



August 28, 2015

The Honorable Kimberly D. Bose  
Secretary  
Federal Energy Regulatory Commission  
888 First Street, NE  
Washington, D.C. 20426

**Re: California Independent System Operator Corporation  
Compliance Filing  
Docket No. ER15-861-\_\_\_\_**

Dear Secretary Bose:

The California Independent System Operator Corporation (“CAISO”) submits this filing in compliance with the Commission’s July 21, 2015 order issued in this proceeding (“July 21 Order”).<sup>1</sup> Consistent with the Commission’s directives in the July 21 Order, the CAISO (1) includes in its tariff specific readiness requirements and criteria that apply to all prospective Energy Imbalance Market (“EIM”) entities, and (2) clarifies certain tariff provisions in its May 6 compliance filing as directed by the Commission. The CAISO has been working with stakeholders since April 2015 to develop readiness criteria, and the proposed criteria reflect significant stakeholder input.

The CAISO seeks to implement the readiness criteria in time for NV Energy’s participation in the EIM, which is now scheduled for November 1, 2015. The CAISO delayed the commencement of NV Energy’s participation in the EIM to allow additional time to refine the criteria and provide the Commission and stakeholders with sufficient time to consider the proposed tariff language. The CAISO respectfully requests that the Commission issue an order on this compliance filing by September 28, 2015. The CAISO and NV Energy intend to file their readiness certificates with the Commission on October 1, 2015, with a planned November 1 implementation date. The CAISO and NV Energy will base their certifications on the proposed tariff provisions. An order by September 28,

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<sup>1</sup> *Cal. Indep. Sys. Operator Corp.*, 152 FERC ¶ 61,063 (2015).

2015 will provide certainty regarding the CAISO's and NV Energy's certification requirements and facilitate the implementation process.

The CAISO conducted an additional stakeholder process prior to submitting this compliance filing to address questions and concerns raised by stakeholders with respect to incorporating the readiness criteria previously developed with stakeholders into the tariff. Through this additional stakeholder process, the CAISO addressed a number of stakeholder concerns and modified the proposed tariff language accordingly. The CAISO requests that the Commission approve the tariff provisions effective March 16, 2015, consistent with the effective date approved by the July 21 Order.

## **I. BACKGROUND**

On January 15, 2015, the CAISO proposed tariff revisions to provide a 12-month transition period for each new entity joining the EIM. The CAISO stressed that the proposed transition period was a necessary and prudent step for entities that are for the first time participating in centralized energy markets. The CAISO explained that for such entities, implementing, participating in, and integrating into a centralized market framework constitutes a significant paradigm shift and requires a period of time, even after market simulation, for them to gain important experience, make necessary system, operational, and functional changes, and mature their practices so they can manage market systems and processes efficiently and effectively.

In a March 16, 2015 order,<sup>2</sup> the Commission rejected the proposed tariff amendments.<sup>3</sup> However, the Commission concluded that certain readiness safeguards are necessary prior to activating a prospective EIM entity<sup>4</sup> in the

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<sup>2</sup> *Cal. Indep. Sys. Operator Corp.*, 150 FERC ¶ 61,191 (2015) ("March 16 Order").

<sup>3</sup> *Id.* at P 34. The Commission also instituted a proceeding under section 206 of the Federal Power Act, in Docket No. EL15-53, to investigate the justness and reasonableness of the EIM provisions in CAISO's tariff as a result of imbalance energy price spikes in PacifiCorp's balancing authority area. The CAISO had described these price excursions in its tariff filing and in previous filings in which the CAISO sought temporary waiver of the pricing parameters in sections 27.4.3.2 and 27.4.3.4 of its tariff. *Id.* at P 31. The Commission has subsequently issued additional orders regarding these issues. See *Cal. Indep. Sys. Operator Corp.*, 151 FERC ¶ 61,247 (2015); *Cal. Indep. Sys. Operator Corp.*, 152 FERC ¶ 61,060 (2015). On August 19, 2015, the CAISO filed a tariff amendment in these dockets intended to resolve these issues.

<sup>4</sup> In compliance with paragraph 36 of the July 21 order, the CAISO has made the necessary corrections throughout the proposed tariff provisions to use consistent terminology in references to the prospective EIM entity. The CAISO proposes to use the term "prospective EIM Entity" to distinguish the entity from an EIM entity that is fully

EIM.<sup>5</sup> Accordingly, the Commission directed the CAISO to submit a compliance filing to include in its tariff requirements to ensure the readiness of any new entity to commence participation in the EIM. The Commission stated that the readiness requirements should include (1) a robust market simulation and appropriate period of parallel operation to ensure that new EIM entities have adequate opportunity to identify and resolve operational issues prior to full activation; and (2) a requirement that the CAISO and the new entrant each submit a market readiness certificate at least 30 days prior to full activation in the Energy Imbalance Market, certifying the readiness of the new EIM entity's processes and systems.<sup>6</sup> The Commission stated that the CAISO should develop measurable readiness criteria through a collaborative process with its stakeholders that would serve as a predicate for a new EIM entity's entry into the EIM.<sup>7</sup> The Commission further required that the certification of their market readiness include a sworn affidavit from an officer of the company attesting that the new EIM entity's system is ready, including all communication systems and transparency to CAISO of unit status.<sup>8</sup>

Recognizing that developing the readiness criteria for the new EIM entity it was planning to integrate in the fall of 2015 would require considerable time, effort, and interaction with stakeholders, the CAISO commenced the process immediately after the March 16 Order. The CAISO's approach involved preparing draft readiness criteria in parallel with its preparation of the filing to comply with the March 16 Order. The attached Declaration of Janet Morris details the robust stakeholder process that the CAISO conducted to develop the EIM entity readiness criteria.<sup>9</sup> In particular, the initial stakeholder process to develop the readiness criteria lasted almost two months and comprised a total of three rounds in which the CAISO posted draft readiness criteria, held conference calls with stakeholders, sought written comments from stakeholders, and made numerous revisions to the criteria based on stakeholder input.<sup>10</sup>

On May 6, 2015, the CAISO made its compliance filing, based upon its understanding of the March 16 Order. The compliance filing added two new sub-

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operational within the EIM. The CAISO uses this same term in this transmittal letter and supporting documentation to avoid confusion.

<sup>5</sup> March 16 Order at P 30.

<sup>6</sup> *Id.* at P 34.

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

<sup>8</sup> *Id.* n.85.

<sup>9</sup> See Declaration of Janet Morris, Attachment C, at ¶¶ 5-16 ("Morris Declaration").

<sup>10</sup> *Id.* at 2-7.

sections to section 29.2(b) of the CAISO tariff -- 29.2(b)(4) and 29.2(b)(5) -- that implemented the Commission's specific directives.

Section 29.2(b)(4), set forth the readiness requirements for a balancing authority that wishes to participate in the EIM, *i.e.*, a prospective EIM entity, in three sub-paragraphs. Section 29.2(b)(4)(A) provided that the CAISO, at least 30 days prior to the EIM implementation date, and in collaboration with the prospective EIM entity, would determine whether the prospective EIM entity's systems and processes are ready for the prospective EIM entity's participating in the EIM.

The second subparagraph, section 29.2(b)(4)(B), provided that the CAISO and the prospective EIM entity would develop criteria to determine the readiness of the systems and processes through a stakeholder process. Section 29.2(b)(4)(C) identified the activities in which the CAISO and the prospective EIM entity must engage to determine readiness, including a market simulation that accounts for the EIM entity's implementation circumstances and a period of operation in a parallel production model.

Section 29.2(b)(5) required the CAISO and the prospective EIM entity to certify their expected readiness to the Commission at least 30 days prior to the date on which the prospective EIM entity is to begin participation in the EIM, *i.e.*, the EIM entity implementation date.

Subsequent to submitting the compliance filing, the CAISO posted the first draft of readiness criteria on May 7, 2015, and commenced work with stakeholders to develop the readiness criteria. In the first round of the stakeholder process, the CAISO held a stakeholder conference call on May 13, 2015, and requested that stakeholders submit written comments on the draft readiness criteria by May 21, 2015. In the second round of the stakeholder process, the CAISO prepared and posted revised draft readiness criteria for stakeholder review on June 10, 2015, held a stakeholder conference call on June 16, 2015, and requested that stakeholders submit written comments on the revised draft readiness criteria by June 24, 2015. On July 1, 2015, the CAISO posted the readiness criteria it intended to use to enable NV Energy's participation in the EIM.<sup>11</sup>

In the July 21 Order, the Commission accepted in part and rejected in part the CAISO's compliance filing. Specifically, the Commission rejected section 29.2(b)(4)(B). It found that the readiness activities and certificate requirements in sections 29.2(b)(4)(C) and 29.2(B)(5) partially complied with the March 16 Order, and therefore conditionally accepted these provisions. It accepted the proposed

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<sup>11</sup> Morris Declaration at ¶¶ 9-10.

tariff revisions in section 29.2(b)(4)(A) requiring CAISO and the potential EIM Entity to make a readiness determination.<sup>12</sup> The Commission also directed the CAISO to clarify certain tariff revisions proposed in its May 6 compliance filing. Relevant to this filing, the Commission directed the CAISO to include the readiness criteria for EIM entities in the tariff.<sup>13</sup> The Commission directed a compliance filing within 60 days.

Following the July 21 Order, the CAISO continued working with stakeholders to refine the readiness criteria. The CAISO prepared and posted an initial draft of the proposed tariff provisions for stakeholder review on July 31, held a stakeholder conference call on August 10, requested that stakeholders submit written comments by August 14, and posted the CAISO's responses to the written stakeholder comments on August 19, 2015. The CAISO held a final conference call with stakeholders on August 19, 2015, to discuss the CAISO's responses to the written comments on the draft tariff provisions.<sup>14</sup>

Over the course of the stakeholder process on the readiness criteria, the CAISO made significant changes to the criteria based on comments provided by stakeholders and the CAISO's own review.<sup>15</sup> The CAISO discusses the most recent round of stakeholder comments and CAISO's responses thereto in Section III, Stakeholder Comments. They also appear in the matrix included as Attachment F. The proposed tariff changes in this compliance filing reflect the totality of the CAISO's engagement with stakeholders.

## **II. COMPLIANCE WITH MARCH 16 AND JULY 21 ORDERS.**

In compliance with the Commission's directives in the July 21 Order, the CAISO (1) incorporates into the tariff the readiness criteria the CAISO developed through its stakeholder process and (2) clarifies certain tariff revisions regarding readiness requirements proposed in its May 6 compliance filing. The CAISO had already proposed specific readiness requirements in its May 6 filing and now proposes to amend those requirements consistent with both the March 16 and July 21 Orders, and pursuant to further comments by stakeholders submitted during the CAISO's stakeholder process preceding this compliance filing. The CAISO also proposes to include these readiness criteria in its tariff

In the July 21 Order, the Commission noted that the CAISO did not use consistent terminology to refer to the balancing authority area that had signed an

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<sup>12</sup> July 21 Order at P 28.

<sup>13</sup> *Id.* at P 29-30.

<sup>14</sup> Morris Declaration at ¶ 12-13.

<sup>15</sup> *Id.* at ¶ 14.

implementation agreement in order to participate in the Energy Imbalance Market.<sup>16</sup> The proposed compliance provisions consistently refer to this entity as a “prospective EIM entity.”

As discussed below, the CAISO has renumbered certain sections approved by the Commission to maintain a logical progression. New section 29.2(b)(4) addresses what was in old section 29.2(b)(4)(C)(ii) and (iii). New section 29.2(b)(5) addresses what was in old section 29.2(b)(4)(A). New section 29.2(b)(6) addresses what was in old section 29.2(b)(5). New section 29.2(b)(7) addresses criteria that were discussed in old section 29.2(b)(4)(B). Section 29.2(b)(8) is new. This mapping is a useful when the CAISO references provisions that were accepted or rejected by the July 21 Order.

## **A. Readiness Requirements**

### **1. Certification and Determination of Readiness**

New section 29.2(b)(5) sets forth the previously approved requirement from old section 29.2(b)(4)(A)<sup>17</sup> that at least 30 days prior to the EIM implementation date (*i.e.*, the commencement of financially binding operations), the CAISO and the prospective EIM entity make a determination that the systems and processes of the prospective EIM Entity will be ready for the prospective EIM Entity’s participation in the Energy Imbalance Market. It clarifies that the parties will make this determination according to the criteria set forth in section 29.2(b)(7) as measured by the thresholds specified in the business practice manual or consistent with any exceptions to the thresholds for certifying the prospective EIM entity.

Consistent with the July 21 Order, the CAISO proposes to retain the previously proposed requirement that the CAISO and the EIM entity submit readiness certifications no less than 30 days prior to the prospective EIM entity commencing financially binding operations.<sup>18</sup> Under section 29.2(b)(6), a senior officer of the CAISO and the prospective EIM entity must file a certification 30 days prior to the entity participating in financially binding operations in the EIM attesting (1) that the processes and systems of the prospective EIM entity have satisfied or will have satisfied the specified readiness criteria, which are discussed below; (2) to any known issues requiring resolution prior to the EIM entity’s participation in EIM; (3) to any exception from the established thresholds specified in the business practice manuals (as also discussed below), and that despite such exception the CAISO and EIM entity have met the readiness criteria

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<sup>16</sup> July 21 Order at P 36.

<sup>17</sup> *Id.* at P 27.

<sup>18</sup> *Id.* at P 34.

specified in 29.2(b)(7); and (4) that the prospective EIM entity's participation in EIM is conditional on resolving known issues identified in the certificates and any unforeseen issues that undermine the satisfaction of the readiness criteria. The last requirement responds to the Commission's directive that the CAISO clarify that meeting the readiness criteria is a condition precedent to the prospective EIM entity commencing financially binding operations in the Energy Imbalance Market.<sup>19</sup>

The CAISO proposes to include in the certification a clear statement of the known issues and that integration of the prospective EIM entity into the EIM is conditional on resolution of those issues. This is a necessary stipulation in the certification because the certifications are made at least one month prior to the actual date for integrating the prospective EIM entity into the EIM. This provides ample opportunity for the prospective EIM entity and the CAISO to resolve any known issues. The resolution of those known issues will be visible to the stakeholders through the readiness reporting procedures established by section 29.2(b)(8) and to the Commission through the representations made in the certification filing. Failure to resolve any issue could result in a delay or recertification, as appropriate. During the stakeholder process, no stakeholder objected to section 29.2(b)(6) as proposed.

Proposed section 29.2(b)(6) also includes the requirement that the certificate attest to any exception from established thresholds specified in the business practice manuals. In compliance with the July 21 Order,<sup>20</sup> the CAISO explains below the standards and process for granting such exceptions. Although certain stakeholders raised concerns over how the CAISO established the thresholds and how it would document the exceptions to such thresholds, no stakeholder objected to including this requirement in the certifications. It is appropriate to include this requirement in the certification process because the executives making the certification of readiness will be evaluating any exceptions to the thresholds, and the CAISO and the prospective EIM entity will be relying on their report for purposes of making the final determination whether the prospective EIM entity is ready to be integrated into the EIM. Therefore, it is important to indicate whether the certification is made based on an acceptance of any exceptions. This will provide full visibility and traceability to the CAISO's and prospective EIM entity's compliance with the thresholds and an opportunity for the Commission to consider the compliance following the filing of the readiness certification, including any stakeholder concerns that may be raised in response to that filing.

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

<sup>20</sup> *Id.* at P 30.

Finally, in the July 21 Order, the Commission required that in the event that the CAISO determines that it cannot proceed with implementation after filing its readiness certificate, the CAISO must notify the Commission as to the reason for the delay and whether it will withdraw its readiness certification.<sup>21</sup> Section 29.2(b)(6)(B) provides that if the CAISO determines after filing of the certifications that it cannot proceed with activation of a prospective EIM entity, it will notify the Commission of the delay, the reason for the delay, the new implementation date if it can be determined, and whether it will need to re-issue a portion or all of the readiness certification. These revisions also are responsive to comments raised in the stakeholder process. In that regard, during the stakeholder process two stakeholders suggested revisions to section 29.2(b)(6)(B). One stakeholder suggested allowing the prospective EIM entity, as well as the CAISO, to amend their readiness certification. Another stakeholder suggested that the tariff should not solely provide for withdrawal of the certification, but rather for notification to the Commission of a revised implementation date and whether there will be a need to reissue the certification. The CAISO has incorporated both of these suggestions.

## **2. Market Simulation and Parallel Operations**

Proposed section 29.2(b)(4)(a) incorporates the previously approved requirements in former section 28.2(b)(4)(C)(ii) and (iii)<sup>22</sup> that the CAISO conduct a market simulation and an appropriate period of parallel operations prior to the integration of the prospective EIM entity. Consistent with the Commission's directive, the CAISO has deleted references in those provisions to the implementation agreement.

During the stakeholder process, one stakeholder suggested that the tariff should include specific periods for conducting market simulation and parallel operation. Another stakeholder did not recommend a change to the market simulation requirement, but recommended that the parallel operation should be for at least thirty days. The stakeholder also requested that the CAISO clarify whether the parallel operations period will occur prior to or after the readiness certification.

The March 16 and the July 21 Orders require an adequate period of parallel operation prior to certification, but do not specify the length of the parallel operation that must occur prior to full integration of the EIM entity or prior to the date on which the CAISO submits its certification.<sup>23</sup> Indeed, in the July 21 Order, the Commission stated that it "will not require CAISO to set forth additional

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<sup>21</sup> July 21 Order at P 35.

<sup>22</sup> *Id.* at P 31.

<sup>23</sup> See March 16 Order at P 34; July 21 Order at PP 31-32.



details regarding the timing and duration of the market simulation and parallel operation period in its tariff because the timing of these processes may vary based on the potential EIM Entity's implementation and operational circumstances and system characteristics."<sup>24</sup> In response to stakeholder comments, however, the CAISO agreed to require a minimum of 30 days for parallel operations. Experience to date suggests this is about the expected duration of parallel operations in any event. The CAISO and the prospective EIM entity may determine in their discretion that the full 30 days of parallel operations need not occur prior to certification.<sup>25</sup> In any event, the CAISO and prospective EIM entity must complete a full 30 days of parallel operations prior to the implementation date.

As the Commission authorized it to do, the CAISO is not proposing to define the duration of the market simulation because it may vary based on the prospective EIM entity's specific operational and system circumstances.<sup>26</sup> The CAISO believes the length of time is best established by the prospective EIM entity and the CAISO on a case-by-case basis. Each implementation is distinct from others with respect to the types of EIM participating resources the prospective EIM Entity will have, the amount of transfers it can make available to the EIM, any particular operational, seasonal, or topological challenges it faces, and the degree to which it has previously participated in the CAISO markets. These distinctions determine the number of scenarios that should be tested during market simulation, which in turn determines the length of time it will take to complete market simulation. The CAISO believes it is appropriate to require generally that the length of time be sufficient to meet the readiness criteria specified in section 29.2(b)(7). The CAISO intends to be transparent regarding

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<sup>24</sup> July 21 Order at P 32.

<sup>25</sup> *Id.* With respect to the NV Energy implementation, the CAISO anticipates approximately 30 days of parallel operations prior to certification. Going forward, the CAISO and each prospective EIM entity will decide on a case-by-case basis whether parallel operations may extend beyond the readiness certification date in order to continue preparing the prospective EIM entity for market operations. The CAISO and the prospective EIM entity will each know the extent of readiness and any potential needs, and be dedicating resources and time to such efforts. Accordingly, they should have discretion regarding the amount of parallel operations prior to certification consistent with their actual circumstances. Moreover, should such circumstances occur, the CAISO and the EIM entity will be required to be fully transparent with regard to their conclusions regarding readiness, and the certifications will reflect all requirements that need to be completed before full integration, including any remaining time needed for parallel operations.

<sup>26</sup> *Id.* at P 32.

the length of the market simulation for each prospective EIM entity. The CAISO will post a market simulation plan including the planned duration of market simulation, descriptions of each scenario and other relevant information. For example, information on the CAISO website indicates that there is 30 days of market simulation and 30 days or more of parallel operations for NV Energy. The CAISO has also proposed five specific market simulation criteria to support the market simulation requirement.<sup>27</sup> It would not be appropriate for, and indeed the Commission did not require, the tariff to include a rigid period for market simulation.

### **B. Measurements for Meeting the Criteria and Exceptions Process**

The CAISO's proposed tariff criteria specify the measurable elements that the CAISO will examine to evaluate compliance with each readiness criterion. To determine whether a prospective EIM entity has met the criteria, the CAISO will apply a metric that it refers to as the "threshold", *i.e.*, the minimum performance standard required to meet the criteria. The Commission specifically noted "that the specific metrics used to determine whether each criterion has been met may be contained in a business practice manual,"<sup>28</sup> and the CAISO intends to do so. The business practice manual will set forth the manner in which the CAISO will apply the threshold measure that must be satisfied.<sup>29</sup> In some cases, these are numeric thresholds, such as 90% passage rate for certain specific tests; in other cases, they are the completion of a specified activity.<sup>30</sup>

Despite the Commission's specific statement that the CAISO could include metrics in the business practice manual, certain stakeholders have contended that the CAISO's thresholds should be in the tariff. The CAISO disagrees and believes that the Commission's decision to allow metrics in the business practice manual is good policy. Including the thresholds in the tariff is not necessary to make them transparent and rigorous. The initial thresholds have been subject to the stakeholder process preceding this filing, and the CAISO has explained the

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<sup>27</sup> See proposed CAISO Tariff section 29.2(b)(l) (providing for structured scenario testing, unstructured scenario testing, market results reports, market quality review, and validation of resource and scheduling coordinator identifications).

<sup>28</sup> July 21 Order at P 30 n.73.

<sup>29</sup> Attachment D includes the proposed thresholds the CAISO intends to include in the business practice manual.

<sup>30</sup> During the stakeholder process, the CAISO referred to the measurable quantities specified in the tariff as "metrics." The CAISO believes that this terminology was confusing in that it did not use the term "metrics" to refer to the types of details that were appropriate for the business practice manual, as noted by the Commission. The CAISO has reposted the stakeholder materials using more consistent terminology.

basis for setting each of the thresholds in discussions with stakeholders. Below, the CAISO describes its reasoning to assist the Commission's consideration of the overall stakeholder process and understanding of how the CAISO will apply the criteria. Including the thresholds in the business practice manual does not provide the CAISO with excessive discretion. If there is a need to modify the thresholds in the future, the CAISO will be required to undergo the business practice manual change management process, which includes an opportunity for stakeholders to comment on or challenge proposed changes. Further, stakeholders can comment on whether the specified thresholds have been met during the telephone conferences the CAISO regularly holds during market simulation and parallel operations. During these teleconferences, the CAISO discusses testing results and any resolution of issues. Finally, to the extent a stakeholder has concerns that are not satisfied during the change management or testing phases, it may raise them for Commission consideration in response to the filed readiness certifications.

In the July 21 Order, the Commission directed the CAISO to explain the standards and processes for granting exceptions to the measurements or thresholds that will apply to determine whether the CAISO has met the readiness criteria specified in the tariff.<sup>31</sup> The process is as follows. Any exception to a threshold would be reviewed by the responsible staff, escalated to the senior officers ultimately responsible for certification, and then documented in the readiness report that supports the certification. The CAISO and the prospective EIM Entity will engage in a collaborative approach to satisfy the readiness criteria and endeavor to make decisions based on consensus between the parties. Both parties will strive to avoid exceptions by providing comprehensive updates and proactively managing issues and risks. When an exception is required, the parties will define it by specifying what is not conforming and why an exception is necessary.

The CAISO has not established specific standards by which to judge whether an exception is warranted under any given circumstances. The CAISO does believe that the general materiality standard should apply but believes it would not be reasonable to anticipate what the standard should be given the number of criteria and variety of circumstances that could arise. Rather, the CAISO believes the standard should be the willingness of a senior officer to attest that reliance of their readiness certification on an exception following the results of the exception process outlined above. Stakeholders will have the opportunity to consider any identified exception through the regular reporting procedures and to raise concerns with the Commission in the filing of readiness certificate. There is no need to require that standards be established when there is an exception process and senior officer certification requirement.

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<sup>31</sup> July 21 Order at P 30.

### **C. Readiness Criteria**

In compliance with the July 21 Order, the CAISO is proposing to include in its tariff the specific readiness criteria that it developed through the stakeholder process.<sup>32</sup> Specifically, the CAISO proposes readiness criteria in each of the categories listed by the Commission: full network model integration, systems readiness, load and variable energy resource forecasting, communications systems between the prospective EIM entity and CAISO, the ability to issue settlement statements, outage management, scheduling, market simulation, parallel production plan, and training. In addition, the CAISO proposes to include a miscellaneous criteria category that requires registration of resources eligible to provide EIM available balancing capacity, development of operating procedures, execution of all necessary agreements, and confirmation that sufficient data is available for market monitoring. The CAISO discusses each category of readiness criteria below.

Although the CAISO does not seek Commission approval of the thresholds for the various criteria, the CAISO is also describing them below. The CAISO believes this information will assist the Commission's understanding of the manner in which the criteria assure readiness as well as of the robustness of the stakeholder process.

#### **1. Full Network Model Integration**

The CAISO proposes to include in section 29.2(b)(7)(A) specific readiness criteria that must be met to demonstrate that the prospective EIM entity's full network model is completely integrated into the CAISO's full network model. To ensure the CAISO establishes operationally feasible dispatches in the EIM that reflect actual system conditions, the CAISO must integrate the full network model of the prospective EIM entity into the CAISO's full network model. There are four elements to this proposed criterion:

- (1) the load, EIM internal inerties and EIM external inerties and generating unit definitions in the full network model must be consistent with the load, EIM internal inerties and EIM external inerties and generating unit definitions in the exported prospective EIM entity network model file;
- (2) the supervisory control and data acquisition (SCADA) measurements used in the prospective EIM entity's energy management system model must match the measurements observed by the CAISO through the CAISO's energy management system;

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<sup>32</sup> See July 21 Order at P 30.

(3) the state estimator solution must be equivalent or superior to the prospective EIM entity's state estimator solution for its balancing authority area; and

(4) the physical representation of the prospective EIM entity network must match the base market model that accounts for non-conforming load, behind-the-meter generation, pseudo-ties, and dynamic schedules, and third party transmission service providers and path operator information that the CAISO agrees is used to support EIM transfers and dispatch in the EIM, as applicable.

Satisfying these criteria ensures that the full network model is accurate and the solutions produced by it are correct, including information associated with EIM entity's use of third party transmission system.

For the first element, The CAISO has adopted the threshold requirement that the data between the CAISO full network model and the prospective EIM entity's network model must match within 10 percent, measured in MW capacity, prior to starting parallel operations, and within five percent before full integration of the prospective EIM entity. The threshold takes into account that any discrepancies beyond the 5 percent threshold will be accounted for in imbalance energy adjustments. This threshold recognizes that it is never possible for two different network models to align perfectly in light of the complexity and differences in building such models. The CAISO believes it is appropriate to require that the data elements align within a five percent threshold before full integration to ensure imbalance energy schedules and prices are consistent with the actual characteristics of the systems. Deviation from the EIM entity's model does not necessarily mean that the CAISO model is erroneous. However, minimizing such deviations ensures that CAISO full network model is as good as the EIM entity's model.

For the second element, the CAISO has adopted the threshold requirement that the critical and used supervisory control and data acquisition ("SCADA") measurements match 90 percent, measured in MW, to start parallel operation and 95 percent, measured in MW, before full activation outside of any exception in the energy management system model.

For the third element, the CAISO has adopted the threshold requirement that the state estimator solutions between the two systems converge more than 90 percent of the time for at least two days before parallel operations begin, and for at least three days before full integration of the prospective EIM entity. Because the state estimator solutions are to some degree dependent on the modeling of different external balancing authority areas, it is reasonable to expect that there be some deviations between the two models.

For the fourth element, the CAISO has adopted the threshold that the EIM entity must model the major nonconforming loads that exceed five percent of the EIM entity total actual load in MW separately from conforming load in market model. This threshold is necessary because the CAISO non-conforming loads can account for a significant portion of the load in a prospective EIM entity balancing authority area and affect the accuracy of the market model accordingly.

One stakeholder stated that the threshold for comparing SCADA measurements (10 percent prior to the start of parallel operations and five percent during the parallel operations period) seemed overly broad. The CAISO disagrees. The SCADA measurement is based on a MW quantity, which means that the measurements will look at MW deviation specifically. This threshold is measureable because the CAISO can quantify the MW deviations of the SCADA measurements between the two systems. The CAISO believes that these thresholds are sufficiently rigorous to demonstrate readiness of the system before going into production because some of the actions regarding SCADA measurements that the EIM entity will take are not possible during market simulation and parallel operations when production e-tag information is not available in the environment. The robust thresholds reflect an operational success rate that accounts for the inability of market simulation to precisely emulate all real-time system operations all the time.

The same stakeholder expressed concern that the threshold for the state estimator not only allows a bandwidth for failures, but also requires that the threshold be met for a limited period during the testing or parallel operations periods. The stakeholder stated that this approach appears to allow greater than ten percent error or failure rates during most days of the simulations and parallel operations periods. The CAISO believes that its thresholds for the state estimator solution quality are appropriate for entering parallel operation and production. State estimator solutions are subject to a continuous improvement process that goes beyond the opportunity provided in a testing environment. The state estimator application requires a full production environment to continuously fine-tune its parameters and improve the quality of load distribution factors, based on feedback information it receives. It is not abnormal for state estimator software, depending on its configuration parameters and input data, to produce values of generation or load that continue to improve over time based on actual data. This happens because the values are typically improved by continuous monitoring and fine-tuning over a long period of time that can extend for years.

The state estimator solution thresholds ensure not only that the state estimator solves every 30 seconds, but also that the initial quality of this solution is acceptable. Without actual operational experience, imposing thresholds above the 10 and five percent amounts established would be difficult if not impossible to

meet through market simulation and parallel operations and prior to the integration of the prospective EIM entity.

The fourth element does reflect a stakeholder suggestion to require that elements of such third-party transmission provider systems, such as transmission constraints or other requirements applicable to a prospective EIM entity's available transmission capacity that are essential for EIM operation, are accurately modeled and recognized in the full network model. The CAISO recognizes the need to accurately model the transmission systems of third parties that facilitate EIM transfers through rights EIM entities hold and EIM dispatches of resources connected to their transmission system. For example, the CAISO will validate that all required constraints, including transmission constraints and other information that third party transmission providers are sending to the CAISO production system, are fed into the parallel operation environment. This ensures that those limits are reflected in the parallel production environment for the benefit of the prospective EIM entity and CAISO testing. This commitment is appropriately limited to third party transmission service providers whose transmission systems the CAISO agrees support the EIM transfers and dispatch. It would not be appropriate to extend such treatment to adjacent balancing authorities or transmission service providers whose systems are not part of the EIM and not being used to effectuate EIM transfers or dispatch. They are not similarly situated and the CAISO is not aware of any legitimate reason to require readiness criteria associated with modeling of transmission constraints and other elements of adjacent third party systems whose systems are not relied on for operation of the Energy Imbalance Market. The CAISO already seeks to model such systems as accurately as possible as part of its full network model expansion efforts.

## **2. Operations Training**

In integrating the first EIM entity, the CAISO learned the importance of ensuring that all of the operations employees of the EIM entity are fully trained in the new EIM paradigm. The CAISO recognizes that the EIM entity may still require time to work through a learning curve after integration, but it is crucial that it meet certain training requirements in order to avoid significant issues at the start.<sup>33</sup> Accordingly, the CAISO proposes to include in section 29.2(b)(7)(B) the requirement that prior to the start of parallel operations, all operations staff responsible for EIM operations and, when relevant, transactions and settlements,

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<sup>33</sup> Contemporaneous with this filing and consistent with the Commission's March 16 order in EL15-13 and ER15-861, the CAISO is proposing a transitional measure to address learning curve issues that each new EIM entity may experience. While not directly related to this filing, the justification for that proposal does bear on the discussion here.

that are identified by the prospective EIM entity have completed necessary training. The elements of this criterion include completing (1) a training module introducing the EIM, (2) a training module on the specific hourly and daily tasks and duties for a normal operation, and (3) a training module on the assessment of market results and response to contingencies and abnormal situations. This ensures that the prospective EIM entity staff is trained on each of the critical tasks in preparation for financially binding operations. Additional specific training may also be provided on a case by case basis to ensure readiness.

The thresholds for the operations training criterion are that the prospective EIM entity operators complete training and an assessment of their competency in the subject matter (“associated completion assessments”) as outlined in the following CAISO training modules: “100 series”— an introduction to Energy Imbalance Market, “200 series”— the specific hourly and daily tasks and duties for normal operation, “300 series”— the assessment of market results and response to contingencies and abnormal situations.

The criterion reflects a stakeholder comment that the reference in the initially proposed criteria to “all operations staff identified by the EIM entity initiate [now “prospective EIM entity”] was not sufficiently prescriptive and allowed undue discretion to the prospective EIM entity. It recommended that the reference be clarified. The CAISO agreed with the need for clarity and reflected the recommendation in the tariff. In addition, because the CAISO cannot know who these operations personnel are without input from the prospective EIM entity, the CAISO has maintained the need for a prospective EIM entity to identify the personnel.

### **3. Forecasting Capability**

In the EIM, the real-time market dispatch is dependent on accurate forecasts for load. Erroneous load forecasts can lead to anomalous dispatches that are not consistent with actual system conditions. Therefore, the CAISO proposes to add in section 29.2(b)(7)(C) the requirement that the CAISO and, to the extent the prospective EIM entity will use its own forecasts or is otherwise required to provide forecasting information to the CAISO, the prospective EIM entity demonstrate their respective forecasting capability. This criteria requires that the CAISO and the prospective EIM entity to (1) establish the definition of EIM demand forecast boundaries based on the conforming and non-conforming load characteristics, as applicable; (2) examine the accuracy of the CAISO forecast of EIM demand based on historical actual load data for the defined EIM demand forecast boundaries; (3) identify of weather station(s) locations used in forecasting, as applicable; and (4) identify the identity of the source of variable energy resource forecasts.

The CAISO has adopted a threshold for the first three elements of this criterion requiring that all plant information tags and historical data for defined



load areas and nonconforming load, if applicable, compares with load forecasts provided from CAISO (if CAISO load forecast used).

The fourth element of the forecasting criterion reflects the fact that the EIM entity has the option of using its own forecast service for variable energy resource forecasts. The CAISO has adopted the threshold that the forecasting entity must demonstrate the ability to deliver unit forecasts in MWs at 5 minute intervals for at least three hours ahead of the trading hour. The threshold also requires that the forecasting entity be able to provide base schedules by T-75, T-55, and T-40 and that the prospective EIM entity provides to CAISO real-time MW production plant information tags.

#### **4. Balanced Schedules**

The CAISO proposes to include in section 29.2(b)(7)(D) the requirement that the prospective EIM entity's scheduling coordinator demonstrate its capability to submit balanced schedules. The criterion requires that the CAISO and the prospective EIM entity demonstrate (1) the ability to balance EIM demand and EIM supply; (2) the ability to pass the capacity test set forth in section 29.34(l) of the CAISO tariff; and (3) the ability to pass the flexible ramping sufficiency test set forth in section 29.34(m) of the CAISO tariff.

These three tests are Commission-approved resource sufficiency tests and important components of the EIM design.<sup>34</sup> They appropriately allow EIM entities to realize the benefits of participation in the EIM while preventing them from inappropriately leaning on other EIM balancing authority areas. Each EIM entity is responsible for meeting its own resource adequacy rules. These criteria measure a prospective EIM entity's ability to demonstrate that it can meet the Commission approved resource sufficiency tests; not whether the prospective EIM entity has sufficient resources to do so. Including criteria to measure capabilities beyond the scope of the resource sufficiency requirements would impose a requirement that an EIM entity is not held to in financially binding operations and therefore would be unjust and unreasonable.

With respect to the prospective EIM entity's ability to balance EIM demand and supply, the CAISO adopted the threshold requirement that, before the commencement of parallel operations, 90 percent or more of the base schedule balance tests performed during monitored hours are within 10 percent of the average imbalance of load forecast over one day period. Prior to full integration of the prospective EIM entity, 90 percent or more of the base schedule tests performed during parallel operations must be within five percent of the average

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<sup>34</sup> *Cal. Indep. Sys. Operator Corp.*, 147 FERC ¶ 61,231 at PP 122-124 (accepting the CAISO's resource sufficiency tests).

imbalance of load over five non-consecutive days during the parallel operations period.

With respect to the prospective EIM entity scheduling coordinator's ability to pass the flexible ramping sufficiency test, the CAISO has adopted the threshold that the prospective EIM entity must pass the test at least 90 percent of the time over the monitored hours of one day before commencement of parallel operations and five non-consecutive days parallel operations before full integration of the prospective EIM entity.

With respect to the requirement that the prospective EIM entity's scheduling coordinator demonstrate its ability to pass the capacity test, the CAISO has adopted the threshold that it must pass the test at least 90 percent of the time over monitored hours of one day before parallel operation and over monitored hours of five non-consecutive parallel operations days before full integration of the prospective EIM entity.

The CAISO initially proposed a requirement that the threshold be met for two consecutive days during parallel operations. In response to comments by stakeholders asking that the EIM entity demonstrate the ability to meet these tests over a longer period of time, the CAISO modified the threshold from two consecutive monitored days to five non-consecutive monitored days during parallel operations. The testing period, regardless of its duration, is designed to expose the prospective EIM entity operators to a variety of operating conditions and give them experience with responding to those conditions.

One stakeholder recommended requiring a thirty day demonstration. This stakeholder also contended that a 10 percent failure rate (*i.e.*, the 90 percent threshold) is unduly permissive because it tolerates a level of resource insufficiency higher than the level that prompted the Commission to initiate the section 206 proceeding in this docket and direct CAISO to develop readiness criteria in the first place.

The CAISO believes that the thresholds are sufficiently rigorous to demonstrate readiness of the system before going into production because some of the measurements that the EIM entity will take are not possible during market simulation and parallel operations when the instructions are not binding. Prior to being in full production mode, the EIM entity cannot make use of production e-tag information to achieve and balance the tests. Therefore, the CAISO established thresholds that reflect an operational success rate that accounts for the inability of market simulation and parallel operations to emulate precisely all real-time system operations. The thresholds also take into consideration that during market simulation and parallel operations, the system must be supported along with the actual production environment, thus requiring the prospective EIM entity operational personnel to focus on actually balancing their system at the same time they are working to meet the readiness criteria thresholds.

As the CAISO explained during the stakeholder process, no period of “testing” can capture the full range of exceptional operational conditions or challenges that the prospective EIM entity will encounter once it transitions to financially binding operations. Even if the prospective EIM entity is capable of passing the tests for an extended period of time in a market simulation or parallel operation environment, there is no guarantee that it will pass the tests after it has been fully integrated in the EIM. There may be operational or informational reasons an EIM entity would not pass the test. The CAISO has recommended other measures independent of these tests to address infeasibilities, including the EIM available balancing capacity proposal and EIM entity transitional measures proposal, but those are independent of these tests.<sup>35</sup> The purpose of these tests is to ensure the EIM entity has sufficient resources to share flexibility with other balancing authority areas or otherwise have their EIM transfers frozen to prevent leaning on other EIM entity balancing authority areas. Similarly, failure during the test period does not mean the prospective EIM entity will not be able to pass the tests during actual EIM operations. In other words, extended periods of testing cannot ensure that the prospective EIM entity is ready for financially binding operations. The thresholds adopted by the CAISO ensure the prospective entity can pass the test for a reasonable amount of time and over a reasonable array of operational scenarios.<sup>36</sup>

Another stakeholder recommended that the CAISO adopt a readiness criterion that would assess sufficient ramping resource capability. Specifically, the stakeholder recommended that the CAISO assess the amount of resources

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<sup>35</sup> The CAISO has included a readiness criteria to ensure that the prospective EIM Entity registers such resources but there is no CAISO tariff requirement with respect to the amount of available balancing capacity that an EIM entity may or may not have bid into the market. This can be contrasted with the resource sufficiency tests where there are specific tariff requirements associated with the tests that the CAISO can measure a passage rate as it has proposed to do here.

<sup>36</sup> The stakeholder also mischaracterizes the issues that prompted the Commission to initiate the 206 proceeding and direct the CAISO to create readiness criteria. The 206 proceeding addressed real-time market infeasibilities that caused the market to trigger the pricing parameters set at the maximum bid price of \$1000/MWh. As explained in the numerous documents filed in this and other proceedings, the false scarcity resulted from a lack of visibility to the EIM entity’s available capacity due to either learning curve issues or the market structural design issue. The CAISO recently filed new tariff provisions to address these issues. Even if the CAISO were to require prospective EIM entities to meet the test requirements 100 percent of the time during market simulation and parallel operations, that would not guarantee market intervals without infeasibility absent elimination of the learning curve issues and Commission approval of the CAISO’s available balancing capacity proposal filed on August 19, 2015, in Docket No. ER15-861-003, in compliance with the Commission’s July 20, 2015 order. *Cal. Indep. Sys. Operator Corp.*, 152 FERC ¶ 61,060.

represented by the flexible ramping requirement without diversity, plus the amount of resources identified as available balancing capacity under proposed section 29.2(b)(7)(K)(iv). The stakeholder contended that the CAISO should require a prospective EIM entity to demonstrate that the sum of these resources would meet historical ramping requirements at least 99 percent of the time for at least 30 days during parallel operations.

In compliance with the July 21 Order,<sup>37</sup> the CAISO considered the extent and practicality of including a requirement that the EIM entity demonstrate sufficiency of participating resources. The CAISO has not included this additional criterion because it goes beyond the purpose of the EIM and the basic EIM market design. It is inappropriate to impose a readiness criteria that tests for a requirement that is not part of the EIM design. Specifically, the CAISO tariff does not require that the EIM entity demonstrate a certain degree of resource adequacy to participate in the EIM. The test proposed by the stakeholder would essentially require the prospective EIM entity to have sufficient ramp available to meet its ramping requirements 99 percent of the time. The readiness criteria are not intended to demonstrate that the prospective EIM entity has sufficient resources to meet its balancing authority obligations unrelated to its participation in EIM. The readiness criteria simply ensure that a prospective EIM entity be able to pass the resource sufficiency evaluation tests relevant to EIM within the specified thresholds. In any event, comments that propose changes to the CAISO's underlying resource sufficiency requirements are beyond the scope of the specific Commission compliance directive in this proceeding that led to the instant filing.

## **5. System Readiness and Integration**

The CAISO proposes to add in section 29.2(b)(7)(E) the requirement that the CAISO and prospective EIM entity evaluate system readiness and integration by testing system elements and integration in accordance with documentation posted on the CAISO website.<sup>38</sup> In addition, the prospective EIM entity must issue all necessary certificates to its employees that require system access to perform EIM-related job functions. This confirms the connectivity of the systems and their preparedness for financially binding production.

The CAISO adopted specific thresholds regarding this criterion that require completion without significant issues of all tasks identified in the functional and system testing documentation. Any exceptions must be explained and workarounds developed as appropriate. The CAISO will also require that (1)

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<sup>37</sup> See July 21 Order at P 30.

<sup>38</sup> See, e.g., <http://www.aiso.com/Documents/MarketSimulationPlanFall2015Release.pdf>.

the prospective EIM entity identify all EIM employees performing job functions for EIM market, (2) the prospective EIM entity request all CAISO issued certificates within the appropriate timeframes, and (3) the prospective EIM entity provide all identified employees the necessary EIM system access certificates. The CAISO thresholds also require that testing of all data interfaces between prospective EIM Entity's systems and CAISO systems be approved by CAISO executives.

## **6. Settlements**

The CAISO proposes to include in section 29.2(b)(7)(F) a criterion to address the prospective EIM entity's and the CAISO's ability to process settlement statements. The elements of this criteria are (1) whether the CAISO settlement statements and invoices match the operational data fed into the settlement system and the resulting calculations correspond to the formulas defined in the CAISO tariff and applicable business practice manuals, and (2) whether the settlement statements and invoices of the prospective EIM entity that allocate charges and credits to its customers accurately reflect system and market data during parallel operations. This criterion assesses the accuracy of the settlement calculations regardless of whether the input data from market simulation and parallel operations reflect an actual financial obligation.

To evaluate this criteria, the CAISO has adopted two thresholds. First, the monthly settlement statement and invoice with corresponding daily statements produced by the CAISO during market simulation must be verifiably accurate against available data. Second, the prospective EIM entity's settlement statements and invoices that allocate charges and credits to its customers must accurately reflect system and market data during parallel operations.

One stakeholder argued that there have been issues with the accuracy of EIM settlements leading transmission customers to submit settlement disputes. It contended that as a precondition to the participation of a prospective EIM entity, both the CAISO and the prospective EIM entity should be required to issue draft settlement statements and invoices to market participants and transmission customers for an appropriate period of parallel operation (*e.g.*, 30 days) and to do so within the specified timelines for issuing statements.

Under the proposed threshold, settlements must accurately reflect market data and the prospective EIM entity must also demonstrate that it has a mechanism to generate the statements and validate them in time for the CAISO settlements cycles. The CAISO believes that achieving these results should be sufficient to guarantee accurate invoices when the market operations become binding.

## **7. Outage Management**

The CAISO proposes to add in section 29.2(b)(7)(G) the requirement that the CAISO and prospective EIM entity evaluate the prospective EIM entity's ability to submit and retrieve outage information to the CAISO within the required timelines. Use of the outage management system is important for the accuracy of base schedules and should be verified by the prospective EIM entity.

The threshold the CAISO has adopted requires that the prospective EIM entity validate its ability to submit and retrieve transmission out-of-service outages, generation Pmax derates, generation Pmin derates, and generation out-of-service outage tickets within the required timelines. The CAISO accepted suggestions from stakeholders to revise the criterion to specify that the information must flow both to and from the prospective EIM entity systems. This change is appropriate given that the outage management system depends on information received and the prospective EIM entity depends upon the reported information produced by the outage management system.

## **8. Communications between the CAISO and the Prospective Entity**

The CAISO proposes to add in section 29.2(b)(7)(H) the requirement that the CAISO and the prospective EIM entity confirm the readiness of communications. This considers whether the process and procedures used for voice and electronic messaging are identified and incorporated into the prospective EIM entity's business processes before the start of market simulation. It also considers whether the operations staff identified by the prospective EIM entity are trained on the relevant operating procedures and tools used for EIM-related communications before the start of parallel operations, including communications associated with EIM use of third party transmission system provider systems that the CAISO agrees area used to support EIM transfers and dispatch.

The criterion reflects the suggestion of one stakeholder that the communications criterion should account for information received from communications with non-EIM transmission service providers. The CAISO accepted this suggestion because it acknowledges the need to recognize the interests of third party transmission service providers that facilitate EIM transfers and dispatch.

The CAISO adopted the following thresholds to evaluate this criteria. To test that the prospective EIM entity's process and procedures used for voice and electronic messaging are ready, the CAISO will require that the prospective EIM entity has incorporated the process and procedures into the prospective EIM entity's business processes before the start of market simulation. To test whether staff are trained on communication procedures and tools, the CAISO will

require that the prospective EIM entity's operations staff are trained on the relevant Operating Procedures and tools used for EIM related communications before the start of parallel operations. Regarding third party transmission provider information, the CAISO must confirm during parallel operations that third party transmission service provider and path operator information that supports EIM transfers and real-time dispatches are in fact made available.

## **9. Market Simulation**

As discussed above, the July 21 Order approved completion of market simulation as a prerequisite to participation in the EIM. The CAISO proposes to add in section 29.2(b)(7)(I) a criterion that this market simulation requirement will include (1) the establishment and testing of all necessary scheduling coordinator identifications and resource identifications for the prospective EIM entity's balancing authority area; (2) a day-in-the-life simulation, including end-to-end daily market workflow with no critical defects; (3) a structured scenarios simulation with execution of all structured scenarios provided by CAISO that resolves all significant issues; (4) an unstructured scenarios simulation with execution of all unstructured scenarios provided by the prospective EIM entity initiate that resolves all significant issues; (5) a determination that market results are appropriate based on inputs; and (6) a validation of CAISO prices based on input data for parallel operations. This details the requirement that the CAISO and prospective EIM entity engage in meaningful market simulation prior to parallel operations.

The CAISO adopted the following thresholds to evaluate whether this criterion has been met: (1) the CAISO has established and the prospective EIM entity has tested all necessary scheduling coordinator identifications and resource identifications for the prospective EIM entity's balancing authority area; (2) the prospective EIM entity operations staff has completed end-to-end daily market workflow with no critical defects; (3) all significant issues in the structured scenarios simulation have been resolved or have an interim solution that is functionally equivalent; (4) all significant issues in the unstructured scenario market simulation have been resolved or have an interim solution that is functionally equivalent; (5) the prospective EIM entity and CAISO executive project sponsors have approve the market results reports during market simulation; and (6) the CAISO market quality team have validated the prices and schedules based on input data prior to entry into parallel operations.

One stakeholder recommended deleting the reference to "without critical defects" in connection with the day-in-the-life scenario. The CAISO believes the reference to "critical defects" should remain in this criterion because it does not believe readiness should require perfection. Minor, noncritical defects in the daily workflow can be expected to occur on occasion even after the commencement of financial operations.

The tariff language proposed to stakeholders referred to “workarounds” in connection with the day-in-the-life, structured scenarios, and unstructured scenarios simulations, consistent with the July 21 Order. The same stakeholder suggested deletion of that concept. The CAISO believes that the concept of a workaround is relevant in some contexts to the determination whether a prospective EIM entity has successfully completed a scenario. A “workaround” is commonly understood as an alternative means to achieve the same result. For example, if a user interface fails testing and the same information can be displayed through another application rather than fixing the particular interface, there is no reason to consider that result a failure. This does not, however, constitute an exception to the criteria because the objective was achieved. For this reason, the CAISO agrees that the tariff should not refer to a workaround as an alternative to an element of the market simulation criterion and has removed references to “workaround” in the proposed tariff and thresholds. Instead, the thresholds for the structured and unstructured scenarios allow reliance on an interim solution, but only if the interim solution is functionally equivalent to the planned result.

Another stakeholder commented that the tariff should recognize the potential need for third-party transmission providers whose systems are used to effectuate EIM transfers to develop structured scenarios to demonstrate that they can maintain reliable technical and commercial operations. The CAISO agrees that the market simulation should consider third party transmission systems that are used to support EIM transfers and dispatch, as applicable. Accordingly, the CAISO will seek feedback from market participants in identifying relevant structured scenario exercises in developing the market simulation plan and urges interested stakeholders to participate in that process. Including a specific criteria that there must be market simulation scenarios associated with third party transmission service providers would circumvent that stakeholder process. Moreover, such scenarios are not always necessary. For example, the NV Energy implementation does not directly rely upon any third party transmission service providers. The CAISO believes this request is best addressed on a case-by-case basis and thus does not believe there is a need for a specific criterion associated with third party transmission providers.

A third stakeholder commented that the reference in a prior draft of the criterion that specified “all operations staff identified by the prospective EIM Entity” was not sufficiently prescriptive and provided the prospective EIM entity with undue discretion. The stakeholder recommended that the criterion apply to all personnel involved in operations, transactions and settlements. With regard to structured scenarios, the CAISO accepted the proposal entirely. However, with respect to a “day-in-the life” scenario, the CAISO clarified that this training applies only to grid operations staff. Other personnel responsible for transactions and settlements are not engaged in this scenario to a degree sufficient to support the requested change. The CAISO has retained the reference to the staff that



are identified by the prospective EIM entity because the CAISO cannot otherwise identify the appropriate staff.

#### **10. Parallel Operations.**

As discussed above, the July 21 Order approved completion of parallel operations as a prerequisite to participation in the EIM. The CAISO proposes to include as a criterion in section 29.2(b)(7)(J) the requirement that the parallel operations must run consistently and in accordance with the parallel operation plan. The CAISO and the prospective EIM entity will develop and publish a parallel operation plan, providing transparency and accountability into the tasks associated with this phase of implementation.

The CAISO adopted a threshold for this criterion requiring that parallel operations run consistently within normal production market disruption tolerances threshold.

#### **11. Additional Criteria**

During the course of the stakeholder process, the CAISO determined the need for additional readiness criteria that fall outside of the categories discussed above. Accordingly, the CAISO proposes to include the following additional criteria in section 29.2(b)(7)(K):

*(a) Execution of Necessary Agreements.* The prospective EIM entity must execute an EIM entity scheduling coordinator agreement and any necessary non-disclosure agreements for the exchange of information;

*(2) Operating Procedures.* Prior to the start of parallel operations, the CAISO and the prospective EIM entity must define, complete, and test operating procedures for the prospective EIM entity's and its scheduling coordinator's participation in the EIM;

*(3) Prospective EIM Entity Identification.* The CAISO must establish, and the prospective EIM entity must test, all necessary scheduling coordinator identifications and resource identifications for the prospective EIM entity's balancing authority area;

*(4) Identification of Additional Available Balancing Capacity.* The prospective EIM entity must identify those EIM participating resources and non-participating resources that have additional balancing capability that it intends to include in the EIM resource plan to resolve under-supply or

over-supply conditions in the prospective EIM entity's balancing authority area consistent with the CAISO tariff;<sup>39</sup>

(5) *Flexible Capacity Requirements.* The CAISO must have received and stored all historical data from the prospective EIM entity necessary and sufficient for the CAISO to perform the flexible ramping requirement evaluation, and the CAISO must have established flexible ramping requirements for the prospective EIM entity's balancing authority area and the combined EIM area including the prospective EIM entity; and

(6) *Monitoring.* Sufficient and adequate data must be available to the CAISO and the Department of Market Monitoring to enable effective market monitoring as of the implementation date.

Proposed section 29.2(b)(8) requires the CAISO to report on its website, at least monthly during market simulation and at least twice monthly during parallel operations, on the progress toward achieving the readiness criteria.

The CAISO also proposes to revise the Appendix A definitions of State Estimator and Base Market Model to include EIM entity balancing authority areas for the purpose of the EIM.

One party asked that the CAISO include language in the tariff specifying that the non-participating "available resources" referred to in section 29.2(b)(7)(K) (iv) are limited to those that are owned or have been contracted for by the prospective EIM entity's merchant function, consistent with the CAISO's clarification in its Reply Comments on the Technical Conference Docket Nos. ER15-861 and EL15-53. The CAISO updated this provision to reflect consistency with the proposed tariff changes to implement the "EIM Available Balancing Capacity" proposal that the CAISO filed in this docket on August 21, 2015, including clarifying language to ensure only those resources that the prospective EIM entity has identified will be included. However, as part of the proposed available balancing capacity procedure, the CAISO is not proposing to verify which resources the EIM entity is authorized to represent in this manner. The tariff imposes this requirement on the EIM entity, and the resource owner will have an opportunity to raise concerns with the EIM entity if there is any misrepresentation. Resource owners should have information available to them on the use of their resource to meet balancing authority area obligations from the prospective EIM entity and the CAISO does not need to be in the middle of that relationship.

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<sup>39</sup> The CAISO has submitted a tariff amendment to provide for use of such capacity in Docket Nos. ER15-861 and EL15-53.

### **III. STAKEHOLDER PROCESSES**

As noted above, the readiness criteria and the related thresholds that the CAISO will include in the business practice manual were the subject of a robust stakeholder process. Attachment E contains a matrix of stakeholder comments and the CAISO's responses thereto developed prior to the July 21 Order. Attachment F contains a matrix of stakeholder comments and CAISO responses thereto regarding the proposed tariff changes in compliance with the July 21 Order.

The stakeholder process prior to the July 21 Order resulted in a number of changes to the draft criteria that the CAISO originally proposed. That stakeholder process was robust. Indeed, many of the criteria categories referenced by the Commission in the July 21 Order were developed through that stakeholder process. The significant work done prior to July 21 allowed the CAISO to focus the stakeholder efforts after the July 21 Order primarily on ensuring that the criteria to be included in the compliance filing tariff satisfied stakeholder expectations. In many cases, the comments pointed out typographical errors or suggested edits intended to enhance clarity. The CAISO accepted most of these edits. The Matrix in Attachment F identifies these edits, and they are not discussed further in this filing. The CAISO discussed above the more substantive comments regarding the readiness criteria from the most recent stakeholder round. Below the CAISO discusses comments concerning the adequacy of the stakeholder process itself as well as other comments not related to specific readiness criteria.

#### **A. Duration of Stakeholder Process**

Two stakeholders expressed concern that the CAISO did not allow sufficient time for the stakeholder process. The CAISO disagrees. As discussed above, the readiness criteria were the subject of almost two months of stakeholder consideration prior to the July 21 Order and the CAISO made several significant changes to the criteria based on stakeholder input comments. The July 21 Order acknowledged the categories of criteria developed during that process and directed the CAISO to incorporate them into the tariff. There was no reason or need to revisit those determinations. Moreover, when the CAISO reposted the readiness criteria on July 31 as draft tariff language, it incorporated additional changes to the criteria reflecting comments that stakeholders made during Commission proceedings but had not submitted the prior stakeholder process. In light of the significant effort prior to July 21, the CAISO believes that the additional process during the past month has been more than sufficient for stakeholder comment and discussion.

As discussed above, the CAISO prepared and posted a draft of the proposed tariff provisions for stakeholder review on July 31, 2015, held a stakeholder conference call on August 10, 2015, requested that stakeholders

submit written comments by August 14, 2015, and posted the CAISO's responses to the written stakeholder comments on August 19, 2015. The CAISO also hosted a conference call with stakeholders later that same day to discuss the CAISO's responses to the written comments.

Moreover, the CAISO announced a one month deferral of the NV Energy implementation date to allow time for the CAISO to finalize the details of the readiness criteria and provide time for the Commission to consider the tariff filing. Even with this delay, the need for certification 30 days before the implementation date and for a corresponding period of parallel operations adequate to support that certification necessarily requires that the CAISO submit its compliance filing before the full 60 days have elapsed. Further delay would not result in improved readiness criteria based on the stakeholder comments the CAISO has already received and responded to. The process undertaken by the CAISO allowed for meaningful engagement with stakeholders and provides an opportunity for the Commission to consider fully the submission and address any protests or comments. The schedule also enables NV Energy and the CAISO to certify readiness in anticipation of a November 1 implementation date.

## **B. Other Comments**

One stakeholder asserted that the CAISO has experienced substantial price formation issues over the past year due to CAISO's decision to implement a series of significant market changes in quick succession. The stakeholder recommends that the CAISO be required to address any outstanding price formation issues prior to integrating another balancing authority area into the EIM. The stakeholder recommended that the CAISO conduct further stakeholder discussions to identify the metrics by which the CAISO could make such a demonstration.

It is unreasonable and inappropriate to require the readiness criteria to encompass broader CAISO market performance issues. Such matters are more properly addressed through the CAISO's ongoing market performance and improvement efforts. Arguments that would require resolution of all market issues as a precondition to EIM participation are far beyond the scope of this compliance filing. The Commission's March 16 order identified three separate efforts—consideration of proposals to resolve identified infeasibilities, directives to develop readiness requirements and criteria, and the opportunity to propose a transitional measure to address remaining learning curve issues. Nowhere did the Commission suggest that generic CAISO market performance issues should be addressed in any of these three tracks. Moreover, the July 21 Order clearly identified the categories of readiness criteria that the CAISO should address, and none of them pertain to resolution of broader market performance issues.

Another stakeholder noted that unlike PacifiCorp or NV Energy, the Puget Sound Energy balancing authority area, which is expected to join the EIM in

October of 2016, is not directly interconnected to any of the balancing authority areas in the EIM area. The stakeholder pointed out that Puget Sound Energy will need to enter into an agreement with the Bonneville Power Administration to facilitate its use of Bonneville Power Administration's transmission system for EIM transfers. The stakeholder believes that Puget Sound Energy and any other balancing authority areas that intend to use third-party transmission systems for EIM transfers should be required to demonstrate that they have entered into any necessary contractual arrangements with the appropriate transmission providers. The stakeholder believes that the third party transmission provider whose system will be used to facilitate EIM transfers should also be required to certify its readiness to accommodate such service.

The CAISO recognizes that third party transmission service providers may play a role with respect to the participation of prospective EIM entity in the EIM if their transmission system supports EIM transfers or dispatch. As discussed above, the CAISO will take this factor into consideration in evaluating the readiness criteria proposed herein, specifically in the full network model and communications categories. Moreover, section 29.17 of the CAISO tariff, including the revisions pending in Docket No. ER15-1919, ensures that the EIM entity will only make available to the EIM transmission capacity to which it has an ownership or contractual right. It is not appropriate to require the CAISO to include in its tariff criteria associated with the prospective EIM entity's right to use such transmission. The CAISO tariff defers to the EIM entity with respect to what transmission capacity can be made available to support EIM transfers.<sup>40</sup> Recognizing and communicating the information associated with those rights, including any transmission constraints and other operational information, is sufficient. In any event, the CAISO will consider on a case-by-case basis any specific circumstances associated with a prospective EIM entity's right to use third party transmission systems that are raised in the context of a prospective EIM entity implementation. The CAISO does not believe any revisions to the tariff or business practice manuals are necessary in this regard.

#### **IV Attachments**

- Attachment A: Clean Tariff Record
- Attachment B: Market Tariff Record
- Attachment C: Declaration of Janet Morris
- Attachment D: Readiness Thresholds
- Attachment E: Stakeholder Response Matrix, Rounds 1&2
- Attachment F: Stakeholder Response Matrix, Round 3

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<sup>40</sup> See CAISO Tariff sections 29.17(c), (d), (e) and (f).

**V. CONCLUSION**

The CAISO respectfully requests that the Commission accept the attached tariff revisions as in compliance with the July 21 Order.

Respectfully submitted,

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John C. Anders

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Counsel for the California Independent System Operator Corporation

**Attachment A – Clean Tariff Records**

**Compliance Filing – Readiness Criteria For Energy Imbalance Market**

**August 28, 2015**

**California Independent System Operator Corporation**

## 29.2

### EIM Entity Access to the Real-Time Market

\* \* \* \*

#### (b) Implementation of Access as an EIM Entity.

- (1) **EIM Implementation Agreement.** A Balancing Authority that wishes to become an EIM Entity must first execute an EIM Implementation Agreement with the CAISO that establishes-
  - (A) the activities the parties must undertake to enable the Balancing Authority to participate in the Real-Time Market;
  - (B) the EIM Entity Implementation Date;
  - (C) the implementation fee the Balancing Authority must pay to the CAISO for the start-up costs the CAISO incurs to accommodate the participation of the Balancing Authority in the Real-Time Market as provided in the agreement; and
  - (D) the obligation of the Balancing Authority to enter into an EIM Entity Agreement governing its participation in the Real-Time Market.
- (2) **FERC Approval.** The EIM Entity Implementation Date must be not less than six months and not more than twenty-four months after the date that the EIM Implementation Agreement between the CAISO and the Balancing Authority is accepted by FERC.
- (3) **Implementation Period.** The CAISO shall in its discretion determine the EIM Entity Implementation Date based on the complexity and compatibility of the Balancing Authority's transmission and technology systems with the CAISO systems and the planned timing of the CAISO's implementation of software enhancements.
- (4) **Market Simulation and Parallel Operations.** The CAISO and the prospective EIM Entity shall engage in—



- (A) a market simulation that accounts for the prospective EIM Entity's implementation circumstances sufficient to meet the readiness criteria set forth in Section 29.2(b)(7); and
- (B) at least 30 days of parallel operations representing the Energy Imbalance Market to support the CAISO and the prospective EIM Entity's readiness certification required by section 29.2(b)(6), an adequate period of which must occur prior to the readiness determination required by section 29.2(b)(5).

(5) **Readiness Determination.** No later than 30 days prior to the prospective EIM Entity Implementation Date as established by the EIM Implementation Agreement, the CAISO will determine, in consultation with the prospective EIM Entity, whether the systems and processes of the prospective EIM Entity will be ready for the prospective EIM Entity's participation in the Energy Imbalance Market according to the criteria set forth in Section 29.2(b)(7) as measured by the thresholds specified in the Business Practice Manual for the Energy Imbalance Market, or consistent with any exceptions to thresholds, for certifying the prospective EIM Entity's readiness.

(6) **Readiness Certification.**

- (A) **Certification.** The CAISO and the prospective EIM Entity shall each file a market readiness certificate with the Federal Energy Regulatory Commission at least 30 days prior to the EIM Entity Implementation Date in which a senior office of each entity attests—
  - (i) that the processes and systems of the prospective EIM entity have satisfied or will have satisfied the readiness criteria set forth in Section 29.2(b)(7) as of the EIM Entity Implementation Date;
  - (ii) to any known issues requiring resolution prior to the EIM Entity Implementation Date in accordance with section 29.2(b)(8);

- (iii) to any exceptions from the established thresholds specified in the Business Practice Manuals, and that despite such exceptions the criteria were met or will be met as specified in 29.2(b)(7); and
- (iv) that the EIM Entity Implementation Date is conditional on the resolution of the known issues identified in the certificates and any unforeseen issues that undermine the satisfaction of the readiness criteria set forth in Section 29.2(b)(7).

(B) **Delay or Re-Certification.** If, subsequent to readiness certification pursuant to Section 29.2(b)(6)(A), the CAISO or the prospective EIM Entity determines that it cannot proceed with implementation on the EIM Entity Implementation Date, the CAISO or the prospective EIM Entity will notify the Federal Energy Regulatory Commission of the delay, the reason for the delay, the new EIM Entity Implementation Date if it can be determined, and whether it will need to re-issue a portion or all of the readiness certification.

(7) **Readiness Criteria.**

(A) **Prospective EIM Entity Full Network Model Integration.** The Full Network Model of the prospective EIM Entity is integrated into the Full Network Model such that—

- (i) the Load, EIM Internal Intertie and EIM External Interties and Generating Unit definition in the Full Network Model is consistent with the Load, EIM Internal Intertie and EIM External Interties and Generating Unit definition in the prospective EIM Entity network model file that it delivered to the CAISO;
- (ii) the SCADA measurements used in the prospective EIM Entity's EMS model match the measurements observed by the CAISO through the CAISO EMS;

- (iii) the State Estimator solution is equivalent or superior to the prospective EIM Entity's state estimator solution for its Balancing Authority Area; and
- (iv) the physical representation of the prospective EIM Entity network matches the Base Market Model that accounts for non-conforming load, behind-the-meter generation, Pseudo-Ties, and Dynamic Schedules, and third party transmission service provider and path operator information that the CAISO agrees is used to support EIM Transfers and Real-Time Dispatch in the Energy Imbalance Market, as applicable.

(B) **Operations Training.** Prior to the start of parallel operations as set forth in Section 29.2(b)(4), all operations staff identified by the prospective EIM Entity who will have responsibility for EIM operations, transactions and settlements, have completed—

- (i) the introduction to Energy Imbalance Market training module;
- (ii) the specific hourly and daily tasks and duties for normal operation training module; and
- (iii) the assessment of market results and response to contingencies and abnormal situations training module.

(C) **Forecasting Capability.** The CAISO and, to the extent the prospective EIM entity will use its own forecasts or is otherwise required to provide forecasting information to the CAISO, the prospective EIM Entity have demonstrated their respective forecasting capability through—

- (i) the definition of EIM Demand forecast boundaries based on the conforming and non-conforming Load characteristics, as applicable;

- (ii) the accuracy of the CAISO forecast of EIM Demand based on historical actual Load data for the defined EIM Demand forecast boundaries;
  - (iii) the identification of weather stations locations used in forecasting, as applicable; and
  - (iv) the identification of the source of Variable Energy Resource forecasts pursuant to Section 29.11(j).
- (D) **Balanced Schedules.** The prospective EIM Entity's Scheduling Coordinator has demonstrated it has the—
- (i) ability to balance EIM Demand and EIM Supply for the prospective EIM Entity's Balancing Authority Area;
  - (ii) ability to pass the capacity test, as set forth in Section 29.34(l); and
  - (iii) ability to pass the flexible ramping sufficiency test, as set forth in Section 29.34(m).
- (E) **System Readiness and Integration.**
- (i) **Readiness.** The prospective EIM Entity and the CAISO have tested the functional and system elements in accordance with functional and system testing documentation posted on the CAISO Website.
  - (ii) **System Integration.** The prospective EIM Entity and the CAISO have tested system integration testing in accordance with the system integration testing documentation posted on the CAISO Website.
  - (iii) **Certificates.** The prospective EIM Entity has issued all necessary certificates to its employees that require system access to perform EIM-related job functions.

- (F) **Settlements.** The CAISO and the prospective EIM Entity have demonstrated that—
- (i) the CAISO Settlement Statements and Invoices match the operational data published to stakeholders or fed into the settlement system and the resulting calculations correspond to the formulas defined in the CAISO Tariff and applicable Business Practice Manuals during market simulation and parallel operations; and
  - (ii) the Settlement Statements and Invoices of the prospective EIM Entity allocating charges and credits to its customers accurately reflect system and market data during parallel operations.
- (G) **Outage Management System.** The prospective EIM Entity has verified its ability to submit and retrieve accurate and correct outage information to and from the CAISO within the required timelines.
- (H) **Communications between the CAISO and the prospective EIM Entity.**
- (i) **Messaging.** The process and procedures used for voice and electronic messaging between the prospective EIM Entity and the CAISO are identified and incorporated into the prospective EIM Entity's operating procedures before the start of market simulation specified in Section 29.2(b)(4)(A).
  - (ii) **Training.** The operations staff identified by the prospective EIM Entity who will have responsibility for EIM operations, transactions and settlements are trained on the relevant Operating Procedures and tools used for EIM related communications before the start of parallel operations specified in Section 29.2(b)(4)(B).

(iii) **Third Party Transmission Service Providers.** Third party transmission service provider and path operator information that the CAISO agrees is used to support EIM Transfers and Real-Time Dispatch is made available by the CAISO to the prospective EIM Entity during parallel operations.

(I) **Market Simulation.**

(i) **Prospective EIM Entity Identification.** The CAISO has established and the prospective EIM Entity has tested all necessary SCIDs and Resource IDs established for the prospective EIM Entity's Balancing Authority Area.

(ii) **Day in the life simulation.** The prospective EIM Entity operations staff identified by the prospective EIM Entity who will have responsibility for EIM grid operations, have completed end-to-end daily market workflow with no critical defects.

(iii) **Structured scenarios simulation.** The prospective EIM Entity operations staff identified by the prospective EIM Entity who will have responsibility for EIM operations, transactions and settlements, have executed and passed all structured scenarios provided by CAISO with all significant issues resolved.

(iv) **Unstructured scenarios simulation.** The prospective EIM Entity operations staff identified by the prospective EIM Entity who will have responsibility for EIM operations, transactions and settlements, have executed and passed all unstructured scenarios provided by the prospective EIM Entity, with significant issues resolved.

(v) **Market results reports.** Market results are appropriate based on inputs, and the prospective EIM Entity and CAISO executive project sponsors approve the results.

- (vi) **Market quality review.** The CAISO prices are validated based on input data for parallel operations specified in Section 29.2(b)(4)(B).
- (J) **Parallel Operations Plan.** The period of parallel operations specified in Section 29.2(b)(4)(B) runs consistently and in accordance with the prospective EIM Entity specific parallel operations plan.
- (K) **Additional Criteria**
  - (i) **Execution of Necessary Agreements.** The prospective EIM Entity has complied with Section 29.4(c)(2) and executed any necessary agreements for operating as an EIM Entity, including any non-disclosure agreements required for the exchange of information.
  - (ii) **Operating Procedures.** Prior to the start of parallel operations pursuant to Section 29.2(b)(4)(B), the CAISO and the prospective EIM Entity have defined, completed, and tested operating procedures for the prospective EIM Entity and its Scheduling Coordinator's participation in the Energy Imbalance Market.
  - (iii) **Identification of EIM Available Balancing Capacity.** The prospective EIM Entity has identified EIM Participating Resources and non-participating resources that it intends to designate in the EIM Resource Plan as EIM Available Balancing Capacity.
  - (iv) **Flexible Capacity Requirements.** The CAISO has received and stored all historical data from the prospective EIM Entity necessary and sufficient for the CAISO to perform the flexible ramp requirement, and the CAISO has established flexible capacity requirements for the prospective EIM Entity's Balancing

Authority Area and for the combined EIM Area including the prospective EIM Entity.

(v) **Monitoring.** Sufficient and adequate data is available to the CAISO and the Department of Market Monitoring to enable market monitoring as of the Implementation Date.

(8) **Readiness Reporting.** The CAISO shall report on the CAISO Website periodically, but not less than monthly during market simulation pursuant to Section 29.2(b)(4)(A) and not less than twice a month during parallel operations pursuant to Section 29.2(b)(4)(B), on progress towards achieving the readiness criteria in Section 29.2(b)(7), including providing information explaining any exceptions to or deviations from the readiness thresholds granted according to the standards and procedures for granting exceptions or deviations set forth in the Business Practice Manual for the Energy Imbalance Market, and the reasons therefore, and publish such reports on its website in advance of and in support of the certificate to be filed pursuant to Section 29.2(b)(6).

\* \* \* \*

## **Appendix A**

### **Master Definition Supplement**

\* \* \* \*

#### **- Base Market Model**

A computer based model of the CAISO Controlled Grid, and for purposes of the Energy Imbalance Market, including the prospective EIM Entity and EIM Entity Balancing Authority Area(s), that is derived from the Full Network Model as described in Section 27.5.1 and that, as described further in Section 27.5.6, is used as the basis for formulating the market models used in the operation of each of the CAISO Markets.



\* \* \* \*

**- State Estimator**

A computer software program that provides the CAISO with a near Real-Time assessment of system conditions within the CAISO Balancing Authority Area, including portions of the CAISO Balancing Authority Area where Real-Time information is unavailable, and for purposes of the Energy Imbalance Market, including the prospective EIM Entity and EIM Entity Balancing Authority Area(s).

**Attachment B – Marked Tariff Records**

**Compliance Filing – Readiness Criteria For Energy Imbalance Market**

**August 28, 2015**

**California Independent System Operator Corporation**

\* \* \* \*

**(b) Implementation of Access as an EIM Entity.**

- (1) **EIM Implementation Agreement.** A Balancing Authority that wishes to become an EIM Entity must first execute an EIM Implementation Agreement with the CAISO that establishes-
  - (A) the activities the parties must undertake to enable the Balancing Authority to participate in the Real-Time Market;
  - (B) the EIM Entity Implementation Date;
  - (C) the implementation fee the Balancing Authority must pay to the CAISO for the start-up costs the CAISO incurs to accommodate the participation of the Balancing Authority in the Real-Time Market as provided in the agreement; and
  - (D) the obligation of the Balancing Authority to enter into an EIM Entity Agreement governing its participation in the Real-Time Market.
- (2) **FERC Approval.** The EIM Entity Implementation Date must be not less than six months and not more than twenty-four months after the date that the EIM Implementation Agreement between the CAISO and the Balancing Authority is accepted by FERC.
- (3) **Implementation Period.** The CAISO shall in its discretion determine the EIM Entity Implementation Date based on the complexity and compatibility of the Balancing Authority's transmission and technology systems with the CAISO systems and the planned timing of the CAISO's implementation of software enhancements.
- (4) **~~Readiness Requirements~~ Market Simulation and Parallel Operations.** The CAISO and the prospective EIM Entity shall engage in-

(A) a market simulation that accounts for the prospective EIM Entity's implementation circumstances sufficient to meet the readiness criteria set forth in Section 29.2(b)(7); and

(B) at least 30 days of parallel operations representing the Energy Imbalance Market to support the CAISO and the prospective EIM Entity's readiness certification required by section 29.2(b)(6), an adequate period of which must occur prior to the readiness determination required by section 29.2(b)(5).

~~(5)(A) **Readiness Determination.** No later than 30 days prior to the prospective EIM Entity Implementation Date as established by the EIM Implementation Agreement, the CAISO will determine, in consultation with the prospective EIM Entity Balancing Authority that has executed an EIM Implementation Agreement, whether the systems and processes of the prospective EIM Entity Balancing Authority that has executed an EIM Implementation Agreement are will be ready for the Balancing Authority prospective EIM Entity's participation in the Energy Imbalance Market according to the criteria set forth in Section 29.2(b)(7) as measured by the thresholds specified in the Business Practice Manual for the Energy Imbalance Market, or consistent with any exceptions to thresholds, for certifying the prospective EIM Entity's readiness based on criteria established under this section 29.2(b)(4).~~

~~(C) **Activities.** The CAISO and the Balancing Authority that has executed an EIM Implementation Agreement shall~~

~~(i) engage in activities to satisfy the criteria developed through the stakeholder process consistent with the EIM Implementation Agreement;~~

~~(ii) engage in a market simulation that accounts for the EIM Entity's implementation circumstances consistent with the EIM Implementation Agreement; and~~

~~(iii) — operate in a parallel production model representing the Energy Imbalance Market to demonstrate how the EIM Entity's processes and systems will function in the financially binding production environment as of the EIM Entity Implementation Date consistent with the EIM Implementation Agreement.~~

~~(65)~~ **Readiness Certification.**

(A) Certification. The CAISO and the prospective EIM Entity shall each file a market readiness certificate with the Federal Energy Regulatory Commission at least 30 days prior to the EIM Entity Implementation Date in which a senior office of each entity ~~attests—~~ ing to the expected readiness of

(i) that the processes and systems of the prospective EIM entity have satisfied or will have satisfied the readiness criteria set forth in Section 29.2(b)(7) ~~Balancing Authority that has executed an EIM Implementation Agreement on~~ as of the EIM Entity Implementation Date;

(ii) to any known issues requiring resolution prior to the EIM Entity Implementation Date in accordance with section 29.2(b)(8);

(iii) to any exceptions from the established thresholds specified in the Business Practice Manuals, and that despite such exceptions the criteria were met or will be met as specified in 29.2(b)(7); and

(iv) that the EIM Entity Implementation Date is conditional on the resolution of the known issues identified in the certificates and any unforeseen issues that undermine the satisfaction of the readiness criteria set forth in Section 29.2(b)(7).

(B) Delay or Re-Certification. If, subsequent to readiness certification pursuant to Section 29.2(b)(6)(A), the CAISO or the prospective EIM Entity determines that it cannot proceed with implementation on the EIM

Entity Implementation Date, the CAISO or the prospective EIM Entity will notify the Federal Energy Regulatory Commission of the delay, the reason for the delay, the new EIM Entity Implementation Date if it can be determined, and whether it will need to re-issue a portion or all of the readiness certification.

**(7) Readiness Criteria.**

**(A) Prospective EIM Entity Full Network Model Integration. The Full**

Network Model of the prospective EIM Entity is integrated into the Full Network Model such that—

- (i) the Load, EIM Internal Intertie and EIM External Interties and Generating Unit definition in the Full Network Model is consistent with the Load, EIM Internal Intertie and EIM External Interties and Generating Unit definition in the prospective EIM Entity network model file that it delivered to the CAISO;
- (ii) the SCADA measurements used in the prospective EIM Entity's EMS model match the measurements observed by the CAISO through the CAISO EMS;
- (iii) the State Estimator solution is equivalent or superior to the prospective EIM Entity's state estimator solution for its Balancing Authority Area; and
- (iv) the physical representation of the prospective EIM Entity network matches the Base Market Model that accounts for non-conforming load, behind-the-meter generation, Pseudo-Ties, and Dynamic Schedules, and third party transmission service provider and path operator information that the CAISO agrees is used to support EIM Transfers and Real-Time Dispatch in the Energy Imbalance Market, as applicable.

(B) **Operations Training.** Prior to the start of parallel operations as set forth in Section 29.2(b)(4), all operations staff identified by the prospective EIM Entity who will have responsibility for EIM operations, transactions and settlements, have completed—

- (i) the introduction to Energy Imbalance Market training module;
- (ii) the specific hourly and daily tasks and duties for normal operation training module; and
- (iii) the assessment of market results and response to contingencies and abnormal situations training module.

(C) **Forecasting Capability.** The CAISO and, to the extent the prospective EIM entity will use its own forecasts or is otherwise required to provide forecasting information to the CAISO, the prospective EIM Entity have demonstrated their respective forecasting capability through—

- (i) the definition of EIM Demand forecast boundaries based on the conforming and non-conforming Load characteristics, as applicable;
- (ii) the accuracy of the CAISO forecast of EIM Demand based on historical actual Load data for the defined EIM Demand forecast boundaries;
- (iii) the identification of weather stations locations used in forecasting, as applicable; and
- (iv) the identification of the source of Variable Energy Resource forecasts pursuant to Section 29.11(j).

(D) **Balanced Schedules.** The prospective EIM Entity's Scheduling Coordinator has demonstrated it has the—

- (i) ability to balance EIM Demand and EIM Supply for the prospective EIM Entity's Balancing Authority Area;

(ii) ability to pass the capacity test, as set forth in Section 29.34(l);  
and

(iii) ability to pass the flexible ramping sufficiency test, as set forth in  
Section 29.34(m).

**(E) System Readiness and Integration.**

(i) **Readiness.** The prospective EIM Entity and the CAISO have  
tested the functional and system elements in accordance with  
functional and system testing documentation posted on the  
CAISO Website.

(ii) **System Integration.** The prospective EIM Entity and the CAISO  
have tested system integration testing in accordance with the  
system integration testing documentation posted on the CAISO  
Website.

(iii) **Certificates.** The prospective EIM Entity has issued all  
necessary certificates to its employees that require system  
access to perform EIM-related job functions.

**(F) Settlements.** The CAISO and the prospective EIM Entity have  
demonstrated that—

(i) the CAISO Settlement Statements and Invoices match the  
operational data published to stakeholders or fed into the  
settlement system and the resulting calculations correspond to  
the formulas defined in the CAISO Tariff and applicable Business  
Practice Manuals during market simulation and parallel  
operations; and

(ii) the Settlement Statements and Invoices of the prospective EIM  
Entity allocating charges and credits to its customers accurately  
reflect system and market data during parallel operations.



(G) **Outage Management System.** The prospective EIM Entity has verified its ability to submit and retrieve accurate and correct outage information to and from the CAISO within the required timelines.

(H) **Communications between the CAISO and the prospective EIM Entity.**

(i) **Messaging.** The process and procedures used for voice and electronic messaging between the prospective EIM Entity and the CAISO are identified and incorporated into the prospective EIM Entity's operating procedures before the start of market simulation specified in Section 29.2(b)(4)(A).

(ii) **Training.** The operations staff identified by the prospective EIM Entity who will have responsibility for EIM operations, transactions and settlements are trained on the relevant Operating Procedures and tools used for EIM related communications before the start of parallel operations specified in Section 29.2(b)(4)(B).

(iii) **Third Party Transmission Service Providers.** Third party transmission service provider and path operator information that the CAISO agrees is used to support EIM Transfers and Real-Time Dispatch is made available by the CAISO to the prospective EIM Entity during parallel operations.

(I) **Market Simulation.**

(i) **Prospective EIM Entity Identification.** The CAISO has established and the prospective EIM Entity has tested all necessary SCIDs and Resource IDs established for the prospective EIM Entity's Balancing Authority Area.

(ii) **Day in the life simulation.** The prospective EIM Entity operations staff identified by the prospective EIM Entity who will

have responsibility for EIM grid operations, have completed end-to-end daily market workflow with no critical defects.

(iii) **Structured scenarios simulation.** The prospective EIM Entity operations staff identified by the prospective EIM Entity who will have responsibility for EIM operations, transactions and settlements, have executed and passed all structured scenarios provided by CAISO with all significant issues resolved.

(iv) **Unstructured scenarios simulation.** The prospective EIM Entity operations staff identified by the prospective EIM Entity who will have responsibility for EIM operations, transactions and settlements, have executed and passed all unstructured scenarios provided by the prospective EIM Entity, with significant issues resolved.

(v) **Market results reports.** Market results are appropriate based on inputs, and the prospective EIM Entity and CAISO executive project sponsors approve the results.

(vi) **Market quality review.** The CAISO prices are validated based on input data for parallel operations specified in Section 29.2(b)(4)(B).

(J) **Parallel Operations Plan.** The period of parallel operations specified in Section 29.2(b)(4)(B) runs consistently and in accordance with the prospective EIM Entity specific parallel operations plan.

(K) **Additional Criteria**

(i) **Execution of Necessary Agreements.** The prospective EIM Entity has complied with Section 29.4(c)(2) and executed any necessary agreements for operating as an EIM Entity, including any non-disclosure agreements required for the exchange of information.

(ii) **Operating Procedures.** Prior to the start of parallel operations pursuant to Section 29.2(b)(4)(B), the CAISO and the prospective EIM Entity have defined, completed, and tested operating procedures for the prospective EIM Entity and its Scheduling Coordinator's participation in the Energy Imbalance Market.

(iii) **Identification of EIM Available Balancing Capacity.** The prospective EIM Entity has identified EIM Participating Resources and non-participating resources that it intends to designate in the EIM Resource Plan as EIM Available Balancing Capacity.

(iv) **Flexible Capacity Requirements.** The CAISO has received and stored all historical data from the prospective EIM Entity necessary and sufficient for the CAISO to perform the flexible ramp requirement, and the CAISO has established flexible capacity requirements for the prospective EIM Entity's Balancing Authority Area and for the combined EIM Area including the prospective EIM Entity.

(v) **Monitoring.** Sufficient and adequate data is available to the CAISO and the Department of Market Monitoring to enable market monitoring as of the Implementation Date.

(8) **Readiness Reporting.** The CAISO shall report on the CAISO Website periodically, but not less than monthly during market simulation pursuant to Section 29.2(b)(4)(A) and not less than twice a month during parallel operations pursuant to Section 29.2(b)(4)(B), on progress towards achieving the readiness criteria in Section 29.2(b)(7), including providing information explaining any exceptions to or deviations from the readiness thresholds granted according to the standards and procedures for granting exceptions or deviations set forth in

the Business Practice Manual for the Energy Imbalance Market, and the reasons therefore, and publish such reports on its website in advance of and in support of the certificate to be filed pursuant to Section 29.2(b)(6).

\* \* \* \*

## **Appendix A**

### **Master Definition Supplement**

\* \* \* \*

#### **- Base Market Model**

A computer based model of the CAISO Controlled Grid, and for purposes of the Energy Imbalance Market, including the prospective EIM Entity and EIM Entity Balancing Authority Area(s), that is derived from the Full Network Model as described in Section 27.5.1 and that, as described further in Section 27.5.6, is used as the basis for formulating the market models used in the operation of each of the CAISO Markets.

\* \* \* \*

#### **- State Estimator**

A computer software program that provides the CAISO with a near Real-Time assessment of system conditions within the CAISO Balancing Authority Area, including portions of the CAISO Balancing Authority Area where Real-Time information is unavailable, and for purposes of the Energy Imbalance Market, including the prospective EIM Entity and EIM Entity Balancing Authority Area(s).

**Attachment C – Declaration of Janet Morris**  
**Compliance Filing – Readiness Criteria For Energy Imbalance Market**  
**August 28, 2015**  
**California Independent System Operator Corporation**

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

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

**DECLARATION OF  
JANET MORRIS  
ON BEHALF OF THE  
CALIFORNIA INDEPENDENT SYSTEM  
OPERATOR CORPORATION**

I, Janet Morris, declare as follows:

1. I am employed as Director of the Project Management Office for the California Independent System Operator Corporation (“CAISO”). My business address is 250 Outcropping Way, Folsom, CA 95630.

**I. EXPERIENCE AND QUALIFICATIONS**

2. I have a Bachelor of Science degree in Computer Science from California Polytechnic State University in San Luis Obispo, California, and a Master of Science degree in Engineering Management from Santa Clara University in Santa Clara, California.
3. I have a total of over 30 years of experience in the software design field. After working for two other companies, I joined the CAISO in 2003 as Contract Project Manager, became Senior Project Manager in 2006, became Manager of the Program Office in 2007, and became Director of the Program Office in 2009.

4. I am responsible for overseeing the schedule for development, testing, and implementation of market enhancements, including the implementation of new entities into the Energy Imbalance Market (“EIM”) and reporting on the readiness criteria for EIM entities.

## **II. OVERVIEW**

5. This declaration accompanies the transmittal letter for the CAISO’s filing to comply with the order the Federal Energy Regulatory Commission (“Commission”) issued in this proceeding on July 21, 2015.<sup>1</sup> As explained in the transmittal letter, the CAISO conducted a robust stakeholder process to develop the EIM entity readiness criteria both before and after the issuance of the July 21 Order. The purpose of my declaration is to provide further detail regarding the stakeholder process.<sup>2</sup>
6. As I discuss in my declaration, the stakeholder process to develop the readiness criteria took place over more than three months and comprised a total of three separate rounds of comments and responses. In the first two rounds, the CAISO prepared and posted readiness criteria for stakeholder review, held conference calls with stakeholders and solicited written stakeholder comments, responded to comments in writing and during calls, and updated the readiness criteria based on stakeholders’ comments and the CAISO’s own review. The CAISO took the same

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<sup>1</sup> *Cal. Indep. Sys. Operator Corp.*, 152 FERC ¶ 61,063 (“July 21 Order”).

<sup>2</sup> Materials related to this stakeholder process, including the materials discussed in my declaration, are available on the CAISO website at <http://www.caiso.com/informed/Pages/StakeholderProcesses/EnergyImbalanceMarketPendingMarketEntities.aspx>.

approach in the third round, in which the CAISO and stakeholders developed the proposed tariff provisions contained in this compliance filing. The CAISO also addressed comments in which stakeholders expressed concern that the stakeholder process seemed to be going forward too quickly for stakeholders to participate in a meaningful manner. The CAISO explained that the schedule for developing and filing the proposed tariff revisions on compliance leveraged the earlier stakeholder process, allowed meaningful engagement with stakeholders, provided sufficient opportunity for the Commission to review the compliance filing, and permitted NV Energy and the CAISO to certify readiness in anticipation of NV Energy's November 1, 2015, EIM implementation date.

### **III. THE STAKEHOLDER PROCESS**

7. The CAISO initiated the stakeholder process to develop EIM entity readiness criteria pursuant to the order the Commission issued in Docket Nos. ER15-861-000 and EL15-53-000 on March 16, 2015.<sup>3</sup> In the March 16 Order, the Commission directed the CAISO to submit a compliance filing within 60 days to “revise the EIM provisions in its tariff to include requirements to ensure readiness prior to new EIM Entities commencing EIM operations.”<sup>4</sup> The Commission also stated that the CAISO “should develop measurable readiness criteria through a collaborative process

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<sup>3</sup> *Cal. Indep. Sys. Operator Corp.*, 150 FERC ¶ 61,191 (“March 16 Order”).

<sup>4</sup> *Id.* at P 34.



- with its stakeholders, upon which effectiveness of the new EIM Entity's entry into the EIM can be predicated."<sup>5</sup>
8. The CAISO initiated the readiness criteria stakeholder process as part of an existing, broader CAISO stakeholder process to address issues related to EIM participants.<sup>6</sup> The CAISO conducted two rounds of readiness criteria stakeholder process prior to issuance of the July 21 Order.
  9. In the first round of the stakeholder process, the CAISO prepared and posted draft readiness criteria for stakeholder review on May 7, held a stakeholder conference call on May 13, requested that stakeholders submit written comments on the draft readiness criteria by May 21, and posted the CAISO's responses to the written stakeholder comments on June 11, 2015.
  10. In the second round of the stakeholder process, the CAISO prepared and posted revised draft readiness criteria for stakeholder review on June 10, held a stakeholder conference call on June 16, and requested that stakeholders submit written comments on the revised draft readiness criteria by June 24, 2015. A revised readiness criteria document was posted on June 30, 2015 reflecting comments from the second round.

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

<sup>6</sup> The CAISO is currently conducting separate stakeholder initiatives on four main topics regarding the EIM: (1) EIM foundation, (2) EIM governance development, (3) EIM year 1 enhancements, and (4) EIM participants (also referred to on the CAISO website as EIM pending market entities). See <http://www.caiso.com/informed/Pages/StakeholderProcesses/EnergyImbalanceMarket.aspx> and the links on that CAISO website page.

11. On May 6, 2015, the CAISO filed proposed tariff revisions in this proceeding to comply with the March 16 Order. The CAISO undertook this filing while the first round was in progress so that stakeholders would have full visibility of the proposed tariff changes while they reviewed the readiness criteria. Stakeholder comments filed in response to the CAISO's proposed tariff changes did not fully account for the full stakeholder process because the second round had not yet been communicated. In the July 21 Order, the Commission accepted in part and rejected in part the proposed tariff revisions and directed the CAISO to submit a further compliance filing within 60 days to "include the readiness criteria developed through the stakeholder process in its tariff."<sup>7</sup>
12. The CAISO and stakeholders developed the proposed tariff provisions contained in this filing to comply with the July 21 Order. The process to develop the proposed tariff provisions constitutes the third round of the readiness criteria stakeholder process, because the purpose of that process was to include the readiness criteria developed through the first two rounds in the tariff, as required by the July 21 Order.
13. In the third round of the stakeholder process, the CAISO prepared and posted an initial draft of the proposed tariff provisions for stakeholder review on July 31, held a stakeholder conference call on August 10, requested that stakeholders submit written comments by August 14, and posted the CAISO's responses to the written stakeholder comments on

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<sup>7</sup> July 21 Order at PP 28, 30.

August 19, 2015. The CAISO held another conference call with stakeholders on August 19 to discuss the CAISO's responses to the written comments on the draft tariff provisions.

14. The CAISO made significant changes to the readiness criteria based on comments provided by stakeholders in each round and the CAISO's own review. These significant changes are reflected in the CAISO's responses to stakeholders' written comments and the evolution of the draft readiness criteria and proposed tariff provisions in the course of the three rounds of the stakeholder process. The result of this iterative process was the proposed tariff provisions contained in this compliance filing.
15. In their written comments on the draft tariff revisions, two stakeholders expressed concerns that the readiness criteria stakeholder process seemed to be going forward too quickly for stakeholders to participate in a meaningful manner. One of these stakeholders noted that the stakeholder initiative to develop the readiness criteria is one of several ongoing stakeholder initiatives regarding the EIM. The other stakeholder argued that, contrary to directives in the July 21 Order, the schedule for the readiness criteria stakeholder process appeared to be driven primarily by the goal of accommodating the planned start date of NV Energy's participation in the EIM rather than the need for a careful and collaborative stakeholder process.
16. The CAISO addressed the two stakeholders' concerns in the responses it posted on August 19. The CAISO stated each ongoing stakeholder

initiative related to the EIM was addressing distinct issues on its own timeline and that the effort required to attend to those initiatives should not distract from the development of satisfactory readiness criteria in the stakeholder process following the July 21 Order. The CAISO explained that the stakeholder process to develop the readiness criteria began months before the Commission issued the July 21 Order (as the July 21 Order recognized), that stakeholders were given multiple opportunities throughout the stakeholder process to provide their input, and that the development of the proposed tariff provisions was simply the culminating effort in the stakeholder process to reflect the readiness criteria in the tariff. The CAISO also stated that it had announced a one-month deferral of NV Energy's EIM implementation date – from October 1 to November 1, 2015 – to allow enough time to complete the stakeholder process and file the revised tariff provisions on compliance shortly thereafter. As the CAISO explained, NV Energy must certify its readiness to participate in the EIM at least 30 days prior to implementation (*i.e.*, by October 1, 2015), which meant the CAISO needed to submit the compliance filing fewer than 60 days after the July 21 Order was issued in order to give the Commission sufficient time for review it. For these reasons, the schedule for developing and filing the proposed tariff revisions on compliance allowed meaningful engagement with stakeholders, provided sufficient opportunity for the Commission to review the compliance filing, and

permitted NV Energy and the CAISO to certify readiness in anticipation of NV Energy's November 1 implementation date.<sup>8</sup>

I declare under penalty of perjury that the foregoing statements are true and correct to the best of my knowledge, information, and belief.

Executed this 28th day of August, 2015.

**/s/ Janet Morris**

Janet Morris  
Director of the Project Management Office  
California Independent System Operator  
Corporation  
250 Outcropping Way, Folsom, CA 95630

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<sup>8</sup> August 18 CAISO responses at 1-4.

**Attachment D – Readiness Thresholds**

**Compliance Filing – Readiness Criteria For Energy Imbalance Market**

**August 28, 2015**

**California Independent System Operator Corporation**



California ISO

# **Energy Imbalance Market (EIM) Entity Readiness Criteria**

**August 28, 2015**

**Energy Imbalance Market (EIM) Entity Readiness Criteria**

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## 1 Introduction

The Energy Imbalance Market (EIM) is a real-time market to dispatch economic bids voluntarily offered by participating resources to efficiently balance supply, transfers between balancing authority areas (BAA), and load across its footprint. The EIM was launched on November 1, 2014 with PacifiCorp as the first EIM Entity. Soon after the initial launch, the CAISO sought a pricing waiver prompted by operational conditions that were not fully anticipated by the implementation. On December 1, 2014 the Federal Energy Regulatory Commission (FERC) granted the CAISO's petition for limited waiver of the pricing parameters as they pertain to EIM.

As part of the ensuing regulatory process, FERC provided the CAISO a directive to create readiness criteria. The directive requires the CAISO and new EIM Entities to develop readiness criteria that includes a robust market simulation and period of parallel operation for the new EIM Entity; defined criteria developed with the comments of interested stakeholders in a stakeholder process; and a requirement that the CAISO and the new EIM Entity submit a certification of readiness of the EIM Entity's processes and systems, including all communication systems and transparency to the CAISO of unit status, at thirty days before the EIM Entity fully activates its EIM operations.

To develop the readiness criteria, the CAISO has commenced the discussion with stakeholders by providing an outline of the stages of implementation contemplated by its implementation agreement with new EIM Entities. The stages of implementation include rigorous processes to develop and integrate a full and accurate network model of the EIM Entity's balancing authority area into the CAISO's network model; develop all software systems required by the EIM Entity and any of its registered participating resources to communicate with relevant CAISO systems; integrate and perform end-to-end testing of those systems to ensure successful communication; train system operators for EIM operations; and perform market simulation to ensure that the operators and software consistently perform according to anticipated market outcomes in various anticipated normal and constrained scenarios. The foregoing stages of implementation incorporate as applicable lessons learned from the implementation and operational experience of prior new EIM Entities and of the CAISO. In addition, software design and testing includes incorporating market and operations design changes developed during the EIM Year 1 Enhancements stakeholder process, in anticipation of authorization of those changes by FERC.

Implementation of expansion of the EIM to new EIM Entity balancing authority areas has already benefited by seven full months of EIM operation and the EIM Year 1 Enhancements stakeholder process. The CAISO and the existing EIM Entity are no longer in the position of implementing a new tariff, and have observed and developed appropriate responses to many of the operational issues that may arise within the EIM footprint. As shown by the market performance reports supporting the FERC directive to develop measurable readiness criteria, the occurrence of price excursions in EIM operations has decreased considerably as a result of experience and efforts to better understand how conditions and operations affect market outcomes. This understanding not only augments and strengthens the implementation plan for

entering and future EIM Entities, but also adds to the efficiency and success of market simulation and parallel testing. During parallel operations the CAISO will also report on the similar information regarding market performance including observed frequency and causes for any observed infeasibilities during parallel operations.

At the end of implementation, the CAISO and the EIM Entity will certify that its market simulation has demonstrated the systems and individuals involved in operations are ready to operate as anticipated under normal and foreseeable constrained conditions. The stakeholder process strengthens the implementation process by holding the CAISO and the EIM Entity publicly accountable to the implementation activities and how those activities prepare the CAISO and EIM Entity for market operations. Readiness certification is not intended to be, nor can it be, a guarantee of issue-free market operation as of the date of EIM Entity activation. Therefore, the certification will also acknowledge at least thirty full days of parallel operations that the EIM Entity will engage before implementing a financially binding market. Parallel operations will allow the EIM Entity to experience operations in an environment that more closely emulates real time operation than the market simulation. Parallel operations does not precisely emulate real time operations, however, and therefore cannot guarantee that the EIM Entity will experience all possible market conditions or operational issues in advance of financially-binding activation. Thus, the length of the parallel operations period is designed to allow the EIM Entity to experience responding to a significant array of foreseeable market conditions at least once before live operations. As discussed further below in the section addressing certification, the CAISO and EIM Entity will not certify as to results or performance during the parallel operations phase; the certification will attest, however, that neither the CAISO or EIM Entity will seek to initiate the market at the end of thirty days if (1) any unexpected conditions or issues arise during that period that undermine grid operation or market operation within the existing EIM or CAISO footprint, and (2) any such issues are neither corrected nor verified as resolved as of the scheduled go-live date.

This document along with the CAISO tariff requirements and the Implementation Agreement constitutes the measurable readiness criteria<sup>1</sup> requested by FERC in the FPA 206 Proceedings to be used to predicate entry of a new EIM Entity into EIM (the “Readiness Criteria”). The content of this document will eventually be added to the CAISO EIM Business Practice Manual.

## 2 Readiness Criteria Categories

The readiness criteria are intended to support readiness certification prior to implementation. Leading to certification, the EIM Entity and CAISO will conduct appropriate steps to ensure that each criteria is evaluated compared with the metric and threshold.

- EIM Entity Full Network Model Integration – in order to participate in EIM, the prospective EIM Entity’s full network model is integrated into CAISO full network model. This activity precedes testing and is demonstrated during market simulation. The

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<sup>1</sup> *Calif. Indep. Sys. Operator Corp.*, 150 FERC ¶ 61,191 at P 34; and *Calif. Indep. Sys. Operator Corp.*, 152 FERC ¶ 61,063 at P 30.

incorporation of the EIM Entity's network model into CAISO's production full network model follows the standard promotion process and timing.

- Agreements – prior to the established implementation date, the prospective EIM Entity must execute all necessary agreements in accordance with the timelines described in section 5 of the EIM Business Practice Manual.
- Training –CAISO provides training for prospective EIM Entity operators before and during market simulation. All training is to be completed prior to the start of parallel operations.
- Forecasts – forecasting capabilities are established and measured during the market simulation.
- Balanced Schedules– balanced schedule capabilities are measured during the market simulation.
- Operating Procedures - the prospective EIM Entity and CAISO will review and test applicable operating procedures prior to the start of parallel operations.
- System Readiness & Integration - the prospective EIM Entity and CAISO will perform functional and system testing and system integration testing.
- Market Simulation - the CAISO will conduct a market simulation for the prospective EIM Entity and any participating resource scheduling coordinators registered with the prospective EIM Entity prior to that new prospective EIM Entity entering EIM.
- Settlements – the CAISO submits a settlement statement to the prospective EIM Entity including EIM participating and non-participating resources and load. The prospective EIM Entity will verify the accuracy of the CAISO settlement statement to the prospective EIM Entity. Prior to financially binding operations, the prospective EIM Entity will demonstrate it can produce allocations of the CAISO settlement to its customers that are verifiably accurate against available data.
- Monitoring – the CAISO ensures that the CAISO Market Analysis Team and the Department of Market Monitoring have the data that is required to adequately monitor market performance.
- Parallel Operations Planning – the CAISO and prospective EIM Entity ensure that systems, processes and staff are prepared for deployment of systems, parallel operations, and support beyond parallel operations for issues that may arise.
- Communication - the CAISO and prospective EIM Entity ensure all tools and procedures used for communication between the CAISO and prospective EIM Entity are in place and tested before the implementation date

- EIM Available Balancing Capacity – the CAISO and the prospective EIM Entity register resources that the prospective EIM Entity intends to identify as EIM Available Balancing Capacity in the EIM Resource Plan.

## 2.1 Readiness Categories, Criteria, Measurable Elements, and Thresholds

Readiness Criterion Identifier	Readiness Category	Criteria	Measurable Elements	Threshold*
1	Prospective EIM Entity Full Network Model Integration	Generation, Interchange and Load comparison	Load, EIM Internal Intertie and EIM External Interties, and Generating Unit definition in the Full Network Model is consistent with the Load, EIM Internal Intertie and EIM External Interties, and Generating Unit definition in the exported prospective EIM Entity network model file that it delivered to the CAISO.	Data matches within 10%, measured in MW capacity to start parallel operation, and within 5% before full activation. Discrepancies, if any, are accounted for in terms of imbalance adjustment
2	Prospective EIM Entity Full Network Model Integration	Comparison of SCADA measurement	SCADA measurements used in prospective EIM Entity EMS model match the measurements observed by the CAISO through the CAISO EMS model	Critical and used SCADA measurements match 90% to start parallel operation and 95% before full activation, measured in MW, outside of any exception in EMS model
3	Prospective EIM Entity Full Network Model Integration	State Estimator solution	CAISO state estimator solution is equivalent or superior to the prospective EIM Entity state estimator solution for its Balancing Authority Area.	State Estimator solutions converge >90% of the time in two days before parallel operation and three days before full activation. Solution differences within 10% before parallel operation and 5% before full activation measured in MW or justified due to different external BAA modeling

Readiness Criterion Identifier	Readiness Category	Criteria	Measurable Elements	Threshold*
4	Prospective EIM Entity Full Network Model Integration	Non-Conforming Load, Behind-the-Meter Generation, Pseudo Ties, and Dynamic Schedules	Physical representation of the prospective EIM Entity's network matches the Base Market Model that accounts for non-conforming load, behind-the-meter generation, pseudo-ties, and dynamic schedules, and third party transmission service provider and path operator information that supports EIM Transfers and Real-Time Dispatch in the Energy Imbalance Market, as applicable	Prospective EIM Entity major non-conforming loads > 5% of prospective EIM Entity total actual load in MW are modeled separately from conforming load in market model
5	Agreements	Execution of Necessary Agreements	The prospective EIM Entity has executed all necessary agreements.	The prospective EIM Entity will execute all agreements, as outlined in Section 5 of the EIM BPM within the required timelines outlined in Section 5.
6	Operations Training	Completion of mandatory training courses	Prospective EIM Entity operators who will have responsibility for EIM operations, transactions and settlements, will complete CAISO training modules.	<p>Prospective EIM Entity operators will complete training and close-of-training assessment in the appropriate timeframes as outlined in</p> <ul style="list-style-type: none"> <li>• "100 series" – an introduction to Energy Imbalance Market training</li> <li>• "200 series" – the specific hourly and daily tasks and duties for normal operation training module; and</li> <li>• "300 series" – the assessment of market results and response to contingencies and abnormal situations training module.</li> </ul>

Readiness Criterion Identifier	Readiness Category	Criteria	Measurable Elements	Threshold*
7	Forecasting Capability	Load forecast capability	<p>Definition of EIM demand forecast boundaries based on the conforming and non-conforming load characteristics, as applicable</p> <ul style="list-style-type: none"> <li>• Accuracy of the CAISO forecast of EIM demand based on historical actual load data for the defined EIM demand forecast boundaries.</li> <li>• Identification of weather station(s) locations used in forecasting, if applicable,</li> </ul>	All Plant Information (PI) tags and historical data for defined load area(s), and non-conforming load, if applicable, compared with load forecasts provided from CAISO (if CAISO load forecast used).
8	Forecasting Capability	Variable Energy Resource (VER) forecast capability	Identification of the source of VER forecasts. (If a participating wind or solar unit requires a CAISO forecast, then BPM/tariff requirements apply.)	Forecasting entity must demonstrate delivery of Unit MW forecast at 5 min intervals for at least three hours ahead. Forecasting entity must also provide base schedule by T-75, T-55 and T-40. EIM Entity provides to CAISO real-time MW production PI tags.
9	Forecasting Capability	Flexible capacity requirements	CAISO has established flexible capacity requirements for the prospective EIM Entity Balancing Authority Area and the combined EIM Area including the prospective EIM Entity	The CAISO has received and stored all historical data from the prospective EIM Entity necessary and sufficient for the CAISO to perform the flexible ramp requirement.
10	Balanced Schedules	Base schedule balancing capability	The prospective EIM Entity Scheduling Coordinator demonstrates its ability to balance EIM demand and EIM supply for the prospective EIM Entity's Balancing Authority Area	90% or greater of base schedules balance tests during monitored hours are within 10% average imbalance of load forecast over one day period before parallel operation, and 5% average over five full days before full activation. The CAISO will provide examples of MW thresholds for each

Readiness Criterion Identifier	Readiness Category	Criteria	Measurable Elements	Threshold*
				prospective EIM Entity to indicate a reasonable threshold as it applies to a given EIM Entity and indicate the potential implications of a swing from 5% over to 5% under forecast in one hour to the next.
11	Balanced Schedules	Flexible ramping sufficiency test capability	The prospective EIM Entity \ Scheduling Coordinator demonstrates its ability to pass the flexible ramping sufficiency test	Passes 90% of the time or greater over monitored hours of one day before parallel operation and five non-consecutive days before full activation
12	Balanced Schedules	Capacity test capability	The prospective EIM Entity Scheduling Coordinator demonstrates its ability to pass capacity test	Passes 90% of the time or greater over monitored hours of one day before parallel operation and five non-consecutive days before full activation. The CAISO will explain the implications of any potential issues with the reliability of an EIM Entity to meet its capacity requirements.
13	Operating Procedures	CAISO operating procedures (relevant to EIM operations)	The prospective EIM Entity signs CAISO non-disclosure agreement and receives appropriate CAISO “public” and “restricted” operating procedures	Operating procedures NDA signed by the prospective EIM Entity.  The prospective EIM Entity \receives CAISO operating procedures four months prior to the parallel operations date.
14	Operating Procedures	Prospective EIM Entity operating procedures	The prospective EIM Entity operating procedures are defined, updated, and tested for the EIM Entity Scheduling Coordinator	The prospective EIM Entity operating procedures are updated tested and implemented prior to parallel operations date.

Readiness Criterion Identifier	Readiness Category	Criteria	Measurable Elements	Threshold*
15	System Readiness & Integration	Functional Testing	The prospective EIM Entity and the CAISO will test the functional and system elements in accordance with functional and system testing documentation posted on the CAISO website	<p>All tasks identified in the functional and system testing documentation are completed and will not have any issues deemed significant.</p> <p>Any exceptions will be explained or have an interim solution that is functionally equivalent.</p>
16	System Readiness & Integration	System Integration	The prospective EIM Entity and CAISO will test system integration testing in accordance with the system integration testing documentation posted on the CAISO website	<p>All tasks identified in the system integration testing documentation are completed and will not have any issues deemed significant.</p> <p>Any exceptions will be explained or have an interim solution that is functionally equivalent.</p>
17	System Readiness & Integration	The prospective EIM Entity system access complete	All prospective EIM Entity employees who require system access to perform EIM-related job functions identified and have necessary certificates.	<p>All prospective EIM Employees performing job functions for EIM market are identified.</p> <p>All CASIO issued certificates are requested within the appropriate timeframes.</p> <p>All identified employees provided the necessary EIM system access certificates.</p>
18	System Readiness & Integration	ISO - prospective EIM Entity interfaces	Data interfaces between prospective EIM Entity's systems and CAISO systems are tested	<p>ISO and prospective EIM Entity identify significant data interface issues.</p> <p>EIM Entity and CAISO executives to approve exceptions.</p>
19	Market Simulation	Day in the life simulation	The prospective EIM Entity operators are able to meet the market timelines	The prospective EIM Entity grid operations staff complete end-to-end daily market workflow with no critical defects.



Readiness Criterion Identifier	Readiness Category	Criteria	Measurable Elements	Threshold*
20	Market Simulation	Structured scenarios simulation	The prospective EIM Entity operators execute and pass all structured scenarios provided by CAISO	All significant issues resolved or have an interim solution that is functionally equivalent.
21	Market Simulation	Unstructured scenarios simulation	The prospective EIM Entity operators execute and pass all unstructured scenarios provided by prospective EIM Entity	All significant issues resolved or have an interim solution that is functionally equivalent.
22	Market Simulation	Market results reports	Market results are appropriate based on inputs	The prospective EIM Entity \and CAISO executive project sponsors approve the market results reports during market simulation.
23	Market Simulation	Market quality review	Prices are validated based on input data	Market simulation prices and MWs schedules/dispatches are validated by CAISO market quality team for entry into parallel operation
24	Market Simulation	The prospective EIM Entity Identification	Validation of SCID's and Resource ID's	The CAISO has established and the prospective EIM Entity has tested all necessary SCIDs and Resource IDs established for the prospective EIM Entity's Balancing Authority Area
25	Settlements	ISO Settlement Statements and Invoices published to the prospective EIM Entity and EIM Participating Resources	The CAISO Settlement statements and invoices match the operational data published to stakeholders or fed into settlement system and the resulting calculations correspond to the formulas defined in ISO's tariff and BPMs	Monthly settlement statement and invoice with corresponding daily statements produced during market simulation and parallel operations are verifiably accurate against available data.
26	Settlements	The prospective EIM Entity settlement statements and invoices reflect accurate allocations	Verification that settlement statements and invoices accurately reflects system and market data	The prospective EIM Entity settlement statements and invoices that allocate charges and credits to its customers accurately reflect system and

Readiness Criterion Identifier	Readiness Category	Criteria	Measurable Elements	Threshold*
		to the prospective EIM Entity customers prior to financially binding operations.		market data during parallel operations.
27	Monitoring	Data monitoring	Sufficient and adequate data is available to the CAISO and the Department of Market Monitoring	All required market monitoring data is available during testing and during post go-live for the key metrics (any exceptions will be addressed).  CAISO will provide a market report that will provide publicly available information to all market participants.
28	Parallel Operations Plan	Deployment plan	Parallel operations run consistently and in accordance with the timeframe set forth in the prospective EIM Entity specific parallel operation plan	Parallel operations runs consistently within normal production CAISO Market disruption tolerances.
29	Outage Management System	Transmission and generation outage submittal and retrieval	The prospective EIM Entity will verify its ability to submit and retrieve outage information with the CAISO	The prospective EIM Entity validate their ability to submit and retrieve transmission out-of-service outages, generation Pmax derates, generation Pmin rerates, and generation out-of-service outage tickets within the required timelines.
30	Communications between the CAISO and the prospective EIM Entity	Voice and/or electronic messaging	Implemented process and procedures used for voice and/or electronic messaging	The process and procedures are incorporated into the prospective EIM Entities business processes before the start of market simulation.
31	Communications between the CAISO and the prospective EIM Entity	Communication tools	Staff are trained on communication procedures and tools	The prospective EIM Entity operations staff who will have responsibility for EIM operations, transactions and settlements are trained on the relevant operating procedures and tools used for EIM related

Readiness Criterion Identifier	Readiness Category	Criteria	Measurable Elements	Threshold*
				communications before the start of parallel operations.
32	Communications between the CAISO and the prospective EIM Entity	3 <sup>rd</sup> party transmission service provider	The third party transmission service provider information that supports EIM Transfers and Real-Time Dispatch included in the Full Network Model is available during parallel operations	The CAISO provides third party transmission service provider and path operator information to the prospective EIM Entity through parallel operations.
33	EIM Available Balancing Capacity	Identification of EIM Available Balancing Capacity	Participating resources and non-participating resources for EIM Available Balancing Capacity.	The prospective EIM Entity has identified EIM participating resources and non-participating resources that it intends to designate in the EIM Resource Plan as EIM Available Balancing Capacity

**Exceptions to Thresholds**

Any exceptions to the adherence to the thresholds listed above will be considered by the CAISO and prospective EIM Entity in accordance with the procedures for granting exceptions outlined below, explained fully in stakeholder calls, noted on the readiness dashboard that is posted on the CAISO website, and explained in the certification statements of the CAISO and the EIM Entity. With each prospective EIM Entity implementation, the CAISO will revisit the readiness thresholds and make modifications based on stakeholder feedback.

Any exception to a threshold would be reviewed by the responsible staff, escalated to the senior officers ultimately responsible for certification, and then documented in the readiness report that supports the certification. The CAISO and the prospective EIM Entity will engage in a collaborative approach to satisfy the readiness criteria and endeavor to make decisions based on consensus between the parties. Both parties will strive to avoid exceptions by providing comprehensive updates and proactively managing issues and risks. When an exception is required, it will be defined by specifying what is not conforming and why an exception is necessary.

**2.2 Readiness Reporting, Determination & Certification**

In this section you will find the following information:

- Timeline in which CAISO will report on the status of readiness criteria

- Timeline in which the CAISO and the prospective EIM Entity will determine readiness
- Timelines in which CAISO and the prospective EIM Entity will submit readiness certification to the Federal Energy Regulatory Commission

### **Readiness Reporting**

CAISO will report at least monthly during market simulation and at least twice a month during parallel operations on the status of the readiness criteria. The reporting will be on the public CAISO web site ([www.caiso.com](http://www.caiso.com)), and will consist of current progress towards readiness thresholds and any exceptions or deviations from the readiness thresholds.

### **Readiness Determination**

No later than 30 days prior to the prospective EIM Entity's Implementation Date, the CAISO will determine, in consultation with the prospective EIM Entity, whether the systems and processes of the prospective EIM Entity will be ready for participation in the Energy Imbalance Market. Readiness will be determined by the thresholds specified in section 2.1 of the Business Practice Manual, with any exceptions for the certifying prospective EIM Entity. **Readiness Certification**

CAISO and the prospective EIM Entity will track their progress and report on readiness criteria prior to filing for EIM readiness certification. Both parties will file a market readiness certificate with the Federal Energy Regulatory Commission 30 days in advance of the prospective EIM Entity established implementation date. The readiness certification will cover the following information:

- That the processes and systems of the prospective EIM Entity have satisfied or will have satisfied the readiness criteria as outlined above. Any known issues requiring resolution prior to the established EIM Implementation Date Any exceptions from the readiness thresholds as outlined above.

That the EIM Implementation Date is conditional upon the resolution of any known issues identified in the certificates filed with FERC and any unforeseen issues that arise that undermine the satisfaction of the readiness criteria. If, subsequent to readiness certification the CAISO or the prospective EIM Entity determines they cannot proceed with implementation on the Implementation Date, the CAISO and the prospective EIM Entity will notify the Federal Energy Regulatory Commission of the delay, the reason for the delay, the new Implementation Date if it can be determined, and whether it will need to re-issue a portion or all of the readiness certification.

### 3 Market Simulation

The CAISO conducts market simulations on a regular basis as part of its process of bringing new initiatives to its markets. The market simulation process for prospective EIM Entities provides each EIM Entity an opportunity to test their systems and procedures in advance of the market implementation. The market simulation process serves a number of purposes for both the CAISO and new entrants. It also facilitates an effective market operations dress rehearsal and helps expedite a smooth production launch.

The prospective EIM Entity and any participating resource scheduling coordinators registered with the prospective EIM Entity actively participate in the market simulation testing and related activity. The CAISO will hold regular calls during the market simulation period to discuss the activity, the results observed, and any responses or adjustments to software or market operation necessitated by those results. The CAISO announces these calls and makes them open to all interested stakeholders.

The benefits of market simulation designed for prospective EIM Entities include:

- Allowing for system or procedural problem identification and mitigation before the market is operationally or financially binding.
- Enabling market participants to observe the behavior of CAISO systems and markets in a simulated production environment, particularly in regard to new functions and features introduced through the addition of the modifications.
- Establishing confidence in the operational processes and systems associated with the new market functionality implementation.
- Providing a hands-on environment to allow the prospective EIM Entity and its registered participating resources to interact with new and unique features and functionality.
- Providing an environment where market participants can scrutinize and tailor their own tools, applications, and business practices to participate in new market functionality.
- Providing a means of capturing additional market participant input and feedback regarding the implementation of the new market features and functionality, beyond what might have been received in the stakeholder process.
- Providing the EIM Entity and its registered market participants the tools to help determine:
  - Proper exchange of market related data and validation of new timelines.
  - Common understanding of data submittal requirements and timelines.
  - Familiarity with market rules and timelines.

The primary purpose of market simulation is to provide external participants the ability to test their systems while familiarizing themselves with CAISO's new functionality. Each simulation generally has two phases: Structured and Unstructured Market Simulation Scenario Testing.

- Structured Market Simulation Scenarios - CAISO provides all data input files including bids while modeling market conditions to test the desired scenarios results. Structured scenarios impact multiple CAISO systems and generally end with a published Settlement statement. CAISO then provides the participants the specifics of the scenario as well as bid inputs for their requested resources in a secure manner.

- Unstructured Market Simulation Scenarios - Similar to structured scenarios but provides market participants the ability to submit bids on behalf of their participating resource bids. CAISO also works with market participants directly if they would like to see specific resources dispatched or market conditions modeled to meet their desired results. Settlement statements may be provided as requested by market participants and accepted by the CAISO and prospective EIM Entities. The CAISO typically conducts public calls during market simulation to report status and address any questions or issues so that all market participants are informed of the results that the CAISO is observing and the issues that are identified. Issues are submitted via the CAISO's Customer Issues, Disputes and Inquires (CIDI) tool. The CAISO typically reports on:
  - Stability of market runs during monitored hours
  - Participation levels during the market simulation
  - Missing SCADA points, mismatches in network model and ongoing efforts to remedy them
  - Significant issues and expected timeline to resolve.
  - Structured market simulation results, associated analysis and CAISO's determination of success/failure.

## 4 Supplementation Documentation

EIM Training Catalog: additional information regarding training provided by the EIM Market Operator to new EIM Entities, including a description, highlights, suggested audience, delivery method and prerequisites. It is available at this link:

<http://www.caiso.com/Documents/EnergyImbalanceMarketTrainingCatalog.pdf>

Day in the Life: additional information regarding EIM testing conducted prior to market entry. This document provides CAISO applications and functionality, system interfaces, and market timeline information that is the basis for testing. It is available at this link:

[http://www.caiso.com/Documents/DayInTheLife\\_EnergyImbalanceMarket.pdf](http://www.caiso.com/Documents/DayInTheLife_EnergyImbalanceMarket.pdf)

EIM Structured Market Simulation Scenarios: additional information regarding EIM bid to bill Structured scenarios conducted prior to market entry. This document provides the description, EIM Entity action, CAISO action and expected outcome for each structured scenario. The Structured scenarios planned for the 2015 implementation with NV Energy are posted at this link:

<http://www.caiso.com/Documents/EIM-NVEand1YearEnhancementsStructuredScenarios11.pdf>

Fall 2015 Release Market Simulation Plan: additional information regarding the market simulation plan:

[http://www.caiso.com/Documents/MarketSimulationPlanExternalFallRelease2015\\_draftv1.pdf](http://www.caiso.com/Documents/MarketSimulationPlanExternalFallRelease2015_draftv1.pdf)

**Attachment E – Stakeholder Response Matrix, Rounds 1&2**  
**Compliance Filing – Readiness Criteria For Energy Imbalance Market**

**August 28, 2015**

**California Independent System Operator Corporation**



**Stakeholder Comments Matrix**  
**Draft Energy Imbalance Market Entity Readiness Criteria - May 7, 2015**

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June 11, 2015

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Company	Date	Submitted By
PacifiCorp	May 19, 2015	
<b>Opening Statement:</b>		
<i>PacifiCorp generally supports the ISO's EIM readiness criteria proposal with respect to the proposed categories and metrics, criteria, and threshold proposals for each category.</i>		
<b>1<sup>st</sup> Comment:</b>		
<i>PacifiCorp requests that the ISO consider adding criteria under its Data Monitoring Readiness category to require the Department of Market Monitoring to produce a report that provides an explanation of any anomalous pricing, and publish such report as a criterion of market readiness.</i>		
<b>ISO Response</b>		
As part of the overall process, the department of Market Validation and Quality will be analyzing and validating market outcomes, including prices, during the market simulation phase. The ISO also will be providing a midterm and final report on market simulation performance that will quantify frequency and causes of infeasibilities observed in parallel operations. The results of implementation activity during the market simulation phase will be discussed on public calls held periodically throughout the period of market simulation. During those calls, stakeholders will have an opportunity to learn about market outcomes and have an opportunity to ask questions. In addition, after the EIM Entity initiates financially-binding market operations, the ISO will provide a regular market report that will have publicly available information to all market participants regarding market performance and pricing issues that may arise.		
<b>Supplemental Statement:</b>		
<i>PacifiCorp hereby submits the following supplemental comments to the California Independent System Operator Corporation ("ISO") on its proposed Energy Imbalance Market ("EIM") readiness criteria. PacifiCorp appreciates the opportunity to provide comments on this initiative for the ISO's consideration.</i>		
<b>Supplemental Comment:</b>		
<i>PacifiCorp conveyed in previously delivered comments its general support and request for anomalous pricing reporting as a criterion of market readiness, if such a report is feasible and possible. As a supplement to those comments, PacifiCorp requests that the ISO also consider adding to its criteria for market readiness, a requirement that both the ISO and the EIM Entity issue sample settlement statements and supports Southern California Edison's comments with regard to settlements criteria.</i>		
<b>ISO Response</b>		
The ISO will include in the implementation plan a requirement that the ISO produce settlement statements that the EIM Entity can verify with its own settlements software as of the date of		

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readiness certification.
<b>Conclusion Statement:</b>
<i>PacifiCorp appreciates the ISO’s consideration of these supplemental comments and looks forward to the ISO’s response.</i>

<b>Company</b>	<b>Date</b>	<b>Submitted By</b>
<b>Southern California Edison</b>	May 22, 2015	Paul Nelson & Eric Little
<b>Opening Statement:</b>		
<p><i>Southern California Edison’s (SCE) herein comments on the Energy Imbalance Market (EIM) Readiness Matrix published on May 6, 2015.<sup>1</sup> The Readiness Matrix is being developed through a stakeholder process to be in compliance with the FERC Order<sup>2</sup> on March 16, 2015, for the CAISO to update their tariff to “include requirements to ensure readiness prior to new EIM Entities commencing EIM operations.” Furthermore, the Order included “a requirement that CAISO and the new entrant each submit a market readiness certificate at least 30 days prior to full activation in the EIM, certifying the readiness of the new EIM Entity’s processes and systems”. The readiness matrix would identify those process and systems that must be certified ready 30 days prior to full activation of a financially binding EIM. SCE supports the categories included in the matrix but notes there is a critically important process of settlements (both the CAISO and EIM Entity) that are missing which should be included in the matrix. In addition, under either System Readiness or Parallel Production there is a lack of detail surrounding the learning curve that troubled PacifiCorp during the first few months of EIM operation. Many of these readiness issues resulted in artificial shortfalls that resulted in high prices due to constraint violations.</i></p> <p><sup>1</sup> <a href="http://www.caiso.com/Documents/Presentation_EnergyImbalanceMarketEntityReadinessCriteria.pdf">http://www.caiso.com/Documents/Presentation_EnergyImbalanceMarketEntityReadinessCriteria.pdf</a>  <sup>2</sup> March 16, 2015 order in EL15-53, 150 FERC ¶ 61,191, P 34</p>		

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**1<sup>st</sup> Comment:**

**Settlements should be added as a category to the EIM Readiness Matrix Settlements related to EIM occur for both the CAISO and the EIM Entity.**

*The CAISO submits a settlement statement to the EIM Entity and Participating EIM Resources showing their imbalance. The EIM Entity sends settlements statements to Non-Participating EIM resources for their respective imbalance plus any allocations of EIM settlement charges (from the CAISO) to both participating and non-participating resources. Settlements are a critical process for a functioning market and is in scope with the FERC Order for EIM Readiness.*

*SCE recommends adding a settlements criteria with the following two metrics, one for CAISO and one for the EIM Entity, be added to the Reliability Matrix:*

Settlements

**For the CAISO**

*Metric: CAISO Settlement Statement and Invoice Publication to EIM Entity and EIM Participating Resources*

*Criteria: Settlement statements and invoices match the operational data fed into Settlement System and the calculations correspond to the formulas defined in CAISO's BPMs.*

*Threshold: 1 clean monthly settlement statement and invoice with corresponding clean daily statements produced during market simulation and/or parallel process.*

**For the EIM Entity**

*Metric: EIM Entity Settlement Statement and Invoice Publication to EIM Participating Resources and non-EIM Participating Resources*

*Criteria: Settlement statements and invoices match the input data from the CAISO and allocations correctly performed per EIM Entity tariffs and BPMs.*

*Threshold: 1 clean monthly settlement statement and invoice with corresponding clean daily statements produced during market simulation and/or parallel process.*

**ISO Response**

The ISO will include in the implementation plan a requirement that both the ISO and EIM Entity produce settlement statements reflecting accurate functioning of the settlements software as of the date of readiness certification.

**2<sup>nd</sup> Comment:**

**More detail surrounding the criteria and threshold of a successful parallel process is needed in the EIM Readiness Matrix**

*From the CAISO reports on EIM results and statements made at the FERC technical conference<sup>3</sup> on EIM, a significant issue was PacifiCorp operators' learning curve in implementing the new tools that are required for the EIM. For example, there were delays in notifying EIM of manual dispatches, system outages, and exchanges with sharing agreements with neighboring balancing authorities. Many of these problems could have been avoided if there was a longer parallel process for PacifiCorp's system operators to become accustomed to what they learned in training sessions. SCE notes that during the parallel process for PacifiCorp there were only two good days of pricing results to determine if the market was functioning as intended. Both the CAISO and any new EIM Entity need to improve their efforts to document*

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*that systems, and the people using those systems, are actually ready to begin a financially binding EIM. The readiness matrix lacks sufficient detail of how issues will be documented that may be discovered in a parallel process with a new EIM Entity and the actions taken to resolve those issues. For example, during the parallel process, a metric on the number of manual dispatch occurrences and system outages can be kept. In addition, a metric tracking how long it took for operators to input the information into the EIM process should be documented. Only once the threshold criteria is met, then the EIM Entity can certify that their processes and people are ready to begin a full financially binding participation in EIM.*

<sup>3</sup> Held at the FERC on April 9, 2015, as part of the FERC 206 investigation on the reasonableness of EIM pricing in docket EL15-53.

**ISO Response**

Market simulation and other implementation activity is designed to ensure systems and operational readiness. The parallel production period is intended to allow the EIM Entity to experience system conditions and practice deploying EIM systems and software in advance of committing the market to financially-binding settlements. The parallel production period length is optimized to provide the EIM Entity full exposure to market operations and foreseen market conditions; it is not designed to perfect the EIM Entity's operational response to all unforeseen market conditions. Therefore, it is not appropriate to apply performance-based metrics to the parallel operations period. The EIM Entity will, however, certify that the parallel operations will emulate real time operations as closely as feasible, with the understanding that the parallel production platform does not result in financially binding dispatches and cannot provide a precise simulation of actual operations.

**3<sup>d</sup> Comment:**

**The implementation schedule with Nevada should be adjusted in order to comply with the FERC order.**

*SCE notes the implementation schedule for Nevada Energy lacks sufficient time for both the EIM Entity and CAISO to certify that their processes, systems, and people are ready to begin a binding EIM on October 1. Currently, the schedule is to begin parallel operation on September 1, which would also be when the 30 day readiness certifications is due to the FERC. SCE fails to see how readiness certifications can be made without the experience from real data from the parallel process. CAISO and Nevada Energy need to adjust the implementation schedule to include a parallel process of at least 30 days prior to the requirement to notify FERC of system readiness. This may result in a parallel process for 60 days prior to go-live, which would allow for an additional 30 days of fine tuning to improve processes and systems as necessary.*

**ISO Response**

FERC directed that the ISO and EIM Entity certify to systems and operational readiness. The implementation plan through market simulation, which will be complete as of thirty days before the EIM Entity's commencement of market operations, is designed to ensure systems and operational readiness. The parallel production allows the EIM Entity to experience operations in a manner that closely simulates real time operations; therefore, the EIM Entity must achieve

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systems and operational readiness before parallel production begins. Although it is not appropriate to require the EIM Entity to certify to performance thresholds during or at the completion of parallel production, the ISO and EIM Entity will certify that neither will commence operations on the scheduled go-live date if 1) any unexpected conditions or issues arise during the parallel production period that undermine grid operation or market operation within the existing EIM footprint, and (2) those issues are unresolved as of the scheduled go-live date

Company	Date	Submitted By
<b>Pacific Gas &amp; Electric Company</b>	May 21, 2015	Jordan Parrillo & Tyson Brown

**Opening Statement:**

*Pacific Gas and Electric Company (PG&E) offers the following comments on the California Independent System Operator's (CAISO) May 7, 2015 Energy Imbalance Market (EIM) Draft Readiness Criteria.*

*PG&E supports the development of robust readiness criteria to ensure that all new EIM entrants are sufficiently prepared for EIM go-live and the commencement of financially binding EIM operations. PG&E's major comments on the EIM Draft Readiness Criteria are as follows:*

- PG&E recommends a guiding principle for EIM readiness criteria to incorporate lessons learned from implementation of prior EIM entities. The Federal Energy Regulatory Commission's (FERC's) March 16, 2015 directive to CAISO to develop measurable readiness criteria through a collaborative process with its stakeholders offers the opportunity for all market participants to engage in a discussion on how lessons learned from PacifiCorp's implementation into the EIM can inform future efforts to effectively include new EIM entities.*
- All market participants should be informed of the data and results from market simulation and parallel production through public reports containing key metrics and observations. PG&E offers examples of metrics to include in the reporting and requests that sufficient time is built in for all market participants, including non-EIM entities, to have a robust market simulation that accommodates four full cycles of billing and settlement statements to ensure the overall market is not impacted.*
- PG&E offers specific recommendations regarding the CAISO's proposed EIM readiness criteria thresholds.*
- The CAISO's EIM readiness proposal should indicate that failing to meet the criteria and thresholds will result in delayed implementation of the new EIM entity.*

**1<sup>st</sup> Comment:**

*EIM readiness criteria should incorporate lessons learned from implementation of prior EIM entities.*

*The readiness testing for new EIM entrants should capture the lessons learned from implementation of prior EIM entities. Specifically, the readiness criteria should require that each new EIM entrant can demonstrate that the tools that have been used to smooth transitional issues with prior EIM entities have been deployed by the new EIM entity and work correctly. In the case of NV Energy, the lessons learned through implementation and the first six months of EIM operations with PacifiCorp should inform NV Energy's readiness requirements.*

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*Specifically, the following lessons learned from PacifiCorp's experience should be incorporated into NV Energy's and all future EIM entrants' readiness criteria:*

- *The process of entering or cancelling outages, including maximum capacity derates, and minimum capacity re-rates;*
- *Modeling the transition ramping for multi-stage generating resources and collecting data to define the startup and shutdown profiles of resources with high PMin values; and*
- *Utilizing the new unit deviation display that CAISO added to the EIM Entity user interface, which has been used by PacifiCorp to identify which resource is deviating and the amount of deviation per resource and on aggregate basis per balancing area.*

*These specific lessons learned should be incorporated into all applicable readiness criteria categories. For instance, the mandatory training courses should include these topics and should be specified as EIM readiness criteria in the CAISO's proposal. Additionally, these particular challenges should be included in the system readiness and market simulation categories to ensure each new EIM entity is coordinated and operating in a manner that is consistent with how PacifiCorp is operating six months into EIM participation.*

### **ISO Response**

The ISO agrees that lessons learned from prior EIM entities will inform and improve the readiness criteria for future EIM entities. The market performance reports published by the ISO and its Department of Market Monitoring in FERC Docket No. ER15-402 provide details about issues experienced by PacifiCorp that resulted in MW balance infeasibilities and how it addressed those issues. In advance of the June 16, 2015 stakeholder call regarding EIM Entity market readiness, the ISO will compile and post a list of those reported issues with a mapping to how the implementation activities and market readiness criteria incorporate the solutions to those issues.

### **2<sup>nd</sup> Comment:**

*All market participants should be informed of the results from market simulation and parallel production through public reports containing key metrics and observations and sufficient time should be built in for all market participants to have robust market simulation.*

*The CAISO should publicly report on the EIM market simulation and parallel production testing so that all market participants are informed of the results that CAISO is observing and the issues that have been identified. The reports should represent an aggregated, high-level view of the data resulting from market simulation and parallel production and should include the following key metrics:*

- *Number of hours of stable operations without disruptions;*
- *Minimum participation levels;*
- *Net MW's offered and cleared;*
- *Number of violations and type of violation (e.g. power balance, A/S);*
- *Identify missing SCADA points, mismatches in network model and ongoing efforts to remedy them;*
- *Identify and explain significant issues and expected timeline to resolve.*



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*In addition to keeping all market participants informed of the testing progress with NV Energy from the proposed metrics above, PG&E requests that sufficient time is built in for non-EIM entities to have a robust market simulation. Specifically, the start of market simulation for non-EIM entities is staggered (i.e., currently scheduled to begin on August 3rd) and a market readiness certificate is due 30 days prior to full activation of 2015 EIM (anticipate September 1st). PG&E requests that sufficient time is incorporated in CAISO market simulation plan to accommodate four full cycles of billing and settlement statements to ensure the overall market is not impacted from NV Energy implementation.*

*PG&E also notes that the CAISO has indicated that it will address EIM Year 1 Enhancement design changes during market simulation, including the proposed EIM transfer cost. The proposed EIM readiness criteria do not address the EIM Year 1 Enhancements design changes. The CAISO should indicate whether these design changes will be included in this readiness plan or a separate plan.*

**ISO Response**

As part of the overall process, the Division of Market Quality will be analyzing and validating market outcomes, including prices, during the market simulation phase. The results of implementation activity during the market simulation phase will be discussed on public calls held periodically throughout the period of market simulation. During those calls, stakeholders will have an opportunity to learn about market outcomes and have an opportunity to ask question. In addition, after the EIM Entity initiates financially-binding market operations, the ISO will provide a regular market report that will have publicly available information to all market participants regarding market performance and pricing issues that may arise.

The market simulation tests the systems and operations of the EIM Entity and any participating resources registered with the EIM Entity. To the extent future registered participating resources seek the benefit of market simulation, the ISO offers the platform for use by any entity that has completed its scheduling coordinator certification.

The ISO intends to include the EIM Year 1 Enhancements design changes in the Fall 2015 Release market simulation plan posted at:

[http://www.caiso.com/Documents/MarketSimulationPlanExternalFallRelease2015\\_draftv1.pdf](http://www.caiso.com/Documents/MarketSimulationPlanExternalFallRelease2015_draftv1.pdf)

The market simulation structure scenario results for EIM Year 1 Enhancement design changes will be shared during market simulation calls and will be resulted with this readiness plan.

**3<sup>rd</sup> Comment:**

***PG&E offers the following specific recommendations regarding the CAISO's proposed EIM readiness criteria thresholds.***

- a) *Threshold regarding SCADA measurements in Full Network Model integration should*

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*also include a high minimum EIM system MW percentage as well as a percentage of SCADA points to ensure that smaller generators are not skewing results and so that a reliable system model is supported. PG&E feels that this minimum MW metric should approach 99%.*

- b) The CAISO proposes that 90% or greater of base schedule balance tests are within 5% average imbalance of load forecast over a two day period before full activation. This threshold allows too great of a tolerance so close to full activation. The CAISO should provide numbers to indicate a reasonable threshold as it applies to a given EIM entity and indicate the potential implications of a swing from 5% over to 5% under forecast in one interval to the next.*
- c) The CAISO proposes that an EIM entity must demonstrate that it can pass the EIM capacity test 90% of the time or greater of one day before parallel operation and two days before full activation. A 90% threshold for passing the capacity test is not sufficient. Failure to pass the capacity test 10% of the time indicates a fundamental issue with the reliability of an EIM entity to meet its capacity requirements. The CAISO should explain the reasonableness and potential implications of using this threshold.*
- d) The Market Simulation and/or Parallel Production process should include minimum criteria for a set number of days where all market inputs are mirrored between the Production and Testing systems. During the PacifiCorp market simulation it was found that days where such coordination occurred produced the most useful result sets and helped isolate issues that would have otherwise gone unnoticed until the full production activation.*

**ISO Response**

The ISO has included a MW quantity measure associated with the SCADA metric.

The ISO believes that these metrics are sufficiently rigorous to demonstrate readiness on the system before going into production; some of the actions that the EIM entity will take are not appropriate during market simulation and parallel operations when the instructions are not binding. i.e., to support higher thresholds for balancing the EIM entity will have to use production e-tag information, which is not available prior to production. The thresholds reflect an operational success rate that accounts for the inability of market simulation to precisely emulate all real time system operations.

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**4<sup>th</sup> Comment:**

***The EIM readiness proposal should indicate that failing to meet the readiness thresholds will result in delayed implementation of the new EIM entity.***

*PG&E recommends that if a new EIM entity fails to meet all of the EIM readiness criteria and thresholds, the implementation schedule for the new EIM entity should be delayed until all criteria and thresholds have been met. The CAISO should specify in its proposal that the fallback plan is to resume the current EIM operation without the new EIM entity until their readiness has been demonstrated.*

**ISO Response**

FERC directed that the ISO and EIM Entity certify to systems and operational readiness. The implementation plan through market simulation, which will be complete as of thirty days before the EIM Entity's commencement of market operations, is designed to ensure systems and operational readiness. The parallel production allows the EIM Entity to experience operations in a manner that closely simulates real time operations; therefore, the EIM Entity must achieve systems and operational readiness before parallel production begins. Although it is not appropriate to require the EIM Entity to certify to performance thresholds during or at the completion of parallel production, the ISO and EIM Entity will certify that neither will commence operations on the scheduled go-live date if 1) any unexpected conditions or issues arise during the parallel production period that undermine grid operation or market operation within the existing EIM footprint, and (2) those issues are unresolved as of the scheduled go-live date.

<b>Company</b>	<b>Date</b>	<b>Submitted By</b>
<b>Western Power Trading Forum</b>	May 21, 2015	Ellen Wolfe (Resero Consulting)

**Opening Statement:**

*WPTF appreciates the opportunity to submit comments in response to the CAISO's EIM Readiness Criteria presented on May 6, 2015.*

*WPTF offers three areas of feedback. First we offer three categories of suggested improvements for the current metrics. Second, we requests definition of a minimum parallel operations duration, and third we suggest that the CAISO develop with stakeholder guidance specific language for the executive attestation that EIM executes would execute prior to cutover to an EIM.*

- 1. WPTF offers three categories of Suggested Improvements.*

*While the CAISO's proposal creates a broad set of areas of readiness, the criteria do not seem to hold the descriptive precision and substance of testing exit criteria. We indicate below three ways in which the criteria can be improved. These are identified below.*

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**1<sup>st</sup> Comment:**

**Criteria should be specific and quantifiable:**

*Many of the criteria suggested by the CAISO are quite general and do not lend themselves to measurement. We offer some examples below, by metric and criteria, and offer more specific feedback on the ways in which the proposed criteria should be further specified.*

**Examples:**

**Metric:** "Functional Testing Completed"

**Criteria:** "EIM Entity Operators complete functional testing plan."

Questions raised by this criteria:

- What is the functional testing plan?
- Which entities are involved in developing that plan?
- For which aspects of EIM operations does this prepare the EIM Entity?
- What are the "tasks identified by ISO and EIM Entity for functional testing"?

**Metric:** "ISO-EIM Entity interfaces tested"

**Criteria:** "EIM Entity systems tested as specified."

Questions raised by this criteria:

- Which EIM Entity systems are tested?
- What are the specifications for the tests, and where will those specifications be posted?
- Which CAISO systems are implicated in this test?

*The same problem of lack of specificity exists in the following metrics:*

- EIM Entity Operating Procedures
- Day in the Life Simulation
- Structured Scenarios Simulation
- Unstructured Scenarios Simulation
- Market Results Reports
- Market Quality Review
- Data monitoring
- Deployment Plan

*WPTF asks the CAISO to redefine the criteria to be specific and address questions such as those identified above. For each metric WPTF asks that the ISO identify the measureable metric and the threshold that would result in a "passing" score on that metric.*

**ISO Response**

The ISO agrees that greater transparency as to the implementation plan activity will enable the stakeholders to more fully contribute to the strength of the readiness plan and criteria. The ISO has therefore provided the details of the Functional, EIM Systems, Integration, and Day in the Life testing. Structured Scenarios Simulation (including EIM Year 1 Enhancement are posted at: <http://www.caiso.com/Documents/EIM-NVEand1YearEnhancementsStructuredScenarios11.pdf>.

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**2<sup>nd</sup> Comment:**

*Testing thresholds should be sufficiently rigorous:*

*For criteria that are specific, and quantifiable, some have testing thresholds that are insufficiently rigorous. Each criterion should have thresholds that are sufficiently rigorous to ensure that the resulting EIM market will operate successfully and efficiently.*

*The following exemplifies a metric for which the threshold seems insufficiently rigorous.*

**Example:**

**Metric:** *“Flexible Ramping Sufficiency Test Capability of Passing Established”*

**Testing threshold:** *“Passes 90% of the time or greater over monitored hours of one day before parallel operation and two days before full activation.”*

*We identify the following problems with such a threshold: It is unclear how many “monitored hours” there will be. It is unclear how many total days must be “passed”? And it is unclear what steps would be taken to ensure the test period includes a representative range of conditions or, more importantly, tests the ability to comply under adverse conditions?*

*An EIM Entity’s 90% passage rate for the flexible ramping sufficiency test allows a large margin of error and would not avoid the same problems seen in the PacifiCorp EIM. This is particularly concerning given that the flexible ramping sufficiency requirement is based on ensuring sufficient ramping capacity to meet imbalance energy needs in only 95% of cases.*

*The testing thresholds for passing the metrics “Base Schedule Balancing Capability Established” and the “Capacity Test Capability of Passing Established” similarly appear to allow too great a margin for test failure. Similarly the proposal needs additional details regarding the “Capacity Test.”*

**ISO Response**

The thresholds are appropriate for the activity contemplated through the end of market simulation. The ISO believes that these metrics are sufficiently rigorous to demonstrate readiness on the system before going into production; some of the actions that the EIM entity will take are not appropriate during market simulation and parallel operations when the instructions are not binding. i.e., To support higher thresholds for balancing the EIM entity will have to use production e-tag information, which is not available prior to production. The thresholds reflect an operational success rate that accounts for the inability of market simulation to precisely emulate all real time system operations.

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**3<sup>d</sup> Comment:**

*Criteria should be comprehensive in order to ensure that new EIM Entities avoid the specific and acknowledged problems encountered by the PacifiCorp BAAs' entrance into the EIM WPTF is concerned that additional criteria may be needed to ensure that future EIMs do not encounter the same communications and operational challenges that plagued the PacifiCorp EIM. We encourage the CAISO to revisit each of those price spike drivers and create measurable performance criteria for each to apply to each subsequent EIM implementation.*

**Define a Minimum Duration Parallel Operations Period**

*The CAISO-PacifiCorp EIM market simulation period had a very minimal period during which parallel operations took place. Further parallel operations were provided for the start of the EIM was delayed. Yet there were numerous areas of readiness that seemed incomplete once the EIM went "live". WPTF recommends a formal parallel operations phase of no less than 60 days, with a longer period likely being desirable. We ask the CAISO to adopt such a readiness requirement.*

**Develop Specific Attestation Language**

*The ISO agreed to file a certificate of readiness including the EIM Entity attesting to readiness. This mechanism is only as strong as is the language in the attestation and the linkage to an executive within the EIM organization. WPTF strongly recommends that the CAISO propose the language that would be included in this certification and circulate that language to stakeholders for their review. The attestation should include certifications that the entity is fully trained to participate in the EIM both from the vantage point of interfacing with the CAISO but also from the perspective of integrating EIM operations with the balance of their EIM functions, that they have demonstrated operational success on end-to-end tests, and that their organization is prepared to accept the market risks of EIM operations.*

**ISO Response**

The ISO agrees that lessons learned from prior EIM entities will inform and improve the readiness criteria for future EIM entities. The market performance reports published by the ISO and its Department of Market Monitoring in FERC Docket No. ER15-402 provide details about issues experienced by PacifiCorp that resulted in MW balance infeasibilities and how it addressed those issues. In advance of the June 16, 2015 stakeholder call regarding EIM Entity market readiness, the ISO will compile and post a list of those reported issues with a mapping to how the implementation activities and market readiness criteria incorporate the solutions to those issues.

Parallel production will allow the EIM Entity to experience operations in an environment that more closely emulates real time operation than the market simulation. Parallel production does not precisely emulate real time operations, however, and therefore cannot guarantee that the EIM Entity will experience all possible market conditions or operational issues in advance of financially-binding activation. Thus, the length of the parallel operations period is designed to

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allow the EIM Entity to experience a significant array of foreseeable market conditions at least once before live operations.

The attestation will certify that both the ISO and the EIM Entity have engaged in and completed all implementation plan activities designed, with the help of this stakeholder process, to ensure systems and operational readiness. The ISO will separately post draft points of attestation that will be included in the final documentation submitted to FERC.

Company	Date	Submitted By
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**Stakeholder Comments Matrix**  
**Draft Energy Imbalance Market Entity Readiness Criteria - May 7, 2015**

<b>Calpine Corporation</b>	May 11, 2015	
<b>Opening Statement:</b>		
<p><i>Calpine views the creation of “readiness criteria” and an officer’s attestation thereof as important to the efficient inclusion of new EIM Entities in the CAISO markets. Calpine believes that structure and content of the attestation is critical to an evaluation of readiness and offers possible language binding the EIM Entity to financial exposure to the markets. In addition, the criteria presented thus far appear to be progress milestones, not exit criteria.</i></p> <p><b><u>Officer Attestation</u></b></p> <p><i>The core of the FERC compliance order in our view is that an officer of the EIM Entity must attest, under oath, that they are ready to participate in the EIM. The content of that attestation is critical and will guide the development of readiness, or exit criteria.</i></p> <p><i>Calpine suggests that the officer should attest to the following facts:</i></p> <ul style="list-style-type: none"> <li>• <i>They have read and understand sections 29 (EIM) and 37 (Rules of Conduct) of the ISO tariff, and</i></li> <li>• <i>They have been briefed on all other relevant sections of the tariff, Business Practice Manuals and Operating Protocols, and</i></li> <li>• <i>They have been briefed on the status of readiness by both their staff and that of the CAISO, and</i></li> <li>• <i>They are satisfied that both EIM Entity and CAISO systems will function properly from the submission of bids to the payment of bills, and</i></li> <li>• <i>They have been briefed on all available tariff-based remedies to unexpected results, and finally,</i></li> <li>• <i>Attest that the EIM Entity is ready to take both the risks and opportunities associated with participating in CAISO markets.</i></li> </ul> <p><i>At a minimum, Calpine believes that the form and content of the attestation should be known and a part of this stakeholder initiative.</i></p>		
<b>1<sup>st</sup> Comment:</b>		
<p><i>In our view the readiness criteria presented in the PowerPoint are development targets, not exit criteria. Some development criteria are likely very important to the sequential progress in the preparing for a go-live, but in our view, are quite insufficient for a release to commercial operations.</i></p> <p><i>For instance, we see no reason to allow and EIM Entity to go-live when 5 percent of the base schedules are unbalanced, or when 10 percent of the time the EIM Entity fails the Flexible Ramping test. The criteria should be restructured and refined to reflect, as close as possible, current CAISO BA metrics.</i></p> <p><i>In addition, the criteria lack sufficient specificity. For instance, in training, the ISO requires “EIM Entity Operators”, an undefined term, complete “100 series” and other classes. It would be helpful to know which classes this entails. CAISO reports on early start-up with PacifiCorp suggested that things such as outage reporting and MSG bidding were areas of particular difficulty. It would be helpful to have a more complete list of expectations.</i></p>		
<b>ISO Response</b>		



**Stakeholder Comments Matrix**  
**Draft Energy Imbalance Market Entity Readiness Criteria - May 7, 2015**

The ISO included a MW quantity measure associated with the SCADA metric. Also, the ISO will provide greater transparency as to the training process by posting a description of the training modules that the EIM Entity must complete.

The thresholds are appropriate for the activity contemplated through the end of market simulation. The ISO believes that these metrics are sufficiently rigorous to demonstrate readiness on the system before going into production; some of the actions that the EIM entity will take are not appropriate during market simulation and parallel operations when the instructions are not binding. i.e., to support higher thresholds for balancing the EIM entity will have to use production e-tag information, which is not available prior to production. The thresholds reflect an operational success rate that accounts for the inability of market simulation to precisely emulate all real time system operations.

Market simulation and other implementation activity is designed to ensure systems and operational readiness. The parallel production period is intended to allow the EIM Entity to experience system conditions and practice deploying EIM systems and software in advance of committing the market to financially-binding settlements. The parallel production period length is optimized to provide the EIM Entity full exposure to market operations and foreseen market conditions; it is not designed to perfect the EIM Entity's operational response to all unforeseen market conditions. Therefore, it is not appropriate to apply performance-based metrics to the parallel operations period. The EIM Entity will, however, certify that the parallel operations will emulate real time operations as closely as feasible, with the understanding that the parallel production platform does not result in financially binding dispatches and cannot provide a precise simulation of actual operations.

Company	Date	Submitted By
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**Stakeholder Comments Matrix**  
**Draft Energy Imbalance Market Entity Readiness Criteria - May 7, 2015**

<b>Powerex</b>	May 21, 2015	Mike Benn
<b>1<sup>st</sup> Comment:</b>		
<p><b>Supporting WPTF Comments Regarding CAISO EIM Readiness Criteria</b></p> <p><i>Powerex appreciates the opportunity to submit comments in response to CAISO’s EIM Readiness Criteria that were published on May 6, 2015. Powerex fully supports the comments submitted by the Western Power Trading Forum on May 21, 2015 regarding the EIM Readiness Criteria. Specifically, Powerex supports WPTF’s positions that the Readiness Criteria and testing thresholds should be revised to ensure that they are:</i></p> <ul style="list-style-type: none"> <li>• <i>specific and quantifiable;</i></li> <li>• <i>rigorous; and</i></li> <li>• <i>comprehensive.</i></li> </ul> <p><i>Powerex further supports WPTF’s suggested revisions. The suggested revisions are the bare minimum necessary to ensure that the EIM Readiness Criteria (1) comply with FERC’s March 16, 2015 order issued in Docket Nos. ER15-861-000 and EL15-53-000 and (2) enable future EIM Entities to avoid the same kinds of unjust and unreasonable results that FERC and CAISO have acknowledged in the first several months of EIM operations.</i></p>		
<b>ISO Response</b>		
See response to WPTF comments above.		

Company	Date	Submitted By
<b>Bonneville Power Administration</b>	May 22, 2015	Robb Davis
<b>Opening Statement:</b>		
<p><i>Bonneville Power Administration (BPA) appreciates the opportunity to comment on the CAISO’s proposed Energy Imbalance Market Entity Readiness Criteria. BPA encourages the CAISO to continue a robust stakeholder discussion on these very complicated topics, including allowing sufficient time for reasoned decision-making.</i></p>		

**Stakeholder Comments Matrix**  
**Draft Energy Imbalance Market Entity Readiness Criteria - May 7, 2015**

**1<sup>st</sup> Comment:**

*BPA believes that it is important for the readiness criteria to be objective and transparent. That is, affected stakeholders, if presented with the data the CAISO uses for evaluation, would be able to reach the same readiness assessment as the CAISO. The CAISO proposed in its May 6 tariff compliance filing that it would determine, along with the EIM entity, whether the criteria had been met. If the criteria are properly structured, however, the determination should be self-evident. BPA acknowledges that the ability to make that determination depends on data which may be sensitive or confidential, and that the CAISO and the EIM entity might be the only parties with access to that information. BPA is not recommending that this data be shared with all stakeholders, but to design the criteria such that the determination of readiness could be independently verified.*

**ISO Response**

The ISO agrees that readiness will be self-evident to the EIM entity and the ISO. The release of market information will be consistent with Section 6 of the ISO tariff. The ISO will provide a market report that will provide publicly available information to all market participants.

**2<sup>nd</sup> Comment:**

*BPA also notes that, while the CAISO's proposal contains measurable elements, as the Commission directed, it is unclear whether those measurements actually provide the protection the Commission is seeking. That is, if PacifiCorp had been subject to these criteria, would it have passed them before starting EIM operations in 2014? This is an important measure of the effectiveness of any criteria that are ultimately adopted. In particular, the CAISO should consider whether its proposed criteria aligns with a finding that the EIM Entity is ready for EIM operations. For example, the CAISO's presentation describes a ninety percent success rate as passing the threshold for base-schedule balancing and flexible ramping sufficiency. A ten percent failure rate appears high, and indeed, is higher than what prompted the Commission to initiate its section 206 proceeding on the CAISO's EIM. BPA would like to see, as part of future stakeholder discussions, how the proposed criteria would have caught some of the initial problems before they occurred.*

**ISO Response**

The ISO agrees you cannot compare a prior implementation readiness to a future readiness. Criteria will evolve based on lessons learned.

The market performance reports published by the ISO and its Department of Market Monitoring in FERC Docket No. ER15-402 provide details about issues experienced by PacifiCorp that resulted in MW balance infeasibilities and how it addressed those issues. In advance of the June 16, 2015 stakeholder call regarding EIM Entity market readiness, the ISO will compile and post a list of those reported issues with a mapping to how the implementation activities and market readiness criteria incorporate the solutions to those issues.

**Stakeholder Comments Matrix**  
**Draft Energy Imbalance Market Entity Readiness Criteria - May 7, 2015**

<b>3<sup>d</sup> Comment:</b>
<i>Finally, BPA would like to share its concerns about the timeline for this stakeholder process. The CAISO noted in its compliance filing that it expects to have the stakeholder process completed by June 15, to coincide with the start of NV Energy's market simulation. BPA believes that it is important that this stakeholder process yield meaningful criteria that address the concerns of affected stakeholders, even if that requires minor modifications to the NV Energy schedule. Ultimately, it is preferable for NV Energy to be ready when it starts EIM operation, and appropriately crafted criteria will help establish that readiness.</i>
<b>ISO Response</b>
The ISO has included a second round of formal stakeholder process and will evaluate the completeness of the criteria prior to the final posting.
<b>Closing Statement:</b>
<i>Thank you again for taking the time and opportunity to review these comments on the EIM Entity Readiness Criteria proposal. We look forward to ongoing discussions about finding responsible methods for implementing such significant changes.</i>

<b>Company</b>	<b>Date</b>	<b>Submitted By</b>
<b>San Diego Gas &amp; Electric</b>	May 21, 2015	Lisa Olson
<b>Opening Statement:</b>		
<i>SDG&amp;E appreciates the opportunity to comment on the Energy Imbalance Market (EIM) Readiness Criteria as outlined by the CAISO on May 6th and presented to stakeholders on May 13th. The criteria creation was directed by FERC to ensure new EIM entrants have prepared systems and processes to sync to the EIM market prior to participation.</i>		
<b>1<sup>st</sup> Comment:</b>		
<i>SDG&amp;E believes the criteria is well thought out and achieves FERC goals except for the proposed Market Simulation criteria. SDG&amp;E would like to see CAISO detail out a more thorough Market Simulation plan. We do not believe the current plan contains enough detail, nor testing requirements, to prove a new EIM market participant is ready for EIM market entrance and full participation from timely bid creation and submission to settlement processing.</i>		
<b>ISO Response</b>		
The ISO agrees that greater transparency as to the implementation plan activity will enable the stakeholders to more fully contribute to the strength of the readiness plan and criteria. The ISO has therefore provided the details of the Functional, EIM Systems, Integration, and Day in the Life testing. Structured Scenarios Simulation (including EIM Year 1 Enhancement are posted at: <a href="http://www.caiso.com/Documents/EIM-">http://www.caiso.com/Documents/EIM-</a>		

**Stakeholder Comments Matrix**  
**Draft Energy Imbalance Market Entity Readiness Criteria - May 7, 2015**

[NVEand1YearEnhancementsStructuredScenarios11.pdf](#).

**2<sup>nd</sup> Comment:**

*SDG&E would like to see the Market Simulation readiness criteria include a true parallel (with outages) 'Bid-to-Bill' process such that participants have the requirement to test that their systems can submit bids, see awards, and download and process settlements statements from these simulation market runs. The first implementation of EIM introduced a significant amount of billing determinants to settlement statements. Market participants didn't have a sense of this until receiving the settlement statements from the bid- to-bill test cases. This is an important readiness validation step.*

**ISO Response**

The Day in the Life and Structured Market Simulation Scenarios will include bid to bill processes. The ISO will include in the implementation plan a requirement that the ISO produce settlement statements that the EIM Entity can verify with its own settlements software as of the date of readiness certification.

**Attachment F – Stakeholder Response Matrix, Round 3**  
**Compliance Filing – Readiness Criteria For Energy Imbalance Market**  
**August 28, 2015**  
**California Independent System Operator Corporation**

**Matrix of Stakeholder Comments on Draft Tariff Provisions Posted on July 31, 2015  
to Implement Energy Imbalance Market Readiness Criteria, and Related Matters**

Topic	Stakeholder comments	CAISO response
General comments	<p>NV Energy states that it “generally supports the tariff language proposed by the CAISO,” with the revisions described below.</p> <p>PacifiCorp “supports the effort to incorporate the previously-developed EIM Entity readiness criteria into the CAISO’s tariff.”</p>	<p>The CAISO appreciates stakeholder recognition and support of the proposed tariff changes that reflect feedback provided through all discussions leading up to the July 21 order and since that date.</p>
Comments on stakeholder process	<p>BPA provides the following comments:</p> <p>“The current pace of the stakeholder process has made it challenging for stakeholders to participate in a meaningful manner. The Commission’s July 21<sup>st</sup> order in docket ER15-861-002 directs CAISO to include the results of the readiness criteria stakeholder process in a revised compliance filing within 60 days. On July 30, 2015 the Commission issued Deficiency Letter ER15-1919 that ordered CAISO to address the EIM Capacity concerns within 30 days. Clearly the Commission has order two separate timelines for these processes, but the schedule put forth by the CAISO</p>	<p>The CAISO recognizes that there are several ongoing EIM-related proceedings before FERC, and that each must be attended to by the CAISO and stakeholders. However, the effort required to attend to those proceedings should not distract from the development of satisfactory EIM Entity readiness criteria through this proceeding. Each stakeholder process addresses distinct issues that are each on its own timeline. The CAISO is committed to addressing the matters raised in all proceedings in a timely fashion.</p> <p>The CAISO believes that the stakeholder process undertaken prior to the July 21 order must be taken into consideration here. It is the totality of the engagement with stakeholders that should be recognized, not just the efforts since that order. The readiness criteria underwent almost two months of</p>

Topic	Stakeholder comments	CAISO response
	<p>for the readiness criteria stakeholder process does not appear to recognize this distinction.</p> <p>The proposed stakeholder schedule only allows four business days after the first stakeholder call on August 10, 2015 for development of comments due on August 14, 2015. CAISO intends to respond to comments within four business days and hold a subsequent stakeholder call on August 19, 2015. During the August 10, 2015 stakeholder call ISO staff indicated that the ISO intends to expedite filling the revised tariff language for section 29.2(b) at the end of August. In addition to the EIM Readiness Stakeholder process, CAISO continues to press forward with EIM Year 1 Phase 2 Enhancements, FERC held a technical conference on August 11, 2015, and the transmission providers for EIM Entity's have ongoing implementation work. Further, FERC ordered CAISO to file tariff language addressing the EIM capacity concerns resulting from the technical conference following the March 16, 2015 order within 30 days after July 20, 2015. It appears that CAISO is going to align these separate issues into a single proceeding on a schedule that presents significant</p>	<p>stakeholder process already, in which stakeholders had several weeks to review multiple iterations of the readiness criteria, the opportunity to participate in two stakeholder calls, and the opportunity to comment in writing twice on the proposed criteria. The CAISO made several significant changes to the criteria based on those comments, and the Commission's July 21 order acknowledged the categories of criteria developed in that process by naming each of those categories and directing the CAISO to incorporate them into the tariff. Moreover, the re-posting of the readiness criteria on July 31, as draft tariff language, incorporated additional changes to the criteria reflecting comments made in the FERC proceeding about the readiness criteria that were not submitted to the prior stakeholder process.</p> <p>To view this process and the 60 day compliance timeline in isolation would be to misread the Commission's direction. The Commission did not direct the CASIO to restart the process and there is no reason not to consider the prior two opportunities for stakeholders to comment. The July 21 order directed additional stakeholder process to appropriately reduce the developed readiness criteria to tariff provisions, and ensure that the measurement and control of those criteria are satisfactory. Based on the work previously done with respect to defining the readiness criteria and setting forth reasonable measurement of the same, the additional weeks of process during the month of August 2015 should be</p>



Topic	Stakeholder comments	CAISO response
	<p>challenges for meaningful stakeholder participation. The matters before FERC should be dealt with in a thoughtful and deliberate manner. CAISO’s proposed stakeholder schedule for EIM Readiness identified above is unreasonable and shortens the available time for the process by 30 days. Allowing more time for an engaging stakeholder process would very likely enhance the effectiveness of the CAISO’s EIM, and actually accelerate its approval process with FERC.”</p> <p>Powerex provides the following comments:</p> <p>“Powerex is concerned that CAISO’s process has short-circuited the collaborative process FERC directed in its July 21 order. It is critical that the development of the standards used to assess whether a BAA is ready to begin participation in the EIM be clear and effective, with opportunity for meaningful stakeholder input and meaningful collaboration, rather than driven by artificial deadlines or an EIM Entity’s target date for integration into the EIM. FERC recognized as much in the July 21</p>	<p>sufficient for stakeholder comment and discussion. Stakeholders had an additional 10 days to review the proposed language for discussion and two weeks to submit written comments. Stakeholders then have an additional week of process to discuss comments with the CAISO and offer any additional concerns or revisions. Questions raised on the August 10, 2015 stakeholder call and comments submitted in writing concerned specific measurements and particularized language edits and are reflected in this response. These refinements suggest that the process has achieved an overarching framework acceptable to the stakeholders and that the conversation today is about the final details. Moreover, these timeframes for comments are consistent with CAISO stakeholder process guidelines. Stakeholders can’t now ignore previous discussions and claim that they have not been engaged in a meaningful process to develop readiness criteria.</p> <p>Because the July 21, 2015 order acknowledges the substance of the stakeholder process that previously occurred, finalizing the details through additional process in August 2015 and filing the tariff promptly provides FERC staff ample time to consider the readiness criteria and tariff provisions and transparency related to it. In addition, the CAISO has announced a one month deferral of the NV Energy implementation to allow time for this process to occur. Stakeholders must understand that the 30 day prior certification with an associated period of parallel</p>

Topic	Stakeholder comments	CAISO response
	<p>Order, stating that ‘carefully developed, measurable readiness criteria should be the basis for determining the actual date on which a potential EIM Entity begins financially binding participation in the EIM’ and that ‘meeting a potential EIM’s preferred start date should not be a determining factor.’ Given that stakeholders will be forced to bear the consequences in the event that a BAA begins participation in the EIM before it is ready, it is also essential that stakeholders be given a voice in the development of readiness criteria, with ample time both for stakeholders to review and provide input on CAISO’s proposals and for CAISO to meaningfully consider and address their concerns.</p> <p>Unfortunately, thus far, the highly expedited process CAISO has used to develop its readiness criteria appears to have been driven primarily by the goal of accommodating NV Energy’s anticipated start date rather than crafting robust measures of system and operational readiness in collaboration with stakeholders. With CAISO affording stakeholders with extremely limited time for review and input, there simply has</p>	<p>operations necessarily requires that the CAISO submit its compliance filing before the full 60 days have elapsed. Any suggestion that the CAISO has placed implementation above readiness is mistaken. The one month deferral should ensure that the NV Energy implementation occurs within a reasonable timeframe of what was initially contemplated. The current schedule allows meaningful engagement with stakeholders, opportunity for the Commission to consider the submission, and for NV Energy and the CAISO to certify readiness in anticipation of a November 1 implementation date.</p> <p>Specific stakeholder comments that provide further input into this process have been further considered and are addressed below.</p>

Topic	Stakeholder comments	CAISO response
	<p>been insufficient time for stakeholders to play a meaningful role in the development of the readiness criteria reflected in CAISO's draft tariff language. And with CAISO announcing the date on which it planned to complete its evaluation of the readiness criteria before it even posted the criteria for stakeholder review, there has been little opportunity for stakeholders to participate actively in the process.</p> <p>Regrettably, this same approach has been carried forward to the development of CAISO's proposed tariff language, with CAISO expressing an intention to file its proposed tariff revisions with FERC less than four weeks after it posted this language for stakeholder review and well before the deadline for the submission of CAISO's compliance filing.</p> <p>Rather than allowing NV Energy's proposed start date to take precedence over the development of meaningful readiness measures, Powerex urges CAISO to establish a process that affords stakeholders with the time necessary to engage in a careful evaluation of the challenges faced by BAAs integrating into</p>	

Topic	Stakeholder comments	CAISO response
	<p>the EIM. This process should include a full exploration of the issues that have been experienced since the EIM commenced operations and, at a minimum, should address the issues detailed below. Only after CAISO and stakeholders have had an opportunity to craft a robust set of readiness criteria that address these and other issues, and NV Energy has demonstrated that it is capable of passing these criteria, should CAISO and NV Energy set a date for NV Energy’s integration into the EIM.”</p> <p>[Footnotes omitted]</p>	
<p>Title of tariff section 29.2(b)</p>	<p>NV Energy suggests the following black-lined addition:</p> <p>“EIM <u>Entity</u> Access to the Real-Time Market”</p> <p>SCE provides the following comment:</p> <p>“Confused where this goes in 29.2(b) as there is already a 29.2(b)(4)”</p>	<p>The CAISO accepts the change proposed by NV Energy. Also, the CAISO recognizes that it prepared the proposed changes in a clean version to avoid redline upon redline and apologizes for any confusion this approach may have caused.</p>
<p>Tariff section 29.2(b)(4) [labeled as “28(b)(4)” in BPA’s comments]</p>	<p>BPA provides the following comments:</p> <p>“BPA supports specific requirements regarding successful Market Simulation and Parallel Operations. However, the CAISO should include more specificity regarding standards for successful</p>	<p>The CAISO believes that specific criteria with respect to market simulation and parallel operations that will be established in the tariff comply with the July 21 order. The tariff requires market simulation and parallel operation sufficient to demonstrate readiness. Each stage in that process includes various scenarios and built in exit criteria. The CAISO regularly</p>

Topic	Stakeholder comments	CAISO response
	<p>Market Simulation and Parallel Operations. The CAISO should include specific periods that are required for both Market Simulation in Section 29.2(b)(4)(B) and for Parallel Operations in Section 29.2(b)(4)(B).”</p>	<p>manages such processes and publishes information concerning progress towards completion. The CAISO will specifically report on progress towards achieving the readiness criteria and the market simulation and parallel operation results will support the thresholds associated with those criteria. It is unreasonable to require that the CAISO include all such supporting details in the tariff criteria. Placing the thresholds in the BPM allows for adaptation for future use cases based on EIM entity initiate circumstances and stakeholder concerns for that particular entity. This necessary flexibility requires tariff provision 29.2(b)(6)(A)(iii), which allows that readiness certification may include deviations from the thresholds established in the business practice manual for meeting the criteria. As set forth in 29.2(b)(8), readiness criteria reporting will include explanation of those deviations and the reasons therefore. In any event, the thresholds need not be restated in the tariff to make them transparent and rigorous. The thresholds have been subject to this stakeholder process and the CAISO has explained the basis for setting the thresholds as it has. Changes in the thresholds going forward will be subject to the business practice manual change management process as well as challenge by stakeholders on the public calls held during market simulation and parallel operations when the CAISO discusses testing results and any resolution of issues. Should a stakeholder have concerns, it may raise</p>

Topic	Stakeholder comments	CAISO response
		<p>them and ask that they be addressed. To the extent its valid concerns are not satisfied during the change management or testing phase, they may be raised in context of the filed readiness certification for FERC consideration.</p> <p>In addition, the CAISO does not believe it is necessary to include specific periods for market simulation in the tariff. The length of the market simulation period that apply to a given EIM entity initiate's market entry is an excellent example of where that flexibility should apply, i.e., the amount of market simulation needed is a function of the EIM entity initiate's particular circumstances. The CAISO and each EIM entity initiate necessarily need the flexibility to adjust these timeframes and that is precisely why we believe the July 21 order did not require specified timeframes. While the tariff comprehensively and finally establishes the criteria to be applied to EIM entity initiate readiness, the experience with NV Energy demonstrates that the length of those periods will be transparent, as directed by FERC, even though not defined in the tariff. The CAISO will be posting that information on its dashboard of criteria and thresholds, and holding public calls throughout the period of market simulation and parallel operations commensurate with the length of that period. For example, information on the CAISO website indicates that NV Energy is</p>

Topic	Stakeholder comments	CAISO response
		<p>subject to 30 days of market simulation and 30 days or more of parallel operations.</p> <p>Nonetheless, as explained below, the CAISO will commit to include in the tariff a minimum period of 30 days for parallel operations. The CAISO does not commit to specify a definitive period of market simulation in the tariff.</p>
<p>Tariff sections 29.2(b)(4)(B) and 29.2(b)(5)</p>	<p>Six Cities provide the following comments:</p> <p>“The draft tariff language refers to ‘an adequate period’ of parallel operations with an EIM Entity Initiate. Recognizing that it may be appropriate to allow some flexibility with respect to the parallel operations period, simple reference to ‘an adequate period’ is unduly vague and allows overly broad discretion. The Six Cities suggest the following modification – in place of ‘an adequate period of parallel operations’ substitute ‘a period of parallel operations of at least thirty consecutive days.’ This modification is consistent with the reference at page 4 of the August 10 paper to ‘thirty full days of parallel production that the EIM Entity will engage before implementing a financially binding market.’”</p>	<p>The CAISO appreciates the need for clarity and will update the tariff to require a minimum of 30 days for parallel operations. This requirement must be distinguished from requiring that the entire 30 period have passed prior to certification. This was not required by the July 21 order and it is important to have the opportunity to maximize the value of the 30 days following certification by continuing but not extending parallel operations by a full 30 days. This should also be distinguished from market simulation. The CAISO maintains that more flexibility is required for market simulation since different EIM entity initiates might need more or less time during that period. No specific tariff duration should be included in the tariff with respect to market simulation.</p>

Topic	Stakeholder comments	CAISO response
	<p>PG&amp;E provides the following comments:</p> <p>“CAISO should provide further details and/or description of what the CAISO means by an ‘adequate period’.”</p>	
<p>Tariff section 29.2(b)(6)(A)(i)</p>	<p>NV Energy suggests the following black-lined revision:</p> <p>“(i) that the processes and systems of the EIM Entity Initiate have satisfied or will have satisfied the readiness criteria set forth in Section 29.2(b)(7) <u>as of</u> the EIM Implementation Date;”</p>	<p>The CAISO appreciates this clarification and accepts the proposed change.</p>
<p>Tariff section 29.2(b)(6)(A)(iii)</p>	<p>BPA provides the following comments:</p> <p>“BPA has reviewed the Energy Imbalance Market (EIM) Entity Readiness Criteria published June 30, 2015, and selected portions of the revised criteria published on August 10, 2015. The criteria and measurable thresholds published on August 10, 2015 appear to be the same criteria as the ones published on June 30. BPA is unclear whether those criteria are the measurable thresholds referenced in section 29.2(b)(6)(A)(iii). BPA objected to the use of those thresholds as not providing sufficient rigor measuring the readiness of the EIM Entity Initiate. In</p>	<p>The CAISO continues to believe that the readiness criteria included in the tariff should not include the specific thresholds for each criteria. The thresholds may be included in the business practice manual. The thresholds have been subject to this stakeholder process and the CAISO has explained the basis for setting the thresholds as it has. Changes in the thresholds going forward will be subject to the business practice manual change management process as well as challenge by stakeholders on the public calls held during market simulation and parallel operations when the CAISO discusses testing results and any resolution of issues. The process will be transparent since a failure to meet the threshold would require explanation prior to certification or</p>



Topic	Stakeholder comments	CAISO response
	<p>particular, demonstrating that the EIM Entity Initiate has adequate reserves to meet the already low and demonstrably inadequate requirements for flexible capacity in the tariff for 90% of the hours for two days is inadequate. BPA believes the measurable thresholds describing system readiness should be incorporated in the revised tariff language. BPA believes section 29.2(b)(A)(iii) should be deleted from the tariff language.”</p> <p>NV Energy suggests the following black-lined revision:</p> <p>“(iii) to any deviations from the <u>readiness criteria</u><del>established</del> thresholds specified in the Business Practice Manuals, and that despite such deviations the criteria was met or will be met as specified in 29.2(b)(7);”</p>	<p>additional time to satisfy the threshold. If the CAISO can’t adequately justify the exception to a threshold, then it would not be possible to certify readiness in the face of a failure to meet that specific threshold.</p> <p>In addition, the CAISO distinguishes the thresholds by which the EIM entity initiate’s ability to pass the resource sufficiency tests is measured from the justness and reasonableness of the resource sufficiency tests themselves. Some comments suggest that the CAISO make changes to the underlying resource sufficiency tests. Such requests are beyond the scope of the readiness criteria under consideration here. These comments suggest that the criteria should include measures that ensure an EIM entity initiate will commit sufficient resources to the Energy Imbalance Market at a level that meets imbalance needs under a full range of operational conditions. Such requests are not consistent with the overall design of the EIM and not necessary to address the issues associated with readiness. A readiness criteria that, for example, ensures that the EIM entity meets imbalance needs under a full range of operational conditions would require a conclusion in this proceeding that the CAISO real-time market design including the EIM is unjust and unreasonable and must be changed. Such requests rely on the wrongful premise that the CAISO <i>should</i> be ensuring there is sufficient flexibility to meet 100 percent of</p>

Topic	Stakeholder comments	CAISO response
		<p>imbalance needs that meet a full range of operational conditions. There is no suggestion in the July 21 order that would reasonably lead one to such a conclusion. Rather, the CAISO has demonstrated that the bulk of the infeasibilities that continue to persist in the EIM are likely due to the lack of visibility to available capacity that the EIM entity has at its disposal, and are not due to a fundamental flaw in the CAISO's overall design.</p> <p>As the CAISO has stated previously, the EIM is designed and built on CAISO's pre-existing real-time market to provide participating balancing authorities the ability to participate voluntarily in sharing capacity to meet their imbalances within the transfer constraints. The EIM as designed and approved by the Commission leaves the EIM entity latitude to continue to operate as a separate control area and voluntarily participate in the EIM, while continuing to maintain system reliability when conditions fall outside of the expected range of conditions the EIM was intended to address. The EIM design as approved and accepted by the Commission, fully recognizes that the EIM entity as do CAISO stakeholders, have full authority over the degree of operational conditions for which the respective balancing authority areas wish to plan and procure.</p> <p>The existing Section 206 proceeding established by the Commission was not intended to question the overall design and fundamental underpinnings of the</p>

Topic	Stakeholder comments	CAISO response
		<p>EIM, particularly not in the context of the readiness requirements addressed here. Rather it was designed to in part address whether there should be readiness criteria in the EIM environment. There is no connection between this issue and imposing a sufficiency tests that tests for a full range of operational outcomes.</p> <p>The currently accepted test is aligned with the fundamental policy and principles on which EIM is established. What some are effectively asking for is that, regardless of the fact that the EIM entity is held to the same requirements that the CAISO is held to with regard to the flexible ramping constraint, regardless of the fact that how much flexible ramping capacity is procured is to be based on the the principles specified in the tariff and business practice manuals, which do not require that the CASIO or the EIM procure sufficient flexibility to meet a full range of operational outcomes, the Commission should require the CAISO to adopt a sufficiency test that imposes a requirement that the EIM entity demonstrate that it has sufficient capacity in that hour to meet a full range of operational conditions. Not only is any request that the CAISO adopt such a test unjust and unreasonable since it would impose requirements on the EIM that are not commensurate with the issues identified in this proceeding, any such request is outside the scope of this proceeding constitutes a collateral attack on the Commission's orders approving the CAISO markets including the</p>

Topic	Stakeholder comments	CAISO response
		EIM.
Tariff section 29.2(b)(6)(B)	<p>BPA provides the following comments:</p> <p>“BPA also believes section 29.2(b)(6)(B) should be edited to allow the EIM Entity Initiate the ability to delay or withdraw its Readiness Certification. BPA sees no basis to limit this section to the California ISO.”</p> <p>NV Energy provides the following comments:</p> <p>“NV Energy does not believe that wholesale withdrawal of an already-submitted readiness certification is the appropriate response to an issue that may arise and cause delay of a set Implementation Date. Rather, should the CAISO and EIM Entity determine to delay the Implementation Date, notice to the Commission and other market participants should include a forecasted new Implementation Date so that all parties are aware of the anticipated timing of the EIM Entity Initiate’s entry into EIM. This date will be based largely on whether some or all of the readiness certification requires recertification.</p>	<p>The CAISO recognizes the potential need for an EIM entity initiate to withdraw its certification and accepts the proposed change.</p> <p>Also, the CAISO recognizes that withdraw may not be the ideal option if there is only a delay and will make the proposed clarification.</p>

Topic	Stakeholder comments	CAISO response
	<p>Therefore, the notice best serves the interests of the Commission and market participants by pointing to the readiness criteria undermined by the issue and requiring recertification, if any; the timing of recertification, if necessary; and the new Implementation Date as based on the need to recertify some or all of the readiness criteria.”</p> <p>NV Energy suggests the following black-lined revisions:</p> <p>“(B) <b>Delay or Re-<u>Certification</u><del>Withdrawal</del></b>. If, subsequent to readiness certification pursuant to Section 29.2(b)(6)(A), the CAISO determines that it cannot proceed with implementation on the Implementation Date, the CAISO will notify the Federal Energy Regulatory Commission of the delay, the reason for the delay, <u>the new Implementation Date if it can be determined,</u> and whether it will <u>need to re-issue a portion or all of the</u><del>withdraw its</del> readiness certificate.”</p> <p>SCE suggests the following black-lined revisions:</p>	

Topic	Stakeholder comments	CAISO response
	<p>“(B) <b>Delay or Withdrawal.</b> If, subsequent to readiness certification pursuant to Section 29.2(b)(6)(A), the CAISO or EIM Entity Initiate determines that it cannot proceed with implementation on the Implementation Date, the CAISO or EIM Entity Initiate will notify the Federal Energy Regulatory Commission of the delay, the reason for the delay, and whether it will withdraw its readiness certificate.”</p>	
<p>Tariff section 29.2(b)(7)</p>	<p>Six Cities provide the following comments:          “In the fourth line, the capitalized term ‘Prospective EIM Entity Initiate’ is undefined. The Cities suggest deleting ‘Prospective.’”</p>	<p>The CAISO accepts the proposed change.</p>
<p>Tariff section 29.2(b)(7)(A)</p>	<p>BPA provides the following comments:          “In Section 29.2(b)(7)(A) the CAISO’s Readiness Criteria should reference any need to have effective models of non-EIM Transmission Providers. The EIM has the potential to impact a broad, interconnected transmission system. And EIM Participants may need to utilize 3<sup>rd</sup>-party transmission systems to effect EIM dispatches. The need to effectively model those 3<sup>rd</sup>-party systems should be</p>	<p>The CAISO recognizes the unique interest of third party transmission service providers that facilitate operation of the EIM through rights made available by their customers or over paths that they operate. Accordingly, the CAISO will clarify that such provider systems are accurately modeled and recognized in the full network model. For example, the CAISO will validate that all required constraints, including transmission constraints and other information that third party transmission providers are sending to the CAISO production system, are fed into the parallel</p>

Topic	Stakeholder comments	CAISO response
	<p>recognized in the Readiness Criteria.”</p> <p>Six Cities provide the following comments:</p> <p>“Use of the word “consistent” in the second line is unclear. Should the word be ‘consistently’?”</p>	<p>operation environment. This ensures that those limits are reflected in the parallel production environment. This commitment should be limited to third party transmission service providers and distinguished from a requirement that would apply more broadly to adjacent balancing authorities or transmission service providers that whose systems are not part of the EIM.</p> <p>The CAISO appreciates the potential confusion caused by the term “consistent” and suggests that it simply be removed.</p>
<p>Tariff section 29.2(b)(7)(A)(i)</p>	<p>Six Cities provide the following comments:</p> <p>“Use of the word ‘exported’ in the fourth line is unclear and appears unnecessary.”</p>	<p>The CAISO appreciates this may be vague and instead suggests it be removed and that the phrase “in the CAISO Full Network Model” be added on the end of the section.</p>
<p>Tariff section 29.2(b)(7)(A)(ii)</p>	<p>Six Cities provide the following comments:</p> <p>“Change ‘matches’ to ‘match’.”</p>	<p>The CAISO accepts the proposed change.</p>
<p>Tariff section 29.2(b)(7)(B)</p>	<p>BPA provides the following comments:</p> <p>“In Section 29.2(b)(7)(B) BPA would propose the deletion of the words ‘within the measurable thresholds specified in the Business Practice Manual for the Energy Imbalance Market or’ in the operative language of the first paragraph</p>	<p>As more fully explained above, the CAISO disagrees that the thresholds applied to the criteria are required to be in the tariff pursuant to the July 21 order. The order specifies that measurable criteria must be included in the tariff. The criteria proposed by the CAISO are measurable and the thresholds measures will be included in the business practice manual. This will be transparent and allow the thresholds to be</p>

Topic	Stakeholder comments	CAISO response
	<p>establishing the readiness criteria in section 29.2(b)(7). BPA believes the Commission’s order required the criteria and measurable thresholds affecting the readiness of the EIM Entity Initiate to be established in the tariff, not modified by approximate capability to implement that can be established and modified in a Business Practice. Removing this language would require any exceptions to the criteria and measurable thresholds to be specified in the Readiness Certification filed under section 29.2(b)(6).”</p> <p>Six Cities provide the following comments:</p> <p>“The phrase ‘all operations staff identified by the EIM Entity Initiate’ is not sufficiently prescriptive and allows undue discretion to the EIM Entity Initiate. The phrase should read ‘all operations staff of the EIM Entity Initiate who will have responsibility for EIM transactions, operations or settlements.’”</p>	<p>tailored for future EIM entity initiates. Moreover, stakeholders will have an opportunity to comment on such changes through the CAISO’s business practice manual change management process. This process includes a notice and comment requirement.</p> <p>The CAISO appreciates the change proposed by the Six Cities and proposes the following: “<u>all operations staff of the EIM Entity Initiate who will have responsibility for EIM transactions, operations or settlements</u>, identified by the EIM Entity Initiate.</p>
Tariff section 29.2(b)(7)(C)	<p>Six Cities provide the following comments:</p> <p>“In sub-sections (i) and (ii), the references</p>	<p>EIM Demand is defined as energy to serve load internal to an EIM balancing authority area. This by definition may include third party load within that</p>



Topic	Stakeholder comments	CAISO response
	to 'EIM Demand' are unclear. Does this refer to EIM Demand in the EIM Entity Initiate BAA or to overall EIM Demand for all BAAs participating in the EIM?"	balancing authority area. No clarification is required.
Tariff section 29.2(b)(7)(D)	<p>BPA provides the following comments:</p> <p>“BPA proposes that the language in section 29.2(b)(7)(D) be made stronger by deleting “ability to” so that the section would read:</p> <p><b>Balanced Schedules.</b> The EIM Entity Initiate’s Scheduling Coordinator has demonstrated for a period of thirty days that it can-</p> <ul style="list-style-type: none"> <li>(i) balance EIM Demand and EIM Supply</li> <li>(ii) pass capacity test, as set forth in Section 29.34(l); and</li> <li>(iii) pass the flexible ramping sufficiency test, as set forth in Section 29.34(m).”</li> </ul>	<p>The CAISO has proposed a threshold for this criteria of two days, which will be included in the business practice manual. There is no need to include this in the tariff. Previously this comment was rejected based upon the fact that the proposed operational success rates account for the inability of market simulation to precisely emulate all real-time system operations and the associated burden. The CAISO continues to believe that this remains the appropriate threshold measure for this criteria. The two day threshold fully accounts for 48 consecutive hours of balancing by the EIM entity initiate, which also includes the transition period across the two days. However, in consideration of stakeholder comments requesting a longer period, the CAISO proposes to change the threshold from two consecutive monitored days to 5 non-consecutive monitored days during parallel operations. This proposal will be discussed with stakeholders.</p> <p>The testing period regardless of its duration is designed to expose the EIM entity initiate operators to a variety of operating conditions and give them experience with responding to those conditions. No</p>

Topic	Stakeholder comments	CAISO response
		<p>period of testing will ensure that operations will be without exceptional conditions or challenges once the EIM entity initiate commences binding operations. Therefore, an extended period of testing designed to ensure an issue-free or “mistake-free” period is neither sufficient nor necessary to ready the EIM Entity for live operations.</p>
<p>Tariff section 29.2(b)(7)(D)(i)</p>	<p>Six Cities provide the following comments:  “The Six Cities suggest adding at the end of this sub-section ‘for the EIM Entity Initiate’s BAA.’”</p>	<p>The CAISO accepts the proposed addition.</p>
<p>Tariff section 29.2(b)(7)(F)(i)</p>	<p>SCE suggests the following black-lined revision:  “(i) the CAISO Settlement Statements and Invoices match the operational data fed into the settlement system and the resulting calculations correspond to the formulas defined in the CAISO Tariff and applicable Business Practice Manuals during market simulation <u>and parallel operations</u>; and”</p> <p>PG&amp;E provide the following comments:  “CAISO should specify what the</p>	<p>The CAISO agrees with the proposed tariff change by SCE and will include the proposed change by PG&amp;E to provide the additional clarification sought.</p> <p>The details concerning the number of settlement statements and invoices will be included in the market simulation and parallel operations plans, which will be published by the CAISO prior to parallel operations.</p>

Topic	Stakeholder comments	CAISO response
	<p>expectations are for demonstrating success in regards to publishing settlement statements/invoices (e.g. the number of statements/invoices, the number of weeks of quality results).”</p> <p>PG&amp;E suggests the following black-lined revision:</p> <p>“(i) match the operational data <u>published to stakeholders during the market simulation or, if not published, match the operational data fed into or generated by the...</u>”</p>	
<p>Tariff section 29.2(b)(7)(G)</p>	<p>NV Energy suggests the following black-lined revision:</p> <p>“(G) <b>Outage Management System.</b> The EIM Entity Initiate will verify its ability to submit and retrieve outages information to <u>and from</u> the CAISO within the required timelines.”</p> <p>PG&amp;E suggests the following black-lined revision:</p> <p>“(G) <b>Outage Management System.</b> The EIM Entity Initiate will verify its ability to submit and retrieve outages information <u>accurately and correctly</u> to the CAISO</p>	<p>The CAISO agrees with the proposed changes to this section and will accept them.</p>

Topic	Stakeholder comments	CAISO response
	within the required timelines.”	
Tariff section 29.2(b)(7)(H)	<p>BPA provides the following comments:</p> <p>“Section 29.2(b)(7)(H) should also reference the need to demonstrate effective coordination with impacted 3<sup>rd</sup>-Party transmission providers. In some cases electronic and manual communication will be critical for non-EIM transmission providers whose systems are used to effect EIM dispatches to maintain reliable technical and commercial operations.”</p>	<p>The CAISO agrees with this proposal and will include a specific reference to third party transmission service provider communications. Again this would be limited to third party transmission providers whose system has been made available to support the EIM.</p> <p>See also the comment below</p>
Tariff section 29.2(b)(7)(H)(i)	<p>NV Energy provides the following comments:</p> <p>“NV Energy clarifies that the communications relevant to market readiness are those between the EIM Entity and the Market Operator. These communications are more appropriately specified in the EIM Entity’s operating procedures, which must be developed pursuant to 29.2(b)(7)(K)(ii), and not in the EIM Entity’s business practice manual (which addresses the EIM Entity’s obligations to and relationship with its</p>	<p>The CAISO agrees with this proposed changes.</p>

Topic	Stakeholder comments	CAISO response
	<p>customers). In addition, it is appropriate that these procedures are established as of the date of the EIM Entity Initiate’s readiness certification, although the procedures may be under continuous development and finalization through the period of market simulation.”</p> <p>NV Energy suggests the following black-lined revision:</p> <p>“(j) The process and procedures used for voice and/or electronic messaging <u>between the EIM Entity Initiate and the Market Operator</u> are identified and incorporated into the EIM Entities Initiate’s <u>operating procedures</u><del>business processes before the start of market simulation specified in section 29.2(b)(4)(A).</del>”</p> <p>Six Cities provide the following comments:</p> <p>In the second line, change ‘Entities’ to ‘Entity.’”</p>	
<p>Tariff section 29.2(b)(7)(H)(ii)</p>	<p>Six Cities provide the following comments:</p>	<p>The CAISO agrees with this proposed change.</p>

Topic	Stakeholder comments	CAISO response
	<p>“Re the phrase ‘operations staff identified by the EIM Entity Initiate,’ see the comment on §29.2(b)(7)(B) above. Instead use the phrase ‘operations staff of the EIM Entity Initiate <u>who will have responsibility for EIM transactions, operations or settlements.</u>”</p>	
<p>Tariff section 29.2(B)(7)(I)</p>	<p>BPA provides the following comments:  “Section 29.2(b)(7)(I) should recognize the potential need for 3<sup>rd</sup>-party transmission providers whose systems are use to effect EIM dispatches to develop structured scenarios to demonstrate that they can maintain reliable technical and commercial operations.”</p> <p>NV Energy provides the following comments:  “NV Energy has removed references to “workarounds” in this section of the tariff. The criteria properly establishes that any significant issues arising during market simulation are resolved before implementation. How those issues are resolved is a matter of the threshold, appropriately specified in the CAISO business practice manual. Moreover,</p>	<p>The CAISO, as noted above, agrees that third party transmission providers whose systems are used to support the EIM should be considered in the Market Simulation. Accordingly, the CAISO will seek feedback from market participants in identifying relevant structured scenario exercises and suggests that interested stakeholders participate in that process. That process is reflected in the current draft tariff criteria pursuant to section 29(b)(4)(A). There is no need for a specific criteria associated with third party transmission providers.</p> <p>The CAISO believes that the concept of a workaround in some contexts is relevant. A “workaround”, although not defined, is commonly understood as an alternative means to achieve the same result. If, for example, a user interface fails testing and, rather than fixing that user interface, the same information is displayed through another application, there is no reason to consider that a failure. This is not an exception to the criteria since</p>

Topic	Stakeholder comments	CAISO response
	<p>“workaround” is not a defined term. NV Energy believes that what the CAISO is attempting to convey is that the EIM Entity will pass all market simulation scenarios by demonstrating it can operate a functioning and reliable market in all scenarios, either by using the tools anticipated or by applying an acceptable alternative solution that achieves the same “passing” operational result. NV Energy’s proposed revision confirms its understanding of this criteria.”</p>	<p>the objective was achieved. It would be incumbent on the CAISO to explain why the workaround was equivalent to the planned result. The CAISO therefore suggests removing references to “workaround” and instead making it clear that the resolution of a variance may rely upon an interim solution that supports certification provided that the interim solution is functionally equivalent.</p>
<p>Tariff section 29.2(b)(7)(I)(i)</p>	<p>NV Energy suggests the following black-lined revision:</p> <p>“(i) <b>Day in the life simulation.</b> The EIM Entity Initiate operations staff identified by the EIM Entity Initiate complete end-to-end daily market workflow <del>with no critical defects or workarounds.</del>”</p> <p>Six Cities provide the following comment:</p> <p>“Re the phrase ‘identified by the EIM Entity Initiate,’ see the comment on §29.2(b)(7)(B) above. Instead use the phrase ‘who will have responsibility for EIM transactions, operations or settlements.’”</p>	<p>The CAISO believes the reference to “critical defects” should remain in this criteria. Completion of the workflow processes is not sufficient. The workflow should be completed and not rely on critical defects. The CAISO is OK removing the phrase “workarounds” in this context.</p> <p>The CAISO must rely upon the EIM entity initiate to identify its staff who will be responsible for EIM transactions, operations or settlements. It is important to have a defined list of personnel to be trained for tracking purposes. Changing the reference as requested would appear to suggest the CAISO must somehow know which EIM entity initiate staff should be trained. The CAISO is not in a position to do so and prefers to not accept the</p>

Topic	Stakeholder comments	CAISO response
		proposed change if it changes the meaning in any way.
Tariff section 29.2(b)(7)(I)(ii)	<p>NV Energy suggests the following black-lined revision:</p> <p>“(ii) <b>Structured scenarios simulation.</b> The EIM Entity Initiate operations staff execute and pass all structured scenarios provided by CAISO with all significant issues resolved <del>or identified a feasible workaround.</del>”</p>	The CAISO is OK replacing the concept of a workaround with resolution. As explained above, a workaround represents an alternative means of achieving the same result and must be explained according to the July 21 order.
Tariff section 29.2(b)(7)(I)(iii)	<p>NV Energy suggests the following black-lined revision:</p> <p>“(iii) <b>Unstructured scenarios simulation.</b> The EIM Entity Initiate operations staff identified by the EIM Entity Initiate execute and pass all unstructured scenarios provided by the EIM Entity Initiate, with significant issues resolved <del>or have identified a feasible workaround.</del>”</p> <p>Six Cities provide the following comment:</p> <p>“Re the phrase ‘identified by the EIM Entity Initiate,’ see the comment on §29.2(b)(7)(B) above. Instead use the phrase ‘who will have responsibility for</p>	<p>The CAISO is OK replacing the concept of a workaround with resolution. As explained above, a workaround represents an alternative means of achieving the same result and must be explained according to the July 21 order.</p> <p>The CAISO must rely upon the EIM entity initiate to identify its staff who will be responsible for EIM transactions, operations or settlements. It is important to have a defined list of personnel to be trained for tracking purposes. Changing the reference as requested would suggest the CAISO must somehow know which EIM entity initiate staff should be trained. The CAISO is not in a position to do so and prefers to not accept the proposed change.</p>



Topic	Stakeholder comments	CAISO response
	EIM transactions, operations or settlements.”	
Tariff section 29.2(b)(7)(l)(v)	<p>NV Energy provides the following comments:</p> <p>“This task occurs in parallel operations, not in Market Simulation. NV Energy proposed making it its own stand alone criteria and has moved it to 29.2(b)(7)(K), which changes “Additional Criteria” to (b)(7)(L).”</p> <p>NV Energy suggests the following black-lined revisions:</p> <p><b>“(K) Market quality review.</b> The CAISO prices are validated based on input data. <u>The CAISO charge code settlement amounts are accurate based on input data.</u>”</p>	<p>The CAISO agrees that the market quality review criteria in 29.2(b)(7)(l)(v) can be moved to 29.2(b)(7)(K)(vii).</p> <p>The CAISO believes that validation based on input data is the relevant criteria and that the term “accurate” would add emphasis. The CAISO will clarify that validation includes confirmation of accuracy based on input data.</p>
Tariff section 29.2(b)(7)(J)	<p>NV Energy suggests the following black-lined revisions:</p> <p><b>“(J) Parallel Operations Production Plan.</b> The Parallel <del>operations</del>production specified in section 29.2(b)(4)(B) runs consistently and in accordance with the timeframe set forth in the parallel operations plan.”</p>	The CAISO agrees with the proposed changes.

Topic	Stakeholder comments	CAISO response
	<p>PG&amp;E suggests the following black-lined revisions:</p> <p>“(J) <b>Parallel Production Plan.</b> The period of parallel operations specified in section 29.2(b)(4)(B) runs consistently and in accordance with the timeframe set forth in the EIM Entity Initiate-specific parallel operation plan”</p>	
Designation of tariff section 29.2(b)(7)(K)	<p>NV Energy suggests the following black-lined revision:</p> <p>“(L) <b>Additional Criteria</b>”</p>	The CAISO will conform the numbering in the final version.
Tariff section 29.2(b)(7)(K)(i)	<p>NV Energy suggests the following black-lined revisions:</p> <p>“(i) <b>Execution of Necessary Agreements.</b> The EIM Entity Initiate has complied with Section 29.4(c)(2) and executed any necessary <del>non-disclosure</del> agreements for <u>operating as an EIM Entity, including any necessary non-disclosure agreements</u><del>the exchange of information.</del>”</p>	The CAISO agrees with the proposed change.
Tariff section 29.2(b)(7)(K)(iii)	NV Energy suggests the following black-lined revisions:	The CAISO suggests retaining the word necessary in context of the CAISO establishing EIM entity initiate

Topic	Stakeholder comments	CAISO response
	<p>“(iii) <b>EIM Entity Initiate Identification.</b> The CAISO has established and the EIM Entity Initiate has tested all <u>necessary</u> SCIDs and Resource IDs <u>established</u> for the EIM Entity Initiate’s Balancing Authority Area.”</p>	<p>IDs and accepts thereafter referencing that the EIM entity initiate has tested the established IDs.</p>
<p>Tariff section 29.2(b)(7)(K)(iv)</p>	<p>BPA provides the following comments: “BPA would like the ISO to include language in its Tariff Revision specifying that the non-participating, or ‘available resources’ that are referenced in section K (iv) of the Tariff Revision are specifically limited to those which are owned or have been contracted for by the EIM Entity Initiate’s merchant function. BPA appreciates the clarification that ISO staff has provided in its Reply Comments on the Technical Conference Docket Nos. ER15-861-000 and EL15-53-000.”</p>	<p>The CAISO will update this provision to reflect consistency with the proposed tariff changes to implement the “EIM Available Balancing Capacity” proposal, including clarifying language or cross reference as necessary to ensure only those resources that the EIM entity initiate has identified will be included. The CAISO is not in a position to validate what resources the EIM entity initiate is authorized to represent in this manner. Further, the resource owner has ample opportunity to raise concerns with the EIM entity initiate should there be some misrepresentation without the CAISO being in the middle of that relationship.</p>
<p>Tariff section 29.2(b)(7)(K)(v)</p>	<p>NV Energy suggests the following black-lined revision: “(v) <b>Flexible Capacity Requirements.</b> The CAISO has received and stored all historical data from the EIM Entity Initiate necessary and sufficient for the CAISO to</p>	<p>The CAISO accepts the proposed change.</p>

Topic	Stakeholder comments	CAISO response
	<p>perform the flexible ramp requirement, and the CAISO has established flexible capacity requirements for the EIM Entity Initiate’s Balancing Authority Area and <u>also for</u> the combined EIM Area including the EIM Entity Initiate.”</p>	
<p>Tariff section 29.2(b)(8)</p>	<p>NV Energy provides the following comments:</p> <p>“In the interest of fully meeting the Commission’s directives on transparency, NV Energy recommends that the tariff language establish the means of reporting readiness testing results through both published reports and open calls.”</p> <p>NV Energy suggests the following black-lined revisions:</p> <p>“(8) <b>Readiness Reporting.</b> The CAISO shall report on the CAISO Website periodically, but not less than monthly during the market simulation pursuant to section 29.2(b)(4)(A) and not less than twice a month during parallel operations pursuant to section 29.2(b)(4)(B0, on progress towards achieving the readiness criteria in Section 29.2(b)(7). <u>The reports will include,</u> including providing</p>	<p>The CAISO’s normal market simulation results processes include discussions with stakeholders during the twice weekly market simulation calls, which will be extended for parallel operations. These results postings will include the opportunity for stakeholder input on the regularly scheduled calls. Accordingly, the CAISO does not see a need for the requested clarification but will further consider this matter given the simple clarifying nature of the request.</p>

Topic	Stakeholder comments	CAISO response
	<p>information explaining any exceptions to or deviations from the readiness <u>criteria</u> thresholds, <u>which shall be granted</u> according to the standards and process for granting exceptions or deviations <u>that are set forth in the Business Practice Manual for the Energy Imbalance Market, and the reasons therefore. These reports shall be discussed in regular calls open to all market participants and also published on the CAISO, and publish such reports on its website in advance of and in support of the certificate to be filed pursuant to Section 29.2(b)(6).</u>”</p>	
<p>Appendix A definition of “Base Market Model”</p>	<p>Six Cities provide the following comments:  “Does the Base Market Model for purposes of the Energy definition Imbalance Market only include the EIM Entity <u>Initiate</u> Balancing Authority Area(s), or does it also include the EIM Entity Balancing Authority Area(s)?”</p>	<p>The CAISO recognizes that for purposes of the EIM the Base Market Model should include the network model for each EIM Entity and the EIM Entity Initiate balancing authority areas and will clarify this definition accordingly.</p>
<p>Appendix A definition of new term “EIM Entity Initiate”</p>	<p>SCE provides the following comment:  “I wonder if this term creates more problems than it solves. With two different terms, every reference in the tariff needs to be reviewed for which term, or perhaps both, is appropriate. If this is</p>	<p>The CAISO will consider alternative references and is open to suggestions, including perhaps using the term “prospective” as an un-capitalized modification of the term EIM Entity? It is unlikely that an entity not under the implementation agreement with a pending implementation date would suggest it should be</p>

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	to make the entry into financially binding operations dependent upon issuing certifications by the CAISO and EIM Entity, then a clause can be inserted into this section stating this qualification.”	considered a prospective EIM entity.
Appendix A definition of revised term “State Estimator”	Six Cities provide the following comments: “Does the State Estimator for purposes of the Energy Imbalance Market only include the EIM Entity <u>Initiate</u> Balancing Authority Area(s), or does it also include the EIM Entity Balancing Authority Area(s)?”	The CAISO recognizes that for purposes of the EIM the State Estimator should include the solution for each EIM Entity and the EIM Entity Initiate balancing authority areas and will clarify this definition accordingly.
Appendix A definition of new term “EIM Entity Initiate”	Six Cities provide the following comments: “For clarity, add to the end of this definition ‘but has not yet become an EIM Entity.’”	The CAISO accepts the proposed change.
Appendix A definition of new term “EIM Entity Initiate”	PG&E provides the following comment: “ Clarification requested: Does this definition include only those EIM Entities that have not yet activated their EIM market processes, or does it include all EIM entities as well?”	Only prospective EIM entities are covered by these criteria unless otherwise specifically provided. Also, see the response above that includes additional clarification to this definition.
Resource	BPA provides the following comments:	The readiness criteria ensure that an EIM entity

Topic	Stakeholder comments	CAISO response
sufficiency criteria	<p>“The Commission has directed the ISO to develop measurable criteria. For example, Section 29.2(D) of the Tariff Revision requires demonstrations of Supply and Demand balance, as well as Flexible Ramping Constraint capacity sufficiency. Specifically, section 29.2(D)(iii) points to the flexible ramping sufficiency test in section 29.34(M) of the Tariff, which itself points to Section 10.3.2 of the Business Practices Manual for the Energy Imbalance Market. Section 10.3.2.1 of the Business Practices Manual defines the Flexible Ramp Sufficiency Test, where a requirement for an EIM Entity’s flexible ramping is calculated “based upon the CAISO load forecast, the CAISO variable energy resource forecast, and CAISO’s historical assessment of the ramping capability needed to meet forecast uncertainty and variability”. In this calculation, the ISO derives a particular quantity of resources for an EIM Entity: the amount of flexible ramp requirement without accounting for the diversity benefit of a particular Entity.</p> <p>BPA proposes additional measurable criterion by which to determine EIM Entity Initiate readiness. First, in Tariff Section 29.2(K)(iv), the ISO has proposed adding</p>	<p>initiate is able to pass the resource sufficiency evaluation tests within the specified thresholds. The readiness criteria are not intended to demonstrate that the EIM entity initiate has sufficient resources to meet its balancing authority obligations. Including a requirement that the EIM entity initiate would meet historical ramping requirements 99% or 100% of the time for at least 30 days during parallel operations is unreasonable. Comments that propose changes to the underlying resource sufficiency requirements are beyond the scope of this stakeholder process as explained more fully above. The readiness criteria measure the current Commission approved requirements for EIM entity participation. Stakeholders that desire changes to the EIM design are welcome to submit proposals as part of the CAISO’s ongoing market enhancements efforts.</p>

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	<p>a criterion stating that the EIM Entity Initiate also has identified non-participating, or additional ‘available capacity’, which will be included in the Resource Plan. BPA proposes that the ISO use the amount of resources represented by the flexible ramp requirement without diversity benefit from Section 10.3.2.1 of the BPM <i>plus</i> the amount of resources identified in Section 29.2(K)(iv) of the Tariff as a quantifiable measure of sufficient ramping resource capability. In order to be found ‘ready’ to join the EIM, an EIM Entity Initiate should have to demonstrate that this sum of resources discussed above would meet historical ramping requirements at least 99% of the time. Also, the EIM Entity Initiate should demonstrate that it has met the 99% standard for an equivalent month of the study for at least 30 days during parallel operations.</p> <p>Second, as quoted above, in Section 10.3.2 of the BPM, the ISO discusses examining historical ramping capability, although no timeline for historical data is mentioned. In BPA’s experience involving variable energy resources, including both hydroelectric and wind, four years of historical data likely provides</p>	



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	<p>a large enough representative sample to provide a thorough assessment of ramping capability requirements, given the variation seen. At the very least, the ISO must examine one year of historical ramping capability for the Flexible Ramping Sufficiency Test to provide meaningful results.”</p> <p>Powerex provides the following comments:</p> <p>“Currently, CAISO’s criteria only require a BAA to demonstrate that it passes the flexible ramping sufficiency test in 90% of the monitored hours on a single day prior to parallel operation and two days before full activation. As numerous stakeholders have pointed out, a 10% failure rate tolerates a level of resource insufficiency higher than what prompted FERC to initiate a Section 206 proceeding on the CAISO EIM and direct CAISO to develop readiness criteria in the first place, and is unduly permissive. [Footnote: Thus far, CAISO has not provided a meaningful response to these comments, stating only that it believes that these thresholds are ‘sufficiently rigorous’ and that the use of higher thresholds ‘for balancing the EIM</p>	

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	<p>Entity will have to use production e-tag information.’ CAISO Stakeholder Comments Matrix, Draft Energy Imbalance Market Entity Readiness Criteria – May 7, 2015 at 11, <i>available at <a href="http://www.caiso.com/Documents/StakeholderCommentsMatrix_EnergyImbalanceMarketEntityReadinessCriteria.pdf">http://www.caiso.com/Documents/StakeholderCommentsMatrix_EnergyImbalanceMarketEntityReadinessCriteria.pdf</a></i>. It is unclear why the limitations on the availability of production e-tag information requires the use of a 90% threshold as opposed to a 95% or 99% threshold.] In addition, experience with the EIM to-date suggests that measuring resource sufficiency over one or two days will not provide a meaningful test of whether a BAA is offering sufficient resources through the EIM to meet the imbalance needs of its customers. [Footnote: <i>Cal. Indep. Sys. Operator Corp.</i>, June 15 Informational Report, Docket No. ER15-402-000 at Fig. 21 (filed Aug. 6, 2015) (showing dramatic increases in the number of failures of the flexible ramping sufficiency test following periods of relative stability).]</p> <p>Powerex believes that the thresholds used to measure resource sufficiency should be sufficiently rigorous to ensure that the BAA has sufficient resources</p>	

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	<p>available to meet the imbalance needs of its customers under a full range of operating conditions. For that reason, Powerex recommends that a BAA be required to demonstrate that it has passed the flexible ramping sufficiency test for 100% of the hours during an extended period of time prior to being permitted to integrate into the EIM. For example, the BAA could be required to pass the flexible ramping sufficiency every hour for 30 consecutive days or for several weeks.”</p>	
Settlement accuracy	<p>Powerex provides the following comments:</p> <p>“It is well known that there have been significant issues experienced with the accuracy of EIM settlements in the PacifiCorp BAAs since the EIM commenced operations, leading numerous PacifiCorp transmission customers to submit settlement disputes to PacifiCorp. As a precondition to the participation of a new BAA in the EIM, both CAISO and the BAA should be required to demonstrate the ability to timely and accurately issue and process EIM settlements, from ‘bid-to-bill,’ for a</p>	<p>The proposed settlements readiness criteria is sufficient to demonstrate that the CAISO and EIM entity initiate settlements are accurate based on input data and can be published in a timely manner.</p> <p>It is critical that the settlements be shown to accurately reflect market data. The EIM Entity should also demonstrate that it has the mechanism to generate the statements and validate them in time for the CAISO cycles. Achieving these results should be sufficient to guarantee accurate invoices when the market operations become binding.</p>

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	<p>meaningful period of time.</p> <p>Although Powerex recognizes that the current readiness criteria include metrics related to the accuracy of settlement statements, it appears that these metrics only require CAISO and the BAA seeking to participate in the EIM to verify that the settlement statement and invoices for a single month accurately reflect system and market data.</p> <p>In order to fully ensure the accuracy of EIM settlements, Powerex believes that CAISO and the BAA should issue draft settlement statements and invoices to market participants and transmission customers for an appropriate period of parallel operation (<i>e.g.</i>, 30 days), and do so within the specified timelines for issuing statements. Giving market participants and transmission customers the ability to review EIM settlements and invoices will provide an additional safeguard to ensure that CAISO and the BAA are capable of issuing accurate and timely settlement statements and invoices prior to a BAA’s integration into the EIM.”  [Footnotes omitted]</p>	
Price formation	Powerex provides the following	It is unreasonable to expect that a readiness criteria

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	<p>comments:</p> <p>“It also is well known that CAISO has experienced substantial price formation issues over the past year due to CAISO’s decision to implement a series of significant market changes in quick succession, including CAISO’s Fifteen Minute Market, the expanded Full Network Model, and the EIM. Integrating a new BAA into CAISO’s markets at a time when CAISO is already experiencing significant price formation issues needlessly increases the complexity of CAISO’s markets and may make it more difficult to address outstanding issues. For that reason, Powerex recommends that CAISO be required to address any outstanding price formation issues prior to integration of another BAA into the EIM. Identifying the metrics by which such a demonstration may be made should be the subject of further stakeholder discussion with the CAISO.” [Footnote omitted]</p>	<p>should encompass broader CAISO market performance issues. Such matters are addressed through the CAISO’s ongoing market performance and improvement efforts. See, for example, the monthly reports filed by the CAISO and DMM with respect to performance of the EIM. Suggesting that they be considered as a pre-condition to EIM participation would intrude upon the EIM entity initiate’s decision to participate and beyond the scope of this stakeholder process.</p>
<p>Transmission rights to facilitate EIM transfers across third-party systems</p>	<p>Powerex provides the following comments:</p> <p>“The next BAA expected to join the EIM</p>	<p>The CAISO recognizes the role third party transmission service providers may plan in the implementation of an EIM entity initiate, and has proposed to reflect that as more fully explained above. Specific circumstances associated with future</p>

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	<p>after NV Energy is the BAA operated by Puget Sound Energy, Inc. ('PSE'). Unlike PacifiCorp or NV Energy, PSE is not directly interconnected to any BAAs participating in the EIM. Accordingly, PSE has indicated that it will need to enter into an agreement with Bonneville Power Administration ('BPA') to facilitate its use of BPA's transmission system for EIM Transfers. Powerex believes that PSE – and any other BAAs that plan to rely on the use of third-party transmission systems for the dispatch of EIM Transfers – should be required to demonstrate that they have entered into any necessary contractual arrangements with the appropriate transmission providers. The third party transmission provider whose system will be used to facilitate EIM Transfers should also be required to certify its readiness to accommodate such service."</p>	<p>implementations will be considered on a case-by-case basis.</p>
<p>Page 4 of CAISO's Aug. 10 narrative description of readiness criteria</p>	<p>Six Cities provide the following comments:          "As noted above, there is a reference to 'thirty full days of parallel production that the EIM Entity will engage before implementing a financially binding market.' The Six Cities agree that the</p>	<p>The CAISO has accepted a proposed change to reflect that parallel operations will be at least 30 days.</p>

Topic	Stakeholder comments	CAISO response
	<p>period of parallel operations should consist of at least thirty consecutive days, and that minimum should be included in the tariff language.”</p>	
<p>Pages 6-9 of CAISO’s Aug. 10 narrative description of readiness criteria</p>	<p>Six Cities provide the following comments:</p> <p>“The threshold levels for Readiness Criterion Identifiers 2, 3, 10, 11, and 12 do not appear to be sufficiently rigorous. With respect to Readiness Criterion Identifier 2, the percentage allowances for inconsistencies in SCADA measurements (10 percent prior to the start of parallel operations and 5 percent during the parallel operations period) seem overly broad. With respect to Readiness Criteria Identifiers 3, 10, 11 and 12, the thresholds not only allow a bandwidth for failures (10 percent or, for Readiness Criterion Identifier 10, five percent before full activation) but also require that the threshold be met for only one to three days during the testing or parallel operations periods. This approach appears to allow greater than ten percent error or failure rates during most days of the simulations and parallel operations periods. The Six Cities request that the ISO provide additional explanation for</p>	<p><b>Threshold 2</b></p> <p>The CAISO has included a MW quantity measure associated with the SCADA metric. The CAISO believes that these thresholds are sufficiently rigorous to demonstrate readiness on the system before going into production; some of the actions that the EIM entity will take are not appropriate during market simulation and parallel operations when the instructions are not binding. i.e., to support higher thresholds for balancing the EIM entity will have to use production e-tag information, which is not available prior to production. The thresholds reflect an operational success rate that accounts for the inability of market simulation to precisely emulate all real-time system operations. The CAISO believes the threshold is not overly broad and is sufficiently rigorous.</p> <p><b>Threshold 3</b></p> <p>The CAISO has included thresholds for the state estimator solution quality that are appropriate to enter parallel operation and production. The state estimator application must continuously fine tune its parameters and improve load distribution factors quality&lt; During the interim phase, it is not abnormal for State</p>

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	<p>why the proposed thresholds are appropriate and adequate to establish readiness for EIM operation.”</p>	<p>estimator software, depending on its configuration parameters and input data, to result in values of generation and/or load from time to time. These values are typically improved by continuous monitoring and fine tuning over a long period of time that can extend to years. However, the state estimator solution thresholds are established to ensure not only the state estimator solves every 30 seconds, but also the quality of this solution. Anything above the 10% and 5% thresholds for state estimator is typically not acceptable to be input to the market base network model due to the imbalance and settlement implications. These thresholds are also translated into total load and generation errors which are operationally acceptable and do not cause any reliability or financial concerns</p> <p><b>Thresholds 10,11 and 12</b></p> <p>The thresholds are appropriate for the activity contemplated through the end of market simulation. The CAISO believes that these metrics are sufficiently rigorous to demonstrate readiness on the system before going into production; some of the actions that the EIM entity will take are not appropriate during market simulation and parallel operations when the instructions are not binding. i.e., to support higher thresholds for balancing the EIM entity will have to use production e-tag information, which is not available prior to production. The thresholds reflect an operational success rate that</p>



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		<p>accounts for the inability of market simulation to precisely emulate all real-time system operations. The thresholds accommodate that the system is not supported 24/7 during that time and that the quality of the data in that system is not guaranteed to be of a production quality. There will be challenges to synchronize the balancing of the system with the activities related to the submission of e-tags and the associated scheduling in production. The CAISO believes that the thresholds are actually quite rigorous considering that the resources themselves will not be moving with respect the dispatch coming out of the parallel operations systems. However, in consideration of stakeholder comments requesting a longer period, the CAISO proposes to change the threshold from two consecutive monitored days to 5 non-consecutive monitored days during parallel operations. This proposal will be discussed with stakeholders.</p>
<p>Page 10 of CAISO's Aug. 10 narrative description of readiness criteria</p>	<p>Six Cities provide the following comments:          "The threshold boxes for Readiness Criterion Identifiers 18, 20, and 21 indicate that EIM Entity Initiate and CAISO executives will approve exceptions to satisfaction of the criteria. What will be the standards for approval of</p>	<p>The CAISO will create standards and a process that will guide the consideration and application of exceptions to the thresholds. This review process will be included in the EIM business practice manual. CAISO will provide some description of what appropriate standards and process in the FERC filing supporting the tariff language.          In addition, any deviation from the thresholds that</p>

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	<p>any exceptions, and how will market participants be informed as to what exceptions have been approved and why?"</p>	<p>satisfy the executives will be explained fully in stakeholder calls, noted on the dashboard of readiness progress, and explained in the certification statements of the CAISO and the EIM Entity. The certification filing will set forth the reasons for the deviation. Consideration of whether to apply the deviation will follow a process that has appropriate checks and that is transparent.</p>
<p>Page 13 of CAISO's Aug. 10 narrative description of readiness criteria</p>	<p>Six Cities provide the following comments:</p> <p>"It is not clear whether the ISO intends to run the parallel operations period prior to or after the readiness certification. The discussion at page 4 appears to suggest that the parallel operations period will run during the thirty day period prior to financially binding implementation, but the description on page 13 indicates that the readiness certification (which is required at least thirty days prior to financially binding implementation) will occur after the parallel operations period. The Six Cities request that the ISO clarify whether the parallel operations period will occur prior to or after the readiness certification."</p>	<p>The July 21 order requires a reasonable period of parallel operation prior to certification. The CAISO has also clarified above that the readiness criteria will specify that the minimum period for parallel operations will be 30 days. With respect to the NV Energy implementation, the CAISO anticipates that there will be about 30 days of parallel operations prior to certification. However, the CAISO believes the July 21 order allows flexibility such that, for example, the 30 day parallel operations period could straddle the certification with about two weeks before and about two weeks following. In other words, parallel operations may extend beyond the readiness certification date if necessary to continue preparing the EIM Entity Initiate for market operations. That decision will be made on a case by case basis. The CAISO believes this flexibility should be maintained and has proposed further specificity in the tariff (see section 29.2(b)(5)).</p>



## CERTIFICATE OF SERVICE

I hereby certify that I have served the foregoing document upon the parties listed on the official service list in the captioned proceedings, in accordance with 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 28th day of August, 2015.

*/s/ Michael E. Ward*

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