertainty in net demand forecasts in each interval for which

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<sup>24</sup> Powerex references its initial comments, in which it asserted that a 95 percent confidence interval appears to be too low to meet an EIM entity's imbalance energy needs in approximately 5 percent of all intervals. This assertion is incorrect. A 95 percent confidence interval means that a system operator is covering variability conditions that range from 2.5 percent to 97.5 percent. Statistically, this means that there may be a 2.5 percent risk of under-supply insufficiency and a 2.5 percent risk of over-supply insufficiency. Also, although there is no industry standard for establishing the appropriate quantity of flexible reserves, a 95 percent confidence interval is generally considered to be reasonable. See Analysis of the Benefits of an Energy Imbalance Market in the NWPP, Pacific Northwest National Laboratory (October 2013) at 2.40, available at [http://www.pnnl.gov/main/publications/external/technical\\_reports/PNNL-22877.pdf](http://www.pnnl.gov/main/publications/external/technical_reports/PNNL-22877.pdf)

The CAISO does not rule out a potential future change in the confidence level. However, any such proposal would need to be carefully considered based on actual operational experience and vetted with stakeholders.

<sup>25</sup> August 19 Filing at 28-31.

the CAISO will procure flexible ramping capacity. Because this part of the procurement target is based on historical amounts, the CAISO must select a prudent confidence interval to reflect the amount of historical variability. Increasing the confidence interval amount would only increase the procurement target to cover a greater amount of the variability between intervals based on the historical variability. Although the availability of more flexible capacity would protect against triggering penalty prices in future market intervals, procuring extra capacity results in increased costs whether or not the additional capacity is actually needed in the financially binding fifteen-minute market or five-minute dispatch interval.

The 95 percent confidence interval applied in the procurement of flexible ramping capacity is the appropriate level of variability for the CAISO real-time market as a whole. It is important to note that the real limiting factors in the EIM that contribute to infeasibilities are limitations on the transfers that enable the entities participating in the EIM to share in the diversity benefits thereof. The EIM provides diversity benefits because it can collectively meet the imbalance energy needs of individual balancing authority areas at a lower overall cost than if each balancing authority area had to manage imbalances on their own. Increasing the transfer capability enables the imbalance market to find feasible market solutions, thereby decreasing the need to procure more flexible ramping capacity to protect against imbalance energy infeasibilities. With the addition of NV Energy and other entities into the EIM, these diversity benefits will increase.

Based on this flexible ramping constraint procurement requirement, which applies equally to all balancing authority areas that participate in the EIM, including the CAISO, the CAISO conducts the flexible ramping sufficiency test each hour of the EIM to ensure that a balancing authority area in the EIM does not lean on the flexibility procured by the other participating balancing authority areas. In this test, the EIM entity passes the test if its balancing authority area has sufficient bid range from participating resources to meet 97.5% probability of its upward variability. This allows the load in that EIM balancing authority area to share the participating resources located in another EIM BAA, within the amount of transfer capacity available. Any capacity above these requirements and above the contingency reserves that the CAISO protects and does include in the EIM dispatch, will serve as diversity benefits for the EIM. The available balancing capacity proposal allows the EIM entity to optimize energy it can access to balance its system reliably above these requirements through the EIM as opposed to managing it manually.

The CAISO's flexible ramping procurement target tariff authority and procedures enable the CAISO to dynamically adjust the target levels as needed based on actual operational conditions and observed actual utilization of flexibility and infeasibilities that reflect actual conditions. Because the EIM diversity benefits are likely to materialize, the CAISO may find that with the increase in EIM transfer capacity, the 95% confidence interval results in the procurement of more flexible capacity than is necessary under actual operational conditions.

Under these circumstances, the CAISO would seek to lower the 95 percent confidence interval to avoid over-procuring flexible capacity.

Contrary to Powerex's prompting, the Commission should not use the infeasibilities caused by the early learning curve issues the first EIM entity experienced as the basis for mandating more procurement of flexible ramping capacity in the CAISO markets. There is simply no evidence that current system conditions require such adjustments.

Finally, the available balancing capacity proposal does not dilute the efficacy of the sufficiency tests because the CAISO will not consider available balancing capacity designated by an EIM entity in determining whether it meets the resource sufficiency evaluation. Therefore, even after implementation of the available balancing capacity proposal, EIM entities will still be required to demonstrate that sufficient resources, with the appropriate ramping characteristics -- not including available balancing capacity -- have been offered into the EIM for their balancing authority areas, based on their ability to meet the three tests described above. Thus, the available balancing capacity proposal does not diminish the existing requirements already imposed on all EIM entities.

**3. The sweeping changes proposed by Powerex and BPA are inconsistent with the Commission's prior findings in EIM-related filings.**

Powerex and BPA's recommended course of action is wholly inconsistent with the totality of the Commission's actions in matters related to EIM. First, the Commission has rejected Powerex's attempts to modify the EIM rules to include similar must-offer requirements and denied requests for rehearing on such

issues.<sup>26</sup> Second, the Commission established the section 206 proceeding to investigate the root causes of the issues experienced following the start of the first EIM, but did not halt actions towards integrating new EIM entities. To the contrary, efforts to integrate new EIM entities have continued since the March 16 Order was issued,<sup>27</sup> and the Commission has recognized the benefits of the EIM in integrating additional entities into the EIM.<sup>28</sup>

NV Energy, Puget, and APS have all taken significant actions and incurred costs to join the EIM as currently designed. Puget and NV Energy have indicated their acceptance of the current rules without the major reforms Powerex and BPA request.<sup>29</sup> If the Commission were to order the significant reforms sought by Powerex and BPA, the entities that have voluntarily agreed to join the EIM based on their retaining control over all balancing authority

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<sup>26</sup> See *Cal. Indep. Sys. Operator Corp.*, 147 FERC ¶ 61,231, at P 123, *order on reh'g*, 149 FERC ¶ 61,058, at P 54 (2014).

<sup>27</sup> See *Nev. Power Co.*, 151 FERC ¶ 61,131 (2015) (conditionally accepting proposed tariff revisions to allow NV Energy to participate in EIM); *Cal. Indep. Sys. Operator Corp.*, 151 FERC ¶ 61,158 (2015) (accepting Implementation Agreement between CAISO and Puget setting forth terms under which CAISO will modify and extend its existing real-time energy market systems to provide EIM service to Puget); *Cal. Indep. Sys. Operator Corp.*, 152 FERC ¶ 61,090 (2015) (accepting Implementation Agreement between CAISO and Arizona Public Service Company to provide EIM service to that entity).

<sup>28</sup> See *Cal. Indep. Sys. Operator Corp.*, 147 FERC ¶ 61,200, at PP 1, 27 (2014); *Cal. Indep. Sys. Operator Corp.*, 151 FERC ¶ 61,158, at P 20; *Cal. Indep. Sys. Operator Corp.*, 152 FERC ¶ 61,090, at P 11.

<sup>29</sup> See Puget at 3-5; NV Energy at 5-9. Despite the implementation challenges experienced after the launch of the first EIM, three balancing authority areas in addition to PacifiCorp are preparing to participate in the EIM for purposes of managing their real-time imbalance energy needs. NV Energy is nearing its go-live date on November 1, 2015, and Arizona Public Service Company and Puget Sound Energy plan to start participating in the EIM in the fall of 2016. In addition, Portland General Electric recently announced its plans to explore joining EIM. The continued and growing interest expressed by other balancing authorities in joining the EIM is a testament to the value the EIM has provided to energy markets in the West, despite Powerex's unsupported claims that the EIM is fundamentally flawed.

area functions might find Powerex’s proposed EIM reformations to be unacceptable, thus undermining regional market efforts. Moreover, even if the Commission found that Powerex and BPA’s arguments had merit, because they offer no detailed proposal for implementing their proposed reformations, the Commission cannot practically consider their design concepts in the context of this proceeding. Any fundamental changes to the EIM along the lines proposed by Powerex and BPA should be considered through a robust stakeholder process. And even if Powerex and BPA had shown that their proposed fundamental concepts are just and reasonable – which they have not done – the Commission should not accept those concepts in place of the just and reasonable EIM design already in place.<sup>30</sup>

Implementing the first EIM with PacifiCorp was a significant innovation in LMP-based markets. Any such significant and innovative endeavor is bound to face issues and challenges, and the CAISO understands that the issues experienced with the launch of the first EIM entity raised concerns for the Commission and market participants. The Commission appropriately established the section 206 proceeding to explore fully and carefully solutions to address the specific issues identified after the launch of the EIM. In its July 20, 2015, order the Commission directed the CAISO to submit the tariff revisions that the CAISO

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<sup>30</sup> See *Mass. Attorney Gen. v. Bangor Hydro-Electric Co.*, 150 FERC ¶ 61,165, at P 31 (2015) (“We recognize that in situations where the Commission has found that more than one methodology may be used to design a just and reasonable rate for a service, . . . the utility may choose one of the just and reasonable ratemaking methodologies in a section 205 proceeding, and the Commission then cannot require the utility to shift to a different just and reasonable methodology in a subsequent section 206 proceeding.”).

has included in the August 19 Tariff Filing so it could determine whether the CAISO's available balancing capacity proposal is just and reasonable.<sup>31</sup> Consistent with the Commission's directives in this and other EIM-related proceedings, the CAISO has diligently examined the issues encountered with integrating the first EIM entity and is now enhancing its existing EIM rules with a well-tailored solution that will address the identified structural issue and facilitate the entry of new participants into the EIM.

**4. The metric provided by the CAISO in its monthly reports shows the availability of capacity above the NERC required reserves, which in many cases may have been available to meet the infeasibilities reported in those intervals.**

BPA takes issue with the CAISO's resource sufficiency analyses provided in its monthly informational reports, arguing that because EIM is a five-minute market and North American Electric Reliability Corporation (NERC) requirements provide balancing authorities thirty minutes to return within limits, it is "misleading" for the CAISO to conclude that PacifiCorp has been sufficiently resourced based on the fact that it has avoided reliability violations.<sup>32</sup> As the CAISO explained in its monthly reports on waiver performance, the CAISO conducted its supply sufficiency analysis for purposes of its reporting requirements by calculating the difference between the total amount of reserves carried by PacifiCorp and the minimum amount of reserves required by NERC and then subtracting from this amount the magnitude of the infeasibility, in

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<sup>31</sup> July 20 Order at P 25.

<sup>32</sup> BPA at 3.



megawatts.<sup>33</sup> The “available capacity” calculated by the CAISO in this analysis consisted of ten-minute reserves, as well as resources available to provide regulation, which would be available on a five-minute basis. As the CAISO discussed in the monthly reports, the analysis was not intended to show definitively that this available capacity would have addressed any particular infeasibility, because it is uncertain whether such capacity would have been capable of meeting the ramping requirements necessary to address the infeasibility. But the data does demonstrate that for the majority of infeasibilities, available excess reserves capacity was available that if identified in the market may have addressed the infeasibility.

As described above, the existence of very few intervals in which PacifiCorp had less available capacity than the amount of the infeasibility suggests that reflecting this capacity in the EIM would have allowed the EIM to clear in many of the instances in which it encountered a power-balance constraint. Moreover, the CAISO’s available balancing capacity proposal specifically addresses the concern that BPA raises about the propriety of treating regulating reserves to resolve imbalances, because any capacity designated as available balancing capacity will be subject to the rules applicable to the CAISO’s real-time markets. Thus, the CAISO will not count as “EIM entity available balancing capacity” capacity that is available to an EIM entity but cannot meet the ramping requirements during a particular interval, and the CAISO will not use such capacity to resolve a potential infeasibility that might occur. Stated

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<sup>33</sup> See, e.g., August 6 Informational Report at attachment C.

differently, the CAISO will only employ as available balancing capacity the capacity that is actually capable of resolving a potential infeasibility and observes all transmission constraints during the applicable interval.

**5. It is unreasonable to require that the CAISO demonstrate that the available balancing capacity proposal will eliminate all infeasibilities because all markets encounter occasional infeasibilities and trigger penalty prices when constraints are relaxed to clear the market in conditions of true scarcity.**

BPA argues that it is not clear how the CAISO's proposal solves the problem related to power-balance infeasibilities because the CAISO "acknowledges that power-balance infeasibilities, and the accompanying \$1,000/MWh pricing, are still possibilities."<sup>34</sup> BPA is correct that the \$1,000/MWh penalty price will continue to apply in instances in which bid-in resources and available balancing capacity are insufficient to meet demand in the EIM. This, in itself, is unremarkable and appropriate. All imbalance markets, including the CAISO's pre-EIM markets, encounter occasional infeasibilities. It is this reality that led the CAISO to adopt – and the Commission to approve -- the pricing parameters in the first place, and the CAISO's available balancing capacity proposal appropriately provides that these parameters will continue to apply during conditions of actual supply scarcity. The purpose of the CAISO's proposal is to prevent artificial scarcity from triggering the pricing parameters.

BPA also contends that if the CAISO is presenting this proposal as a "comprehensive solution" to the price issues underlying this proceeding, then the

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<sup>34</sup> BPA at 4.

Commission should require a demonstration that “had this mechanism been in place last fall, the market would not have experienced \$1,000/MWh price-spikes at the frequency that prompted the Commission to take action.”<sup>35</sup> This contention has several flaws. First, the CAISO is not presenting this proposal as a “comprehensive” solution to the issues experienced with respect to PacifiCorp’s initial operation under the EIM paradigm. As the CAISO has explained in all of its recent filings, the available balancing capacity proposal is merely one component of the three-part solution and is designed to work in conjunction with the enhanced readiness criteria and updated transition period proposal to address the various causes of the pricing excursions that occurred following EIM implementation. Moreover, BPA’s demonstration request would be impossible to implement. The CAISO cannot “rerun” the EIM based on an after-the-fact assumption that the available balancing capacity mechanism and/or enhanced readiness criteria had been in place. The best analyses of the impact of the available balancing capacity proposal on the occurrence of EIM infeasibilities are the ones that the CAISO has already performed. These analyses provide an adequate basis for finding that the available balancing capacity proposal, in conjunction with the enhanced readiness criteria and the CAISO’s continuing commitment to pursue diligent market monitoring and proactive corrections where necessary, will result in just and reasonable outcomes going forward.

Truckee, while acknowledging the CAISO’s available balancing capacity proposal as a “step in the right direction,” raises a similar concern that the

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<sup>35</sup> BPA at 4.

proposal will not ensure that capacity available to EIM entities will be recognized by the EIM, because there is no mandatory obligation for EIM entities to designate available balancing capacity.<sup>36</sup> The CAISO fully addresses this concern in response to Question 1 in the Commission’s September 24 letter. There, the CAISO explains that because an EIM entity must continue to meet its balancing authority obligations under EIM, it is appropriate that it retain the discretion to manage its capacity, which includes determining which capacity it requires to meet its contingency reserve obligations versus which capacity is available to balance its system (and therefore meets the definition of “available balancing capacity”). The CAISO also explains in that response how the proposal ensures that the EIM is informed of an EIM entity’s choices for managing its capacity.<sup>37</sup> This explanation also addresses Powerex’s comment that the available balancing capacity proposal eliminates price signals when there are shortages of operating reserves.<sup>38</sup> To the extent the EIM entity identifies capacity as EIM reserves to meet NERC/WECC requirements, the CAISO will protect that capacity from dispatch in the EIM. Under the CAISO’s proposed available balancing capacity proposal, to the extent the EIM entity does not designate sufficient available balancing capacity to address the imbalance energy, and instead reserves that capacity to meet its NERC/WECC requirements, scarcity pricing will be appropriately triggered.<sup>39</sup>

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<sup>36</sup> Truckee at 5-6.

<sup>37</sup> October 21 CAISO Response at 10-15.

<sup>38</sup> See Powerex at 13-14.

<sup>39</sup> Transmittal letter for August 19 Tariff Filing at 14; October 21 CAISO Response at 10-15; 31-32.

**6. The available balancing capacity proposal enables the EIM entity to identify capacity to be made available to the EIM and does not incentivize the EIM entity to keep capacity out.**

Powerex mischaracterizes the available balancing proposal as an option for the EIM entity to withhold capacity from the EIM.<sup>40</sup> This reflects a significant misunderstanding of the CAISO proposal. The available balancing capacity proposal enhances pricing of imbalance energy in the relevant balancing authority area because it allows the EIM entity to *include* its available capacity in the imbalance market to be optimized in the EIM as opposed to being handled outside of the EIM. By design, the available balancing capacity enables the EIM entity to *include* capacity it would otherwise manage, through manual dispatch or automatic generation control after the EIM has dispatched participating resources, to follow its load reliably. Including available balancing capacity in the EIM will enhance EIM pricing, ensuring those prices are just and reasonable. Powerex's argument against the available balancing capacity proposal contradicts Powerex's assertions that EIM capacity should be increased.<sup>41</sup>

**7. The CAISO's proposal is consistent with the principles of scarcity pricing and does not prevent the CAISO from pursuing additional price formation enhancements.**

Powerex suggests that the available balancing capacity proposal is contrary to the Commission's position that penalty pricing should trigger to reflect deployment of reserves.<sup>42</sup> After Powerex filed its comments, the Commission

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<sup>40</sup> Powerex 12.

<sup>41</sup> See Powerex at 8.

<sup>42</sup> Powerex at 13-15.

issued its Notice of Proposed Rulemaking in Docket No. RM15-24 indicating its intent to require all Independent System Operators (ISOs) and Regional Transmission Organizations (RTOs) to “trigger shortage pricing for any dispatch interval during which a shortage of energy or operating reserves occurs.”<sup>43</sup> The CAISO available balancing proposal is consistent with the Commission’s proposal and does not prevent the CAISO from pursuing market rule changes that comply with the Commission’s final rule in Docket No. RM15-24. As explained in the August 19 Tariff Filing, and further clarified in this answer, available balancing capacity should not include and should not overlap with contingency reserves. As further explained in response to Question 1 in the Commission’s September 24 letter, contingency reserves are the amount of reserves held by the EIM entity to meet NERC/WECC requirements. Because the CAISO does not co-optimize ancillary services and energy for the EIM entity as it does for the CAISO, the CAISO does not believe that the EIM entity should include contingency reserves as available balancing capacity. The EIM entity should indicate the contingency reserves in a separate entry so that the CAISO can protect contingency reserves and not include them in the available balancing capacity.<sup>44</sup> The CAISO does not expect that the EIM entity will bid the contingency reserve capacity into the market because, under the current design

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<sup>43</sup> 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) (September 17 NOPR).

<sup>44</sup> See transmittal letter for August 19 Tariff Filing at 32, 49. As explained in its response to Question 1.c of the September 24 letter, the CAISO is proposing to amend Section 29.34(e)(3), which lists the components of EIM resource plans, to merge the categories of spinning and non-spinning reserves into one category for contingency reserves. See October 21 CAISO Response at 13-15.

of the EIM, the CAISO cannot procure additional reserves for the EIM entity or guarantee recovery of contingency reserves if converted to energy.

The Commission should not reject the CAISO's available balancing capacity proposal while the rulemaking proceeding is pending. That proceeding is still in its early stages. The CAISO will be participating in the rulemaking process and will comply with the final rule adopted by the Commission. The CAISO, like all other ISOs and RTOs, should be afforded full opportunity through the rulemaking proceeding to propose enhancements to pricing rules in general. The price formation rules the Commission seeks to develop are not unique to the EIM.

Also, the CAISO has already announced its intent to evaluate its existing scarcity pricing structure triggering the penalty pricing. Although the Commission stated in its September 17 NOPR that it only intends to address the "triggers for invoking shortage pricing, and not the shortage price," the Commission has already signaled, and the CAISO has already announced, the need to examine the penalty pricing structure and consider the appropriateness of stepped constraint relaxation pricing, which would more gradually trigger bid cap-based penalty prices in the real-time market.<sup>45</sup> The available balancing capacity proposal does not prevent the CAISO from pursuing such pricing enhancements, which would affect the entire CAISO real-time market, including the EIM. Through the Commission's NOPR process, the CAISO and the Commission can

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<sup>45</sup> The CAISO plans to begin a stakeholder process in November 2015 to examine these issues. See the CAISO's Stakeholder Initiative Milestones available at <http://www.caiso.com/Documents/StakeholderInitiativeMilestones.pdf>.

consider whether additional scarcity signals are appropriate when EIM utilizes available balancing capacity to resolve potential infeasibilities.

**B. It Is Appropriate for the EIM Entities to Adjust Load Forecasts and the CAISO to Use the Load Bias Limiter to Prevent Artificial Infeasibilities.**

Powerex argued that the Commission should not allow EIM entities to adjust load forecasts (*i.e.*, engage in load biasing). The CAISO responded to this argument in response to the Commission's questions in the deficiency letter regarding the appropriateness of the EIM entity making adjustments to the EIM area load forecast as opposed to the CAISO. Powerex does not dispute that the EIM entity is the balancing authority and, as such, is responsible for balancing supply and demand within its balancing authority area and is much better equipped than the CAISO to identify the need for a load adjustment.<sup>46</sup> However, Powerex expresses concern that EIM entities may engage in load biasing to financially benefit themselves or their affiliates. It is important to note that the EIM entity as the balancing authority -- not the EIM entity's merchant function -- conducts the load forecast adjustment. These functions and the personnel undertaking them are separated. The EIM balancing authority is adjusting the forecast to ensure the system is balanced reliably and consistent with what it perceives systems conditions to be. The CAISO likely will not be as familiar with these conditions because it is not the EIM entity's balancing authority. Moreover, the balancing authority does not have any economic interest in how it makes these adjustments; its purpose is to maintain reliability. The CAISO also

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<sup>46</sup> See transmittal letter for August 19 Tariff Filing at 35, 38.



responded to Commission staff's questions regarding how the adjustments are made and communicated to the CAISO, and the impact those adjustments might have on pricing.<sup>47</sup>

Powerex further argues that that, even if the Commission permits load biasing, "it is inappropriate for the CAISO to artificially limit such adjustments to avoid the application of penalty prices" using the CAISO's load bias limiter functionality.<sup>48</sup>

The load bias limiter is an existing automated functionality currently used in the CAISO balancing authority area solely to ensure that any operator adjustments to load forecasts are consistent with actual system conditions. The load bias limiter is necessary because operators' load adjustments tend to be coarse adjustments (*i.e.*, in block increments of 10 to 50 MW), because operators cannot always precisely predict real-time system conditions. Had the operator been aware of the available ramping capability, it would have been possible to refine the adjustment so as to rely on only the amount of ramping capability necessary to meet the actual system conditions over a period of time. Without this information, a coarse adjustment is necessary to address actual system conditions. Such adjustments, however, can result in infeasible market solutions. To prevent such over-adjustments and any infeasibilities they may cause, the load bias limiter currently applied in the CAISO balancing authority area limits

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<sup>47</sup> October 21 CAISO Response at 22-25.

<sup>48</sup> Powerex at 15-17. The penalty price is \$1,000/MWh and is currently waived until the date the CAISO implements the proposal to address the issues identified in this proceeding. See transmittal letter for August 19 Tariff Filing at 5 n.8, 7 n.9, and accompanying text.

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. The load bias limiter has worked well to prevent such artificial infeasibilities in the CAISO balancing authority area. As discussed in response to staff's question 5 in the deficiency letter, load adjustments can impact the outcome of the market. Therefore, it is appropriate for the CAISO to ensure that coarse adjustments do not create spurious infeasibilities that are not consistent with actual system conditions. The CAISO expects to see similar benefits from using the load bias limiter to prevent artificial infeasibilities in the balancing authority areas of the EIM entities.<sup>49</sup>

Also, Powerex does not acknowledge that the CAISO's use of the load bias limiter in the EIM will be transparent to market participants and the Commission. The CAISO's monthly EIM informational reports describe the load bias limiter and its use.<sup>50</sup> The CAISO will continue to provide this information in its future EIM informational reports.

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<sup>49</sup> Transmittal letter for August 19 Tariff Filing at 36-37. Although the load bias limiter has been available to the EIM since March 20, 2015, the 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 prevented any load forecast adjustment-related infeasibilities from setting the market price, because under the waiver the marginal bid always sets that price. Therefore, it has not been necessary for the CAISO to apply the load bias limiter at any time during the waiver period. *Id.* at 37 & n.78.

<sup>50</sup> See, e.g., August 6 informational report at attachment B, page 27, and attachment D, pages 45-48. As discussed in this recent EIM informational report, the CAISO will add detail regarding the load bias limiter to the existing provisions regarding the limiter in the CAISO's business practice manual. *Id.* at attachment B, page 27. However, because the limiter is simply a load forecast tool, it need not be included in the tariff as Powerex suggests. See Powerex at 16 n.45. Also, the CAISO is exploring enhancements to the limiter for both the CAISO and EIM entity balancing authority areas. See August 6 Informational Report at attachment D, pp. 47-48.

The load bias limiter will only apply as long as the megawatt quantity of the infeasibility is less than, and in the same direction as, the operator adjustment. Therefore, 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. This is reasonable because such circumstances indicate a true infeasibility, and penalty pricing is appropriate in these circumstances. It is not appropriate where there is only an artificial infeasibility that does not reflect actual scarcity conditions.<sup>51</sup>

Powerex fails to distinguish between the differing circumstances of (1) artificial infeasibility and (2) true infeasibility, which leads Powerex to erroneously conclude that it is inconsistent for the CAISO to apply the load bias limiter and thus to avert triggering penalty prices in the first circumstance but not in the second.<sup>52</sup> There is no inconsistency. It is appropriate to take different actions to address the two different circumstances.

**C. There Is No Need to Change the Scheduling Deadlines.**

BPA reiterates its suggestion made in previous comments that demand-side issues may also be contributing to the EIM pricing issues. In particular, BPA suggests that because EIM schedules are finalized before the Open Access Transmission Tariff (OATT) transmission schedule deadline, the CAISO may be introducing more imbalance demand than would be present using the OATT

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<sup>51</sup> Transmittal letter for August 19 Tariff Filing at 37; August 6 Informational Report at attachment B, page 46. This can occur once the waiver of penalty prices is no longer in effect.

<sup>52</sup> See Powerex at 15-16.

scheduling timelines. BPA requests that the Commission direct the CAISO to align these timelines.<sup>53</sup> The CAISO responded to this critique in the August 19 Tariff Filing, in which it pointed out that this suggestion exceeds the scope of the current proceeding and seeks to fundamentally redesign the EIM. In any event, it is impractical to synchronize the EIM scheduling timelines with the OATT scheduling timelines, because as the Commission previously recognized, it is necessary that the EIM entities submit base schedule information before the market optimization process initializes, so that the market can consider the degree to which the entity is following its load.<sup>54</sup>

**D. The CAISO Clarifies Its Expectation That Contingency Reserves Will Not Count as Available Balancing Capacity.**

BPA repeats its concern regarding the potential for EIM entities to identify contingency reserves as available balancing capacity, and suggests that the Commission direct the CAISO to revise the definition of available balancing capacity to specifically state that “the EIM Entity may not include any capacity used for Spinning and Non-Spinning Reserves (Contingency Reserves) in EIM Available Balancing Capacity.”<sup>55</sup> The CAISO agrees that contingency reserves should not be designated as available balancing capacity, and made clear in the August 19 Tariff Filing that capacity designated as contingency reserves (*i.e.*, spinning and non-spinning reserves) would not be considered as available

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<sup>53</sup> BPA at 5.

<sup>54</sup> See transmittal letter for August 19 Tariff Filing at 44-45; 147 FERC ¶ 61,231, at PP 38, 84.

<sup>55</sup> BPA at 5-6.

balancing capacity.<sup>56</sup> The CAISO also explained that it has no direct oversight over how an EIM entity manages and designates its reserves because that process is a function of the EIM entity's role as a balancing authority. Nevertheless, the CAISO agrees that further clarification could be helpful. As detailed in its response to the Commission's September 24 letter, the CAISO proposes to modify Section 29.34(e)(3) of the tariff 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.<sup>57</sup> This additional modification will make clear that capacity used for meeting its contingency reserve obligations is not eligible to be designated as available balancing capacity.

**E. The CAISO's Proposed Use of Default Energy Bids for Non-Participating Resources Is Just and Reasonable.**

WPTF argues that the CAISO has not provided "sufficient justification for the use of DEBs [default energy bids] as market bids" for EIM available balancing capacity from resources not participating in the EIM, *i.e.*, non-participating resources.<sup>58</sup> As an alternative to the CAISO's proposal, WPTF suggests that the Commission should allow an EIM non-participating resource to "transact at a

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<sup>56</sup> See transmittal letter for August 19 Tariff Filing at 17; Tretheway Testimony at 16.

<sup>57</sup> October 21 CAISO Response at 13-15.

<sup>58</sup> WPTF at 5-6.

price for services that the resource deems appropriate to account for their cost and risk.”<sup>59</sup>

The CAISO has sufficiently justified its proposed use of default energy bids for non-participating resources. WPTF incorrectly asserts that the CAISO will use the default energy bids as market bids. By definition, non-participating resources do not submit bids in the EIM, and the CAISO’s proposal will do nothing to change the underlying relationship between non-participating resources and the EIM.<sup>60</sup> The default energy bids will not be market bids; rather, they will merely 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.

Also, the CAISO does not propose to use the default energy bids “all of the time,” as WPTF contends.<sup>61</sup> Rather, the CAISO will use the default energy bids only when the CAISO 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 balancing authority area. Because non-participating resources do not bid into the EIM, the CAISO needs some mechanism to reflect the cost of energy from non-participating resources in the energy bid curves. Using default energy bids provides the necessary mechanism. The CAISO will use the default energy bids to determine the marginal costs of operating the non-participating resources in

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<sup>59</sup> WPTF at 6.

<sup>60</sup> Transmittal letter for August 19 Tariff Filing at 18-19; Tretheway Testimony at 20-21.

<sup>61</sup> See WPTF at 5.

economic merit order. This will allow the CAISO to ensure that the EIM optimizes available balancing capacity from participating and non-participating resources through the same market clearing process the CAISO uses for all dispatch purposes and that the CAISO thereby dispatches capacity that is the least-cost, most feasible, and effective solution for the system.<sup>62</sup>

It is just and reasonable for the CAISO to use default energy bids for this purpose because they are a well-established means of determining a resource's actual marginal cost of operating in the CAISO markets and the markets operated by other ISOs and RTOs.<sup>63</sup> Contrary to WPTF's suggestion, using default energy bids is not limited to the CAISO's market power mitigation procedures. For instance, the CAISO tariff also provides for the use of a form of the default energy bid to create generated bids when resource adequacy resources fail to submit a required bid.<sup>64</sup> Further, the EIM entity scheduling coordinator will be able to choose among three available methodologies for calculating the default energy bids: (1) the variable cost option, which permits recovery of incremental fuel cost and other specified variable costs at the pricing node for the resource; (2) the LMP option, which permits recovery of a weighted

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<sup>62</sup> Transmittal letter for August 19 Tariff Filing at 17-19, 45; Tretheway Testimony at 20-24.

<sup>63</sup> See transmittal letter for August 19 Tariff Filing 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). See also *Cal. Indep. Sys. Operator Corp.*, 129 FERC ¶ 61,144, at P 48 (2009) (stating that "a resource's default energy bid is generally designed to cover a resource's variable costs"); *J.P. Morgan Energy Ventures Corp.*, 141 FERC ¶ 61,131, at P 53 (2012) ("The Commission has previously accepted the default energy bid as a reasonable opportunity to recover costs.") There is no reason to believe that default energy bids are appropriate for determining the actual marginal costs of participating resources but not of non-participating resources.

<sup>64</sup> See CAISO tariff sections 40.6.8-40.6.8.1.4.

average of historical LMPs at the pricing node where the resource was dispatched; and (3) the negotiated rate option, which permits recovery of a cost amount negotiated with the CAISO or the independent entity that assists the CAISO in determining values used in the CAISO's market processes.<sup>65</sup> Thus, the EIM entity scheduling coordinator will have the flexibility to choose the default energy bid calculation option that best serves the non-participating resources that it schedules and designates as providing available balancing capacity.

WPTF erroneously suggests that the default energy bids will determine the compensation that a non-participating resource receives for any dispatch to address a potential infeasibility.<sup>66</sup> The CAISO does not propose to change in any way the manner in which imbalance energy is settled. The CAISO will settle imbalance energy from a non-participating resource deployed as available balancing capacity identically to how the CAISO settles non-participating resources dispatched pursuant to the balanced schedules submitted by EIM entity scheduling coordinators. To the extent the 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

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<sup>65</sup> CAISO tariff sections 39.7.1-39.7.1.3. There is also a fourth calculation methodology available to frequently mitigated units. See CAISO tariff section 39.7.1.4. However, because the purpose of calculating default energy bids for non-participating resources is limited to determining the cost of dispatching these resources to resolve potential infeasibilities, and not market mitigation, this fourth methodology will not apply to the use of default energy bids for this purpose. Transmittal letter for August 19 Tariff Amendment at 18 n.32; Tretheway Testimony at 22.

<sup>66</sup> See WPTF at 6 (asserting that there are no CAISO tariff or EIM entity OATT 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 DEB"); see *also id.* at 7 (asserting that third-party resources may be "harmed by being deployed under legacy OATT or contract provisions that did not contemplate being deployed under the EIM and compensated based on DEB-driven clearing prices").



default energy bid.<sup>67</sup> 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.

Because it is just and reasonable for the CAISO to use default energy bids to reflect available balancing capacity from non-participating resources, the Commission should not entertain WPTF's alternative suggestion.<sup>68</sup> Moreover, WPTF's alternative suggestion that a non-participating resource could transact at a price for services that the resource deems appropriate to account for its cost and risk is impracticable. Non-participating resources are, by definition, resources that do not submit energy bids and thus do not transact in the EIM. Further, 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>69</sup>

Likewise, there is no merit to WPTF's argument that the CAISO should define available balancing capacity as a new service and allowing resource

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<sup>67</sup> Transmittal letter for August 19 Tariff Filing at 19, 45; Tretheway Testimony at 30-31. The CAISO requests that the Commission accept the tariff revisions contained in the August 19 Tariff Filing effective as of November 1, 2015. Transmittal letter for August 19 Tariff Filing at 51-52. By this time, subject to Commission approval, the CAISO will have implemented new settlement provisions for non-participating resources generally, pursuant to the tariff filing the CAISO submitted in Docket No. ER15-1919-000 on June 15, 2015. The settlement of any imbalance energy representing EIM available balancing capacity will follow these revised settlement rules. *Id.* at 22-23; Tretheway Testimony at 31.

<sup>68</sup> See *Cal. Indep. Sys. Operator Corp.*, 141 FERC ¶ 61,135, at P 44 (2012) ("Upon finding that CAISO's proposal is just and reasonable, we need not consider the merits of alternative proposals.").

<sup>69</sup> WPTF at 6.

owners to offer to provide it “at a price that is commensurate with the compensation that can be expected from the DEB-based EIM deployments.”<sup>70</sup> The CAISO 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 and unable to address infeasibilities in the EIM area. Enhancements as suggested by WPTF may be considered in the future as EIM enhancements after careful consideration of the rules necessary to consider such a transformation of the EIM. At this time, there is no reason to prevent the adoption of a proposal that addresses the issues identified in this proceeding.

**F. The CAISO Agrees with the Informational Reporting Proposals of Truckee and Puget.**

Truckee states that it does not object to the CAISO’s proposal to transition from monthly to quarterly informational reporting on EIM performance.<sup>71</sup> However, Truckee requests two clarifications or modifications of that CAISO proposal: (1) the CAISO should file monthly informational reports regarding EIM performance for the NV Energy balancing authority area once NV Energy joins the EIM, consistent with the monthly reporting the CAISO proposes in its pending tariff amendment in Docket No. ER15-2565 to implement transition period pricing for the EIM;<sup>72</sup> and (2) the CAISO should continue to provide the same information

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<sup>70</sup> See WPTF at 7.

<sup>71</sup> Truckee at 9 (citing transmittal letter for August 19 Tariff Filing at 48). The CAISO currently files monthly informational reports on EIM performance in Docket No. ER15-402.

<sup>72</sup> Truckee at 9-10. In the pending tariff amendment filing, the CAISO proposes to continue to file monthly informational reports during the proposed transition period that are similar to the

in its quarterly reports as it does in the current monthly reports.<sup>73</sup> Puget states that it supports the continuation of quarterly reports covering all EIM balancing authority areas for a minimum of one year after the August 19 Tariff Filing goes into effect, until such time as the Commission finds that the quarterly reports are no longer necessary.<sup>74</sup>

The CAISO believes that robust reporting is important to apprise market participants and the Commission of the performance of the EIM, especially as each EIM entity gains experience with the EIM. Therefore, the CAISO agrees with Truckee that it should (1) provide monthly informational reports regarding EIM performance in the NV Energy balancing authority area for NV Energy's six-month transition period and (2) continue to provide the same information in its quarterly reports that it currently provides in the monthly reports. Also, the CAISO agrees with Puget that the quarterly reports should cover all EIM balancing authority areas and be in effect for a minimum of one year, until the Commission finds that the reports are no longer necessary.

**G. No Additional Directives Are Necessary to Require the CAISO to Consider General Graduated Triggers for Power-Balance and Transmission Constraint Relaxation.**

Puget notes that fixed constraint prices when triggered may not be reasonable in all circumstances and supports a stakeholder process to evaluate moving to a graduated price cap as well as potentially lowering the cap for those

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current monthly reports regarding PacifiCorp. Transmittal letter for transition period pricing tariff amendment, Docket No. ER15-2565-000, at 4, 20 (Aug. 28, 2015).

<sup>73</sup> Truckee at 10.

<sup>74</sup> Puget at 4.

constraints.<sup>75</sup> The CAISO agrees that it is necessary to evaluate 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. The CAISO has already announced its intent to commence a stakeholder process to consider these issues.<sup>76</sup>

The CAISO also believes that, in addressing the scarcity pricing proposed by the Commission in the September 17 NOPR, the CAISO will be required to consider the triggering events in the context of the constraint parameter relaxation changes it is contemplating. Although the Commission does not address the price at which the reserves should be converted, the Commission anticipates the need for a compliance filing four months after the issuance of the final rule.<sup>77</sup>

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<sup>75</sup> Puget at 4.

<sup>76</sup> See Draft 2016 Stakeholder Initiatives Catalog and Roadmap, page 17. [http://www.caiso.com/Documents/Draft\\_2016StakeholderInitiativesCatalog\\_Roadmap.pdf](http://www.caiso.com/Documents/Draft_2016StakeholderInitiativesCatalog_Roadmap.pdf)

<sup>77</sup> September 17 NOPR at P 55.

### III. Conclusion

For the foregoing reasons, the CAISO requests that the Commission accept the tariff revisions contained in the August 19 Tariff Filing as submitted and direct the CAISO to submit a compliance filing to make the minor clarifications discussed in this answer.

Respectfully submitted,

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Dated: October 21, 2015

## CERTIFICATE OF SERVICE

I hereby certify that I have served the foregoing document upon all of the parties listed on the official service list for the above-referenced proceeding, pursuant to the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2010).

Dated at Washington, D.C. this 21<sup>st</sup> day of October, 2015.

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