October 21, 2015

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

Re: California Independent System Operator Corporation

Response to Deficiency Letter Regarding August 19 Filing in Compliance with July 20, 2015, Order, Docket No. ER15-861-003

Dear Secretary Bose:

On August 19, 2015, pursuant to the Commission's "Order on Technical Conference" issued in Docket Nos. ER15-861 and EL15-53 on July 20, 2015,[1] the California Independent System Operator Corporation (CAISO)[2] submitted a filing in this proceeding to include in its tariff enhancements to its Energy Imbalance Market ("EIM"). The enhancements are necessary to enable the EIM to automatically recognize and account for non-contingency reserve capacity that balancing authority areas participating in the EIM use to resolve power balance infeasibilities in their individual balancing authority areas. This enhancement is designed to address the structural market design issue identified in this proceeding that contributed to the price spikes observed after the launch of the integration of the first EIM entity last fall.

The CAISO recognizes that the information provided in this letter constitutes an amendment to the August 19 filing and that the Commission will

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[1] *Cal. Indep. Sys. Operator Corp*., 152 FERC ¶ 61,060 (2015) ("July 20 Order").

[2] Capitalized terms not otherwise defined herein have the meanings set forth in appendix A to the CAISO tariff. References to numbered sections are references to sections of the CAISO tariff unless otherwise indicated. For the sake of clarity, this transmittal letter distinguishes between existing tariff provisions (*i.e.*, provisions in the current tariff that are unchanged by this filing), new tariff provisions (*i.e.*, new provisions that the CAISO proposes to add to the tariff in this filing), and revised tariff provisions (*i.e.*, tariff provisions in the current tariff that the CAISO proposes to revise in this filing).

establish a new filing date upon receipt of the CAISO's electronic tariff filing. The CAISO also recognizes that the Commission will issue a notice of amendment upon receipt of the CAISO's response. The CAISO respectfully requests that the Commission accept this response and its August 19 filing effective January 5, 2016. As further discussed below, the January 5, 2016, effective date for the available balancing capacity enhancement will not interfere with the implementation of the EIM year one enhancements, subject to the Commission's acceptance by no later than the morning of October 22, 2015, of the proposed changes in Docket No. ER15-1919-002 effective on October 27, 2015. The January 5, 2016, effective date will also not affect the integration of NV Energy into the EIM on November 1, 2015, subject to the Commission's acceptance of: (1) the transition period pending before the Commission in Docket No. ER15-2565 by October 28, 2015, effective November 1, 2015, (2) the Commission's acceptance of the CAISO's proposed readiness criteria in Docket ER15-861-004 by October 27, 2015 effective March 16, 2015, and (3) the Commission granting the ISO's petition in Docket ER15-2272 to apply the market power mitigation to the NV Energy EIM internal interties.[3]

This filing responds to the Commission's September 24, 2015, letter requesting additional information regarding the CAISO's proposal.[4] In particular, the CAISO clarifies:

- The CAISO's proposed enhancement creates an automated mechanism for the EIM to recognize and account for reserve capacity that EIM entity balancing authorities hold in excess of those needed to meet contingency reserves requirements pursuant to North American Electric Reliability Corporation (NERC) and Western Electricity Coordinating Council (WECC) standards. This automated feature enables the EIM entity to designate this available capacity to resolve power balance constraints in its balancing authority area.

- EIM entities should maintain the discretion to determine how the totality of their capacity is allocated between meeting their NERC/WECC contingency reserve requirements and making it available to address power balance infeasibilities, so as not to compromise their ability to meet those requirements. Management of any capacity that an EIM entity uses to meet its NERC/WECC

[3] The CAISO also notes that on October 13, 2015, NV Energy also filed comments in Docket No. ER15-861-005, indicating the need for orders in Docket Nos. ER15-2281, ER15-2282 and ER15-2283. *See* NV Energy Comments in Support of Readiness Certification, FERC Docket No. ER15-861-005, p. 8-9 fn 26, submitted on October 13, 2015.

[4] Contemporaneously with this filing, the CAISO is filing an answer to comments and protests on the August 19 Tariff Filing.

requirements falls under its balancing authority functions; under the EIM, those functions remain the responsibility of the EIM entity, not the CAISO. The EIM includes no functionality to optimize the deployment of non-contingent reserve capacity that is not already bid into the EIM for resolution of infeasibilities in external balancing authority areas.

- Although the CAISO's proposal appropriately provides EIM entities the discretion to determine which of their capacity is available balancing capacity and which is held to satisfy contingency reserve requirements , the EIM entity must identify both types of capacity in the EIM resource plan.

- Available balancing capacity should be reserve capacity available to an EIM entity in excess of what it must designate as its contingency reserves to meet NERC/WECC requirements, and is typically in the form of capacity available to follow load (either on automated generation control or not), and regulation reserves. Capacity that goes directly toward meeting an EIM entity's contingency reserve requirements should not be designated as available balancing capacity and should instead be identified as "EIM Reserves to Meet NERC/WECC Contingency Reserves Requirements" in the EIM resource plan.

- The CAISO proposes additional tariff changes to facilitate the provision of this information and to specify that capacity designated as necessary to meet NERC/WECC contingency reserve requirements should not overlap with available balancing capacity or any other capacity identified in the EIM resource plan.

- With respect to the issue of load biasing procedures, an EIM entity logs its reasons for load biasing. An EIM entity uses load biasing in situations where it is necessary to address an issue that could hinder reliability during the period prior to when the market is updated to account for the change in system conditions. Because EIM entities continue to bear the responsibility for reliably operating their systems, they are best situated to make decisions regarding adjustments to the load forecasts to better reflect system conditions.

- Regarding the use of available balancing capacity in congestion management, the MW quantity of the available balance capacity that is most effective at relieving a transmission constraint will be dispatched

only if the available balancing capacity is needed to meet the EIM entity balancing authority area's power balance constraint.

In addition, the CAISO provides a number of numerical examples in response to various scenarios identified by the Commission in its September 24 letter. Finally, this filing includes further proposed revisions to CAISO tariff section 29.34(e).[5]

I. Introduction

Through this proceeding, the CAISO has identified the existence of a structural market issue that prevented the EIM market optimization software from recognizing non-contingency reserve capacity available to PacifiCorp, in its role as a balancing authority, to balance its load, which led to EIM clearing based on scarcity pricing parameters even though no supply deficiency existed. The analysis of root causes of this issue, which the CAISO has discussed at length in pleadings and in the numerous monthly reports submitted to the Commission in Docket No. ER15-402, has shown that the lack of timely information regarding the availability of non-contingent reserve in EIM has contributed to some of the price excursion issues observed after the launch of the EIM. The available balancing capacity enhancement proposed in the August 19 filing will enable the market optimization software to automatically recognize and account for capacity procured by EIM entities that is available to balance their systems, which otherwise would be utilized through a manual dispatch after market optimization has occurred.

The available balancing capacity mechanism does not modify the fundamental design principles of the EIM. One of these principles is that EIM entities, upon joining the EIM, continue to act as the balancing authority for their systems. This means that EIM entities still maintain the responsibility for meeting their balancing authority obligations, including ensuring that they maintain adequate reserves in accordance with applicable reliability criteria. By design the EIM does not provide a mechanism for co-optimizing ancillary services with energy for EIM entities. Therefore, EIM entities must continue to manage their reserve capacity, outside of the security constraint economic dispatch, to ensure the reliability of their individual balancing authority areas. Consistent with this underlying design, the available balancing capacity enhancement provides a

[5] In Docket ER15-1919-000, the CAISO has proposed revisions to another subsection of section 29.34, to be effective October 27, 2015, and those proposed revisions are still pending an order by the Commission. The eTariff tariff record for section 29.34 accompanying this filing includes that pending proposed language. Should the Commission not accept that language as proposed by the time this filing is acted upon, the CAISO will submit a compliance filing as necessary to conform the section 29.34 tariff record consistent with the Commission's orders in both proceedings.

mechanism by which EIM entities can designate non-contingency reserve capacity that is available to balance their systems, and therefore it can use to resolve potential power balance infeasibilities in the EIM. However, because EIM entities must manage the totality of their capacity to ensure they meet their NERC/WECC requirements, the CAISO does not propose to prescribe what capacity is identified as available balancing capacity versus what capacity EIM entities maintain in order to meet those requirements. This ensures that EIM entities are still able to utilize their capacity as they see fit for purposes of managing their balancing authority responsibilities.

The available balancing capacity proposal is also consistent with the current EIM design, pursuant to which EIM entities must inform the CAISO of their regulation and contingency reserves in their EIM resource plans. The available balancing capacity proposal will enhance the current EIM design because it will (1) allow the EIM entity to identify to EIM any reserve capacity it determines it does not need to meet its contingency reserve requirements and (2) allow the CAISO to dispatch that capacity to meet energy imbalances in the EIM if the CAISO has identified a power balance constraint infeasibility in the EIM entity's balancing authority area. The proposal does not change significantly the EIM design except that the market optimization can now recognize reserve capacity (which the CAISO telemeters) that is placed in the available balancing capacity field when clearing the market in the event there are power balance infeasibilities in the applicable balancing authority area. Absent this mechanism, the market optimization would not be aware of this capacity prior to running, the penalty parameter would trigger, and the EIM entity would manually dispatch the resource in order to meet its load. The available balancing capacity mechanism ensures that the market optimization will be informed of this capacity through the EIM resource plan and that the bid cost of the available balancing capacity is included in the bid stack of available resources, which means that EIM will appropriately recognize, through the actual market optimization dispatch, the cost of the resource, that would have been manually dispatched by the EIM entity regardless.

Pursuant to its proposed modifications to tariff section 29.34(e), the CAISO expects that the EIM entity scheduling coordinator will identify all of its capacity in one of the categories of the EIM resource plan. Thus, although the available balancing capacity proposal appropriately preserves EIM entities' discretion to determine the amount of capacity available to balance their systems versus the capacity needed to meet their contingency reserve obligations, EIM entities must make the resulting information visible to the EIM.

This proposal also does not change the nature of the relationship between the CAISO, EIM entities, and resource owners. Although the CAISO has proposed to utilize the default energy bid process to appropriately reflect the cost of using non-participating resources that an EIM entity designated as providing

available balancing capacity, these resources will still not participate in the EIM and will have no direct relationship with the CAISO. The EIM will only utilize a non-participating resource to avoid a potential infeasibility when the EIM entity has indicated in the hourly resource plan that such a resource is available to the EIM entity to balance the EIM entity's system. This is fundamentally no different from the way the EIM currently accounts for non-participating resources identified in EIM entities' base schedules or non-participating resources manually dispatched by the EIM entity. The available balancing capacity proposal also does not modify the compensation for participating or non-participating resources.

II. Responses to Commission Questions

1. CAISO states that one of the two root causes of the price excursions experienced after the launch of EIM was "a structural limitation in the current design of the EIM, namely the lack of visibility to the market of capacity that is available to PacifiCorp to meet load in its balancing area and that is not bid into the EIM."[6] Previously in this proceeding, in its comments following the April 9, 2015 Technical Conference, CAISO stated that it believes "it is necessary to enhance the functionality of the market systems to ensure that systems are automatically informed of the full scope of available capacity and recognize the actions the EIM entity takes to manage such capacity to balance its system."[7]

a. Under CAISO's proposal, it is optional for an EIM entity to identify all or a portion of its Available Balancing Capacity.[8] Please explain how the proposal ensures that CAISO's systems are automatically informed of the full scope of available capacity if an EIM entity does not identify sufficient EIM Available Balancing Capacity.

b. Explain what is meant by "full scope of available capacity".

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[6] August 19 Tariff Filing, Transmittal Letter at 3.

[7] CAISO April 23, 2015 Comments on Technical Conference at 9.

[8] An EIM entity scheduling coordinator shall "register with the CAISO, consistent with the provisions in the Business Practice Manual for the Energy Imbalance Market, all non-participating resources that the EIM Entity Scheduling Coordinator *may* designate as EIM Available Balancing Capacity in its EIM Resource Plan" (emphasis added). CAISO Proposed Tariff section 29.4 (c)(4)(J). "*If* the EIM entity scheduling coordinator *elects* to identify this [EIM Available Balancing Capacity] for the CAISO, it will include this capacity in the currently labeled "regulation up" and "regulation down" fields of the EIM resource plan" (emphasis added). August 19 Filing at 12.

Response to a. and b.:

Under the CAISO's proposal, the "full scope of available capacity" means all of the capacity that an EIM entity designates as available balancing capacity. Once the EIM designates capacity as available balancing capacity in the hourly resource plan, the proposed enhancement ensures that the EIM optimization software recognizes that capacity and uses it to address infeasibilities in the EIM entity's balancing authority area only.

As such, under the CAISO's proposal, the term "full scope of available capacity" does not refer to all of an EIM entity's reserves. Rather, it means the portion of capacity that the EIM entity determines is available to meet imbalance needs on its system outside of the economic dispatch in the EIM. Retaining capacity outside of the EIM economic dispatch is necessary because the EIM entity may have determined that it cannot risk the EIM dispatching that capacity to serve an EIM transfer rather than its own load. The related definitions of "EIM Available Balancing Capacity," "EIM Downward Available Balancing Capacity," and "EIM Upward Available Balancing Capacity" proposed in the August 19 filing capture this concept – *i.e.*, the upward or downward capacity from EIM participating or non-participating resources that the EIM entity scheduling coordinator identifies as available to address power and transmission constraint violations in the EIM entity's balancing authority area.

This formulation is also consistent with the existing EIM resource plan requirements specified in tariff section 29.34(e). The EIM entity scheduling coordinator will continue to provide in its EIM resource plan information regarding all of the components that reflect its management of capacity. In its August 19 filing, the CAISO redefined the two existing categories labeled as reserve capacity meeting the WECC requirements up and down to capture the designation of available balancing capacity up and down. As discussed in the response below, the CAISO is also proposing to modify the categories for spinning and non-spinning reserve to more clearly delineate that they represent the appropriate category for EIM entity to identify capacity it has designated to meet its NERC/WECC contingency reserve requirements.

Although EIM entities maintain the discretion under the CAISO's proposal to determine which resources can provide available balancing capacity and in what amount, the CAISO does not agree that it is optional for an EIM entity to identify all or a portion of its available balancing capacity. Although an EIM entity has the discretion to determine the amount of available balancing capacity that it has at its disposal during each hour, once the EIM entity has made this determination, tariff section 29.34 requires the scheduling coordinator for the EIM entity to inform the CAISO in the EIM resource plan of the amounts of incremental and decremental capacity that the EIM entity has determined meet the definitions of upward and downward available balancing capacity,

respectively.[9] This section also currently requires the EIM entity to identify the capacity retained by the EIM entity as spinning and non-spinning reserves, and is intended to reflect capacity the EIM entity has designated for purposes of meeting its contingency reserve requirements. Under this construct, the EIM entity must inform the CAISO if they have available balancing capacity above what is necessary to meet their minimum EIM requirements determined by the balancing, capacity and flexibility tests, and separate from what they have designated as necessary to meet NERC/WECC minimum contingency reserves requirements. Thus, the CAISO will have full visibility of the capacity available to an EIM entity and will also understand which portion of that capacity is designated as available to balance the EIM entity's system and therefore can be used to resolve potential power balance infeasibilities in the EIM entity's balancing authority area.[10]

As explained in the August 19 Tariff Filing, in the CAISO's internal market, the CAISO has the ability to co-optimize reserves with energy to ensure the most efficient dispatch in real-time. This co-optimization does not occur in EIM.[11] Therefore, under the current design capacity retained by an EIM entity for meeting its balancing authority functions is currently ignored by the EIM in terms of market feasibility, even though in an integrated market non-contingent reserves would be eligible for dispatch as imbalance energy.

Under the CAISO's proposal, the EIM optimization will recognize and account for available balancing capacity through market bids for resources designated as providing available balancing capacity. As discussed in the August 19 filing, with respect to EIM participating resources that are identified in a resource plan as providing available balancing capacity, the EIM will automatically match up the bids submitted by those resources' scheduling coordinators with the information provided in the EIM entity's resource plan and apportion the uses of that capacity to each resource's energy bid curve in order to determine the amount of available balancing capacity that a resource can

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[9] *See* proposed tariff sections 29.34(e)(3)(C) and (D).

[10] The CAISO understands that EIM entities may also have access to energy in real-time from resources that are outside of their balancing authority area that is not visible to the CAISO as available balancing capacity, such as real-time energy exchanges with neighboring balancing authority areas. Although the available balancing capacity proposal will automate the recognition of excess reserves from resources within an EIM entity's balancing authority area footprint, EIM entities will still need to inform the CAISO through manual dispatches of energy utilized from such resources outside of their footprint in order to ensure that such energy is accounted for in the EIM optimization.

[11] Transmittal letter for August 19 Filing at 19.

provide during a particular interval.[12] EIM will also recognize available balancing capacity designated by an EIM entity from non-participating resources, provided that the EIM entity has registered those resources with the CAISO[13] and has elected a default energy bid option for them. As discussed in the August 19 filing, a default energy bid is necessary because non-participating resources, by definition, do not participate in the EIM market. When an EIM entity scheduling coordinator designates available balancing capacity from a non-participating resource in its resource plan, the EIM will utilize the default energy bid curve to account for the available balancing capacity that is either above (upward capacity) or below (downward capacity) the resource's base schedule.[14] The CAISO reiterates this process in response to this question because it describes how the EIM will actually recognize the full scope of the designated available balancing capacity.

The CAISO also telemeters all EIM resources (both participating and non-participating). Therefore, if, for example, a resource with 0 MW PMin and 25 MW PMax has identified 25 MW of upward available balancing capacity, and the resource is operating at 10 MW, then there are only 15 MW that will be treated as available balancing capacity and can be used in the event of EIM energy bids are not sufficient to meet the EIM entity balancing authority area's power balance constraint. As a result, if this is the only resource available to address infeasibilities and the infeasibility is greater than 15 MW, the CAISO's pricing parameters set forth in tariff section 27 would be triggered.

c. CAISO's proposal includes a constraint that is utilized in the scheduling run of CAISO's market optimization to ensure that available balancing capacity will not be used to resolve a potential infeasibility outside of the BAA in which the EIM Available Balancing Capacity is located.[15] Please clarify why an EIM entity should not be required to make all of its excess reserves visible as EIM Available Balancing Capacity, given that CAISO's proposal includes a constraint to prevent the EIM Available Balancing Capacity from being used for EIM transfers.

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[12] *See* August 19 Filing, Attachment C (Direct Testimony of Donald Tretheway ("Tretheway testimony")), at 15-20 (discussing the process for allocating the uses of an EIM participating resource's capacity to its energy bid curve).

[13] Existing tariff section 29.4(c)(4)(C) already requires EIM scheduling coordinators to register non-participating resources that they represent.

[14] *See* August 19 Filing, Tretheway testimony at 20-24.

[15] August 19 Filing at 21; CAISO Proposed Tariff Section 39.4(r)(3)(C).

Response:

As discussed above, the CAISO does not assume the balancing authority responsibilities of EIM entities when they join the EIM. In order to ensure that an EIM entity's ability to meet its balancing authority responsibilities is not encumbered, it is crucial that an EIM entity have the discretion to determine the amount of capacity it designates as available balancing capacity. Although the CAISO's proposal includes a constraint to ensure that available balancing capacity designated by an EIM entity is not used to serve load outside of the EIM entity's balancing authority area, the EIM entity must still make the determination in the first place as to whether particular capacity is available to meet its imbalance energy needs, or whether it is to meet other NERC/WECC reliability requirements. The EIM does not co-optimize energy and ancillary services. Therefore, the EIM cannot determine whether it is more optimal to use such capacity as ancillary services or imbalance energy. Therefore, requiring the EIM entity to designate all of this capacity as available balancing capacity could compromise the EIM entity's ability to use that capacity to meet its other reliability obligations. As discussed in greater detail below, an EIM entity may sometimes reserve capacity such as regulation or imbalance energy to meet NERC/WECC contingency reserves requirements, depending on operational needs in any given hour, including times when the EIM entity is recovering from a disturbance event within the NERC/WECC prescribed timelines.[16] Therefore, the EIM entity must have discretion as to whether its capacity is identified as available to manage energy imbalances or is reserved to meet its NERC/WECC contingency reserve requirements.

A key component of a balancing authority's responsibilities is managing its reserves, including its contingency reserves, regulation and other capacity (*i.e.*, non-operating reserves or non-contingency reserves) to most effectively ensure reliability in its balancing authority area. In their role as balancing authorities, EIM entities must carry minimum contingency operating reserves in accordance with WECC Standard BAL-002-WECC-2 – Contingency Reserve.[17] By design, the CAISO plays no role in how EIM entities meet and manage their balancing authority area requirements. The CAISO co-optimizes energy and ancillary services in the CAISO balancing authority area, which allows its software to make the optimal decision to dispatch energy without compromising the CAISO's ability to recover its reserves. However, because EIM does not co-optimize ancillary services and energy in EIM entities' balancing authority areas, EIM has no way to dispatch resources available to EIM entities to ensure that the EIM

[16] For example, the restoration of mandatory contingency reserves within NERC/WECC prescribed time after a disturbance event.

[17] http://www.nerc.com/files/BAL-002-WECC-2.pdf.

entity is meeting its reserve requirements in any given interval. If an EIM entity designated such contingency reserves as available balancing capacity, it is possible that the EIM optimization software would dispatch some or all of it as energy with no consideration of whether it is possible for the EIM entity to procure sufficient contingency reserves in subsequent intervals to ensure it meets NERC/WECC requirements.[18]

The NERC/WECC standards establish only minimum reserve requirements, and do not limit a balancing authority from procuring reserves in addition to the minimum required amounts. Indeed, it is customary for balancing authorities to hold reserves in excess of those required by NERC and WECC. The EIM entity may determine that some or all of these "excess reserves" may be designated as available to resolve infeasibilities in the EIM in a given hour. However, it should also not be mandatory for an EIM entity to designate as available balancing capacity *all* of the capacity it holds in excess of the *minimum* contingency reserves required. The EIM entity as the balancing authority retains the responsibility for managing its system and ensuring the appropriate amount of reserves to operate its system reliably while balancing real-time energy imbalance requirements. Just because an EIM entity procures reserves above the minimum requirements does not mean that such reserves are necessarily available to address power balance constraints.

For example, in PacifiCorp, regulation reserves include both resources on automatic generation control as well as resources that are available to be dispatched to return resources on automatic generation control to their set-point. Depending on the specific circumstances, these resources might be needed by the EIM entity to replenish its contingency reserves or available to address power balance constraints and therefore designated by the EIM entity as available balancing capacity. Also, under NERC/WECC requirements a balancing authority must also meet the disturbance recovery criterion within the disturbance

[18] In its August 19 filing, the CAISO proposed some modifications to tariff section 29.34(e) to indicate how an EIM entity will identify available balancing capacity in its resource plans. In doing so, the CAISO did not modify tariff sections 29.34(e)(3)(E) and (F), which specify that the EIM entity should designate its spinning reserves and non-spinning reserves in MW. It is these categories that the CAISO intended EIM entities use to specify the amount of contingency reserves held by the EIM entity to ensure it meets BAL-002-WECC-2. As discussed by Mr. Tretheway in his testimony, once identified, that capacity will be protected from dispatch in the EIM, even with the available balancing capacity in place. See August 19 Filing, Tretheway testimony at 16-18. As discussed in response to this question below, the CAISO proposes to modify these elements of the EIM resource plan to clarify that this is the entry in which the EIM entity will identify all capacity it has designated necessary to meet NERC/WECC contingency reserves requirements.

recovery period for 100% of reportable disturbances.[19] This criterion requires that a balancing authority return its ACE to zero if its ACE just prior to the reportable disturbance was positive or equal to zero; or return to the pre-disturbance value, if there was negative initial ACE values just prior to the disturbance. In order to meet this requirement, an EIM entity balancing authority may need to use capacity held as load following or regulation in order to ensure it can meet this requirement, and which therefore would not be able to serve as available balancing capacity.

As these examples show, the EIM entity must have discretion over how it manages all of the capacity available to it to meet these requirements and manage its system reliably. The available balancing capacity proposal does not change this paradigm, but rather provides a streamlined process for EIM entities to provide information to EIM as to, and for EIM to account for, capacity that is available to address imbalance energy constraints, that otherwise would have been manually dispatched after the market has cleared using penalty parameters. As explained in the August 19 filing, the excess reserves available to PacifiCorp during the majority of the infeasible intervals occurring after the first few months of EIM operations exceeded the magnitude of those infeasibilities. Because this proposal provides a mechanism for EIM entities to designate, and for EIM to utilize, excess reserves available to address power balance constraints in the market clearing process, the CAISO believes that this proposal is a key component in its overall plan to reduce the number of infeasibilities encountered after the launch of the first EIM.

Also, some EIM entities may be part of a reserve sharing group, and as such, the balancing authority is not itself responsible for maintaining the reserves; instead, the Reserve Sharing Group is the responsible entity. But each individual balancing authority area may have to meet certain requirements to ensure that the reserve sharing group meets its responsibilities as a whole. The CAISO has no visibility as to what those responsibilities are under the current EIM design and could not ensure, through EIM dispatches, the EIM entity is able to meet its obligation in maintaining its share of the reserve sharing group's responsibilities.

For all these reasons, the CAISO believes it should be left to the EIM entity to decide what part of their available capacity can be designated as Available Balancing Capacity. However, as indicated above in the CAISO's response to Questions 1.a. and b., it is important to distinguish between a) an EIM entity having the discretion to decide what portion of its capacity meets the definition of available balancing capacity and what portion is reserved to meet

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19 http ://www.nerc.com/pa/Stand/Reliability%20Standards%20Complete%20Set/RSCompleteSet.pdf

their NERC/WECC requirements, and b) the requirement that an EIM entity identify all of its capacity and intended uses thereof to the CAISO. The CAISO believes that the EIM resource plan provides the appropriate vehicle for the EIM entity to manage all of its capacity effectively while ensuring the EIM software and systems are fully informed of how they choose to balance their system. Therefore, the CAISO will have full visibility on the EIM entity's management of its capacity in running the market optimization. However, upon further review and consideration of staff's questions in response to this letter, the CAISO believes an additional tariff modification to the categories currently labeled as "Spinning Reserves" and "Non-Spinning Reserves" would help clarify the proper designation of an EIM entity's capacity in the EIM resource plan.

The tariff defines Non-Spinning Reserve as "[t]he portion of resource capacity that is capable of being synchronized and Ramping to a specified load in ten minutes (or that is capable of being interrupted in ten (10) minutes) and that is capable of running (or being interrupted) for at least thirty (30) minutes from the time it reaches its award capacity." The tariff defines Spinning Reserves as "[t]he portion of unloaded synchronized resource capacity that is immediately responsive to system frequency and that is capable of being loaded in ten (10) minutes, and that is capable of running for at least thirty (30) minutes from the time it reaches its award capacity." The CAISO originally intended that these categories would be the categories in which the EIM entity would indicate the amount of capacity needed to meet its NERC/WECC contingency reserve requirements. However, the current labeling of these two entries as "Spinning Reserves" and "Non-Spinning Reserves" may create some ambiguity of what the CAISO believes should be included in those categories with implementation of the EIM available balancing capacity proposal.

The CAISO borrowed the terms "Spinning Reserves" and "Non-Spinning Reserves" for the EIM tariff provisions from the CAISO's use of those terms for its own market. But used on their own in this context it is not entirely clear that an EIM entity should use these categories of the EIM resource plan to indicate how much capacity it is reserving to meet its NERC/WECC contingency reserves requirements. This ambiguity does not exist for the CAISO because the tariff defines Operating Reserves as "The combination of Spinning and Non-Spinning Reserve required to meet NERC and WECC reliability standards, and any requirements of the NERC for reliable operation of the CAISO Balancing Authority Area." Reserves, as defined under the CAISO tariff, includes but is not limited to the minimum contingency reserves required under BAL-002-WECC-2, which as specified in section 8.2.3.2 of the tariff could exceed the minimum requirements set forth by NERC/WECC.[20] The CAISO then uses the term

[20] The CAISO tariff specifies that the "CAISO shall maintain minimum contingency Operating Reserve made up of Spinning Reserve and Non-Spinning Reserve in accordance with NERC and WECC reliability standards, including any requirements of the NRC. The CAISO from

Operating Reserves when it wants to indicate the amounts reserved to meet the NERC/WECC requirements.[21]

The CAISO believes that it would be more precise and clear to replace the "Spinning Reserves" and "Non-Spinning Reserves" categories in section 29.34(e)(3) with a single "EIM Reserves to Meet NERC/WECC Contingency Reserves Requirements" category. The category "EIM Reserves to Meet NERC/WECC Contingency Reserves Requirements" would be defined as "Any capacity that an EIM Entity Scheduling Coordinator has designated, in the EIM Resource Plan, as necessary to meet its NERC/WECC contingency reserves requirements in the applicable Trading Hour and which does not overlap with capacity designated in other parts of the EIM Resource Plan specified in Section 29.34(e)(3)." The CAISO believes that this clarification will ensure there is no ambiguity as to how the EIM Entity should identify its capacity. The proposed definition also makes it transparent that the capacity should not overlap with capacity bid into the EIM or designated as ABC.[22]

The CAISO also intends for it to be mandatory for the EIM entity to identify in the resource plan capacity that meets the definition of "EIM Reserves to Meet NERC/WECC Contingency Reserves Requirements". The introduction to section 29.34(e)(3) already states that the "EIM Resource Plan *shall* comprise" the listed entries, which would include the "EIM Reserves to Meet NERC/WECC Requirements." The first paragraph of section 29.34 further specifies that the "EIM Entity on behalf of non-participating resources and EIM Participating Resources, must submit all applicable components of the EIM Resource Plan as

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time to time may determine to use more stringent criteria." See Section 8.2.3.2 Spinning and Non-Spinning Reserves.

[21] The CAISO also notes that the Commission uses the term Operating Reserves in its NOPR on price formation differently than as defined in the CAISO tariff. There the Commission states that operating reserves across the ISOs *typically* include: (a) Regulating Reserve, used to account for very short-term deviations between supply and demand (e.g. 4 to 6 seconds); (b) Spinning, or Synchronous Reserve, which is capacity held in reserve and synchronized to the grid and able to respond within a relatively short amount of time (e.g., within 10 minutes), to be used in case of a contingency, such as the loss of a generator; and, (c) Non-Spinning Reserve, capacity that is not synchronized to the grid and which can take longer to respond (e.g., within 10-30 minutes) in case of a contingency. In the CAISO tariff, regulation is defined separately from Operating Reserves. It is possible, however, in the CAISO balancing authority area that both energy capacity and regulation capacity can be co-optimized to be better held as operating reserves in a given interval and not dispatched as energy. That co-optimization does not exist in the EIM.

[22] As explained by Mr. Tretheway, it is important that this capacity does not overlap with other capacity identified in the EIM resource plan to ensure the EIM protects that capacity and does not dispatch it for imbalance energy. See August 19 Filing, Tretheway Testimony at 18.

set forth in Section 29.34(e)(3)." These terms are sufficient to specify that the EIM Resource Plan entries are mandatory and do not require further modification.

2. CAISO proposes to define EIM Available Balancing Capacity as "[a]ny EIM Upward Available Balancing Capacity or EIM Downward Available Balancing Capacity." CAISO proposes to define EIM Downward Available Balancing Capacity as "[a]ny downward capacity from an EIM Participating Resources or a non-participating resource that an EIM Entity Scheduling Coordinator has identified in the EIM Resource Plan as available to address power balance and transmission constraint violations in the EIM Balancing Authority Area." CAISO proposes to define EIM Upward Available Balancing Capacity as "[a]ny upward capacity from an EIM Participating Resources or a non-participating resource that an EIM Entity Scheduling Coordinator has identified in the EIM Resource Plan as available to address power balance and transmission violations in the EIM Balancing Authority Area."[23]

a. CAISO indicates that an EIM entity scheduling coordinator may choose to identify portions of its excess reserves as EIM Available Balancing Capacity, which could be in the form of regulation and load-following capacity or "other capacity that the balancing authority has determined is necessary for reliable operations."[24] Please provide additional detail regarding what types of capacity are considered "other capacity that the balancing authority has determined is necessary for reliable operations" such that the capacity will be eligible for designation by an EIM entity scheduling coordinator as EIM Available Balancing Capacity. In addition, please indicate where this information will be documented.

Response:

All balancing authorities make arrangements to procure sufficient resources to balance their system reliably consistent with NERC/WECC criteria. Available balancing capacity can consist of any capacity available to an EIM entity that it deems is in excess of what is necessary to meet its NERC/WECC contingency reserve requirements. For instance, as discussed above, an EIM entity may, as part of its balancing authority functions, maintain capacity in order to return its regulation resources under automated generation control to a

[23] August 19 Filing, Attachment B, Appendix A, Definitions.

[24] August 19 Filing at 12.

specific operating set point. As discussed above, the CAISO believes that any capacity the EIM entity has designated as capacity necessary to meet its contingency reserves requirements under NERC/WECC criteria should not be designated as available balancing capacity.

The capacity the EIM entity has designated as available balancing capacity will be documented in the EIM resource plan submitted for each hour of the EIM. As discussed above, it is the intent of the CAISO's tariff amendment as proposed in its August 19 Filing and with the modifications further proposed herein, that the EIM entity scheduling coordinator clearly identify in which category of the EIM resource plan their capacity is classified. If the EIM entity believes it is necessary to hold any capacity to allow it to meet its contingency reserve requirements, be it in the form of load following, regulation or reserves held in excess of the minimum contingency reserves requirements, the EIM entity should identify that capacity in the EIM Reserves to Meet NERC/WECC Contingency Reserves Requirements.

b. With respect to the types of capacity that may be designated as EIM Available Balancing Capacity described in your response to question 2(a) above, what additional limitations exist, whether operational, physical, environmental, or otherwise that would affect the participation of these resources in resolving power balance or transmission constraints in the EIM entity's BAA?

Response:

Once an EIM entity identifies Available Balancing Capacity in its EIM resource plan, and assuming that there is a bid (either a submitted bid for a participating resource or a default energy bid for non-participating resource) reflecting that capacity,[25] it will be considered in the EIM if the optimization identifies a power balance infeasibility in the scheduling run in the balancing authority area for which the capacity has been designated.[26] The EIM optimization will not consider or use any available balancing capacity unless it has identified a power balance constraint that needs to be addressed in the applicable EIM entity's balancing authority area.

Assuming this, the only "limitations" to EIM utilizing a resource's available balancing capacity to resolve a power balance constraint are: a) the resource's bid relative to other bids for available balancing capacity in the same balancing

[25] *See* response to Questions 1 a. and b. above; *see also* August 19 Filing, Tretheway Testimony at 14.

[26] As described in Mr. Tretheway's testimony, this is accomplished through the enforcement of a constraint in the EIM scheduling run. August 19 Filing, Tretheway Testimony at 27.

authority area: b) the resource's physical characteristics; and c) the state of congestion on the grid. The factors and their related rules apply equally to capacity identified as available balancing capacity and all other capacity from resources participating in the CAISO's real-time market, which includes the EIM. These factors are not actual limitations to the resource's capacity being considered in the EIM, but they will determine whether or not that capacity is actually selected to relieve a constraint identified in the market run. There are no additional limitations specific to resources designated as available balancing capacity.

With respect to the resource bids, EIM will dispatch as available balancing capacity the lowest priced capacity that is able to address a potential infeasibility.[27]

The resource's physical capabilities as registered with the CAISO – such as the ramp capability of the resource in the applicable interval, minimum load, start-up time, and minimum up or down times – may also limit a resource's ability to address an infeasibility. For example, if a resource designated as providing available balancing capacity is not able to start within the time in which it is needed to resolve a potential infeasibility, the resource will not be selected by the EIM to address that infeasibility.

Also, a resource designated as available balancing capacity may not be utilized by the EIM to resolve a potential infeasibility if there is congestion due to system conditions including, *inter alia,* transmission outages, constraints established by third parties such as BPA rate of change constraints, and reductions in capacity that prevent the resource from actually addressing the infeasibility.

Again, these factors and rules are not unique to the available balancing capacity proposal, but rather are all constraints that the CAISO's real-time market takes account of in determining the optimal dispatch solution for the applicable market interval. However, these factors ultimately determine whether the capacity is available and usable to relieve an identified constraint.

[27] See the scenarios presented in response to Question 5 below.

3. Prior to CAISO's August 19 Filing, CAISO provided clarification in its May 21 Answer in this proceeding to Bonneville Power Administration's (BPA) question regarding which non-participating resources would be considered EIM Available Balancing Capacity. In its May 21 Answer, CAISO stated:

> **BPA requests that the CAISO clarify that the pricing and utilization of non-participating resources under its proposal applies only to resources that the EIM entity owns or operates, not to any non-participating resource within the EIM balancing authority area. The CAISO confirms that this interpretation is correct, with two caveats: (1) the "EIM entity" refers to PacifiCorp is in [sic: its] role as the balancing authority, not its merchant functions, and thus the "EIM entity" does not own any resources; and (2) the CAISO's proposal is not limited to resources "owned" by PacifiCorp, but includes any resources with whom PacifiCorp has contractual arrangements.[28]**

a. Please clarify whether, under the proposal CAISO filed after submitting this answer to BPA, EIM Available Balancing Capacity is limited to those resources owned or operated by the EIM entity or the EIM entity's affiliates.

Response:

The CAISO's proposal does not prohibit or limit an EIM entity from designating as available balancing capacity resources that are not owned or operated by the EIM entity or its affiliates. For example, it is possible that an EIM entity has contracted with a non-affiliated generator to serve its load or provide regulation reserves.

Under the current EIM design, even if such resources do not participate directly in the EIM, they are reflected in EIM base schedules and can be manually dispatched by EIM entities outside of the market clearing process. Therefore, today it is entirely possible for an EIM entity to manually dispatch a participating or non-participating resource that it has the right to dispatch. The existing EIM provisions regarding manual dispatch assume that an EIM entity has authority to call upon those resources that it indicates to the CAISO that it

[28] *See* Reply Comments of the California Independent System Operator on Technical Conference, Docket Nos. ER15-861-000, et al. (May 21, 2015) at 34.

has manually dispatched. Presumably an EIM entity would be relying on the same legal authority it has today to manually dispatch resources in order to designate those resources as providing available balancing capacity.[29]

Based on the CAISO's available balancing proposal, on September 1, 2015, NV Energy and PacifiCorp filed similar amendments in their respective OATTs.[30] In that filing, both parties clarified that the resources they would designate as providing available balancing capacity are those resources with which they have contracted to provide load following or regulation services. For example, Nevada stated:

> To facilitate implementation of the CAISO's proposal, NV Energy proposes a definition of "Balancing Authority Resource" to include resources owned or voluntarily contracted for by NV Energy that can provide regulation and load following services to enable the NV Energy EIM Entity to meet reliability criteria. This definition assures third party Transmission Customers that the NV Energy EIM Entity will not be identifying their units as EIM Available Balancing Capacity, unless NV Energy has established a pre-existing contractual right to call on that capacity. The definition of Balancing Authority Area Resources is not meant to include, however, units that might be subject to a Manual Dispatch in the event of a System Emergency. Consistent with the CAISO's proposed terminology, "EIM Available Balancing Capacity" is any upward or downward capacity from a Balancing Authority Area Resource that is not bid into the EIM and that the NV Energy EIM Entity includes in its Resource Plan. NV Energy also proposes to expand the definition of "Resource Plan" so that it would include EIM Available Balancing

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[29] The EIM as currently designed accounts for such manual dispatches and, if generator that is so dispatched is a participating generator, the participating generator is paid for imbalance energy for the manually dispatched energy pursuant to section 29.11(b)(1)(A)(i) of the CAISO tariff for FMM Instructed Imbalance Energy and tariff section 29.11(b)(2)(A)(i) for RTM Instructed Imbalance Energy. If the generator is a non-participating generator, the EIM entity is paid for the manually dispatched energy pursuant to tariff section 29.11(b)(1)(A)(ii) for FMM Instructed Imbalance Energy and tariff section 29.11(b)(2)(A)(ii) for RTM Instructed Imbalance Energy. Also, as explained in the August 19 filing, the CAISO has filed new settlement provisions, with a requested effective date of November 1, 2015, as part of the tariff amendment to implement EIM year one enhancements. August 19 Filing, Transmittal Letter at 22-23. Also, as explained in the August 19 filing, the CAISO has filed new settlement provisions, with a requested effective date of November 1, 2015, as part of the tariff amendment to implement EIM year one enhancements. Commission acceptance of the new settlement provisions will change the settlement rules for participating and non-participating resources described above, but the principles will remain the same.

[30] Nevada Power Company, Docket No. ER15-1196 (September 1, 2015)

Capacity.[31]

In response to comments in the NV Energy tariff amendment proceeding, NV Energy further clarified that:

> The EIM Entities agree that third-party resources can only be designated as EIM Available Balancing Capacity if the contract with the NV Energy or PacifiCorp power supply (i.e., "merchant") group gives the company the ability to call on the resource. The EIM Entities also agree that any payment to the third party would be in accordance with the contract. Stated another way, nothing in the EIM Available Balancing Capacity construct provides for modification of any existing contract that NV Energy or PacifiCorp have with any supplier or is intended to create a tariff obligation to provide Available Balancing Capacity where no contractual obligation exists.
>
> The EIM Entities, however, disagree that a contract must specifically refer to EIM Available Balancing Capacity. An EIM Entities' power supply group may have an existing, long-term power supply arrangement that provides discretion in the manner the resource can be deployed – including to serve native load, provide ancillary service, and make off-system sales. As long as the EIM Available Balancing Capacity designation is consistent with the bilateral agreement, that should be sufficient. If the designation is not consistent, the third-party supplier is the only party with standing to initiate a complaint, should it have one, to bring before the Commission.[32]

The available balancing capacity proposal does not change these existing paradigms under which EIM entities obtain the right to dispatch resources, but merely provides a streamlined process for EIM entities to inform the EIM of capacity that is available to the EIM entity to serve imbalance needs, and for EIM to automatically utilize that capacity, as necessary, to resolve any infeasibilities that might occur within that EIM entity balancing area. Based on the contractual arrangement with the EIM entity, a resource that is not under contract with an EIM entity could choose to directly participate in the EIM, including for the limited purpose of serving infeasibilities in the EIM entity balancing authority area. That way, once the resource submits a bid, the resource is available for resolving infeasibilities in the EIM entity balancing authority area only, but the decision to

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[31] *Id*., Transmittal Letter at 7.

[32] Motion for Leave to Answer and Answer of NV Energy and PacifiCorp, Docket Nos. ER15-1196-004, et al. (October 7, 2015) at 7-8.

dispatch the resource for that purpose is made through the EIM market optimization as opposed to the EIM entity manually dispatching the resource.

The EIM Entity may also designate its own, otherwise non-participating resources as available for solving infeasibilities. For any non-participating resources to which the EIM entity has a right to the generation – as a matter of ownership or contract – the EIM entity may establish a default energy bid for such resources and designate them as providing available balancing capacity. Again, this does not change the manner in which EIM accounts for resources not owned or controlled by the EIM entity because the EIM already recognizes the ability of EIM entities to manually dispatch non-affiliated non-participating resources for reliability purposes or otherwise, consistent with the existing rights and obligations between the EIM Entity as balancing authority and its customers. The available balancing capacity proposal permits the EIM entity to designate, through use of a default energy bid, capacity of non-participating resources within the fleet of resources that it owns or to which it has a contractual right to solve infeasibilities. The purpose of this default energy bid is limited to determining the appropriate price at which to clear the market if a non-participating resource is needed to resolve an infeasibility. As the CAISO explained in its August 19 filing, the compensation for instructed and uninstructed imbalance energy for both participating and non-participating resources is unchanged. As such, the relationship between the CAISO, the EIM entity, and non-affiliated resources is not affected by the CAISO's proposal.

b. Would a non-affiliated, non-participating resource that takes service under the PacifiCorp Open Access Transmission Tariff, or a non-affiliated, non-participating resource that has an interconnection agreement with an EIM entity be considered to have a contractual arrangement and therefore be considered as EIM Available Balancing Capacity?

Response:

The CAISO is not aware of any provisions under PacifiCorp's OATT, including its pro forma interconnection agreement, that provide terms under which PacifiCorp would obtain capacity that could be designated as available balancing capacity. However, it is the CAISO's understanding, as discussed above and as confirmed by the filings made by NV Energy and PacifiCorp, that their access to non-affiliated, non-participating resources for available balancing capacity would be limited to those resources with whom they have a contractual arrangement to obtain load-following or regulations services.

4. CAISO explains that it allows EIM entities to adjust load forecasts, known as load biasing, to address changes in operating conditions and that the EIM entity is best equipped to determine the need for a load adjustment. CAISO further states that "there are times when PacifiCorp, as the balancing authority, may need to make adjustments to account for actual conditions that could not otherwise have been forecast by the CAISO."[33]

a. Please explain how an EIM entity's adjustments to load forecast are communicated to CAISO market systems (e.g., direct input to Real-Time Pre-Dispatch/Real-Time Dispatch or through CAISO operations staff) and the timeline for such communication.

Response:

Each EIM entity grid operator has direct access to its corresponding balancing authority area load forecast through an interactive load forecast display provided in the real-time market system and to an operator-enterable field for making adjustments to the load forecast (*i.e.*, load biasing) in the same interactive display. The EIM entity grid operator uses this load biasing field to directly inform the market of any load forecast adjustments in the EIM entity's balancing authority area to address system changes that impact the ability of the EIM entity to maintain Area Control Error (ACE) values within the requirements of applicable reliability standards and would otherwise not be reflected in a timely manner in the market input data. Thus, the time interval for communication between an EIM entity and the CAISO regarding a load bias adjustment is near instantaneous.

b. Are reasons for load biasing communicated to CAISO before adjustments are made? If so, how and when?

Response:

An EIM entity does not communicate its reasons for load biasing to the CAISO before adjustments are made, but rather logs the reason for the bias pursuant to its own procedures at the time the adjustment is made. It is not be possible for the EIM entity to communicate the reason for the adjustments before they are made because there is not sufficient time to communicate such changes, which are made in real-time in order to ensure that the EIM entity maintains reliability in its balancing authority area. The entry of the amount of the megawatt adjustment, i.e. load biasing, constitutes the direct communication to the market about the net impact of the issue that the EIM entity is addressing through load biasing. The EIM entity maintains a log record and follows

[33] August 19 Filing, Transmittal Letter at 35.

procedures established for logging the reason(s) for the load biasing whenever an adjustment is performed. A summary of this log is shared with the CAISO upon request.

There are many situations in which the EIM entity may notice persistent high or low ACE values when the market is not responding accordingly to bring the ACE values back within the normal range. For example, a forced outage or even a partial outage of a generating resource may immediately impact the EIM entity's ACE, but the market will not know whether the resource will continue to be out of service for future intervals or whether the resource will be back on-line after intermittent tripping. The CAISO tariff requires the EIM entity grid operator to notify the CAISO of the outage within 30 minutes after it occurs.[34] However, during the time before the outage ticket is entered into the system, the market will continue to dispatch the resource because the resource is still being modeled as available for the intervals for which the market is dispatching resources. During this time and until the outage ticket and reason for the outage are entered in the ISO's Outage Management System, the EIM entity will suffer low ACE values that hinder its balancing authority area reliability. Therefore, the CAISO expects that during this time, the EIM entity will use the load biasing field described above to enter the net amount of MW adjustment that will allow the market to dispatch more energy to compensate for the loss of energy from the resource experiencing the outage. The CAISO also expects the EIM entity grid operator to remove that load bias when the outage ticket is available and, as a result, the market will recognize that the resource is on outage and automatically dispatch other generation resources to balance the load without the need for load biasing.

Load biasing may also be required in other types of situations including, but not limited to: (1) persistent inaccuracies in network models, until such inaccuracies are resolved; (2) behind-the-meter generation that is seen by the EIM entity's automatic generation control (AGC) system but not seen by the market because such generation is not included in the network model until the actual net load values that the EIM entity sends to the CAISO are adjusted, and reasonable forecasted load accuracy is achieved; (3) persistent resource deviation from dispatch operating targets (DOTs); (4) problems with telemetry values provided by supervisory control and data acquisition (SCADA) systems; (5) inaccuracy of variable energy resource (VER) forecasts; (6) movements or deviations of non-conforming loads from their hourly EIM base schedule values; (7) dynamic resources that are shared between EIM BAA and non-EIM BAA can deviate significantly from their hourly base schedule values; and (8) multi-stage generation configuration determination mismatch between the 15-minute market and the 5-minute market due to telemetry discrepancy or software defect.

[34] CAISO Tariff Sections 29.9(e); 9.3.10.3.

In each of these situations, the EIM entity will directly provide load biasing information in terms of the net MW amount of the load bias and will record in an operation log the reasons for each of these adjustments, which is available to the CAISO upon request. It should be noted that it is difficult to quickly identify the root cause for ACE deviations from the normal range; thus more in-depth offline analysis and correlation with other data is needed. However, in all cases the EIM entity grid operator logs whatever potential reason that he or she thinks is the cause for load biasing based on information available at that time. In the above-mentioned situations, the grid operator must respond quickly to these circumstances to maintain balancing authority area reliability in order to ensure that the market accounts for system changes or modeling inconsistencies until more accurate and realistic data reflecting the reality on the system is directly available to the market. At that time, a load bias is no longer needed and is removed by the EIM entity grid operator because, at that point, the continued use of the load bias would cause an adverse reliability issue for the EIM entity in the other direction (*i.e.*, instead of short ACE, it will be long ACE).

c. To the extent that EIM entities can directly adjust the load forecast used in the EIM market optimization without CAISO approval, please explain whether this input parameter can affect the resulting market rates, and why CAISO is not the appropriate entity to make such adjustments.

Response:

Adjustments to load forecasts by an EIM entity are implemented without the CAISO's prior approval. Any adjustment the EIM entity makes is factored into the demand curve and impacts the outcome of the market run. Therefore, such adjustments can affect the market results because the CAISO uses the load forecast as adjusted by the EIM entity in clearing the market.

The EIM entity, rather than the CAISO, is the appropriate entity to make such adjustments because the EIM entity, as the balancing authority area responsible for the reliability of its BAA, is better situated than the CAISO to understand the actual real-time conditions on its system. This is true not only in cases where the EIM entity creates its own load forecast, but also in cases where the CAISO creates the load forecast for the EIM entity, because in both cases the EIM entity is most aware of conditions on its system that require quick corrections to the imbalance conditions and adjusting load via the load bias mechanism to inform the market of such conditions. Therefore, it is appropriate that the EIM entity continue to have the ability to adjust quickly the load forecasts for its balancing authority area to reflect changes in system conditions.

Because the load biases made by EIM entity operators can impact the outcome of the market, the CAISO adopted the load bias limiter for the EIM entity

balancing authority areas, which is a feature the CAISO uses for its own balancing authority area to ensure that load bias adjustments do not adversely impact the market. As discussed in the August 19, 2015, filing in response to concerns raised by Powerex, the load bias limiter will be activated in the EIM entity balancing authority areas once the existing pricing waivers expire.[35]

For purposes of the EIM balance tests, the CAISO uses the CAISO's created forecast for the EIM area without any EIM entity load biases. Load is settled based on metered load values as co1mpared to the hourly base schedules for deviation calculations, which do not include the load bias amounts. Moreover, the load bias tool cannot be used for strategic purposes in the market because the use of load bias reflects directly on the capability of the EIM entity to maintain its ACE in the normal range of reliability.

Finally, the CAISO will continue to monitor the use of load biasing by EIM entities, and will provide that data to its Department of Market Monitoring.

5. Please explain the possible pricing impact that the inclusion of EIM Available Balancing Capacity will have on the pricing run of the market optimization if the scheduling run determines that EIM Available Balancing Capacity is needed to resolve a potential power balance infeasibility in the EIM entity's balancing area.

Response:

Once the EIM available balancing capacity is released in the pricing run to address an infeasibility in an EIM balancing authority area, the available balancing capacity will be available to clear in the market just like all other capacity clears. If available balancing capacity is released in the scheduling run to resolve a power balance constraint, the released capacity will participate in congestion management, and therefore will contribute to solving the power balance constraint infeasibility and simultaneously to address a transmission constraint.[36] The relaxation parameter in the scheduling run for a transmission constraint will be set higher than the factor-adjusted bids from resources providing available balancing capacity. Therefore, the available balancing capacity will be released at a price lower than the transmission constraint relaxation parameter, and this will allow the CAISO's real-time market optimization software to dispatch available balancing capacity that is most effective in resolving a transmission constraint while simultaneously resolving a

[35] *See* August 19 Filing at 37. See also Answer to Protests and Comments filed contemporaneously with this filing.

[36] *See* August 19 Filing, Tretheway Testimony at 28.

power balance constraint infeasibility in the pricing run.

The available balancing capacity released in the pricing run participates like all other capacity available in the pricing run and is capable of setting the market clearing price, just as any other capacity may do. Because the available balancing capacity released by the market is equal to the infeasibility identified in the scheduling run, to allow the available balancing capacity to participate and possibly set the price, the CAISO will change appropriately the load forecast in the pricing run by a small tolerance to allow price discovery based on the available bids in the particular EIM balancing authority area, including the price of the released available balancing capacity. Because the supply used in the pricing run is equal to what is cleared in the scheduling run, changing the load slightly in the pricing run will cause the supply and demand curves to intersect, thereby yielding the marginal price. [37]

Just as is the case in all the CAISO markets, the marginal price will be set by the highest bid, considering both the economic bids submitted by EIM participating resources and the bids of available balancing capacity. However, the available balancing capacity will set the price in the affected EIM balancing authority area only if the there is no other higher effective economic bid by an EIM participating resource. The CAISO will ensure this because the quantity of available balancing capacity will be limited to the amount of the potential infeasibility identified in the scheduling run.[38] The CAISO releases available balancing capacity into the pricing run only if the scheduling run has already determined there are no effective economic bids to relieve the constraints identified in the scheduling run. Under such conditions, the available balancing capacity released to address the infeasibility will set the price in the same manner as the market normally selects resources. The scenarios below demonstrate how the release of available balancing capacity can impact prices.

a. Please provide scenarios under which prices in the EIM could increase, decrease, or stay constant.

Response:

Below are several scenarios illustrating how the prices in the EIM could increase, decrease, or remain constant. The response assumes that the "increase, decrease or stay constant" reference is in relation to prices that would otherwise be set based on the penalty prices (*i.e.*, $1000/MWh). The discussion of the scenarios begins with the assumptions shown in Table 1 below for hypothetical non-participating resources (NPR), participating resources (PR), and

[37] *Id.*, Tretheway Testimony at 28-29.

[38] *Id.*, Tretheway Testimony at 28-29.

EIM transfers.

For purposes of the scenarios, withdrawals of energy are reflected as negative amounts and injections of energy are shown as positive amounts. The scenarios also reflect that there are non-participating resources identified as providing available balancing capacity (ABC) and a default energy bid (DEB) is established for it. Further, the scenarios reflect the fact that the maximum normal capability of a resource (PMax) for EIM transfers is the transfer limit, and the bid for the transfer is the bid of resources outside the EIM balancing authority area.

Table 1

Non-Participating Resources (NPR)

	Base Schedule (BS)	PMin	PMax	ABC Up	ABC Down	Bid (DEB)
NPR A	450	450	450	0	0	N/A
NPR B	25	0	50	25	25	$ 35.00
NPR C	25	0	50	25	25	$ 55.00

Participating Resources (PR)

	Base Schedule (BS)	PMin	Pmax	ABC Up	ABC Down	Bid
PR 1	0	0	100	0	0	$ 30.00
PR 2	0	0	100	0	0	$ 35.00
PR 3	0	0	100	0	0	$ 40.00

EIM Transfer

	Base Schedule (BS)	PMin	Pmax	ABC Up	ABC Down	Bid
In	0	0	100	N/A	N/A	$ 50.00
Out	0	0	100	N/A	N/A	$ 50.00

The various scenarios provided below illustrate how, by changing the load forecast, the available balancing capacity is included or not included in the supply stack. Scenarios 1-5 illustrate how available balancing capacity can be utilized to meet shortfalls in supply and how it may impact the price in those scenarios. Scenarios 6-9 illustrate how available balancing capacity can be utilized to address excess supply and how it may impact the price in those scenarios.

Scenario 1

	Award	Bid
Load	-690	N/A
NPR A	450	BS
NPR B	25	BS
NPR C	25	BS
PR 1	100	$ 30.00
PR 2	90	$ 35.00

Marginal Price w/ ABC = $35.00
Marginal Price w/o ABC = $35.00

In scenario 1, there are sufficient resources internal to the EIM entity balancing authority area to meet the load which is at 690 MWs. Since they are included in the EIM entity scheduling coordinator's base schedule and not being economically dispatched they are considered price takers. In addition, the cost of EIM transfers into the balancing authority ($50.00) is more expensive than the necessary supply to meet the imbalance. Therefore, the marginal resource to supply load is PR 2 and its bid sets the clearing price equal to $35.00. Because no capacity from available balancing capacity is identified as needed in the scheduling run, the bids from NPR B and NPR C are not included in the pricing run. This scenario illustrates that if the available balancing capacity is not needed it will not be released and it will not impact EIM prices. It further illustrates that if there are enough resources internally to serve the balancing authority area's load and the price of the internal resources is lower than the transfer into the EIM, the internal resources will set the price.[39]

In this scenario, prices remain the same with or without the identification of the available balancing capacity, and are based on the marginal resource (PR 2) and are not based on the penalty prices.

[39] It is important to consider in all these scenarios, that out of the normal operations of the market, if a participating resource bid that is effective in clearing congestion is not cleared in the scheduling run, it means it was not needed to serve the load, and it also means that that participating resource would not be released as available balancing capacity. If there was a need for it and it was effective in relieving the congestion, the market would have cleared it without needing to trigger the available balancing capacity mechanism.

Scenario 2

	Award	Bid
Load	-840	N/A
NPR A	450	BS
NPR B	25	BS
NPR C	25	BS
PR 1	100	$ 30.00
PR 2	100	$ 35.00
PR 3	100	$ 40.00
EIM In	40	$ 50.00

Marginal Price w/ ABC = $50.00
Marginal Price w/o ABC = $50.00

In scenario 2, load is increased such that there is now an insufficiency of resources internal to the EIM entity balancing authority area to meet its load. In this scenario, assume the EIM entity passed the resource sufficiency evaluation prior to the start of the operating hour and can receive EIM transfers in from other balancing authority areas in the EIM footprint. Because the price of EIM transfers into the EIM is greater than the bids from all internal participating resources, the marginal price is set at $50.00 for all resources. Again, because no capacity from available balancing capacity is identified as needed in the scheduling run, the default energy bids from NPR B and NPR C are not included in the pricing run. This scenario illustrates that while resources internal to the balancing authority area cannot serve the balancing authority area's load, the EIM transfers will meet the additional load before triggering scarcity pricing. Because there was no need for the available balancing capacity identified in the scheduling run to address a potential infeasibility, the available balancing capacity is not released.

Scenario 3

	Award	Bid
Load	-910	N/A
NPR A	450	BS
NPR B	35	$ 35.00
NPR C	25	BS
PR 1	100	$ 30.00
PR 2	100	$ 35.00
PR 3	100	$ 40.00
EIM In	100	$ 50.00

Marginal Price w/ ABC = $50.00
Marginal Price w/o ABC = $1000.00

Scenario 4

	Award	Bid
Load	-935	N/A
NPR A	450	BS
NPR B	50	$ 35.00
NPR C	35	$ 55.00
PR 1	100	$ 30.00
PR 2	100	$ 35.00
PR 3	100	$ 40.00
EIM In	100	$ 50.00

Marginal Price w/ ABC = $55.00
Marginal Price w/o ABC = $1000.00

In scenario 3, the load forecast is increased to 910 MWs and again there are insufficient resources internal to the EIM entity balancing authority area to meet its load. But in this case the EIM transfer-in constraint is binding, *i.e.*, no participating resources from other balancing authority areas in the EIM can meet the imbalance needs which necessitate including available balancing capacity in the scheduling run. In this scenario, the scheduling run identifies an upward 10 MW power balance constraint infeasibility. This triggers the need to deploy the available balancing capacity in the pricing run, which resolves the infeasibility by dispatching an additional 10 MW of capacity from the non-participating resource B because this is the most efficient least cost resource of all resources providing available balancing capacity. The available balancing capacity identified as needed, 10 MW from NPR B at a price of $35.00, is included in the pricing run. However, because NPR B has a lower bid than the cost of EIM transfers in, the EIM transfers cost is that of the marginal resource and the EIM settles at a price of $50.00. If the 10 MW from NPR B had not been included in the pricing run, the market would have encountered an infeasibility and the price would have been based on the power balance constraint relaxation parameter price of $1,000/MWh.

This scenario illustrates how the identification of available balancing capacity can lower the price from the penalty prices that would have triggered in the absence of EIM accounting for available balancing capacity, but it does not result in a different marginal price than scenario 2 because the EIM transfers continue to set the marginal price, even with the available balancing capacity included in the price run.

In scenario 4, the EIM entity balancing authority area's load is increased to 935 MW and again there are insufficient resources internal to the EIM entity balancing authority area and the EIM transfer-in constraint is again binding. But in this case, the load is increased such that available balancing capacity is identified as needed from both NPR B and NPR C. Therefore, 25 MW at $35.00 from NPR B and 10 MW at $55.00 from NPR C are included in the pricing run. The bid price from NPR C is higher than the bid price from all other resources and the cost of EIM transfers-in. Therefore, the bid price from NPR C sets the marginal price for the balancing authority area of $55.00 that is paid to all resources in the EIM entity balancing authority area. If the capacity of NPR C and B had not been released into the pricing run then the price would have been based on the power balance constraint relaxation parameter price of $1,000/MWh.

Like scenario 3, scenario 4 illustrates how the identification of available balancing capacity can lower the price from penalty-based pricing. However, in this scenario, the price is set by the higher priced available balancing capacity resource, resulting in a price that is higher than in scenario 2 because it was necessary to include a higher cost resource (NPR C) in the pricing run in order to address an infeasibility.

Scenario 5

	Award	Bid
Load	-960	N/A
NPR A	450	
NPR B	50	$ 35.00
NPR C	50	$ 55.00
PR 1	100	$ 30.00
PR 2	100	$ 35.00
PR 3	100	$ 40.00
EIM In	100	$ 50.00
Relax PBC	10	$ 1,000.00

Marginal Price w/ ABC = $1000.00

Marginal Price w/o ABC = $1000.00

Scenario 6

	Award	Bid
Load	-460	N/A
NPR A	450	BS
NPR B	25	BS
NPR C	25	BS
EIM Out	-40	$ 50.00

Marginal Price w/ ABC = $50.00
Marginal Price w/o ABC = $50.00

In scenario 5, there are insufficient resources internal to the EIM entity balancing authority area, the EIM transfer-in constraint is binding, and the balancing authority area's load has now increased such that available balancing

capacity from NPR B and NPR C is insufficient to address the infeasibility. In the pricing run, 25 MW at $35.00 from NPR B and 25 MW at $55.00 from NPR C are included in the bid stack. However, supply is still 10 MW short of meeting demand. Therefore, the power balancing constraint is relaxed and the marginal price established is based on the $1000/MWh relaxation parameter.

This scenario illustrates how the presence of available balancing capacity has no impact on the triggering of penalty prices when the identified capacity is not sufficient to address the infeasibility.

In scenario 6, there is an excess of generation instead of an insufficiency of supply. No participating resources can be dispatched down. The excess supply can, however, be addressed by scheduling an EIM transfer to other balancing authority areas in the EIM footprint. Because the over-generation is less than the EIM transfer constraint of 100 MW, no available balancing capacity is needed in the scheduling run. The marginal price is set by the EIM transfer-out price, which is $50.00.

Scenario 7

	Award	Bid
Load	-390	N/A
NPR A	450	BS
NPR B	25	BS
NPR C	15	$ 55.00
EIM Out	-100	$ 50.00

Marginal Price w/ ABC = $50.00
Marginal Price w/o ABC = ($155.00)

Scenario 8

	Award	Bid
Load	-370	N/A
NPR A	450	BS
NPR B	20	$ 35.00
NPR C	0	$ 55.00
EIM Out	-100	$ 50.00

Marginal Price w/ ABC = $35.00
Marginal Price w/o ABC = ($155.00)

In Scenario 7, load is reduced further such that the EIM transfer limit out is binding. In the scheduling run, 10 MW is scheduled on the most efficient resource providing available balancing capacity, which is NPR C. The 10 MW reduction is included in the bid stack of the pricing run, and the price is still established by the EIM transfer out equal to $50.00. By including the available balancing capacity from NPR C in the bid stack, the power balance constraint relaxation parameter of -$155.00 is not triggered. This scenario shows that the price is higher than the relaxation parameter, but is the same price as scenario 6 even though capacity is released on NPR C because the EIM transfer out continues to set the marginal price.

In scenario 8, load is reduced further such that NPR C has insufficient available balancing capacity to fully resolve the over-generation condition. In the scheduling run, 25 MW at $55.00 from NPR C and 5 MW at $35.00 from NPR B are included in the bid stack for the pricing run. NPR B is the marginal unit that establishes the price for the EIM balancing authority area equal to $35.00. Both NPR C and the EIM transfer out benefit from the lower price to reduce their supply. This scenario shows that the price is higher than the relaxation parameter of -$155.00, but is lower than in scenario 6 because NPR B is the marginal resource. This is appropriate because the resources are buying back their base schedule at a lower price as the severity of over-generation increases.

Scenario 9

	Award	Bid
Load	-340	N/A
NPR A	450	BS
NPR B	0	$ 35.00
NPR C	0	$ 55.00
EIM Out	-100	$ 50.00
Relax PBC	-10	($155.00)

Marginal Price w/ ABC = ($155.00)
Marginal Price w/o ABC = ($155.00)

In scenario 9, load is reduced further such that NPR C and NPR B have insufficient available balancing capacity to address completely the overgeneration. In the scheduling run, 25 MW at $55.00 from NPR C and 25 MW at $35.00 from NPR B are included in the bid stack for the pricing run. In the pricing run, the power balance constraint must be relaxed and thus sets the marginal price equal to -$155.00, which is the tariff-imposed relaxation parameter of the constraint. This scenario illustrates how the presence of available balancing capacity has no impact on the triggering of penalty prices when the identified available balancing capacity is not sufficient to address the insufficiency.

i. To the extent there are scenarios under which prices would stay constant or decrease, please explain why an increase in the price would not be the appropriate signal to send in such scenarios.

Response:

The only circumstance in which prices would decrease due to the application of the available balancing capacity mechanism is when EIM utilizes available balancing capacity to address a potential infeasibility and thereby avoids the application of the $1000 pricing parameter. This is illustrated in Scenarios 3 and 4 above. In Scenario 3, although available balancing capacity is utilized, the marginal price is set by the EIM transfer-in price. In Scenario 4, the marginal price is set by a resource providing available balancing capacity. In these scenarios, it is appropriate that EIM not clear based on the $1000/MWh penalty price based prices because capacity was available to the EIM entity to dispatch if needed to balance its system. Under the current EIM rules, the EIM entity could have manually dispatched this capacity. If the EIM entity was able to inform the market of the manual dispatch timely prior to the start of the next market dispatch, doing so would have had the same impact on prices as the triggering of available balancing capacity had, insofar as it would avoid the application of the parameter price. That is, the market software would have taken account of the manual dispatch and avoided the infeasibility. However, experience has demonstrated that it is difficult for the EIM entity to provide information regarding manual dispatches quickly enough for EIM to account for them, which is the structural issue that the available balancing capacity proposal is intended to address. Therefore, even if the lack of the available balancing capacity procedure would have triggered the scarcity price in scenarios 3 and 4, the price signal would not have reflected actual operational conditions and would have been misleading. The available balancing capacity simply provides the EIM with an ability to recognize and account for available capacity automatically in order to avoid such an outcome.

The only circumstances in which prices under the proposed enhancement would remain the same as they would be without available balancing capacity bids (i.e., based on penalty prices) is when the available balancing capacity is insufficient to address an infeasibility (scenario 5) or when the available balancing capacity is not needed because there are sufficient economic bids (scenario 1). In the case of the former it is appropriate for prices to be based on penalty prices because there is true scarcity and the market clearing price should indicate that there is a lack of sufficient supply to meet load in the balancing authority area.

b. Please explain, under the scenarios you describe under 5. a. i., above, how EIM Participant decisions regarding participating resources affect whether EIM Available Balancing Capacity will be deployed and the potential effect on clearing prices.

Response:

Decisions regarding the MW amount and bid price of participating resources can affect the deployment of available balancing capacity and clearing prices. As shown in scenario 4 discussed above, if available balancing capacity is needed to address an infeasibility and the bid price from a resource providing available balancing capacity (NPR C in scenario 4) is higher than the bid price from participating resources across the entire EIM footprint, the resource providing the available balancing capacity will be marginal, and therefore establish the price for the EIM entity balancing authority area.[40] As shown in Scenario 5, however, if the amount of available balancing capacity from resources inside the balancing authority area is insufficient to address the infeasibility, then the $1000/MWh parameter price will continue to apply in order to signal that there is supply scarcity in that balancing authority area. In this case, if an additional 10 MW of available balancing capacity had been available, either from participating or non-participating resources, then the infeasibility would have been addressed and the price set based on the marginal unit rather than the parameter price.

While it is clear that the amount and bid price of available balancing capacity designated by EIM entities can impact the market clearing price, this is the case with respect to any capacity considered in the pricing run of the CAISO's markets. The proposed enhancement provides a mechanism to reflect in EIM the EIM entity's management of available balancing capacity and reserves. In the absence of the available balancing capacity mechanism, the EIM entity can still impact the market clearing price by manual dispatches when the market optimization is able to account for such manual dispatches prior to running. In scenario 4, for example, the MWs released by the available balancing capacity enhancement could instead be released directly by the EIM entity through manual dispatch. If the market had visibility of this dispatch prior to optimization, an infeasibility would not occur, and thus the $1000/MWh parameter price would not apply. In practice, however, it is difficult for EIM

[40] Another factor that can impact prices in these situations is bid mitigation. When the EIM transfer constraint into a balancing authority area is binding, the CAISO employs its market power mitigation procedures to evaluate bids from participating resources in that balancing authority area. Assuming that mitigation is triggered, all participating resources will be dispatched using their default energy bids because they will have been mitigated, and the determination of the marginal unit, regardless of whether or not available balancing capacity is required, will be based on these default energy bids rather than the participating resource's unmitigated bids.

entities to inform the CAISO of these manual dispatches in time for the market to account for them. The manually dispatched resources, however, do not set the prices. In the case of manual dispatch, the price is set by the marginal participating resource. With the available balancing capacity enhancement, the EIM can automatically factor into the market solution an EIM entity's available balancing capacity and thereby best ensure that prices appropriately reflect actual operational conditions.

6. Finally, proposed tariff section 29.34(r)(1) provides that "CAISO will use EIM Available Balancing Capacity identified in the EIM Resource Plan to address power balance constraint infeasibilities in the EIM BAA for which the EIM Available Balancing Capacity is designated by the responsible EIM Entity Scheduling Coordinator, while simultaneously participating in Congestion Management."

a. Please provide additional detail regarding how CAISO will utilize the EIM Available Balancing Capacity for Congestion Management.

Response:

Congestion management is defined in appendix A to the CAISO tariff as "alleviation of Congestion in accordance with applicable CAISO procedures, the CAISO Tariff, and Good Utility Practice." The primary tool the CAISO uses for alleviating congestion is the security constrained economic dispatch of resources through its market clearing process as part of its market optimization solution.

As discussed in the CAISO's response to Question 5 above, if the available balancing capacity is released in the scheduling run to satisfy an EIM entity area's power balance constraint, the released capacity will participate in congestion management. The scheduling run will select the most efficient resources to both meet demand and to address power balance and transmission constraints. Thus, the scheduling run will not simply choose the lowest bid price from resources providing available balancing capacity, but rather will choose the most efficient resources for both power balance and congestion management purposes regardless of whether they are providing available balancing capacity. In the pricing run, any available balancing capacity released in the scheduling run will be included in the energy bids used to set prices within the balancing authority area pursuant to the market optimization solution. This is another advantage of the CAISO's proposed approach since the alternative manual instructions cannot accurately account for the impact on congestion.

b. Please indicate why and under what conditions this is an appropriate use of this capacity.

Response:

As discussed in the August 19 filing, the experience with the first EIM demonstrated that in some cases the EIM entity may have access to capacity to balance its system reliably beyond EIM balancing and flexibility requirements, but such capacity is not available for transfer to another balancing authority area participating in the EIM. Under the current design of the EIM, if a participating resource submits a bid for that capacity, the EIM may dispatch that resource to provide the capacity in a transfer to another balancing authority area participating in the EIM. However, under the available balancing capacity proposal, the EIM entity will be assured that the available balancing capacity is used only to serve an infeasibility in its own balancing authority area. That is consistent with the purpose of retaining that capacity for use in the EIM entity's balancing authority area, and therefore it is appropriate to use such capacity in the EIM. The available balancing capacity proposal will ensure that when such available balancing capacity is deployed, the dispatch will be optimal and reliable, from both power balance and transmission congestion perspectives. Ensuring that a power dispatch is optimal in terms of both power balance and transmission congestion is a fundamental feature of the CAISO's LMP-based market design. The CAISO's statement regarding the participating of available balancing capacity in congestion management merely verifies that the dispatch of available balancing capacity will be consistent with the dispatch of all other types of capacity in this respect.

III. Effective Date of Proposed Tariff Amendment

The CAISO recognizes that the information provided in this letter constitutes an amendment to the August 19 filing and that the Commission will establish a new 60-day notice and comment period upon receipt of the CAISO's response. The CAISO respectfully requests that the Commission accept this response and the tariff amendments proposed in its August 19 filing, along with the further modifications proposed in this letter and its Answer to Protests and Comments submitted on the same date in this docket, effective January 5, 2016.

A January 5, 2016, effective date for the available balancing capacity enhancement will not interfere with the implementation of the EIM year one enhancements pending in Docket No. ER15-1919-002. However, in order to deploy the year one enhancements reliably, it is best for the CAISO to have certainty regarding the Commission's approval of those modifications by October 21, 2015, to become effective October 27, 2015, as requested in the July 30 filing. The CAISO needs to complete the following tasks during the period

between the Commission's acceptance and implementation of the year one enhancements:

- Loading the Master File with data needed to support the EIM year one enhancements as well as the changes related to the introduction of new energy transfer system resources. This task, which requires significant coordination between various technology teams and the validation of market runs, takes two business days and is scheduled for October 22nd and 23rd. Once the CAISO begins this task it is difficult to undo the changes and the roll back procedure involves reverting to the copy of the Master File before the changes were initiated. Therefore, if the CAISO does not have approval on the morning of October 22nd it will be difficult to proceed with important first step in the deployment of the proposed enhancements.

- On October 25th and 26th, the CAISO is scheduled to conduct the pre-day-ahead market procedures to ensure that Master File changes do not negatively impact the production system and identify and fix any reported issues.

- On October 26th, the CAISO is also scheduled to deploy the software changes needed for the transmission path, inter-tie scheduling limits, and Interchange constraint limits calculations to support the production changes needed for EIM year one enhancements related to new energy transfer system resources required to deal with multiple EIM BAAs market setup. This deployment must come after the pre-day-ahead market processes are completed.

- On the night of October 26th, the CAISO is scheduled to deploy the real-time market software changes needed to support the EIM year one enhancement to production systems to prepare for the midnight software cutover for the EIM year one enhancements.

The January 5, 2016, effective date for the available balancing capacity enhancement will also not affect the integration of NV Energy into the EIM on November 1, 2015. If the Commission accepts the following submissions by the specified dates, and assuming it has also accepted the EIM year one enhancements by October 21, 2015, the CAISO can proceed with the integration of NV Energy on November 1, 2015:

(1) Commission acceptance of the CAISO's transition period filing in Docket No. ER15-2565 by October 28, 2015, effective November 1, 2015;

(2) Commission acceptance of the CAISO's readiness criteria filing in Docket No. ER15-861-004 by October 27, 2015 effective March 16, 2015, and

(3) Commission granting of the CAISO's petition in Docket No. ER15-2272 to apply the CAISO's local market power mitigation procedures to the NV Energy EIM internal interties.

The CAISO also understands that until the Commission rules on the available balancing capacity proposal, its existing pricing waiver will remain in place for PacifiCorp.[41]

IV. Attachments

Attachment A: Clean Tariff Record

Attachment B: Marked Tariff Record

[41] *See Cal.California Indep. Sys. Operator Corp.*, 151 FERC ¶ 61,247 (2015).

V. Conclusion

For the reasons set forth in this filing, the CAISO respectfully requests that the Commission accept the proposed tariff revisions, as amended by this letter, effective January 5, 2016.

Respectfully submitted,

/s/ Anna A. McKenna

Anna A. McKenna

Michael Kunselman
Bradley Miliauskas
Alston & Bird LLP
The Atlantic Building
950 F Street, NW
Washington, DC 20004
Tel: (202) 239-3300
Fax: (202) 654-4875
michael.ward@alston.com

Roger E. Collanton
General Counsel
Anthony J. Ivancovich
Deputy General Counsel
Anna A. McKenna
Assistant General Counsel
John C. Anders
Lead Counsel
California Independent System
Operator Corporation
250 Outcropping Way
Folsom, CA 95630
Tel: (916) 608-7287
Fax: (916) 608-7222
janders@caiso.com

Counsel for the California Independent System Operator Corporation

CERTIFICATE OF SERVICE

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

Dated at Washington, D.C. this 21st day of October, 2015.

/s/ Daniel Klein

Daniel Klein

(202) 239-3555

Attachment A – Clean Tariff Records

Response to Deficiency Letter Regarding August 19 Filing in Docket No. ER15-861-003

October 21, 2015

California Independent System Operator Corporation

29.34 EIM Operations

* * *

(e) **EIM Resource Plan.**

(1) **In General.** By 10:00 a.m. of the day preceding the Operating Day, the EIM Entity Scheduling Coordinators on behalf of non-participating resources and EIM Participating Resource Scheduling Coordinators on behalf of EIM Participating Resources, must submit all applicable components of the EIM Resource Plan as set forth in Section 29.34(e)(3).

(2) **Scope.** The EIM Resource Plan components must cover a seven day horizon (with hourly detail for each resource) beginning with the Operating Day.

(3) **Contents.** The EIM Resource Plan shall comprise-

(A) EIM Base Schedules of EIM Entities and EIM Participating Resources;

(B) Energy Bids (applicable to EIM Participating Resources only);

(C) EIM Upward Available Balancing Capacity;

(D) EIM Downward Available Balancing Capacity;

(E) EIM Reserves to Meet NERC/WECC Contingency Reserves Requirements; and

(F) if the EIM Entity Scheduling Coordinator is not relying on the CAISO's Demand Forecast, a Demand Forecast.

(4) **Contents of EIM Base Schedules.** EIM Base Schedules of EIM Entities must include hourly-level Demand Forecasts for EIM Demand, hourly-level schedules for resources, and hourly-level scheduled Interchanges.

(5) **Adjustment Prior to Submission of Real-Time EIM Base Schedules.** The EIM Entity Scheduling Coordinator may adjust the components of the EIM

Resource Plan prior to the submission of Real-Time EIM Base Schedules up to 75 minutes before the Operating Hour.

* * *

Appendix A

Master Definition Supplement

* * *

EIM Reserves to Meet NERC/WECC Contingency Reserves Requirements

Any capacity that an EIM Entity Scheduling Coordinator has designated, in the EIM Resource Plan, as necessary to meet its NERC/WECC contingency reserves requirements in the applicable Trading Hour and which does not overlap with capacity designated in other parts of the EIM Resource Plan specified in Section 29.34(e)(3).

Attachment B – Marked Tariff Records

Response to Deficiency Letter Regarding August 19 Filing in Docket No. ER15-861-003

October 21, 2015

California Independent System Operator Corporation

29.34 EIM Operations

* * *

(e) **EIM Resource Plan.**

(1) **In General.** By 10:00 a.m. of the day preceding the Operating Day, the EIM Entity Scheduling Coordinators on behalf of non-participating resources and EIM Participating Resource Scheduling Coordinators on behalf of EIM Participating Resources, must submit all applicable components of the EIM Resource Plan as set forth in Section 29.34(e)(3).

(2) **Scope.** The EIM Resource Plan components must cover a seven day horizon (with hourly detail for each resource) beginning with the Operating Day.

(3) **Contents.** The EIM Resource Plan shall comprise-

(A) EIM Base Schedules of EIM Entities and EIM Participating Resources;

(B) Energy Bids (applicable to EIM Participating Resources only);

(C) EIM Upward Available Balancing Capacity;

(D) EIM Downward Available Balancing Capacity;

(E) ~~Spinning Reserves in MW~~EIM Reserves to Meet NERC/WECC Contingency Reserves Requirements; and

~~(F) Non-Spinning Reserves in MW; and~~

(~~G~~F) if the EIM Entity Scheduling Coordinator is not relying on the CAISO's Demand Forecast, a Demand Forecast.

(4) **Contents of EIM Base Schedules.** EIM Base Schedules of EIM Entities must include hourly-level Demand Forecasts for EIM Demand, hourly-level schedules for resources, and hourly-level scheduled Interchanges.

(5) **Adjustment Prior to Submission of Real-Time EIM Base Schedules.** The

EIM Entity Scheduling Coordinator may adjust the components of the EIM Resource Plan prior to the submission of Real-Time EIM Base Schedules up to 75 minutes before the Operating Hour.

* * *

Appendix A

Master Definition Supplement

* * *

EIM Reserves to Meet NERC/WECC Contingency Reserves Requirements

Any capacity that an EIM Entity Scheduling Coordinator has designated, in the EIM Resource Plan, as necessary to meet its NERC/WECC contingency reserves requirements in the applicable Trading Hour and which does not overlap with capacity designated in other parts of the EIM Resource Plan specified in Section 29.34(e)(3).