

EIM - Second Revised Straw Proposal

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Company	Date	Submitted By
Arizona Public Service (APS)	7/29/2013	
<b>Opening Comment</b>		
<p>Arizona Public Service (“APS”) appreciates the California Independent System Operator’s (“CAISO”) travel to Phoenix for the 2nd Revised Proposal – Energy Imbalance Market (“EIM”) Stakeholder meeting. APS recognizes the significant revisions that the CAISO has made to its previous proposal and applauds the CAISO for reaching out to stakeholders on a series of topics. APS offers up the following comments to the 2nd Revised Straw Proposal</p>		
<b>ISO Response</b>		
<p>The ISO appreciates APS’s continued participation in the stakeholder initiative.</p>		
<b>Should base schedules be submitted hourly vs. every 15-minutes?</b>		
<p>It is APS’ understanding that settlements will be based on deviations from base schedules. Should 15-minute scheduling become a reality in the southwest as a result of FERC Order 764-related business practice changes, APS would like to keep the opportunity to provide updated base schedules every 15-minutes.</p>		
<b>ISO Response</b>		
<p>In the 3<sup>rd</sup> revised straw proposal, the ISO has proposed to eliminate the submission of 15-minute base schedules. This provides consistency between base schedules and day-ahead schedules from the ISO day-ahead market. The final base schedule will be what is submitted by T-40 minutes prior to the hour.</p> <p>Consistent with the FERC Order No. 764 design changes to the real-time market will allow generation resources and interties to update self-schedules due to physical changes. If the outage or intertie derate is known prior to the start of the 15-minute market optimization, the 15-minute schedule will reflect the change in physical characteristics and be considered instructed imbalance energy and the difference between the new schedule and the base schedule will be settled at the 15-minute LMP.</p>		
<b>Should the CAISO be able to commit units for an EIM Entity or not?</b>		
<p>Unit commitment seems to be outside the scope of a 5-minute security constrained economic dispatch program’s scope. CAISO has clarified several times over that the EIM will not have balancing responsibilities beyond the ISO boundaries. APS sees adding the scope of unit commitment as unnecessary and unrelated to the original concept of an EIM.</p>		

### ISO Response

The current proposal still provides the option for the EIM Entity to elect to all the EIM to commit resources. The ISO believes that allowing unit commitment in the EIM will lead to improved market efficiency. The inclusion of unit commitment in the EIM does not remove the balancing responsibilities of the EIM entity. The EIM Entity will still be committing resources prior to the start of the EIM to provide balanced base schedules.

### Adjusted Base Schedule

APS supports the removal the minimum shift optimization to establish adjusted base schedules in substitution of the real-time congestion balancing account per BAA, flexible ramp constraint requirement, and the under-scheduling penalties changes proposed in the 2nd revised proposal.

### ISO Response

The minimum shift optimization has been removed.

### Additional educational opportunities

APS noticed a significant difference in communication levels between those stakeholders that are currently CAISO members verses those that are not and therefore really appreciates the additional webex education opportunities that the CAISO offered.

APS supports the suggestion made during the stakeholder meeting to review congestion accounting. APS would also like to have a separate webex related to settlements: specifically addressing fees and charges unrelated to energy, such as uplift fees, neutrality charges, and other fees non-ISO participants may not have intimate knowledge thereof. APS would also like to see distinction of how intermittent resources will be settled verses other resources. Additionally, APS requests a separate webinar related to derate mechanics.

### ISO Response

The ISO has held two workshops: 1) Congestion Managemetn Offset Cost, 2) Flexibility Requirements. The presentations are available at <http://www.caiso.com/Documents/Technical%20workshops%20Aug%202012%20and%202013.%202013>

The ISO plans to hold additional technical workshops. A workshop on the neutrality charges is planned. The date of the workshop will be communicated via an ISO market notice.

Intermittent resources can provide 15-minute update to self-schedules. Differences between self-schedule updates and base schedules will be settled at the 15-minute LMP.

### Clarifications: Scheduling Coordinators

APS seeks to clarify that an EIM Entity Scheduling Coordinator can be the same person/entity as an EIM Participating Resource Scheduling Coordinator. Similarly, APS would like to clarify that an EIM



Entity Scheduling Coordinator can be the same person/entity as the California ISO Day Ahead and/or Hour Ahead Scheduling Coordinator.

**ISO Response**

The relationship between the EIM Entity Scheduling Coordinator and the EIM Participating Resource Scheduling Coordinator may be subject to the FERC standards of conduct, and compliance measures for functional separation may require different people or organizations to perform these functions. There should be no reason why an EIM Participating Resource Scheduling Coordinator could not be an existing Scheduling Coordinator in the CAISO markets.

**EIM Entity Definition**

The current EIM definition implies that an EIM Entity must have load and generation obligations. APS requests that the definition be revised to explicitly state the intention.

**ISO Response**

The definition provides that an EIM Entity is a balancing authority, but does not imply that it must have both load and generation obligations. Generation-only balancing authorities exist and load-only balancing authorities could exist. The definition clarifies that EIM will settle real-time load and generation imbalances within an EIM Entity's BAA, but if an EIM Entity were not have load or generation, these types of imbalances would not occur.

In addition, the EIM Entity's base schedule, even if load only or generation only BAA, will be subject to real-time congestion balancing account per BAA, flexible ramp constraint requirement, and the under-scheduling penalties.

**Variable Energy Resource forecasts**

APS requests clarification related to the pros and cons of using the CAISO's VER forecasts vs. EIM entity-supplied forecasts.

**ISO Response**

The price of the ISO forecasting service is \$0.10 per MWh of output. The EIM entity supplied forecast may be less. The ISO currently contracts with a third party forecasting service for all Eligible Intermittent Resources. If the ISO VER forecast is used, such forecasts are already integrated into the ISO systems. The EIM Entity may need to develop, secure and integrate such forecast capability in to their EIM Entity processes.

There are always ongoing debates regarding who has the best forecast. The ISO allows resources to be certified to provide their own forecast, but to address potential gaming concerns, the ISO can decertify the resource from providing its own forecast.

See section 3.3.11 for discussion of how a VER using the ISO forecast can elect to have the ISO automatically schedule the forecast in both the 15-minute market and 5-minute market.

Recommended Revision
<p>APS recommends that EIM Entities be allowed to set their own carbon price instead of being required to use an ISO-indexed price. This would allow for EIM Entities to make carbon price adder adjustments based on actual forward procured carbon allowance prices as opposed to an index.</p>
ISO Response
<p>The 3<sup>rd</sup> Revised Straw Proposal allows EIM Participating resources to bid their own carbon price.</p>

Company	Date	Submitted By
<b>Balancing Authority of Northern California (BANC)</b>	7/26/2013	
Opening Comments		
<p>BANC appreciates the opportunity to provide these Comments on the Second Revised Straw Proposal. While there has been a great deal of further refinement on important mechanical market design issues, the broad policy issues raised by BANC to date appear to be largely unaddressed.</p>		
ISO Response		
<p>The ISO appreciates BANC's participation and comments.</p>		
I. Scope of Participation in EIM		
<p>In its prior comments, BANC called upon the CAISO to clarify the potential scope of an initial EIM footprint. While BANC is sensitive to the commercial needs of potential EIM Entities, neither BANC nor other market participants can accurately assess the impacts of the EIM without more information on the initial footprint. As BANC stated in its comments, a host of design issues change in scope, magnitude, or importance if the potential initial EIM footprint is extended past PacifiCorp and the CAISO. Carbon cost attribution, transmission service, cost allocation, and possible operational impacts may all be affected by the potential size of the EIM, and also the identity of its participants.</p> <p>CAISO's response to this point is that BANC's request is premature. The CAISO's proposal and language belies that characterization. For example, the CAISO has used the limited transfer capability between PacifiCorp and the CAISO as a rationale for keeping its proposal not to charge for transmission service. In the Second Revised Proposal, however, the CAISO states that transfer capability "may" be limited. <i>Second Revised Proposal at 61</i>. Given the very short turn-around time to flesh out market design details on a market design change of this magnitude, it is time for the CAISO to clarify whether BAs other than PacifiCorp will be initial EIM Entities.</p>		
ISO Response		
<p>As previously stated, the ISO is discussing EIM participation with additional entities, but it would be premature to identify these entities before their participation is announced. These discussions</p>		

often are the subject of non-disclosure agreements.

## II. Transmission Service

As previously stated, BANC believes that it is necessary to establish some form of transmission service charge for EIM use of transmission. The CAISO “has made no changes” to its transmission service proposal in this Second Revised Straw Proposal. *Second Revised Straw Proposal at 61*. BANC reiterates its concern that to charge transmission customers that participate in CAISO markets the applicable TAC or WAC, but not to charge transactions in the EIM, is unduly discriminatory and has the potential to create market distortions.

It is reasonable to charge market transactions based on usage of the facilities on which those transactions depend. Any other policy deviates from cost causation principles. While BANC is still evaluating options on this issue, its initial view is that neither Alternative 1 nor Alternative 3 outlined in the Second Revised Straw Proposal meets this objective.

## ISO Response

The 3<sup>rd</sup> revised Straw Proposal contains additional discussion of alternatives for the transmission service rate, in section 3.8. The ISO invites additional comment on this topic. It should be noted that to the extent the transfer capability being made available by an EIM Entity is a Transmission Ownership Right or and Existing Transmission Contract right, pursuant to Section 16.6.3 and 17.3.3, use of such transmission currently is not subject to TAC or WAC charges and are not allocated revenues associated with access revenues. Therefore it would the proposal to not charge EIM transfers making use of such transmission is consistent with how access charges assessed to use of such transmission today.

## III. Flexible Capacity

The CAISO responded to BANC’s concerns about ensuring sufficient flexible capacity by referencing ramping constraints that will be incorporated into EIM, and changes to how balanced schedules will be formulated. *Stakeholder Comment Matrix at 7-8*. The CAISO misapprehends BANC’s concern.

Many policy makers and stakeholder seem to believe that the EIM will be a silver bullet for renewable integration. The CAISO’s EIM documents exacerbate this belief by not completely discussing the entire suite of market design initiatives that will be necessary to integrate renewables while maintaining grid reliability.

Key in this broader policy discussion is the need to have forward planning for flexible capacity needs, and the CAISO has been working to resolve this issue for its Balancing Authority for quite some time. The new Joint Reliability Framework is proposed to ensure forward procurement and commitment of flexible resources, among other things. Solving for flexible capacity needs in a real time optimization is not the same as forward planning and/or must offer obligations in forward time periods, and the two should not be confused. The CAISO acknowledged this at the Joint Reliability Framework stakeholder meeting in direct response to a stakeholder question from renewable interests about the link between EIM and forward Flexible Capacity requirements. The CAISO should acknowledge it here.

While BANC is not within the CAISO Balancing Authority, several stakeholders in the CAISO BA raise legitimate concerns about whether EIM will result in EIM Entities leaning on the forward procurement requirements of California LSEs. This concern highlights that EIM is only a potential piece of the overall integration solution, a point that the CAISO should recognize in this process.

**ISO Response**

The EIM proposal includes the flexible ramping sufficiency test, under-scheduling penalties and the BAA real-time congestion balancing account to address “leaning” that is within the scope of the real-time spot market.

The EIM Entity will also be required to provide a balanced advisory Day-Ahead schedule to the Market Operator. While advisory, this provides the EIM Entity the ability to demonstrate their plan for balancing their demand and also provides ample opportunity to be aware and resolve any resource sufficiency issues prior to real-time. If a more robust demonstration of resource sufficiency is required, such requirement should be considered for all Balancing Authority Areas by WECC rather than differentiating those Balancing Authority Areas that are voluntarily participating in an EIM for real-time imbalances. Longer term capacity considerations are addressed in local regulatory authority forums.

The Resource Sufficiency Evaluation, as discussed in the 3<sup>rd</sup> revised straw proposal, will provide the EIM Entity Scheduling Coordinator with opportunity to cure fail test prior to the start of the EIM. In addition, the Market Operator will be continually providing advisory information that will allow the EIM Entity Scheduling Coordinator to resolve potential failing sufficiency test prior to submitting the hourly base schedule at T-75 and prior to final base schedules being required at T-40 minutes.

Company	Date	Submitted By
Bonneville Power Administration	July 26, 2013	Sarah Arison, BPA Transmission Policy ( <a href="mailto:skarison@bpa.gov">skarison@bpa.gov</a> )

**I. Overview**

Bonneville Power Administration (BPA) appreciates the opportunity to provide comments for the CAISO consideration in the development of the proposed Energy Imbalance Market (EIM). BPA especially appreciates the CAISO’s commitment to working with intermediate balancing authority areas. BPA continues to focus on understanding: (1) how to effectively deal with potential implications of CAISO market operation dispatch of resources and (2) to gain an improved understanding of how the CAISO EIM system operations may require dispatch visibility and situational awareness tool development to ensure reliability of the BPA system. To this end, BPA looks forward to continued collaboration with the CAISO to find mutually agreeable solutions to issues raised prior to the EIM implementation date of October 2014.

**ISO Response**

The ISO appreciates BPA’s participation and comments in the ISO’s stakeholder process, as well as in other ongoing discussions related to EIM.

## II. General Comments

BPA appreciates the CAISO's revised stakeholder schedule that includes one more round of stakeholder review and comment on the proposed EIM paper in addition to explicitly posting and allowing stakeholder comment on the tariff framework and governance white paper.

### ISO Response

The ISO intends to provide adequate opportunity for discussion and understanding of the EIM design, including these documents, meetings, and comment periods, as well as technical workshops that will be scheduled as needed.

## 2.

Cost Based Data: BPA wants to understand from the perspective of both a party with load and generation in the PacifiCorp (PAC) BA and as a market participant on the interties:

- a. For the generation we have in PAC's BA will the requirement to provide cost based data at a specific resource only apply if the generation is a Participating Resource in the EIM?
- b. Because the CAISO is including the 15 minute market in the EIM, will you require cost based information for offers into the 15 minute market? If so, what cost data will you require for system sales?

### ISO Response

The EIM proposal uses "cost-based" to describe the dispatch process using submitted bids, in the sense that the market will pay the dispatched resources at least the amount of their bids, and to reflect the operation that most bids submitted in organized markets, including the ISO's current market, do reflect resources' operating costs. However, submission of cost-based operational data is required only for the local market power mitigation process, which applies only to resources that submit bids for EIM dispatch, i.e., to EIM Participating Resources. Intertie transactions at the EIM footprint boundary are deemed competitive and not subject to local market power mitigation.

## 3.

Since the 15 minute market seems to be included in the EIM, we are struggling to understand the cost allocation with both 15 minute and 5 minute dispatches. For example, consider a load with 100 MWs of imbalance over a 15 minute period. During the same period CAISO dispatches 1000MWs at \$20/MWh for 15 minute and the CAISO dispatches 50 MWs for each 5 minute period at \$100/MWh. What price will the load pay for their 15 minutes of imbalance energy?

### ISO Response

Assume the base schedule for load for the hour is 950 MW.

In the 15-minute market, the load forecast is 1000 MW, load pays  $50 \text{ MW} / 4 * \$20/\text{MWh} = \$250.00$

In the each of the 5-minute markets, the load forecast is 1100 MW, load pays  $50 \text{ MW} / 4 * \$100/\text{MWh} = \$1250$ .

Assuming there was no forecast error, total settlement is \$1500 for the 15-minute interval.

It is important to note that non-participating load is metered hourly and the hourly price is determined by the weighted average price using the load forecast schedule changes cleared in each 15-minute market and 5-minute market. There is also a extreme price mitigation measure.

The ISO posted a spreadsheet model that illustrates the settlement of load under FERC Order No. 764. The yellow cells in the model can be modified to develop different load settlement scenarios. The spreadsheet is available at <http://www.caiso.com/Documents/Meeting%20Jul%209,%202013>

**4.**

With respect to the CAISO 15 minute market, BPA understands that VERs need flexibility to change their delivery levels every 15 minutes. However, there are other resources and loads that also need this flexibility. Would the CAISO consider working with stakeholders to develop additional criteria?

#### **ISO Response**

The FERC Order No. 764 design changes allows non-participating resources for physical reasons to update their self schedules. For example, if a non-participating resource has a forced outage and has submitted the outage through SLIC. When known prior to the start of the 15-minute optimization, the outage will be reflected in the awarded 15-minute schedule. The deviation from base schedule will be considered instructed imbalance energy and settled at the 15-minute LMP. Until, the forced outage is reflected in the 15-minute schedule, the deviation will be considered uninstructed imbalance energy and settled at the 5-minute LMP.

**5.**

BPA is concerned that the CAISO proposal to assign responsibility to purchase carbon allowance to the suppliers will preclude participation of Federal suppliers in the EIM. Have you considered other options for purchasing carbon allowances for the EIM?

#### **ISO Response**

The ISO has previously worked with BPA to develop processes that facilitate BPA's participation in the ISO's existing markets. The ISO believes that similar processes can work in the EIM timeframe, and will continue to be willing to work with BPA in addressing its issues.

**6.**

BPA understands there are limitations on dynamic transfer across the interties. How will the CAISO

coordinate with other transmission providers on the allocation of dynamic capability? And, how will market participants be notified of these dynamic transfer limits?

**ISO Response**

To the ISO's knowledge, only BPA imposes dynamic transfer capability limits on paths between entities that have stated an intent to participate in EIM and the ISO's BAA. For the currently anticipated EIM Entities and EIM Participating Resources, a portion of the transmission rights that will be available to EIM include segments for which BPA is the transmission service provider. EIM Entities will inform the Market Operator of the transmission capacity that is available for EIM use, including limitations on that use. We look forward to continuing discussions to address issues of such limitations with the EIM Entities and transmission service providers who manage such limitations, such as BPA.

**7.**

BPA makes system sales to the CAISO and would potentially need to make system sales to an EIM Entity. Does the CAISO see any concerns if a system sale is bid into the EIM market from a BA other than the CAISO or EIM Entity?

**ISO Response**

A system resource may participate in the ISO's existing real-time market (as well as day-ahead) as a dynamic schedule or 15-minute economic bid, and may participate in EIM through an EIM Entity if the EIM Entity determines that it can support dynamic schedules or 15-minute economic bids of inerties

**8.**

Lastly, BPA encourages the CAISO to elaborate in the 3rd Revised EIM Straw Proposal on how the EIM Entity identified transmission rights will be confirmed and/or verified as available within the EIM footprint? BPA assumes that dispatch of the EIM Participating Resources will not create any transmission limitations for e-tagged schedules on established transmission rights? Is that a correct assumption?

**ISO Response**

EIM Entities will inform the Market Operator of the transmission capacity that is available for EIM use, including limitations on that use. If a transmission service provider believes that an EIM Entity has misstated its available capacity, or not informed the Market Operator about limitations on that capacity, it should contact the Market Operator and EIM Entity so that the issues can be resolved. The transmission capacity will take in to consideration any day-ahead schedules which are utilizing the capacity. For example, if an EIM Entity made available 100MW between the EIM Entity and the ISO and the EIM Entity had sold 80 MW import to the ISO in the day-ahead market, only 20 MW of additional transfers in the import direction could be used in the EIM.



### III. Specific Comments

Section 3.2 Resource Sufficiency and Proposed Design Elements: BPA encourages the CAISO to include a resource sufficiency measurement for DA.

#### ISO Response

The ISO appreciates BPA's concern, but the ISO considers day-ahead requirements to be beyond the scope of EIM. The ISO offers the option for EIM Entities to submit data for evaluation while the ISO runs its day-ahead market, but this is an option rather than a requirement. Following this opportunity for day-ahead validation of base schedules and resource plans, revisions can be made prior to binding EIM submissions, and the 3<sup>rd</sup> Revised Straw Proposal details multiple provisions within the EIM timeframe that would apply in the event of remaining insufficiency.

### 2.

Section 3.3.10 Intertie Schedules with Other Balancing Authorities: We understand that the CAISO preferred proposal is to not charge for transmission for EIM transactions. Since the CAISO is including the 15 minute market in this EIM proposal are you also eliminating the transmission charges from the 15 minute market? Will the transmission charges be allocated differently for imports and exports than they are for dispatches internal to the footprint?

#### ISO Response

The 3<sup>rd</sup> revised Straw Proposal contains additional discussion of alternatives for the transmission service rate, in section 3.8. The ISO invites additional comment on this topic.

There will be 15-minute transfers between the ISO and EIM Entities these transfers, similar to 5-minute transfers, are included in the one-year period with no transmission charges. The treatment of 15-minute exports on the boundary of the EIM footprint will be subject to the transmission settlement rules of the relevant BAA. For the ISO, 15-minute exports on the ISO boundary will be subject to ISO TAC.

### IV. Closing

BPA looks forward to continued collaboration with CAISO to find mutually agreeable solutions to issues raised prior to the EIM implementation date of October 2014.

#### ISO Response

The ISO appreciates BPA's participation and comments.



Company	Date	Submitted By
PacifiCorp	7/26/2013	
<b>Introduction</b>		
<p>Pursuant to the schedule established by the California Independent System Operator (“ISO”) for its Energy Imbalance Market (“EIM”) Stakeholder Process, PacifiCorp submits the following comments to the ISO on the 2nd Revised Straw Proposal dated July 2, 2013 (“2nd Revised Proposal”). PacifiCorp has been an active participant in the ISO’s Stakeholder Process, including submitting comments April 19, 2013, to the ISO’s Initial Straw Proposal, and June 14, 2013, to the ISO’s 1st Revised Straw Proposal. PacifiCorp appreciates the ISO’s consideration of all stakeholder comments to date and these comments are offered in the spirit of further achieving the development of robust and effective EIM market rules and practices.</p> <p>In its comments on the Initial and 1st Revised Straw Proposals, PacifiCorp raised a number of issues and comments, many of which are addressed or resolved in the 2nd Revised Proposal. To the extent PacifiCorp raised issues in prior comments that are not addressed in the 2nd Revised Proposal, PacifiCorp does not repeat them here. In doing so, PacifiCorp acknowledges the ongoing nature of the issues addressed herein and reserves the right to supplement, modify, amend, or otherwise present additional comments at a future time, as permitted. In addition, PacifiCorp respectfully requests that the ISO or interested stakeholders not perceive the absence of comments on any particular question, issue or other matter as a conclusive indication of PacifiCorp’s lack of interest, support or opposition with respect thereto.</p> <p>In Part II of these comments, PacifiCorp presents summary comments on eight key issues:</p> <ul style="list-style-type: none"> <li>A. Uplift Allocation</li> <li>B. Interaction Between Order 764 15-Minute Market and EIM</li> <li>C. Local Market Power Mitigation</li> <li>D. Resource Sufficiency and Proposed Design Elements</li> <li>E. Unit Commitment</li> <li>F. 60-Minutes versus 15-Minute Base Schedules</li> <li>G. Greenhouse Gas Proposal</li> <li>H. EIM Charges</li> </ul> <p>PacifiCorp appreciates the ISO’s ongoing efforts with respect to the development of the 2<sup>nd</sup> Revised Proposal including the ISO’s flexibility and responsiveness to comments made by PacifiCorp and other parties. PacifiCorp has found the ISO’s stakeholder process to be collaborative and effective and expects that this process will significantly contribute to the efficient and successful development of an EIM. As a way to continue to improve the stakeholder process, PacifiCorp proposes that the ISO include more detailed examples in future straw proposals on key topics and schedule technical workshops as part of the stakeholder process to review the implementation of various related concepts, such as those related to uplift allocations and greenhouse gas emissions.</p>		
<b>ISO Response</b>		
<p>The ISO appreciates PacifiCorp continued participation in this stakeholder initiative.</p>		

## **II. COMMENTS ON KEY ISSUES: A. Uplift Allocation**

Conceptually, PacifiCorp agrees with the treatment of offsets and uplift allocations in the 2nd Revised Proposal, namely, seeking to isolate offsets and allocation by Balancing Authority Area (“BAA”), and allow EIM Entities to be responsible for developing their own allocation methodologies for their BAA share of neutrality accounts or uplifts. However, given the complexity of the allocation of the four real-time market uplifts, further research is warranted to ensure that the processes and calculations outlined in the 2nd Revised Proposal accomplish their intended results. Therefore, PacifiCorp may have additional comments and suggested modifications associated with these charges and calculations in response to future versions of the straw proposal. As mentioned above, the topic of uplift allocation is one that would benefit from more specific and detailed technical examples as well as a workshop dedicated to the review of those examples.

### **ISO Response**

The ISO has provided additional discussion on the neutrality and a spreadsheet model illustrating the calculation of cost allocation based on transfers between BAA.

The ISO does plan to hold a technical workshop on the neutrality charges and BCR.

## **B. Interaction Between Order 764 15-Minute Market and EIM**

The 2nd Revised Proposal frequently refers to the ISO’s EIM model leveraging the pending addition of a real-time 15-minute market, currently under development by the ISO for purposes of compliance with Federal Energy Regulatory Commission (“FERC”) Order 764. However, the straw proposal should clarify that implementation of the Order 764 15-minute market is separate and distinct from EIM and that EIM Entities will have the discretion to determine participation in the Order 764 15-minute market at their own BAA boundaries.

The revised definition of EIM Participating Resource states that “in the 15-minute market, imports and exports that can be scheduled on a 15-minute basis are eligible to participate in addition to all resource eligible to participate in the 5-minute market.” Section 3.2 of the 2nd Revised Proposal further states that this applies to imports and exports to the EIM Entity Area from other BAAs and Section 3.3.10 states that if the EIM Entity and a neighboring BAA both support 15-minute intertie scheduling in support of Order 764, participation in the EIM at the intertie between the EIM BAA and a neighboring BAA may occur.

PacifiCorp requests that the ISO clarify that participation in the EIM does not dictate how the EIM Entity will comply with Order 764. Participation in the Order 764 15-minute market at the intertie between an EIM BAA and a neighboring (non-EIM Entity) BAA should only occur if supported by the EIM Entity and neighboring non-EIM BAA. EIM Entities may choose to limit the scope of changes to those BAAs participating in the EIM and not expand the boundaries of the ISO’s proposed Order 764 15-minute market. This approach is more appropriate because it will serve to encourage other BAAs to join the EIM rather than to seek benefits without committing to participate. This discretion is similar to the responsibilities of the EIM Entity to develop appropriate rules regarding transmission service requirements for eligibility of EIM Participating Resources, what types of charges are appropriate to pass on for EIM related

services, and how EIM imbalance and other costs are to be allocated within the BAA.

### ISO Response

The ISO has clarified that the EIM Entity determines what resources in its BAA are allowed to participate in EIM.

### C. Local Market Power Mitigation

The 2nd Revised Proposal is clear that based on the ISO's review of the initial implementation of the EIM with PacifiCorp, it will be unnecessary or inappropriate to mitigate import or export bids for congestion on scheduling limit constraints between BAAs. Further, under the 2nd Revised Proposal these constraints are deemed to be competitive under the ISO's current local market power mitigation ("LMPM") provisions.

PacifiCorp supports the ISO's LMPM proposal provided that, as proposed, there will be no mitigation of bids across EIM Entity interfaces (*e.g.*, between PACW and PACE), as between each EIM Entity or as between an EIM Entity and the ISO. PacifiCorp supports the proposed dynamic competitive path assessment for the EIM because, as PacifiCorp understands it, the competitive path assessment has been in place since 2011 and appears to be an effective method of identifying whether a particular path is competitive due to the number of resources controlling flows on that path. PacifiCorp also agrees that the net buyer or seller tests should not apply in the EIM because during any day, hour, or dispatch period an EIM Entity could be a seller or buyer and therefore benefit from high prices or low prices at different times. PacifiCorp also agrees that the proposed default energy bids should allow for appropriate cost recovery and flexibility consistent with the overall intent of the EIM.

### ISO Response

The LMPM proposal is unchanged in the 3<sup>rd</sup> revised straw proposal. The LMPM proposal does allow for mitigation bids when congestion occurs on any constraint within the EIM Entity BAA. Interfaces between EIM Entity BAAs are deemed competitive.

### D. Resource Sufficiency and Proposed Design Elements

PacifiCorp strongly supports the elimination of the adjusted base schedule process and associated minimum shift optimization. The design elements proposed by the ISO in lieu of adjusted base schedules are sufficient to meet the objective of feasible schedules and address leaning, yet avoid significant concerns raised in prior comments associated with the minimum shift optimization. In particular, PacifiCorp supports the move away from allocating costs to EIM Entities associated with the ISO's procurement of additional capacity to manage ramping needs. Though generally in support of the flexible ramping requirement (including both an upward and, eventually, a downward requirement) and the development of a flexible ramping product, PacifiCorp offers the below thoughts and questions on these two components of the ISO's design elements.

#### *Flexible Ramping Requirement*

PacifiCorp recommends that the upcoming 3rd Revised Straw Proposal include additional

information regarding the test for flexible ramping requirements. PacifiCorp understands that, currently, the ISO applies subjective operator judgment in implementation of its existing flexible ramping constraint and that the requirements for upward flexi-ramping capacity in real-time consist of a base requirement of 300 MW, a normal range of 300 MW to 600 MW and a maximum of 1,000 MW. PacifiCorp understands that MW hour requirements for upward ramping capacity will similarly be developed and apply to each EIM Entity BAA based on the characteristics of each balancing area. If this is the case, PacifiCorp requests that the 3rd Revised Straw Proposal confirm this point.

PacifiCorp recommends that the 3rd Revised Straw Proposal include information regarding: (1) whether the requirements will be set based on an objective test or a subjective test; (2) if it is to be an objective test, how it will be set and whether the same criteria apply to both the ISO and EIM Entity, and (3) if the test is to include subjective elements, how an EIM Entity will be given an opportunity to advise on any assumptions used in the test.

#### *Flexible Ramping Product*

PacifiCorp supports the development of the Flexible Ramping Product. PacifiCorp understands that the flexible ramping product will need to be integrated into the EIM market design. Importantly, and consistent with the parameters of the flexible ramping constraint being developed for initial EIM implementation, there must be an opportunity for EIM Entities to continue to self supply ramping requirements, with or without participating in the ISO day-ahead process. PacifiCorp will continue to work with the ISO and other stakeholders on the design of the flexible ramping product and its integration into the EIM.

#### **ISO Response**

The minimum shift optimization has been eliminated.

The flexible ramping sufficiency test considers the diversity benefit across the EIM footprint and the constraint formulation in RTUC and RTD allows the most cost effective resources in the EIM footprint to meet the requirement. The ISO has also included additional discussion on how the requirement will be set for each EIM Entity, the ISO, and the EIM footprint. The flexible ramping constraint was the subject of the August 13 technical workshop.

The flexible ramping product will allow EIM Entities to self-supply their upward and downward flexible ramping requirement through the hourly base schedule. The flexible ramping sufficiency test will be expanded to test for downward ramping capability.

#### **E. Unit Commitment**

PacifiCorp continues to evaluate whether it is appropriate for all EIM Entities to participate in the unit commitment of resources in the 15-minute Real Time Unit Commitment market. Although this requirement may eliminate an important seams issue, the costs and benefits associated with an EIM Entity's participation in unit commitment are not yet clear, and require further assessment and evaluation. PacifiCorp will continue to evaluate and provide further comment on this issue, as necessary, in response to future revisions of the straw proposal. In any event, costs associated with unit commitment in the ISO or another EIM Entity should be limited

to transfers into the EIM Entity paying the costs.

### ISO Response

The ISO has not modified the bid cost recovery proposal at this time. The proposal does limit the cost allocation between BAAs based upon transfers into a BAA from the other BAA incurring BCR costs on resource located with its BAA.

### F. Hourly versus 15-Minute Base Schedule

In section 3.3.2 of the 2nd Revised Proposal, the ISO indicates that hourly base schedules may be more appropriate for establishing the starting point of the EIM. PacifiCorp supports the use of hourly base schedules in lieu of 15-minute base schedules for purposes of the EIM. PacifiCorp understands that this could result in lower operational risk and implementation cost as well as the potential for greater imbalance volumes and associated uplift costs for the EIM Entity. However, this proposal removes a potential seam issue with the ISO's existing hourly market, which is important to resolve to facilitate an effective EIM.

EIM Entities may benefit from 15-minute adjustments to supply to hourly base schedules to meet the same hourly demand. PacifiCorp requests confirmation that the 15-minute updates would not represent financially binding base schedules and would not impact the balanced schedule and flexible ramping constraint requirements.

PacifiCorp requests that the ISO clarify the conditions under which hourly base schedules would apply, including whether all EIM Entities will be required to use the same time increment, and whether a transition to 15-minute base schedules would be allowed for all EIM Entities and under what conditions.

PacifiCorp notes that, if the ISO adopts hourly base schedules, the 2nd Revised Proposal should be closely reviewed for references to 15-minute base schedules to reduce confusion in future versions.

### ISO Response

The ISO has removed the option for the EIM Entity Scheduling Coordinator to submit 15-minute base schedule updates with 15-minute granularity. All EIM Entities will submit hourly base schedules at T-75 with hourly granularity. The hourly schedules will be used for the flexible raming sufficiency test and the evaluation of balance and feasibility.

Due to physical changes, such as a forced outage, the 15-minute self-schedule of non-participating resources will reflect the change if the outage is know prior to the start of the 15-minute market optimization. The 15-minute schedule change from the hourly base schedule will be considered instructed imbalance energy and settle at the 15-minute price. For non-participating load, the market operator forecast is used in the market optimization. As a result, all non-participating load deviations will be considered uninstructed imbalance energy and settle at the hourly weighted aveage price. The ISO has posted a settlement spreadsheet model at <http://www.caiso.com/Documents/Meeting%20Jul%209,%202013>

## **G. Greenhouse Gas Proposal**

PacifiCorp supports the ISO's proposal with respect to its treatment of greenhouse gas ("GHG") costs, subject to the concerns noted below. PacifiCorp suggests that the ISO's GHG proposal be modified to allow each EIM Participating Resource to calculate and submit, via its EIM Participating Resource Scheduling Coordinator, its own GHG cost added for each resource based on that resource's emission factor and the estimated CO2 cost as part of its bid. This allows each EIM Participating Resource to decide how it will meet its compliance obligations. This also relieves the ISO from the responsibility of calculating and maintaining each resource's GHG cost and appropriately places responsibility for compliance with the California Air Resources Board ("ARB") Cap-and-Trade program with each individual EIM Participating Resource.

PacifiCorp also supports the ISO's efforts to coordinate with the ARB with respect to the EIM Participating Resource obligations that may arise under ARB's Mandatory Reporting Rule ("MRR") or its Cap-and-Trade program. In particular, PacifiCorp supports efforts to identify areas of the ARB's regulations that may require modification to most effectively implement the ISO's GHG proposal.

However, in the 3rd Revised Straw Proposal the ISO should be more explicit regarding the potential that EIM Participating Resources will incur MRR or Cap-and-Trade compliance obligations by virtue of their participation in the EIM. In its proposal, the ISO only briefly reviews the ARB's programmatic requirements. However, rather than setting forth the ARB's requirements, the 3rd Revised Straw Proposal should clearly direct interested parties to the ARB's regulations so that the requirements may be understood by those parties.

Furthermore, because bids into the EIM from Participating Resources are resource-specific, the proposal should emphasize the GHG cost established for each EIM Participating Resource should be resource-specific as opposed to being based on a default or "system" emission factor. Under the ISO's proposal, each individual resource will be dispatched based on its bid cost plus the GHG cost. In addition, PacifiCorp understands that the ISO will have the ability to identify the quantity of imports into California, as well as each participating resource's contribution to those imports. Under ARB's regulations, the default emission factor (or to-be-developed system emission factors) only applies to unspecified resources. In the case of EIM, all resources are specified; therefore, resource specific emission factors should apply.

## **ISO Response**

The 3<sup>rd</sup> revised straw proposal allows each individual resource submit it's own GHG bid adder. The GHG compliance bid adder is not subject to local market power mitigation. The only limit is that the combined energy bid and GHG compliance bid adder must be below the bid cap, currently \$1000.00. The EIM Participating Resource Scheduling Coordinator will have a compliance obligation with CARB. The costs of GHG compliance should be reflected in the GHG compliance bid adder.

## **H. EIM Charges**

PacifiCorp again requests that the ISO include in the 3rd Revised Straw Proposal a section that sets forth a comprehensive list of all charges applicable to EIM Participating Resource's and the

EIM Entity. This information is critical for purposes of system design, billing determinants, and setting expectations for potential participating resources.

#### **ISO Response**

The development of a comprehensive list is difficult given we are still in the design phase of the stakeholder initiative. The ISO, as part of the implementation work of integrating a new EIM Entity, will discuss preliminary implementation approached.

In addition, the ISO is will be scheduling a technical workshop to discuss the neutrality settlement.

#### **III. COMMENTS: Section 2.3. Resource Sufficiency and Proposed Design Elements**

As noted by the ISO, the 2nd Revised Proposal continues to reference adjusted based schedules and feasibility requirements. PacifiCorp understands that, if this proposal is adopted, the 3rd Revised Straw Proposal will not contain these references.

#### **ISO Response**

The ISO has updated the 3<sup>rd</sup> Revised Straw Proposal.

#### **Section 3.1.4. Role as EIM Entity Scheduling Coordinator**

In addition to submitting load, resource and interchange forecasts, the EIM Entity must submit the amount of transmission capability available to the Real-Time Unit Commitment (“RTUC”) and Real-Time Dispatch (“RTD”), which may change as often as hourly.

#### **ISO Response**

The ISO has made this clarification in section 3.1.3 (EIM Entity role as Balancing Authority).

#### **Section 3.2. EIM Processes**

PacifiCorp requests that the ISO modify its proposal to indicate which resources responding to exceptional dispatch are reported to the Market Operator by the EIM Entity Scheduling Coordinator and which are reported by the EIM Participating Resource Scheduling Coordinator. Language suggesting feasibility requirements should be revised if adjusted base schedules are no longer required.

#### **ISO Response**

The ISO has made this clarification in section 3.1.3 (EIM Entity role as Balancing Authority).



### **Section 3.3.3.EIM Entity Scheduling Coordinator Demand Forecasting**

PacifiCorp requests that ISO clarify that if the EIM Entity Scheduling Coordinator elects to adopt the Market Operator demand forecast for the EIM Entity BAA that any Load Aggregation Points in the EIM Entity BAA also will be required to use the Market Operator demand forecast.

#### **ISO Response**

If an EIM Entity Scheduling Coordinator elects to use the Market Operator load forecast, all LAPs within the EIM Entity will utilize the Market Operator load forecast.

### **Section 3.3.5.2 Charges for Over-Scheduling**

PacifiCorp understands that currently no over-scheduling charges are proposed. The ISO is evaluating whether additional measures are needed to prevent BAAs from leaning to resolve over-generation. PacifiCorp supports this approach.

#### **ISO Response**

The ISO continues to evaluate the need for over-scheduling penalties.

### **Section 3.3.7. Supply Adequacy and Resource Scheduling Requirements**

PacifiCorp requests that the ISO clarify that EIM Entities will determine the rules and procedures for participation of dynamic transfers associated with their BAA boundaries.

The 2nd Revised Straw Proposal states that the EIM Entity Scheduling Coordinator will “create and process” e-Tags for bilateral schedules between BAAs. PacifiCorp requests this be clarified to indicate that the EIM Entity Scheduling Coordinator will be responsible for *ensuring* that e-Tags are created and processed, in recognition that it may not be the EIM Entity Scheduling Coordinator creating each e-Tag.

#### **ISO Response**

This has been updated.

### **Section 3.4.2. Congestion Management**

The 2nd Revised Proposal states that EIM Participating Resource Scheduling Coordinators must submit energy bids with sufficient generating capacity in EIM to enable efficient congestion management on these constraints. PacifiCorp requests that the ISO clarify that this statement is intended to mean that the EIM Entity will have difficulty meeting the flexible resource constraint if there are limited participating resources, and that the statement does not constitute a must offer requirement.

#### **ISO Response**

This has been clarified in section 3.4.2.



**3.6.4. Seams Coordination and Interaction with WECC Congestion Management**

For clarity, PacifiCorp requests that the proposal state the “participating market or non-market system operators” as EIM Entities and non-EIM Entities.

PacifiCorp requests that the proposal clarify that the WECC Enhanced Curtailment Calculator (“ECC”) has not been implemented. The last paragraph of 3.6.4 describes how the Participating Resources Scheduling Coordinators will receive ECC notifications through ADS, but it needs to be clear that if there is no ECC, it should be clear that there will be no requirements of the Participating Resource Scheduling Coordinator.

**ISO Response**

Section 3.6.4 has been clarified. It is important to understand that this section of the straw proposal does not assume that BAAs will be only “EIM Entities” or “non-EIM Entities”. Instead, the possibility exists that multiple market structures will exist within the WECC region, and this section reflects that possibility.

**IV. ADDITIONAL ISSUES AND QUESTIONS: Section 2.3. Resource Sufficiency and Proposed Design Elements and Section 3.6.1 Ancillary Services**

Change “resource sharing groups” to “reserve sharing groups.”

**ISO Response**

This has been updated.

**Section 3.3.1. Registration of market Resources (Master File)**

The ISO should clarify why minimum, maximum, and ramp rate data are needed for nonparticipating resources. It is unclear why this information would be needed from nonparticipating resources as those resources will not be dispatched in the EIM. Even if only submitted once and updated as needed, this information is burdensome to maintain and update. Accordingly, if it is unnecessary it should not be required.

**ISO Response**

An explanation has been added.

**Section 3.3.11. Load Aggregation Points (“LAPs”)**

PacifiCorp requests that the ISO clarify whether there is flexibility to add LAPs after go-live, and if so, the process and timing for doing so.

### ISO Response

An explanation has been added.

### Section 3.3.13. Generation and Transmission Outages (“OMS”, “SLIC”)

The 3rd Revised Straw Proposal should also include reporting responsibilities of nonparticipating resources in this section.

PacifiCorp requests clarification on the timeframe for submitting outages. This section references the ISO’s tariff; however, PacifiCorp prefers a 30 minute requirement as stated in the 2nd Revised Proposal.

### ISO Response

For non-participating resources, until their outage is reflected in the 15-minute market, the deviations will be considered uninstructed imbalance energy and will be settled at the 5-minute LMP. This should incentivize the submission of the outage by the EIM Entity Scheduling Coordinator to be as soon as possible.

### 3.7.4. Unaccounted for Energy (“UFE”)

This is the only section where the Utility Distribution Company (“UDC”) terminology is used as something that exists within the EIM Entity BAA. There is no other discussion in the 2nd Revised Proposal about how UDC’s would be defined or why they are relevant for the EIM BAA. Can UFE and neutrality be described as being aspects of LAP’s rather than UDC’s?

### ISO Response

An explanation has been added. The UDC is different from a LAP, because metered boundaries are needed to define UDCs but may not be present for LAPs.

Unaccounted for Energy is include in the neutrality allocations.

### V. CONCLUSION

PacifiCorp appreciates the ongoing efforts of the ISO management and staff to develop the EIM in a timely manner and in accordance with the principles in the Implementation Agreement. PacifiCorp’s comments are intended to: (1) focus on critical issues related to the market design; (2) identify areas where PacifiCorp needs additional explanation or data to understand the ISO’s proposal; and (3) provide specific proposed changes to improve the next iteration of the Straw Proposal. PacifiCorp will continue to be an active participant in the EIM stakeholder process and undertake the necessary activities to be able to support startup of the EIM October 1, 2014.

### ISO Response

Thank you for your participation in the stakeholder process and commitment to EIM’s implementation.

Company	Date	Submitted By
Portland General Electric	7/26/2013	
<b>Opening Comments</b>		
<p>Portland General Electric Company (PGE) appreciates the opportunity to submit comments to the California Independent System Operations (CAISO) on the proposed Energy Imbalance Market (EIM) 2<sup>nd</sup> Revised Straw Proposal posted July 2, 2013. PGE understands the challenges that the region as a whole is facing in integrating variable resources and supports the development of effective and achievable solutions PGE also appreciates the CAISO's efforts to create an inclusive process for developing these solutions and has been impressed with the responses to date from the CAISO to stakeholders' questions. While PGE continues to have questions on a number of the CAISO's proposals, we are most concerned about the following two areas and choose to focus our comments there.</p>		
<b>ISO Response</b>		
<p>The ISO appreciates Portland's participation and comments.</p>		
<b>Transmission Use Charges</b>		
<p>PGE continues to believe there should be a transmission service charge if transmission is used for EIM optimization, especially in a market that initially will not encompass the entire geographic footprint of the existing bilateral energy markets. Charging for transmission service used for EIM transactions is consistent with FERC's open access principles and market fundamentals. PGE supports transmission cost allocation resulting from EIM cost causation and benefit. PGE is particularly concerned with freeriders abusing access to the California Oregon Intertie (COI) in the event that there are no EIM transmission charges. PGE understands it is difficult to provide a transmission service charge estimate because of uncertainty related to EIM activity, but PGE believes the CAISO should explore a structure that includes an access charge or charge on top of energy.</p>		
<b>ISO Response</b>		
<p>The 3<sup>rd</sup> revised Straw Proposal contains additional discussion of alternatives for the transmission service rate, in section 3.8. The ISO invites additional comment on this topic.</p> <p>It should be understood that the ISO is not proposing to have no transmission access charge. Instead, the ISO recognizes that transmission customers in all BAAs (including EIM Entities) already pay transmission access charges. In the ISO's BAA, the transmission access charge (TAC) is described in the EIM straw proposal, applies to load and exports from the ISO's market footprint, and does not apply to incremental or decremental scheduling or dispatch of supply resources in the ISO's market footprint. The EIM proposal recognizes that EIM extends the real-time market footprint to include EIM Entities in addition to the ISO's BAA, and thus extends the concepts of the ISO's TAC to the new real-time market footprint including EIM Entities. Among the alternatives outlined in the EIM straw proposal, Alternative 1 would simply rely on the ISO's and each EIM Entity's existing transmission access charges to collect their transmission revenue requirements, and recognize that EIM's function is to dispatch supply resources within the combined real-time market footprint, which within the ISO's BAA are not subject to the ISO's TAC. Alternative 2 would</p>		

modify this by taking a step toward a regional transmission rate design, by applying a portion of each entity’s transmission revenue requirement as a blended EIM TAC.

In additional comments, the ISO will welcome any other specific proposals that have resulted from discussions in the Pacific Northwest or from any stakeholder.

**Green House Gas Costs**

Under the second straw proposal, the CAISO states “no individual resources eTags are needed since the Market operator will issue an aggregate dynamic schedule with each EIM Entity BAA.” PGE requests clarification as to how this aggregate allocation will be defined when a portion of a mixed resource portfolio remains in an EIM Entity BAA, and the balance is imported into the CAISO. In addition, how will the Security Constrained Economic Dispatch (SCED) be clearly defined?

PGE also has concerns as to how settlement will occur when some resources require hydro optimization under the objectives of the MidC Hourly Coordination (MCHC) process, and not metered information. The MCHC tool assigns generation capacity after the completion of the hour so hydro assumptions going into the operating hour may have to be carefully considered. PGE also requests clear, transparent and timely information on the market results of generation allocation that is imported into California, and requests clarification on the GHG emissions cost rate and emissions factor used for each EIM Entity BAA.

**ISO Response**

The market design to address GHG compliance provides a method to identify which resources are exporting to California. The aggregate dynamic schedule between each EIM Entity BAA is used to tag the net hourly transfers that occur as a result of EIM. The market optimization will identify which resources are deemed to have been delivered to California based upon the GHG compliance bid adder. EIM Participating Resource Scheduling Coordinators will be notified as part of the 15-minute schedule and 5-minute dispatch if the resource has be deemed to deliver in California. The resource will be compensated at the marginal GHG compliance cost from the market optimization.

Individual resources should include all costs and risks associated with GHG compliance in the GHG compliance bid adder.

<b>Company</b>	<b>Date</b>	<b>Submitted By</b>
<b>Pacific Gas &amp; Electric</b>	7/26/2013	Will Dong (415) 973-9267 Paul Gribik (415) 973-6274

**Opening Comments**

Pacific Gas & Electric (PG&E) offers the following comments in the stakeholder process for the California Independent System Operator’s (CAISO) Energy Imbalance Market (EIM) Initiative’s July 2, 2013 2nd Revised Straw Proposal (“Proposal”).  
PG&E supports the CAISO’s EIM stakeholder process to vet the benefits, costs, and design details of the CAISO-PacifiCorp EIM. PG&E’s support of an EIM will depend on achieving a level of comfort that the benefits to customers will be commensurate with the costs and risks that will be incurred

by customers. Overall, PG&E sees the potential opportunity for an EIM to benefit each region, but we will be seeking assurances that the benefits clearly outweigh the costs and the design results in fair treatment of both the EIM Entity and the CAISO in regards to cost allocation and market obligations.

PG&E appreciates the CAISO's evolution of the original EIM design, including:

- Revision of GHG Design (PG&E is evaluating the implications of the design and assessing the potential changes to PG&E's bidding, settlement and monitoring systems);
- Elimination of the Minimum Shift Optimization;
- Addition of a flexible ramping capacity sufficiency test for the EIM Entity; and
- Cost allocation of uplifts such as RTCO are based on cost causation (CAISO has introduced high-level allocation concepts, but the details have not yet been fleshed out).

CAISO staff and stakeholders working together to vet the complex EIM design takes time but the end result is worth the effort and cost in time. PG&E offers some specific recommendations below regarding the stakeholder process to ensure adequate time is available to develop a good design.

PG&E also appreciates the CAISO posting additional detail about the EIM Benefit Study including aggregated generation by technology type and by balancing area authority.<sup>1</sup> This information gives stakeholders a greater understanding of the implications of an EIM and shows a significant impact not only on the CAISO and PacifiCorp but other BAAs such as BPA. PG&E is still endeavoring to get a greater understanding of the benefits to CAISO of the EIM after implementation of FERC Order 764 changes (15-minute scheduling). This information will be used for PG&E's assessment of the proposal in total at the conclusion of the design process; today's comments do not address that ongoing effort.

PG&E comments are detailed below and focus on the following points:

1. CAISO should take the time necessary to have an effective EIM Design stakeholder process; the current pace is too fast;
2. CAISO should schedule and conduct EIM simulations and upon the successful completion of those simulations seek CAISO Board approval to go-live;
3. CAISO should address convergence bidding uplift allocation before EIM goes live;
4. More detail is needed about the neutrality and RTCO calculations;
5. CAISO should have authority to dispatch committed units and commit fast-start resources in the EIM Entity;
6. EIM Entities should not be able to opt out of commitment costs incurred by the CAISO;
7. PG&E supports the sufficiency test for flexible ramping capacity; a downward sufficiency test should also be examined; and
8. CAISO should consider the incentives for EIM over-scheduling and consider an over-scheduling penalty

The absence of comments on a particular element of the proposal should not be perceived as PG&E's endorsement. This is a sizeable and complex initiative, and PG&E has not been able to fully

vet every aspect of the proposal in the time allotted in the stakeholder process. Instead, PG&E has focused on what we consider the most important issues. We may offer input on the other elements at a later date.

## ISO Response

The ISO appreciated PG&E's continued participation in this stakeholder initiative.

### 1. CAISO Should Take The Time Necessary To Have An Effective EIM Design Stakeholder Process; The Current Pace Is Too Fast

PG&E recommends that the CAISO reconsider the timing of this stakeholder process to provide adequate time for the CAISO to develop complete design proposals and for stakeholders to fully consider the design and develop alternatives. PG&E is not alone in its call to relax the current timeline. Seven other stakeholders supported a call to slow down in the last round of comments (SCE, Powerex, Portland General Electric, BPA, SMUD, Balancing Authority of Northern California, and Xcel Energy).<sup>2</sup>

The CAISO only had two weeks turn-around between receiving comments on the first revised straw proposal and the release of the second revised proposal. The short turn-around gets reflected back in the lack of detail in the subsequent CAISO's proposal (e.g., the proposed neutrality and Real Time Congestion Imbalance Offset (RTCIO) charge calculations) and is further compounded by questions then from stakeholders who seek further information and examples (which likely would have been provided in earlier drafts had sufficient time been allowed). PG&E is confident that CAISO produces the highest quality proposals its timeline allow, but we believe both the CAISO and stakeholders are unable to put forth their best efforts at each design iteration based on inadequate time.

Like the CAISO, stakeholders need time to think through the implications and develop alternative designs when appropriate. This takes time; more time than the CAISO has allotted. A complex element like the GHG design can take four to eight weeks to flesh out with examples and mathematical formulations to ensure understanding. There are numerous GHG-scale elements in the EIM design that need deep and critical thought by stakeholders.

PG&E understands the CAISO is planning additional touch points with stakeholders such as technical workshops; PG&E supports that action. But additional meetings or calls with the CAISO is not a substitute for more time. Time is needed independent of such meetings and calls for stakeholders to hold up their end of the stakeholder process to think critically about the design and bring well-considered alternatives to the table.

The time crunch will only get worse for the CAISO and stakeholders starting in August. The CAISO plans to overlap two other EIM stakeholder processes on top of the EIM design work: 1) a second stakeholder process focused on EIM governance issues, and 2) the start of EIM tariff development. This additional work will require time from the same people working on the design and allow for even less time to consider the design.

PG&E offers three specific modifications for the EIM timeline:

- i. Extend time for stakeholder comments** – PG&E appreciates the extended comment period for this set of comments, but notes that the CAISO has only scheduled two weeks for the remaining proposals. PG&E recommends a 3-4 week comment period instead of the

usual two weeks for each of the remaining proposals.

**ii. Plan for three subsequent proposals** - CAISO anticipates two more proposals – a third revised and draft final. Given that much of the 2nd revised proposal is new (most substantive elements, other than the GHG design), the CAISO should plan for three subsequent proposals and not two.

**iii. Do not start tariff work until submission of stakeholder comments for the draft final proposal** – Given the complexity of the EIM design and the start of a second EIM stakeholder process on governance, the development of EIM tariff should be postponed to allow stakeholders and the CAISO to first focus on these two design initiatives.

Finally, PG&E notes that it is not opposed to a phased implementation approach for EIM to allow PacifiCorp to start recognizing the intraregional benefits noted by the CAISO's benefits study. In Phase One, the CAISO could provide real-time instructions through its security constrained economic dispatch for PacifiCorp independent of the CAISO operations. Doing so should allow PacifiCorp to capture and confirm the intra-regional benefits for PacifiCorp purported in the EIM Benefits Study. At the same time, CAISO and PacifiCorp could continue finalizing design and testing of a co-optimized EIM to ensure a robust process. Once the design is complete and the CAISO has demonstrated its ability to operate the two balancing area authorities as stand-alone entities, then the CAISO would transition to Phase Two of the implementation – operating a full EIM. This approach has added advantage of providing more time to address convergence bidding exploitation safeguards before the full EIM goes live.

<sup>2</sup>. <http://www.caiso.com/informed/Pages/StakeholderProcesses/EnergyImbalanceMarket.aspx>

## ISO Response

Thee ISO has scheduled additional technical workshops and will hold additional technical workshops. The ISO has extended comment periods from the original stakeholder timeline to allow stakeholders additional time.

While, modifications to the initial initiative timeline have been made, the ISO is committed to bringing the proposal to the BOG in November and for implementation in October 2014, per the implantation agreement with PacifiCorp.

## 2. CAISO Should Conduct EIM Simulations And Seek CAISO Board Approval To Go-Live After Simulations

As part of this design initiative, the CAISO should develop simulation tools and provide a timeline for EIM simulations. PG&E's preference is that the simulations occur prior to the CAISO seeking Board approval of the EIM design since the results could be used to improve the design. This type of proof of concept testing of design before committing to a design is a best-in-class RTO practice. However, if the CAISO is unable to complete the simulations before Board approval of the design, PG&E recommends that the CAISO seek Board approval to go-live after reporting out on the simulation results. This is an approach similar to that used for the go-live of Market Redesign and Technology Upgrade (MRTU).

Simulations will fill a critical need for stakeholders to better understand the EIM's effects and to



guard against unintended outcomes or risks. For example, even the simplified EIM benefits study showed that schedules throughout the WECC will change due to the CAISO/PacifiCorp EIM, with potentially surprising shifts in generator dispatches. Simulations should also provide important feedback on how the EIM initiative is interacting with other new market enhancements, including FERC 764 related market changes, Contingency Modeling Enhancements (CME) and Full Network Model (FNM) Expansion.

### ISO Response

The ISO's implementation process includes market simulations prior to the final decision to go-live with a market design change. This process will be followed in implementing EIM. The ISO will brief the Board of market simulation results as part of its lead up to go-live in a similar way used for go-live of MRTU.

### 3. CAISO Should Address Convergence Bidding Uplift Allocation Before EIM Goes Live

The Proposal only addresses the limited issue of convergence bidding profits that may result from congestion in the EIM Entity. However, the CAISO does not address concerns that the proposed EIM will introduce significant new structural differences between the day-ahead (DA) and real-time (RT) EIM markets and the possible exploitation of these differences by convergence bids within the CAISO.

The potential impact of convergence bidding related uplifts is large. The DMM paper focused on the issue of RTIO charges which amounted to \$235 million in costs in 2012, out of which \$70 million were paid out to virtual bidders during periods when the day-ahead flow exceeded the real-time flow on a binding constraint. PG&E understands the CAISO's position that the EIM along with the FNM Expansion will improve market convergence, but we believe it is prudent to protect California customers from excess uplifts resulting convergence bidding exploitation. If this protection is not put into place the level of costs/risks of implementing the EIM could outweigh the possible benefits for California customers.

In its June 21st comments, PG&E had made two recommendations addressing the larger convergence bidding issue.

To help mitigate the risk associated with gaming of structural market differences introduced via the EIM, PG&E recommends that the CAISO address the issue of the allocation of uplifts related to convergence bidding as recommended by the DMM.<sup>3</sup> This needs to be done before the EIM goes live.

Furthermore, PG&E recommends that convergence bidding at the interties should not be considered until the after EIM goes live and is operational long enough to show that the structural differences do not affect market outcomes in a way that increases risks if convergence bidding at the interties were allowed. At that point the CAISO should convene a second convergence bidding initiative to evaluate the potential risks and benefits that may arise from convergence bidding at the interties. This is similar to the prudent approach taken by the CAISO in its Order 764 market modifications.

PG&E encourages the CAISO to adopt these recommendations. The Proposal indicates a willingness to commence a CAISO stakeholder initiative to address the allocation of uplifts, including, we



assume, those resulting from convergence bidding. However no commitment is made in the Proposal as to when the initiative would start or be implemented. PG&E appreciates the CAISO willingness to commence the initiative and asks that it start immediately. Addressing this issue before the start of the EIM should be a priority for the CAISO.

<sup>3</sup> See section 4.3 [http://www.caiso.com/Documents/DiscussionPaper-Real-timeRevenueImbalance\\_CaliforniaISO\\_Markets.pdf](http://www.caiso.com/Documents/DiscussionPaper-Real-timeRevenueImbalance_CaliforniaISO_Markets.pdf)

## ISO Response

The EIM proposal does address the settlement of convergence bids on EIM entity constraints.

The ISO's current FNM Expansion stakeholder initiative is seeking to improve day-ahead and real-time modeling consistency by more accurately reflecting real-time loop flow in day-ahead market. As the ISO has committed, if the modeling improvements are insufficient the ISO will commence a stakeholder initiative that could look at cost allocation of the ISO's real-time congestion balancing account. In addition, the FERC Order No. 764 market design changes includes position limits on intertie convergence bidding that allows observation of convergence bidding when EIM is implemented as the position limits are increased.

## 4. More Detail Is Needed About The Neutrality And RTCO Calculations

PG&E supports cost allocation of EIM uplifts based on cost causation. The Proposal allocates neutrality and RTCO charges by BAA. More detail is needed to fully understand the allocation methodology. Specifically, the CAISO's next proposal should include the mathematics underlying the calculations and examples so stakeholders can fully understand and evaluate the proposal.

In its examples and discussion PG&E would like the CAISO to include the following:

- i. One or more examples on how costs would be allocated with respect to overscheduling on the PacifiCorp system which creates loop flows/infeasibilities in the CAISO;
- ii. One or more examples on how costs would be allocated with respect to loop flows in the CAISO which create infeasibilities on the PacifiCorp system;
- iii. One or more examples on how convergence bidders would be settled if their pricing nodes are affected by real-time congestion in PacifiCorp;
- iv. A discussion on the merits of such a settlement of convergence bids versus allocating the infeasibilities to convergence bidders; and
- v. One or more examples showing the calculation of the losses that are included as part of the neutrality charges.

PG&E also supports technical workshops to work through the formulations of specific uplift cost allocation. Stakeholders should be given adequate time after these workshops to digest the discussion and submit comments (3-4 weeks).

## ISO Response

The ISO conducted a technical workshop on the the real-time congestion settlement and has provided additional information on neutrality charges in the 3<sup>rd</sup> revised straw proposal. The ISO also plans to hold a technical workshop on the neutrality charges and transfers between BAAs.

### **5. CAISO Should Have Authority to Dispatch Committed Units And Commit Fast-Start Resources In The EIM Entity**

Availability of resources in the EIM Entity for dispatch or commitment is at the discretion of the EIM Participant. To maximize the inter-regional dispatch benefit as purported in the EIM Benefits Study, PG&E recommends that the CAISO develop simple Must Offer Obligation (MOO) rules for the EIM Entity to ensure units that are committed are available for dispatch by the CAISO through the EIM and fast-start units not committed are available for commitment in the EIM. PG&E suggests developing rules that result in a similar MOO as for CAISO resources; that is, resources that count for resource adequacy and are not out-of-service are generally available to the CAISO.

It is PG&E's understanding that the inter-regional dispatch benefit in the Benefits Study was based on modeling that did not artificially restrict resources in PacifiCorp from commitment or dispatch in the EIM. To restrict CAISO's access to PacifiCorp resources for commitment or dispatch in the EIM lessens the possible benefits as compared to the Benefits Study.

## ISO Response

Unit commitment remains optional for the EIM Entity in the 3<sup>rd</sup> revised straw proposal. The ISO continues to believe that real-time unit commitment would increase market efficiency within EIM; however, the original EIM concept did not contemplate unit commitment. The ISO will continue to discuss with stakeholders whether unit commitment should be optional.

### **6. EIM Entities Should Not Be Able to Opt Out Of Commitment Costs Incurred By The CAISO**

The Proposal allows an EIM Entity to opt out of any allocation of commitment costs from other BAAs, if that EIM Entity elects not to allow real-time unit commitment through the EIM.<sup>4</sup> However, the decision for an EIM Entity on whether to allow the CAISO to commit its resources has little bearing on the fair allocation of the commitment costs incurred by other BAAs. As discussed below this proposed rule can result in the misallocation of commitment costs and should not be included as an element of the design.

Bid Cost Recovery (BCR) charges for units committed in real-time should be allocated based on cost causation between CAISO and the EIM entities' market participants. The cost allocation should be done independent of whether the CAISO commits resources in the EIM Entity. Consider a logically extreme case in which California's net-load does not change and is forecasted to stay flat for hours, but the net-load in an EIM entity is ramping up more quickly than expected. The increase in the net load in the EIM Entity could result in the commitment of a unit in California to the benefit of the EIM Entity. These commitment costs caused by the EIM Entity should be fairly allocated to the EIM Entity and not California customers.

<sup>4</sup> CAISO 2nd Revised Straw Proposal, p. 57.

## ISO Response

The bid cost recovery approach is unchanged and is related to the discussion in the previous comment.

## 7. PG&E Supports The Sufficiency Test For Flexible Ramping Capacity; A Downward Sufficiency Test Should Also Be Examined

PG&E appreciates the newly proposed flexible ramping capacity (FRC) sufficiency test and believes the sufficiency test will reduce the likelihood of leaning between BAAs for flexible capacity.<sup>5</sup> The proposed mechanism to isolate any BAA that fails the FRC sufficiency test from the EIM seems appropriate and relatively simple to implement. The costs and reliability of one BAA should not be adversely impacted by the failing of another BAA to secure sufficient flexible capacity.

PG&E asks the CAISO to consider the need for a downward flexible ramping capacity sufficiency test as well as an upward test. It's not clear why upward ramping capacity should have a sufficiency test but downward ramping capacity would not. Ensuring adequate downward flexibility in each BAA would seem to be an important protection for a BAA from possible over-generation situations in neighboring BAAs.

<sup>5</sup> PG&E seeks clarification on the calculation of the FRC requirement for the combined EIM footprint. This calculation should presumably consider the diversity in load and generation across the EIM footprint, likely reducing the overall need for FRC. Examples shown on p.41 and 42 of the proposal show the requirement for the combined footprint as the sum of the requirements for individual BAAs. The CAISO should confirm how it plans to calculate total EIM-wide FRC requirements.

## ISO Response

The ISO currently does not enforce a downward flexible ramping constraint; however, when the product is implemented the sufficiency test will include downward ramping.

## 8. CAISO Should Consider The Incentives For EIM Over-Scheduling And Consider An Over-Scheduling Penalty

The incentives of an EIM Entity to over-schedule should be examined and a penalty, similar to the under-scheduling penalty, should be considered. The current proposal indicates that such penalty may be unnecessary given the proposed RTCIO allocation method. PG&E believes this requires further evaluation. For example, what if over-scheduling in one BAA causes congestion in another BAA? Will the proposed RTCIO method alone be effective in deterring over-scheduling? The CAISO's analysis on the incentive to over-schedule during minimum load conditions should also inform discussions.<sup>6</sup>

<sup>6</sup> *"The ISO is evaluating if additional measures are needed during minimum load conditions to prevent BAAs from leaning on other BAAs to resolve over-generation."*(Page 28 of proposal)

### ISO Response

Section 3.3.6.2 of the 3<sup>rd</sup> Revised Straw Proposal has an expanded discussion of the potential for an over-scheduling penalty, and explains that the ISO considers its offset cost allocation proposals to already provide sufficient disincentive against over-scheduling. Nevertheless, the ISO will continue to monitor outcomes of all markets that it administers, and will propose revisions to the EIM design if a need for an over-scheduling penalty develops.

Company	Date	Submitted By
Powerex Corp.	7/20/2013	Gifford Jung
<b>Opening Comments</b>		
<p>Powerex is pleased to have this opportunity to provide these comments in response to the Energy Imbalance Market (EIM) Design Second Revised Straw Proposal (“Revised Straw Proposal”). Powerex’s comments provided herein are supplemental to its previous comments submitted in this stakeholder process.</p>		
<b>ISO Response</b>		
<p>The ISO appreciates Powerex’s continued participating in this stakeholder initiative.</p>		
<b>CAISO is moving too fast, and providing insufficient details on key design elements</b>		
<p>Powerex continues to have concerns with the pace of this stakeholder process. Powerex believes that the successful design of an EIM, particularly one that is layered on top of an existing OATT framework and well-established bilateral markets, requires careful consideration and thorough vetting with stakeholders and industry experts, on each design element. The complexity of integrating the two vast electric systems of CAISO and PacifiCorp under two very different market and operating models and the potential for significant unintended consequences to western wholesale power markets necessitates such an approach. In this context, Powerex is increasingly concerned that the CAISO’s stakeholder process timelines are overly aggressive, which combined with design proposals that lack the necessary detail, potentially prevents the robust stakeholder process that this initiative clearly requires. It is far more important to design and execute a just and reasonable EIM than to have a quickly implemented EIM that did not consider important issues and potential side effects.</p> <p>As a reasonable alternative, Powerex strongly suggests the CAISO develop and implement the EIM in phases, providing the ability to put off making final decisions on key issues that need additional time for careful consideration and dialogue with affected stakeholders. For example, in a first phase or pilot phase EIM the CAISO could consider providing restrictions on all flows between the CAISO and the EIM footprint, thereby reducing the number of issues that must be addressed prior to the full EIM launch date. This approach would allow more time for the CAISO and stakeholders to work through several complex EIM design issues that arise only under an EIM design that permits CAISO-EIM transfers, including (i) carbon charges, (ii) CAISO transmission charges, and (iii) necessary improvements to the CAISO’s day ahead resource sufficiency framework. This phased in or pilot approach has worked well with other CAISO initiatives with inter-regional impacts such as the</p>		

dynamic scheduling of imports.

Powerex's remaining comments are focused on areas of greatest concern with the Second Revised Straw Proposal. However, there are several areas of the Second Revised Straw Proposal where Powerex is supportive and several areas where Powerex has more questions.

Powerex has not addressed all matters in these comments given the limited time available to prepare comments. Powerex hopes to have additional opportunities to ask more questions and submit additional comments in the coming weeks and months as the CAISO hopefully provides more details on its EIM proposal, including illustrative examples on all key elements.

***EIM Transmission Usage and Cost Allocation must be consistent with FERC's Non Discriminatory, Open Access Transmission Policies***

Powerex provided substantive comments on EIM transmission design issues on the First Revised Straw Proposal which have not yet been addressed. Powerex understands that the CAISO is currently evaluating these comments and intends on providing an update to its EIM transmission design proposal in the next revised straw proposal. Powerex also provided substantive comments in PacifiCorp's stakeholder process on both PacifiCorp OATT charges under the EIM, and the treatment of EIM congestion revenues. Powerex also awaits PacifiCorp's response to these comments and an updated proposal on EIM transmission cost allocation as well as EIM congestion revenue allocation in the PacifiCorp footprint.

Powerex provides the following additional comments on EIM transmission design for the CAISO and other stakeholders' consideration.

**ISO Response**

The 3<sup>rd</sup> revised Straw Proposal contains additional discussion of alternatives for the transmission service rate, in section 3.8. The ISO invites additional comment on this topic. In addition, the ISO responds more specifically to Powerex's comments here and to the First Revised Straw Proposal.

Powerex generally contends that the no access fee alternative for EIM transmission is discriminatory because, under that alternative, all non-EIM participants seeking to export energy or wheel energy through the ISO will be required to pay the wheeling access charge, while EIM participants will not. Therefore, it contends, non-EIM participants, but not EIM participants, would need to continue to include ISO transmission costs in their energy bids. It argues that this disparity is discriminatory and will enable EIM participants to out-compete non-EIM participants for ISO transmission and hence for combined energy and transmission dispatch out of the ISO real-time markets.

The nature of this claim of discrimination by Powerex is not entirely clear to the ISO. In part, Powerex seems to be arguing that transmission service for transactions in real-time markets (such as EIM) must be priced on the same basis as transmission service in forward markets, so that exports that might otherwise take place in forward markets do not shift to real-time to take advantage of more favorable transmission pricing. At other points (or possibly, in addition), Powerex seems to claim that non-EIM participants would be at a disadvantage relative to EIM participants in real-time. In an apparent attempt to support the latter claim, Powerex offers an example and concludes that the ISO's real-time market optimization process will select EIM Participant bids ahead of Non-EIM Participant bids. From this, Powerex concludes the market will be making inefficient decisions, will discriminate against Non-EIM Participant in transmission access, and will increase costs to other transmission users.

These claims of discrimination by Powerex appear to be based on mischaracterizations or misunderstandings of the nature of the EIM market and the no-fee alternative. Powerex appears to misinterpret the no-fee alternative. The alternative is intended to mean no **additional** fee. Load will continue to pay transmission access charges under the tariff applicable to the grid to which it is connected: the ISO access charge or the charge under the OATT of the relevant EIM Entity. Because load will continue to pay the relevant transmission access charge, there is no under-collection of revenues and no increased charges. By arguing that EIM transactions will be unfairly advantaged relative to exports and wheel-through transactions, Powerex presents the EIM market as something separate from the ISO real-time energy market. This is inaccurate.

The EIM market will be coextensive with the ISO real-time market. Any entity bidding into the ISO real-time market will be bidding into the EIM. Since the EIM market represents an expansion of the ISO real-time market, rather than a separate market, EIM transactions are not exports and need not be priced as exports. Different pricing for exports and for transactions within the EIM (which are not exports) is not unduly discriminatory. Exports are demand bids and entities scheduling exports are thus similarly situated to load, which incurs a transmission charge in real-time.

For the same reason, it is inaccurate to characterize the no-fee alternative as a change of the ISO transmission pricing structure because it "eliminates" wheeling access charges for some export transactions. Currently, an additional access charge is not imposed for energy purchases in the ISO real time market (as noted above, ISO loads pay the transmission access charge). The no fee alternative applies this same approach to the expanded EIM/real-time market.

The no-fee alternative does not unduly discriminate against forward export or wheel-through transactions. As noted above, a comparison between export and wheel through transactions and transactions *within* the EIM market is inapt. Even assuming that EIM transactions could be characterized as exports from one EIM Entity's area to another, there is also a distinction between transmission service for forward transactions and real-time transactions that would justify different rates. Forward transactions provide price certainty to participants. Transmission service for forward transactions can be firm in nature, through congestion management. The implication that customers taking transmission service for forward transactions and those engaged in real-time transactions are similarly situated is incorrect, particularly given the low scheduling priority expected for EIM transactions under an EIM Entity's OATT.

Powerex downplays the significance of the elimination of pancaking through the expansion of the ISO's real-time market through the EIM initiative. The ISO disagrees. FERC has recognized repeatedly the benefits of the elimination of pancaking, which breaks down barriers to market operations that are the legacy of fragmented ownership of the transmission grid. The EIM represents an important initiative toward eliminating artificial market barriers. That the EIM is a real-time market only does not mean that pancaking in forward markets must be retained in the EIM.

As a practical matter initial EIM transfers in the first year of EIM operation will be limited by PacifiCorp's existing rights. This will provide an opportunity to consider alternatives to transmission charges without a risk of significant impact or distortion in the associated transmission services.

In response to Powerex's timing concerns, the ISO has scheduled additional technical workshops and will hold additional technical workshops. The ISO has extended comment periods from the original stakeholder timeline to allow stakeholders additional time. While, modifications to the initial initiative timeline have been made, the ISO is committed to bring the proposal to the BOG in November and for implementation in October 2014, per the implantation agreement with PacifiCorp. The ISO has not considered a staggered implementation. However, as with any market design there will be additional stakeholder initiatives to address market enhancements after go-live.

#### **OATT Usage Priorities Must Be Respected**

First, the CAISO and PacifiCorp should address the potential for EIM transmission use to conflict with OATT usage priorities. Several circumstances will arise under the current EIM design that may result in EIM transfers on OATT transmission paths in periods where higher priority OATT customers have been curtailed, in violation of the transmission priorities established by FERC in the pro forma OATT. For example, under the contract path model, a transmission provider may curtail firm OATT customers ahead of an operating hour based on the path rating and contract path scheduled usage, yet incremental EIM flows may occur since the EIM evaluates ATC based on actual flows (which may be less than scheduled flows) resulting in additional ATC available for EIM transfers. Similarly, WECC's USF procedures may result in OATT curtailments to accommodate expected unscheduled flows in the upcoming operating hour based on contract path schedules and transmission path ratings, yet incremental EIM flows may occur if transmission capacity becomes available in the EIM (similarly based on actual path flows being lower than scheduled flows).

Second, the CAISO's existing market design should be designed to recognize OATT usage priorities. Instead, the CAISO has developed rules and/or business practices in its markets that undo OATT usage priorities on adjacent transmission providers' systems, largely resulting from CAISO's efforts to increase liquidity in its markets, and hence increase the value of CAISO transmission rights (CRRs). For example, the CAISO should, but does not, require day ahead e-tags for day ahead physical interchange schedules. Not requiring day ahead e-tags by-passes the transmission usage priorities established under external transmission providers' OATTs and business practices. By not requiring day ahead e-tags, the CAISO enables non-firm transmission rights (typically released on adjacent transmission providers' systems after the day ahead scheduling timeframe) to compete directly with firm transmission rights in the CAISO's day ahead markets, in direct conflict with the usage priorities established in the pro forma OATT. While this approach has proven to only marginally increase liquidity in CAISO day ahead markets<sup>1</sup>, it has negative implications for developing day ahead resource sufficiency requirements applicable to the CAISO in the EIM.

More specifically, this lack of a day ahead e-tag requirement means that the CAISO is enabling and incenting resource insufficiency behind its day ahead import schedules. In fact, the CAISO has openly recognized that it does not even require firm physical import awards in its day ahead market to have any committed generation capacity or transmission rights to ensure delivery on such awards. This day ahead import resource insufficiency may result in the CAISO leaning on the EIM footprint to backfill day ahead import awards that may not show up in real-time. In addition, resulting failures to perform on CAISO day ahead import schedules also contribute to real-time price spikes in CAISO markets, and can significantly drive uplift costs, some of which may be allocated to EIM participants. This lack of a day ahead e-tag requirement for CAISO interchange schedules also raises serious reliability issues today, as it appears to be in conflict with the recommendations made by FERC/NERC in response to the September 8th blackout event for increased day ahead situational awareness and transparency. In short, the CAISO's lack of a day ahead e-tag requirement unwinds OATT transmission priorities external to CAISO, undermines operational transparency, increases reliability risks for the western interconnect, and eliminates the ability to develop a robust resource sufficiency framework to prevent leaning on the EIM.

Third, Powerex understands the CAISO's EIM dispatch design will not rely upon "as available" transmission as originally described by the CAISO, but rather will allocate transmission usage to EIM dispatches on a level playing field with dispatches in its real-time 15-minute market. Moreover, EIM and CAISO real-time dispatches will be agnostic to transmission usage priorities established under external transmission providers OATTs, consistent with the CAISO's long-standing approach of ignoring external OATT usage priorities in its markets.

The economic consequences of permitting the CAISO to continue its approach of ignoring external OATT usage priorities in its market design, and expand this approach to the EIM, will ultimately fall upon ratepayers external to CAISO markets. Nullifying the value of, and muting the price signal for investment in, OATT long-term firm transmission rights will inevitably result in lower third party revenues for external transmission providers, increasing transmission costs for native load in these external regions. For some transmission providers, this potential loss of third party transmission revenue may exceed the expected overall efficiency benefits of the EIM.

Powerex urges the CAISO to develop rules in its markets and in the EIM which respect the transmission investments and transmission priorities on external transmission providers' systems. In Powerex's view, the CAISO's proposal to become a multi-state market operator necessitates such



a shift in the CAISO's approach to the treatment of external transmission rights. The CAISO should make amendments to its existing market rules, and to its proposed EIM design, with the objective of sending ongoing appropriate price signals for investments in transmission both within, and external to, the CAISO transmission grid. Powerex believes there are several steps the CAISO should undertake in this regard.

First, the CAISO should require day ahead e-tags for all interchange schedules in its day ahead markets. This will improve reliability via increased transparency and coordination with external balancing authorities and transmission providers and be an important step towards a robust CAISO day ahead resource sufficiency framework - a pre-requisite, in Powerex's view, to enabling CAISO-EIM transfers.

Second, Powerex suggests the CAISO either (i) block EIM transfers on transmission paths where there have been curtailments to OATT customers in the same dispatch interval (unless these OATT customers curtailed schedules have first been restored) or (ii) propose a compensation framework that economically keeps the OATT customer whole via congestion-type payments from the EIM transmission customer that, in effect, uses curtailed OATT transmission rights.

Third, Powerex suggests the CAISO consider expanding the ability for OATT customers to have the option to sell their transmission to the CAISO on a quarterly basis, in exchange for day ahead congestion revenues on a respective path, consistent with the design developed and implemented by the CAISO and PacifiCorp on the Malin to Round Mountain transmission path. Under such a "sale arrangement", the CAISO could then freely dispatch the respective transmission path in all its temporal markets, including the EIM, without additional compensation or the need to recognize OATT priority usage rights. This approach would continue to encourage investment in long-term firm transmission service on congested transmission paths external to CAISO's grid; provide third party OATT revenues that reduce transmission funding requirements for native load on external transmission providers systems; and enable the CAISO to centrally dispatch a broader transmission grid efficiently in all temporal markets without incurring any uplift.

<sup>1</sup> Powerex's analysis of transmission usage data for 2012 shows less than 5% of all schedules on BPA's southern interties were delivered on BPA non-firm southern intertie transmission.

## ISO Response

OATT transmission usage rules are developed and implemented by the EIM Entity. In addition, the EIM Entity can develop rules regarding participation of the transmission it controls allowed in the EIM in their BAA, such as not allowing 15-minute economic bidding on the interties. The current reciprocity on transmission services applies to the transfers between EIM Entities and the ISO. The reciprocity does not necessarily apply to 15-minute intertie transactions on the EIM footprint boundary. For example 15-minute exports on the ISO boundary would be subject to ISO TAC and measured demand allocations. The reciprocity is to facilitate the 5-minute dispatch between EIM Entities and the ISO. The reciprocity will be in place for the first year. This will allow operational data to be collected to better inform the transmission service treatment for the EIM long term.

Powerex has consistently advocated for DA e-Tags in numerous ISO stakeholder initiatives. In these initiatives, the ISO has consistently highlighted that WECC e-Tag rules only require that the day-ahead schedule be tagged 20 minutes prior to the operating hour. That being said, the ISO implemented a settlement rule that claws back any revenue if the day-ahead schedule is not tagged prior to the start of the HASP. This rule was further refined as part of FERC Order No. 764 market design changes.

### **"Free EIM Transmission" is unnecessary, inconsistent with FERC precedent, and, if approved, will lead to undesirable, unintended consequences**

In previous comments, Powerex set forth an approach that would apply the CAISO's current intertie transmission cost allocation framework to EIM transfers in a manner directly consistent with the treatment of non-EIM transfers in the CAISO's day ahead and real-time markets. More specifically, Powerex proposes that the CAISO include its Transmission Access Charge (TAC) in the LMPs associated with incremental export flows from the CAISO footprint to the EIM footprint (reductions to import flows would be exempt, consistent with the CAISO's existing transmission cost allocation for non-EIM transfers). This approach would enable non-discriminatory, open access to transmission for both EIM and non-EIM users of the transmission grid, allocate costs consistent with cost causation and usage of the transmission system, and avoid undesirable and unintended consequences that will otherwise arise from providing a powerful transmission cost subsidy to a select group of customers in a particular temporal market.

There are numerous appropriate efficiency benefits that may be realized from the effective design of an EIM, without the need to provide discriminatory access to, or discount pricing of, transmission. For example, generation, load and transmission transparency and coordination across the EIM footprint can provide economic efficiency gains and reliability benefits and should be pursued. Similarly, enabling the centralized dispatch of generation resources and transmission in an EIM without the need to pre-arrange the procurement and scheduling of short-term transmission rights may also provide significant efficiency benefits, and should be pursued. Shifting transmission costs from participants balancing their resources and loads in the EIM to those conducting such activities outside the EIM, however, is nothing more than a transmission cost subsidy from one group of participants to another, and must be abandoned. There simply is no legitimate reason for 5-minute and 15-minute CAISO export transfers in the EIM to be exempt from CAISO transmission costs, while 5-minute, 15-minute and hourly CAISO export transfers in the CAISO's day ahead and real-time markets are charged the CAISO TAC.

FERC precedent on the issue of transmission cost allocation for energy imbalance and generation imbalance is clear. FERC has repeatedly, both in complaints brought before the Commission, and in Order 890, reiterated the requirement that all transmission customers pay for their use of the transmission grid, including for transmission use associated with generator imbalance and energy imbalance services. In fact, FERC has even required transmission providers to assess unauthorized usage charges under their respective OATTs for use of the transmission system in excess of the rights reserved and paid for, regardless of whether such usage is associated with energy imbalances and/or generator imbalances. Absent a change in FERC policy, providing energy imbalance and/or generator imbalance services via an EIM must also attract appropriate transmission usage costs, consistent with cost causation and pay-for-usage of the transmission system. Any other result is unjust, unreasonable, unduly discriminatory and inconsistent with the Federal Power Act.

### **The proposed EIM Resource Sufficiency framework is insufficient**

In the CAISO's Second Revised Straw Proposal, the CAISO has modified its resource sufficiency framework. Specifically, Powerex understands the CAISO proposes:

- 1) A real-time incremental ramping resource sufficiency test for each EIM Entity conducted prior to participation in EIM energy dispatches. This test is intended to ensure that each EIM Entity has the ability to meet its own potential upward variations in load and/or downward variations in generation resource output.
- 2) A block on transfers between an EIM Entity's footprint and the remainder of the CAISO/EIM footprint for any EIM Entity that fails this real-time incremental ramping resource sufficiency test.
- 3) A penalty framework for inaccurate load forecasting data submitted into the EIM (as base schedules) that are used as data inputs in this real-time incremental ramping resource sufficiency test.

Powerex believes the CAISO's modified approach to prevent EIM leaning is a step in the right direction. However, Powerex remains concerned that the CAISO's resource sufficiency framework is deficient in several regards and must be modified, particularly prior to enabling CAISO-EIM transfers. Failure to appropriately address resource sufficiency can, and undoubtedly will, lead to EIM leaning as participants seek to lower their day ahead and real-time capacity commitment costs in the hopes there will be sufficient capacity available, at no additional cost, in the EIM.

## ISO Response

The ISO responded to these concerns above and in the 3<sup>rd</sup> revised Straw Proposal with additional discussion of alternatives for the transmission service rate, in section 3.8. In addition, the current reciprocity on transmission services applies to the transfers between EIM Entities and the ISO. The reciprocity does not necessarily apply to 15-minute intertie transactions on the EIM footprint boundary. For example 15-minute exports on the ISO boundary would be subject to ISO TAC and measured demand allocations. The reciprocity is to facilitate the 5-minute dispatch between EIM Entities and the ISO.

Powerex may also seek redress of its concerns in the ISO's parallel Full Network Model market initiative, because it may address some of the express concern about being the ISO settlement prices for the intertie reflect the value of transmission beyond the CAISO border. Specifically, this initiative will consider where the ISO should set the price for imports.

With regards to Powerex third point about expanding the ability for non-participating transmission owners to sell their transmission in the ISO process, the ISO is committed to consider expanding the approach developed to address PacifiCorp's COI ownership rights.

## Resource Sufficiency Tests must be both day ahead and real-time

It is a well-established principle in RTOs across the country that generation capacity sufficiency must be achieved both day ahead and again in real-time to protect reliability of the grid. Day ahead resource sufficiency is necessary due to the lead time required to start-up and deliver energy from many generation units on the grid. Relying on the commitment and start-up of generating units solely in real-time to meet expected load may lead to reliability risks. Real-time resource sufficiency is also required due to changes in load forecasts, changes in variable resource output, as well as generation and transmission contingencies on the grid that may all occur after the day ahead market and day ahead resource sufficiency processes are completed.

Both a day ahead and real-time resource sufficiency framework are notably absent in current NERC and WECC reliability standards and hence no standardized resource sufficiency framework generally exists outside organized markets, particularly in the western bilateral markets operating under OATTs. Nonetheless, FERC has required, and subsequently approved, robust resource sufficiency frameworks in most organized markets across the country. Powerex believes one reason day ahead and real-time resource sufficiency frameworks are mandatory in organized markets, yet lacking in the bilateral markets, is the increased likelihood for participants to anonymously "lean" on the broader organized market under the belief that someone in the footprint will have surplus ramping capability to meet their capacity deficiency and maintain reliability of the broader grid.

The EIM will be an organized market, and absent a robust resource sufficiency framework both day ahead and real-time, should be expected to attract "capacity leaning" by participants seeking to avoid capacity commitment costs in their source balancing authorities. The CAISO has recognized the risk and harmful reliability consequences of such EIM capacity leaning activities, and in its Second Revised Straw Proposal, proposes to prevent EIM capacity leaning via applying a real-time incremental ramping resource sufficiency test, and blocking leaning activities for any EIM Entities that fail this test. While this is a step in the right direction, this approach provides little time for an EIM Entity that fails this test to take alternative action such as starting its own generating units to

maintain reliability of its own footprint. Of course, any resulting reliability issues are not easily contained within the respective EIM Entity's own footprint and thus the reliability of the western interconnect may be placed in jeopardy during such events.

A robust day ahead resource sufficiency framework exists in virtually every organized market in the US. Powerex understands that the SPP also applied a resource sufficiency framework in the day ahead timeframe to its EIM<sup>2</sup>. In Powerex's view, it is imprudent to move forward with an EIM without a robust day ahead and real-time resource sufficiency test applicable to all EIM Entities (and to the CAISO itself), providing sufficient time for resource insufficiencies to be addressed through the commitment of additional generation capacity.

<sup>2</sup> SPP has designed and implemented an EIM, like the one CAISO is proposing, on top of an existing bilateral market that previously lacked a resource sufficiency framework.

### ISO Response

The EIM proposal includes the flexible ramping sufficiency test, under-scheduling penalties and the BAA real-time congestion balancing account to address "leaning" that is within the scope of the real-time spot market.

The EIM Entity will also be required to provide a balanced advisory Day-Ahead schedule to the Market Operator. While advisory, this provides the EIM Entity the ability to demonstrate their plan for balancing their demand and also provides ample opportunity to be aware and resolve any resource sufficiency issues prior to real-time. If a more robust demonstration of resource sufficiency is required, such requirement should be considered for all Balancing Authority Areas by WECC rather than differentiating those Balancing Authority Areas that are voluntarily participating in an EIM for real-time imbalances. Longer term capacity considerations are addressed in local regulatory authority forums.

The Resource Sufficiency Evaluation, as discussed in the 3<sup>rd</sup> revised straw proposal, will provide the EIM Entity Scheduling Coordinator with opportunity to cure fail test prior to the start of the EIM. In addition, the Market Operator will be continually providing advisory information that will allow the EIM Entity Scheduling Coordinator to resolve potential failing sufficiency test prior to submitting the hourly base schedule at T-75 and prior to final base schedules being required at T-40 minutes.

### **CAISO must also apply the resource sufficiency test to its own market, which will require CAISO market changes (e-tagging timelines and well defined and adhered to energy product types)**

Unlike the eastern ISOs/RTOs, the CAISO's current resource sufficiency framework contains serious deficiencies that enable participants to "lean" on the CAISO real-time energy market as a capacity backstop for day ahead and real-time import awards that may not be delivered. These deficiencies are largely the result of:

- i. The CAISO's lack of a robust day ahead e-tagging requirement for physical interchange schedules.
- ii. The CAISO's widespread acceptance of physical import schedules treated as firm or unit contingent energy products that may be subject to curtailment due to the economic choice

to commit insufficient capacity in the source balancing authority.

Day Ahead e-tag requirement

Powerex understands that ISOs/RTOs across the country, generally either:

- i. strictly require valid day ahead e-tags to be submitted for all physical interchange awards, or
- ii. convert un-tagged day ahead physical interchange awards into financial awards and subsequently commit replacement generation capacity and allocate such capacity commitment costs to the importing participant.

These ISOs/RTOs appear to recognize that resource sufficiency cannot be achieved unless physical import awards are transparently backstopped with physical capacity and necessary transmission in the day ahead timeframe. This capacity must either be provided by the source balancing authority, as illustrated by valid day ahead e-tags, or by the receiving balancing authority through commitment and cost allocation of additional day ahead generation capacity in the sink balancing authority.

The CAISO's lack of a day ahead e-tag requirement for day ahead imports, can result in participants "leaning" on the CAISO and/or western real-time bilateral markets to make up the capacity the CAISO has relied upon to meet its day ahead firm load forecasts. This occurs when the importer does not secure resources day ahead to ensure delivery of their day ahead CAISO import obligation and, instead hopes to purchase the power bilaterally in the operating day to fulfill the obligation. Alternatively, importers may also expect to liquidate the import and have the CAISO dispatch resources in real time to make up the shortfall in supply resulting from the reduced import. The reliability risk with this activity is that neither the CAISO, nor any other balancing authority outside the CAISO is generally aware of the participant's lack of day ahead capacity commitment, and hence no replacement units have been specifically committed day ahead to make up this shortfall. This could have severe reliability impacts if such activity was to occur during periods where no additional fast-starting units are available. Failure to address this existing deficiency in CAISO markets will result in the CAISO potentially meeting this capacity shortfall via also leaning on the EIM, during the periods when these day ahead imports fail to show up.

As previously discussed, EIM leaning has both reliability and market efficiency consequences, including EIM leaning activities by the CAISO itself.

**ISO Response**

Powerex has consistently advocated for DA e-Tags in numerous ISO stakeholder initiatives. In these initiatives, the ISO has consistently highlighted that WECC e-Tag rules only require that the day-ahead schedule be tagged 20 minutes prior to the operating hour. In addition, a day-ahead e-tag and energy product codes are irrelevant to the transfers between EIM Entities since the dynamic schedule to implement the transfers is used after-the-fact.

**Well-defined, adhered to, interchange energy product types**

Similarly, capacity insufficiency may arise from imports that are relied upon by the CAISO as firm,

or unit contingent supply but are, in reality, supply deliveries that are subject to interruption in a wide variety of circumstances (i.e. beyond contingency events that are adequately covered by pooled contingency reserves). The CAISO currently has three energy product types in its market - firm, unit contingent, and non-firm. However, the CAISO has not adequately defined the delivery requirements for each of these product types in its tariff, despite the disparate tariff settlement treatment. Accordingly, widespread delivery of VERs as both firm and unit contingent products to the CAISO, without sufficient ramping capacity committed at the source BA, is increasingly occurring.

When these import schedules are ultimately curtailed in real-time, the CAISO is forced to make-up the energy and capacity shortfall through leaning on its own real-time market, or in the future, on the broader EIM footprint.

Powerex recommends the CAISO re-define and ensure adherence to well-defined energy product types in its day ahead and real-time markets. This will transparently enable both the sufficient and efficient commitment of generation capacity in either the source BA or in the CAISO in both the day ahead and real-time market timeframes to backstop VER production.

CAISO leaning on the EIM to backstop its import delivery failures that result from the CAISO's lack of a day ahead e-tagging requirement and/or tolerance of widespread curtailments to firm and unit contingent import schedules should not be tolerated as part of the EIM design. Powerex believes CAISO/EIM transfers should not proceed until a robust day ahead and real-time resource sufficiency framework is in place, and applied to both the CAISO and EIM Entities.

### ISO Response

Powerex has consistently advocated for expanded and refined use of energy product codes beyond what is required today by WECC practices to recognize the need to tailor reserve requirements based not only if the product is firm or non-firm but also consider the degree of variability or risk of curtailment depending the nature of the resource or the nature of balancing services backing the resource. The ISO feels this issue is an important issue to be addressed via a WECC-wide process. The proposed EIM implementation alone cannot address this concern. However, the EIM proposal does introduce specific flexibility requirements and associated sufficiency test to ensure that EIM Entity has sufficient flexible capability committed to address the EIM Entity area's expected variability including consideration of potential variability of resources that may be changing their schedule for physical reasons on a 15 minute basis. The costs associated with meeting the EIM Entity flexibility requirements will be assessed to the EIM Entity. The EIM Entity can consider how such flexibility costs should be ultimately to those taking service from the EIM Entity.

**Penalties for load under-scheduling are appropriate, but should escalate based on size of deviation. Similar penalties must also apply to over-statement of generation and/or import capacity.**

The CAISO has appropriately identified the potential for generation capacity shortfalls (EIM leaning) to arise from inaccurate load forecasts provided by EIM Entity's. An EIM Entity may appear to be balanced and pass the CAISO's resource sufficiency test based on its submitted generation, interchange and load forecasts, yet may be capacity insufficient, if it understates its load forecast in this process. The CAISO proposes penalties to be applied to EIM participants that have significant



negative deviations in actual load from scheduled load. Powerex supports this approach but recommends that the CAISO escalate these penalties based on the magnitude of the load under-scheduling activity.

A similar EIM leaning possibility also exists from the over-statement of generation and/or over-statement of import deliveries. For example, materially overstating a VER forecast or including interruptible imports as firm imports in the EIM Entity's base schedules may enable an EIM Entity to pass the resource sufficiency test, yet be similarly resource deficient to an EIM Entity that overstates its load forecast. Powerex therefore urges the CAISO to develop a similar penalty framework applicable to the overstatement of generation and/or imports by EIM participants to address inaccurate supply forecasting. There is no materially different impact to reliability or market efficiency between the understatement of load forecasts and the overstatement of generation / import forecasts - both approaches undermine the resource sufficiency framework. This penalty framework should also escalate depending on the magnitude of variance between the generator/importer forecast and the corresponding CAISO forecast, with exemptions from penalties for participants who utilize the CAISO's VER generation forecasts and/or a strictly objective method such as VER persistency or third-party VER forecasts verified by CAISO. Import deviations should be treated in a manner consistent with this proposed treatment of generation resource deviations.

Powerex supports the CAISO's approach to blocking inter-BA EIM transfers with BAs that fail the EIM resource sufficiency test. However, as previously discussed, this blocking should be applied day ahead to ensure the respective EIM entity has the time necessary to commit its own resources to protect reliability. Similarly this blocking should also be applicable to the CAISO, until it rectifies the day ahead resource sufficiency framework deficiencies in its own market, as described above.

### **ISO Response**

Section 3.3.6.1 of the 3<sup>rd</sup> Revised Straw Proposal now includes an escalating under-scheduling penalty.

Section 3.3.6.2 of the 3<sup>rd</sup> Revised Straw Proposal has an expanded discussion of the potential for an over-scheduling penalty, and explains that the ISO considers its flexible ramping proposals and offset cost allocation proposals to already provide sufficient disincentive against over-scheduling. Nevertheless, the ISO will continue to monitor outcomes of all markets that it administers, and will propose revisions to the EIM design if a need for an over-scheduling penalty develops.

### **CAISO's proposed EIM carbon intensity calculation is inconsistent with CARB's program design**

In its previous comments in this stakeholder process, Powerex raised numerous questions associated with the CAISO's proposed treatment of carbon. Powerex understands that the pace of this stakeholder process may not have afforded the CAISO the ability to address these questions, but hopes that the CAISO will respond to Powerex's previous comments and questions in the coming weeks.

Upon greater reflection and understanding of the CAISO's EIM carbon proposal, Powerex's primary concern is centered on the unit-specific carbon intensity assigned to EIM awards that are selected



by the CAISO algorithm to be deemed to be delivering EIM energy into the CAISO footprint. As stated by Dr. Bill Hogan, and referenced by the CAISO's MSC, the CAISO's EIM carbon algorithm is designed to achieve efficient resource shuffling.

While the CAISO's approach may be internally consistent and perhaps even drive efficient energy market outcomes, it will not send substantive price signals to EIM participants to reduce higher carbon intensity generation output and/or the development of higher carbon intensity facilities outside of California. To the contrary, the CAISO's algorithm will likely send powerful price signals to significantly increase resource shuffling not only in the EIM but in temporal markets prior to the EIM - it should be expected that EIM participants will increase the carbon intensity of their EIM base schedules in order to save low-carbon intensity generation output for the EIM. For example, a participant with significant coal and natural gas generation should be expected to increase its reliance on this generation (as well as increase its reliance on higher carbon intensity imports) to serve its obligations outside the CAISO footprint, as represented by its EIM base schedules, in order to save its lower carbon resources, such as hydro-electric output, for the EIM.

This price signal may create a strong incentive for suppliers to move their transactional activity out of the day ahead and hour ahead markets and into the EIM which would allow them access to a substantially more efficient method to capture the value of the low GHG supply within their portfolios. An EIM participant, through experience, may even seek to build or enter into long-term contracts for higher carbon intensity resource output to meet its load obligations outside the CAISO, so that it may "free-up" its lower intensity resources for offer into the EIM on an ongoing basis.

By deconstructing a coordinated energy system to its component individual generators in the EIM, the CAISO carbon algorithm efficiently unwinds other mechanisms CARB has put in place to address the import of system power into California, including the calculation for the carbon intensity of Asset Controlling Suppliers and the proposed Mandatory Reporting Regulation to address high intensity system power imports (§ 95111.b.5).

CARB's carbon intensity calculation for Asset Controlling Suppliers is a weighted average intensity of all applicable imports and generation output of the ACS entity. This approach is in contrast to the CAISO's EIM carbon proposal, which assumes the lowest carbon intensity output is delivered to California and the higher intensity output is delivered to loads outside California. Put another way, applying the logic behind the CAISO's proposed EIM carbon algorithm to the Asset Controlling Supplier calculation would likely lead to both BPA and Powerex - the two asset controlling suppliers for 2013 - having a carbon intensity of zero, as both entities' zero carbon intensity resources would be deemed to serve California with their non-zero carbon intensity resources deemed to serve load outside California.

The outcome of applying the CAISO's EIM carbon algorithm as proposed may be viewed by some as impeding CARB's statutory requirement to minimize leakage via administratively executed efficient resource shuffling in the EIM. Powerex believes a more appropriate Powerex Corp. Page 11 of 12 July 30, 2013 approach, and one that is consistent with CARB's current program design, may be to consider applying either a weighted average carbon intensity for each EIM Entity (similar to the current ACS calculation or to CARB's proposed Mandatory Reporting Regulation for "System Power Imports" § 95111.b.5), or alternatively using the unspecified carbon intensity for all imports into California in the EIM. Further work would be necessary to evaluate how to apply such non-zero, non-generator specific, carbon intensities to EIM dispatches in a manner which avoids unintended

outcomes in both the energy and carbon markets.

### **ISO Response**

The ISO has been working closely with CARB on the EIM GHG design proposal. The rules around “resource shuffling” seek to address long term bilateral contracts. The rules recognize that spot market transactions (day-ahead and real-time) are safe harbors and not subject to resource shuffling rules. The use of a system wide GHG compliance cost would actually be counter to minimizing carbon emissions in the spot markets. The market optimization would be unable to differentiate between high carbon emitting resources and low carbon emitting resources when selecting the most efficient resources to meet load in the spot markets.

### **Applying LMPM to an EIM is unnecessary and will reduce EIM participation**

Powerex remains concerned that the application of local market power mitigation in the EIM is both unnecessary and will likely reduce EIM participation. Unlike the CAISO footprint where local loads must rely on the CAISO's organized markets to meet their demand (and hence may be exposed to localized market power in the CAISO's markets), loads outside of the CAISO footprint generally have access to cost-based supply from their local utility as well as access to competitive wholesale markets. Accordingly, choosing to purchase energy in the EIM is voluntary, in the same manner in which supply offers are voluntary, and hence there is no apparent need to mitigate prices that are below FERC-approved price caps - loads are simply not exposed to local market power in the EIM footprint outside the CAISO, since they have both alternative cost-based supply options as well as access to competitive western wholesale power markets.

Mitigating prices of generators located outside the CAISO is not only unnecessary, in Powerex's view, it is likely to result in a reduction in EIM participation as generators outside CAISO are generally able to sell their supply into the most attractive temporal and geographic markets available in the WECC, without being exposed to any price mitigation below their respective offer prices and/or FERC price caps or other limitations and conditions of the EIM entity's market based rate authority. Since any price mitigation level or formula will undoubtedly be imprecise relative to each external generator's dynamic opportunity cost in western real-time wholesale energy markets, external generators may often be reluctant to offer supply into the EIM, out of fear of uneconomic price mitigation below their opportunity costs, which can change hourly. For example, during periods of high, unanticipated real-time prices in the western interconnect, it is unlikely that any local market power mitigation formulas will be able to accurately reflect the opportunity cost of generators in these markets. Accordingly, any LMPM applied to the EIM, will create a disincentive for generators with access to external markets to submit supply offers into the EIM. Further, any generator dispatches at mitigated prices may be utilized to serve demand for which the generator has no statutory obligation to serve - i.e. arm's length demand that is voluntarily chosen to source its supply in the EIM.

Powerex believes the CAISO should abandon its LMPM in the EIM or further explain the rationale for requiring LMPM in a voluntary EIM market.

## ISO Response

The ISO believes that it is appropriate to include LMPM provisions in the EIM design, since this is an integral part of the process of congestion management within the EIM Entity BAAs. However, it should be clear to Powerex that mitigation will only be applied to resources in the EIM footprint and not be applied to imports to the EIM footprint. If Powerex's concern about the LMPM being applied to resources in the EIM footprint, the ISO believes the methods for developing the Default Energy Bid are sufficient to address the unique condition for different resources participating in the EIM. EIM is a residual imbalance market for which there are not other opportunities for economic dispatch occurring in the same timeframe.

Company	Date	Submitted By
<b>Southern California Edison</b>	7/26/2013	Paul Nelson – (626) 302-4814 Jeff Nelson – (626) 302-4834

## Opening Comments

The following are Southern California Edison's (SCE) comments on the California Independent System Operator's (CAISO) Second Revised Design Straw Proposal and Issue Paper (Proposal) for an Energy Imbalance Market (EIM) issued on July 2, 2013.<sup>1</sup> SCE shares the CAISO's goal to create a robust set of rules and processes for other balancing authorities to participate in a combined EIM that can result in operational and cost benefits to all parties. SCE appreciates the response and effort by the CAISO to address parties concerns.

SCE comments on the following issues:

- Convergence Bidding appears incompatible with current EIM design and the Proposal's solution may inadvertently create a new problem
- Provided infeasibility costs can be tracked and charged to the responsible party, then the minimum shift optimization (MSO) may not be necessary
- The CAISO should evaluate curtailing resource leaning as an alternative to making a flexibility requirement part of the EIM operations
- Unit commitment rules and the methodology to allocate bid cost recovery need further investigation
- Consider making EIM Export Allocation Payments subject to refund given the regulatory uncertainty associated with GHG compliance for EIM Entities
- The CAISO should offer more detail on the treatment of GHG in the EIM
- Please provide a complete numerical examples of Expanded Security Constrained Economic Dispatch (SCED) with GHG Emission Costs
- BAA Real-Time Congestion Balancing Account

SCE continues to review other aspects of the EIM Proposal. Lack of comments on specific issues here does not constitute endorsement.

<sup>1</sup> [http://www.caiso.com/Documents/SecondRevisedStrawProposal-EnergyImbalanceMarket-Jul2\\_2013.pdf](http://www.caiso.com/Documents/SecondRevisedStrawProposal-EnergyImbalanceMarket-Jul2_2013.pdf). In addition, the CAISO held a meeting on July 9, to review the proposal with the

following presentation: [http://www.caiso.com/Documents/Agenda\\_Presentation-EnergyImbalanceMarketJul9\\_2013.pdf](http://www.caiso.com/Documents/Agenda_Presentation-EnergyImbalanceMarketJul9_2013.pdf).

## ISO Response

The ISO appreciates SCE's continued participation in this stakeholder initiative.

The ISO will be holding additional technical workshops, including one on the GHG market optimization formulation.

### 1. Convergence bidding appears incompatible with current EIM design and the CAISO's proposed solution may inadvertently create a new problem

As mentioned in the comments to the May Proposal<sup>2</sup>, SCE continues to have concerns about convergence bidding and the EIM design. The structure between the day-ahead (DA) market (CAISO only) and the real-time (RT) market (CAISO & EIM Entities) is fundamentally different which prevents price convergence. In addition, without convergence, SCE does not see how convergence bidding can be funded without uplift which will create unjustified convergence bidding costs that are assigned to load. This impacts both the intertie nodes and internal CAISO nodes thus this remains a problem even if the CAISO leaves Convergence Bids on the ties turned off.

In response to parties concerns, the CAISO proposes to —exclude congestion settlement from EIM Entity BAA constraints that are not modeled in the day-ahead market.||<sup>3</sup> At the July 9, stakeholder meeting, the CAISO explained that this would be done by assuming the shift factor of the constraint with the EIM BAA is zero. This would remove the impact of the constraint on the real-time convergence bid prices at CAISO nodes. However, the result of this adjustment would be a difference between the physical (RT-physical) and convergence (RT-convergence) prices. SCE appreciates the CAISO's effort to resolve our concerns, but the solution may inadvertently create a systematic difference which can be exploited by market participants.

With the removal of the impact of an EIM constraint, then the RT-convergence price should be lower than the RT-physical price. If the DA price converges to the RT-physical price, then convergence bidders have an incentive to sell supply in the DA and buy it back with the lower RT-convergence price. If the DA price converges to the lower RT-convergence price, then physical bidders have an incentive to buy supply in the DA and sell it back at the higher RT-physical price. (Please see Attachment A for a more detailed discussion and examples.)

Regardless of whether the DA market converges to RT-convergence or RT-physical price, the CAISO's proposal creates a structural arbitrage opportunity. Since at core the opportunity appears to take advantage of the changes in the market model between DA and RT EIM, SCE is concerned that CAISO load will be forced to fund this arbitrage via uplift. Convergence bidders would not be taking a financial position against another Market Participant, but rather directly against the grid operator itself, and thus the transaction has no —willing counterparty|| and the transaction will likely not —self-fund.|| If this is the case, SCE objects to the current design proposal.

SCE continues to have concerns if Convergence bids can function properly given the change to the market structure between DA and RT. SCE concerns, **including the apparent structural arbitrage opportunity**, would benefit from review by the Department of Market Monitoring and the Market

Surveillance Committee for their opinion if such concerns are a problem. The treatment of Convergence Bidding requires additional discussion before finalizing any EIM design.

<sup>2</sup> [http://www.caiso.com/Documents/SCE\\_Comments-EnergyImbalanceMarketRevisedStrawProposal.pdf](http://www.caiso.com/Documents/SCE_Comments-EnergyImbalanceMarketRevisedStrawProposal.pdf). Pages 5-6.

<sup>3</sup> Proposal page 4, see also pages 55-56.

### ISO Response

The settlement of convergence bids real-time congestion component on EIM constraints has been modified. If the virtual schedule results in a charge to the BAA real-time congestion balancing account, convergence bidders will be allocated the out of market cost. If the virtual schedule results in a credit to the BAA real-time congestion balancing account, the convergence bidder will be settled at the market congestion component. No compensation will be made for the credit because it requires out of market settlement.

The ISO held a technical workshop on the BAA real-time congestion balancing account and the settlement of convergence bids on August 12.

### **2. Provided infeasibility costs can be tracked and charged to the responsible party, then the minimum shift optimization (MSO) may not be necessary**

The purpose of the MSO is to contain the costs of resolving schedule infeasibilities to the responsible EIM Entity. SCE agrees with the principle of tracking the costs of resolving infeasibilities and charging it to the responsible party, following cost-causation principles. SCE is looking forward to more details and examples on exactly how the costs to resolve infeasibilities will be tracked and calculated. If the CAISO is able to demonstrate that it will be able to accurately identify and assign costs, SCE agrees that there may be no need for the MSO.

### ISO Response

The minimum shift optimization has been eliminated

### **3. The CAISO should evaluate curtailing resource leaning as an alternative to making a flexibility requirement part of the EIM operations**

SCE supports CAISO's efforts to create measures that would prevent entities from coming into EIM short on resources (capacity and ramping capability) and leaning on other balancing authority areas (BAAs). CAISO has proposed to apply a –ramp sufficiency test for each EIM Entity BAA|| and to isolate any entity failing this test from rest of the EIM. While this may be a reasonable approach, it raises some questions:

- a. How will this be done in the optimization which is based on the full network model?
- b. What impact will it have on RT prices and power flows?
- c. Would there be any unintended interactions with Convergence Bids and with the prices at which they're settled?

Also, one of the EIM benefits identified in the EIM cost benefit study, is the ability to share resources between areas, especially at times when one area has a surplus and another a shortage. If there is an available and economic resource in the combined area to meet the ramping requirement, the current proposal would isolate it from a potential customer (another EIM entity, failing the ramp sufficiency test), resulting in a higher overall cost solution.

An option CAISO should evaluate is to consider the EIM exports and imports as non-firm. In this scenario, if an EIM Entity does not have sufficient ramping capability, it could rely on imports or exports, to the extent that there are available bids from Participating Resources in other BAAs. However, if a resource providing this flexibility becomes needed in its native control area, the EIM intertie schedules would be curtailed; ensuring that the BAA coming fully resourced into the EIM is not harmed by other BAAs that lean. In this case the BAA would face high prices or would need to implement their own protocols to maintain reliability

#### **ISO Response**

The ISO has provided additional information on the flexible ramping sufficiency test in the 3<sup>rd</sup> revised straw proposal and hosted a technical workshop on August 13.

The flexible ramping sufficiency test reflects the diversity benefit gained from the EIM footprint is setting the requirement for the test. In addition, the market optimization reduces individual BAA requirements by the available import transfer capability to all the most efficient resources across the EIM footprint to meet the flexible ramping constraint.

#### **4. Unit commitment rules and the methodology to allocate bid cost recovery need further investigation**

The Proposal states that CAISO located units could be committed to resolve constraints or displace higher cost units in the EIM Entity area, while the EIM Entity can elect whether it will allow the Market Operator to commit units in its BAA. A restriction to not commit EIM Entity units would prevent a more economic unit from resolving constraints or displacing higher cost energy for the combined CAISO & EIM footprint, resulting in higher prices for all buyers, and loss of economic opportunity for willing sellers. It also creates asymmetric operating rules between the CAISO and the EIM Entity. From an operation of the combined footprint, there are benefits to be able to commit the lowest cost unit, but there are cost allocation issues that need to be investigated.

Bid cost recovery (BCR) amounts are created when market revenues are insufficient to recover their bid costs. BCR then must be allocated to market participants. The methodology needs to make sure that the cost is assigned using cost causation principles and that unfair allocation does not result. For example, if unit commitment consistently occurred to benefit one EIM Entity, yet all participants were assigned the cost it would result in unreasonable cost shifting. This is a problem that needs to be addressed because, under the current Proposal, CAISO units can be committed due to events in the EIM Entity BAA, but not vice versa. With the current load share allocation rules for BCR, CAISO customers would pick up the costs that benefit the EIM Entity.

SCE recommends that the CAISO review the current BCR rules and determine what changes are necessary to make sure the cost assignment results in fair allocation. The design of unit

commitment rules and its respective BCR allocation needs to be coordinated.

### ISO Response

Unit commitment remains optional for the EIM Entity. As a result, no changes have been made to the BCR settlement approach from the 2<sup>nd</sup> revised straw proposal.

### 5. Consider making EIM Export Allocation Payments subject to refund given the regulatory uncertainty associated with GHG compliance for EIM Entities

CAISO has created its EIM proposal to account for GHG costs under the premise that EIM Entity Participating Resources will be California Air Resources Board (CARB) jurisdictional entities and as such will be required to comply with California's Cap-and-Trade Program. It is not entirely clear, however, if all EIM Participating Resources will ultimately be CARB jurisdictional entities. <sup>4</sup> If EIM Participating Resources are not CARB jurisdictional entities then the EIM Participating Resources will not be required to comply with the Cap-and-Trade Program as assumed in the EIM design. Thus, if Participating Resources are determined to not be CARB jurisdictional entities after they have been compensated for GHG costs according to the EIM design, then the Participating Resources could be left with windfall profits from unjustified payments intended to recover GHG cost. Accordingly, SCE recommends the CAISO consider making all Export Allocation Payments<sup>5</sup> subject to FERC Refund until it is certain that EIM Participating Resources will incur GHG costs for California's Cap-and-Trade Program.

<sup>4</sup> There are outstanding concerns regarding CARB's ability to regulate out-of-state generators as first deliverers of electricity. It is reasonable to anticipate that after the deadlines for the surrender of compliance obligation (the first of which is November 1, 2014) there may be legal challenges that will determine the CARB's jurisdictional authority.

<sup>5</sup> The Export Allocation Payment contains the shadow price that covers the marginal GHG cost.

### ISO Response

The GHG compliance cost bid adder enables EIM Participating Resource Schedules Coordinators to structure and submit a total (energy cost + GHG compliance cost) economic bid. If the resource was bidding directly in to the in to the ISO, the GHG compliance cost would be embedded in the single energy bid. As a result, imports to California whether, through the day-ahead market, 15-minute market on the ISO boundary, or import transfers via EIM are treated similarly.

### 6. The CAISO should offer more detail on the treatment of GHG in the EIM

SCE appreciates that the CAISO has offered additional detail on how GHG will be incorporated into the EIM, but there are still a number of outstanding issues that have yet to be detailed. Specifically, the CAISO should address the following questions:

- a. How are deviations settled when the export allocation changes within the 5 minute market? For example, an EIM Participating Resource, –Generator Y,|| has instructions for a 5 minute dispatch that will result in an export allocation of 10 MWh, which equates to 4 tonnes of GHG at Generator Y's 0.4 tonne/MWh emissions factor. Generator Y fails to perform and produces 0 MW so the EIM Entity ramps up –Generator Z,|| a non-participating EIM Entity



resource, to provide 10 MWh. Generator Z is a coal unit with an emissions factor of 0.8 tonnes / MWh so 8 tonnes of emissions are created—4 tonnes more than would have been created if Generator Y had not deviated. Given that there is no intra-5 minute market, Generator Y will —pay back|| the 5 minute LMP for deviating, while Generator Z will receive the 5 minute LMP.

- i. The export allocation had been assigned to Generator Y in the 5 minute market, but given that Generator Y did not perform—does it still have an export allocation?
  - ii. If not, then who has responsibility for that export allocation and how are they compensated for it?
  - iii. Generator Z is not an EIM Participating Resource and thus does not receive an export allocation nor subsequent CARB compliance obligation. Does that export allocation and CARB obligation fall to PacifiCorp?
  - iv. What price will Generator Y —pay back||? Note that it may have received an export allocation payment on top of the energy (LMP) payment.
  - v. What if Generator Y was scheduled to deliver 20 MWh total, half to CAISO and half to PacifiCorp, but instead delivers only 10 MWh. Are the allocations prorated or sequential?
  - vi. Please provide detailed examples on how deviations are settled.
- b. What entity will be the Purchasing-Selling Entity (—PSE||) on the e-Tags created for the net interchange between the CAISO and EIM BAAs?<sup>6</sup>
  - c. What export allocation information will the CARB have access to?

<sup>6</sup> Net interchange e-Tagging is discussed in Section 3.7.7.1 of the Second Revised Straw Proposal, but there is no mention of the Purchasing-Selling Entity.

### ISO Response

The GHG compliance obligation is based upon the cleared MWh in each 5-minute interval.

The PSE on the tag will be the EIM Entity BAA. The dynamic schedule is not used for GHG reporting purposes. The EIM Participating Resource Scheduling Coordinator has a compliance obligation based upon the export to the ISO. The reporting obligation is similar to any other import to the ISO.

### 7. Please provide a complete numerical examples of Expanded Security Constrained Economic Dispatch (SCED) with GHG Emission Costs

In Section 3.12.2, Expanded SCED with GHG Emission Costs, the Proposal presents the mathematical formulas. While the CAISO provides a theoretical layout of LMP with the equations on Page 70, it does not carry such concepts into its examples.

For example, the formulas show that the transmission line flow and locational market prices (LMP) are determined with the use of shift factors which show the percentage of power flow of the generator to remain in the CAISO or the EIM Entity. However, the numerical examples do not include shift factors in the determination of the LMPs or the amount of line flow between L1 and L2.



To summarize, the examples do not follow the LMP theory provided in the formulas. There is also a lack of clarity in the formulation of the allocated exports, as the formula for the E<sub>j</sub> (EIM energy export allocated to EIM Entity generator j) is not defined. As a result, it is unclear exactly how the Proposal manages to combine in the dispatch an LMP (using shift factors) and a deemed export allocation for GHG compliance.

SCE recommends the CAISO publish complete examples (with the shift factors) of the SCED with GHG Emission Costs and then host a technical conference to review with stakeholders. Until there is more clarity on the details of the SCED, SCE cannot fully endorse the SCED proposal.

**ISO Response**

The ISO will host a technical workshop on the GHG proposal.

**8. BAA Real-Time Congestion Balancing Account**

SCE supports the concept of setting up separate BAA Real-Time Congestion Balancing Accounts to capture the costs to relieve constraints related to each specific BAA for both the 15 minute and 5 minute dispatch, provided that the CAISO can accurately identify the entity responsible for causing the congestion. SCE recommends that CAISO use the 15-min interval shift factors for determining the shadow price and congestion costs.

**ISO Response**

The ISO hosted a technical workshop to review the BAA RTD congestion balancing account.

Company	Date	Submitted By
SDG&E	7/29/2013	
<b>Opening Comments</b>		
<p>SDG&amp;E is supportive of the CAISO’s Energy Imbalance Market (EIM) initiative. Extending the reach of the CAISO’s nodal real-time balancing market will provide greater geographic diversity in renewable resource imbalances, thereby reducing the net renewable resource imbalance that EIM will address. This is an important benefit considering the increase in wind and solar energy production that is already in the pipeline. In addition, by including more dispatchable resources in the EIM, there will be more resource options for managing imbalances. The overall cost of managing imbalances will therefore be reduced.</p> <p>At the same time, SDG&amp;E urges the CAISO to move forward on other initiatives designed to enhance the overall efficiency of electric markets. Priorities include the multi-year forward capacity market, implementation of FERC Order 764, expansion of the CAISO’s Full Network Model, and contingency modeling enhancements. SDG&amp;E expects that the latter three initiatives will be directly reflected in the EIM. Progress on these other initiatives should not be compromised by the EIM initiative.</p>		

## ISO Response

The ISO appreciates SDG&E's continued participating in this stakeholder initiative.

## General Comments

SDG&E believes changes in the existing CAISO governance structure will be needed to give other balancing authorities participating in the CAISO EIM assurances of adequate representation. This will greatly enhance the appeal of the EIM proposal to other balancing authorities.

Successful development and implementation of the EIM requires that opportunities for gaming are minimized. Settlements based on nodal prices helps in this regard. However, because the EIM for balancing authorities outside the CAISO does not include a day-ahead market, scheduling coordinators within these balancing authorities need to submit base load and resource schedules against which imbalances can be determined and settled. The EIM proposal contemplates that these scheduling coordinators will submit "base schedules" that are used in the 15-minute real time market.

It has been recognized that these scheduling coordinators could submit infeasible schedules into the 15-minute real time market; i.e., schedules that result in grid power flows that violate transmission constraints. The CAISO initially proposed a mechanism to adjust such schedules such that the adjusted base schedules would be feasible. In the current draft of the EIM proposal, this adjustment mechanism is proposed to be dropped.

SDG&E does not take a position on the current proposal except to emphasize that the CAISO needs to be satisfied that the existence of infeasible schedules in non-CAISO balancing authorities that participate in the CAISO will not result in adverse consequences for the CAISO balancing authority. SDG&E notes that section 3.7.8.2 of the proposal states that "there is no transfer of costs between BAA because the BAA Real Time Congestion Balancing Account is based upon the constraints within each BAA."

SDG&E is not certain what this statement means for circumstances where an infeasible base schedule submitted by a scheduling coordinator within a different participating balancing authority, when resolved through running the 15-minute real time market, creates congestion within the CAISO balancing authority. Using some very simple examples, it would appear that infeasible schedules would create real-time congestion offset amounts that differ from the real-time congestion offset amount that would result if the schedules were feasible. Accordingly, the CAISO needs to allocate the real-time congestion offset in a manner that achieves that stated claim: "that there is no transfer of costs between BAA."

With respect to transmission service (section 3.10 of the proposal), SDG&E is strong proponent of the "no-cost transmission use" option. The costs of the transmission system are sunk and should not have any effect on real-time dispatch. Mechanisms which recover portions of sunk transmission costs through charges on schedules or flows over those transmission facilities, interfere with efficient operation of the grid. There is no place for "wheeling charges" in efficient electric market operations. SDG&E opposes the other two options discussed in the paper, both of which would assign a portion of the fixed costs of the transmission grid to EIM transactions.

## ISO Response

The Resource Sufficiency Evaluation address concerns of the leaning on the real-time market. The market operator will provide the EIM Entity Scheduling Coordinator with the results the balanced, feasibility, and flexibility test to allow the EIM Entity Scheduling Coordinator to resolve the issues and resubmit an hourly base schedule prior to the start of the EIM. If the final hourly base schedule submitted at T-40 still has issues, then measures are taken to isolate the issues to the EIM Entity BAA.

The 3<sup>rd</sup> revised Straw Proposal contains additional discussion of alternatives for the transmission service rate, in section 3.8. The ISO invites additional comment on this topic.

Company	Date	Submitted By
Six Cities	7/23/2013	Bonnie S. Blair Thompson Coburn LLP 1909 K Street N.W., Suite 600 Washington, D.C. 20006-1167 bblair@thompsoncoburn.com 202-585-6905

## Opening Comments

In response to the ISO's request, the Cities of Anaheim, Azusa, Banning, Colton, Pasadena, and Riverside, California (collectively, the "Six Cities") submit the following comments on the ISO's July 2, 2013 Energy Imbalance Market 2nd Revised Straw Proposal ("the 2nd Revised Straw Proposal").

## ISO Response

The ISO appreciates Six Cities continued participation in this initiative.

## Alignment of EIM Costs with Benefits

The Six Cities continue to support ongoing exploration of the Energy Imbalance Market ("EIM") concept with the objectives of improving efficiency and enhancing reliability for all EIM participants. As the EIM concept has evolved, however, the Cities have become more, not less, concerned that implementation of the EIM by applying some but not all of the ISO's complex market features to supply imbalance energy services to other Balancing Authority Areas ("BAAs") may lead to unintended consequences and increased costs to LSEs within the ISO's BAA. In the 2nd Revised Straw Proposal, the ISO proposes to allocate certain types of costs (e.g., congestion costs) to the BAA in which the costs arise. There is no reason to conclude, however, that an effort to maintain separate cost "buckets" as among BAAs will result in cost allocation that is consistent with the cost causation principle. As the ISO noted at page 22 of the matrix of previously-submitted comments and ISO responses, "EIM is a single, integrated real-time market, and resources in any area within the EIM footprint may meet needs for real-time imbalance energy of congestion management in another area within the footprint, within the available transmission capacity." Given the integrated nature of the EIM, attempting to segregate the costs resulting from EIM dispatches by BAA is not likely to result in cost allocation that is consistent with cost causation. To take one example,

dispatch of a unit in one BAA may occur in whole or in part to meet the imbalance energy needs of another BAA. If such dispatch results in Bid Cost Recovery charges, it would not be consistent with the cost causation principle to impose those BCR costs entirely on the BAA in which the resource is located, which appears to be what the 2nd Revised Straw Proposal contemplates.

It is clear from the ISO's comments/response matrix that cost allocation, and particularly allocation of uplift costs, is a highly contentious issue. PacifiCorp's comments make clear that it is unwilling to take on the burden of any uplift costs that are attributable to the ISO's existing market processes. That seems fair enough, but it would be equally unreasonable to adopt a cost allocation mechanism that would expose ISO load to additional uplift costs in order to expand the scope of the ISO's imbalance services market. That would appear to be the likely consequence of the cost allocation approach included in the 2nd Revised Straw proposal.

Conceptually, the allocation of costs resulting from implementation of the EIM should track the benefits resulting from the EIM. The "costs should align with benefits" concept has been described as an alternative formulation of the cost causation principle. The Six Cities therefore urge the ISO to consider development of a robust methodology for determining EIM benefits as well as a methodology for identifying all costs arising from implementation of the EIM, including incremental uplift costs occurring in any participating BAA. The EIM costs should be allocated in proportion to the EIM benefits. Of course, if the overall costs of implementing the EIM exceed the benefits for any sustained period, the EIM should be discontinued.

#### **ISO Response**

Additional discussion on the neutrality charges and bid cost recovery is included in the 3<sup>rd</sup> revised straw proposal. The proposal does provide the for the transfer of these accounts between BAAs in the EIM bases upon the proportional export transfers to other BAAs.

The BAA real-time congestion balancing account isolates this uplift to each BAA based upon the constraint with the EIM Entity BAA.

#### **Effects on Uplifts Associated With Virtual Bids**

Related to the discussion above regarding allocation of uplift costs that may be affected by implementation of the EIM, several stakeholders raised concerns that the inherent differences in the Day-Ahead Market, in which virtual bids will be submitted, and the EIM Real-Time Market, in which virtual bids would be settled, inevitably will give rise to uplift costs. The ISO cannot ignore the effects of implementing the EIM on the outcomes of the virtual bidding process. To the extent implementation of the EIM gives rise to additional uplifts associated with virtual bidding, such uplifts must be recognized as costs of the EIM that are allocated in proportion to the benefits of EIM participation. Alternatively, such uplifts reasonably could be allocated to virtual bidders. It would be patently inconsistent with the cost causation principle, however, to allocate such uplift costs to ISO load.

### **ISO Response**

The EIM proposal does address the settlement of convergence bids on EIM entity constraints.

The ISO's current FNM Expansion stakeholder initiative is seeking to improve day-ahead and real-time modeling consistency by more accurately reflecting real-time loop flow in day-ahead market. As the ISO has committed, if the modeling improvements are insufficient the ISO will commence a stakeholder initiative that could look at cost allocation of the ISO's real-time congestion balancing account.

### **Flexible Capacity Requirements**

In their June 14, 2013 comments on the first Revised Straw Proposal, the Six Cities expressed concern that capacity procured by load within the ISO BAA, especially flexible capacity, could be used to support EIM Entities without appropriate compensation or reciprocal support. Comments by other stakeholders expressed similar concerns. The 2nd Revised Straw Proposal responds to this concern by including a proposal to apply a flexible capacity requirement for each BAA participating in the EIM. The objective of this requirement would be to ensure that each participating EIM Entity provides sufficient flexible capacity to meet the needs of its BAA. The Six Cities support the proposal to apply a flexible capacity requirement for each participating BAA.

### **ISO Response**

The 3<sup>rd</sup> revised straw proposal provides additional information on the resource sufficiency evaluation applied to the hourly base schedule of EIM Entity Scheduling Coordinators.

### **Transmission Charges**

The 2nd Revised Straw Proposal maintains the ISO's recommendation that transmission for EIM dispatch, at least for an initial implementation period, not be subject to a transmission charge. A number of stakeholders have identified concerns with this proposal, including discrimination among resources participating in the EIM versus other resources and the potential that the availability of free transmission in the EIM may discourage Day-Ahead scheduling. This issue requires careful evaluation and additional analysis. At a minimum, if implementation of the EIM goes forward without transmission charges for EIM transactions, the ISO must be alert for potential market distortions and prepared to act promptly to address any that appear.

### **ISO Response**

The 3<sup>rd</sup> revised Straw Proposal contains additional discussion of alternatives for the transmission service rate, in section 3.8. The ISO invites additional comment on this topic. In all areas of EIM design, the ISO will monitor market performance and propose revisions to the design if any needs become apparent.

### **Implementation Questions**

In addition to the issues discussed above, the Six Cities have the following questions relating to implementation of the EIM:

- Although the 2nd Revised Straw Proposal makes clear that each BAA participating in the EIM will remain responsible for resolving reliability concerns within that BAA, it is not clear to the Six Cities how that obligation will be enforced. If an EIM Entity does not adequately address a reliability issue in Real-Time, how will the ISO as the Market Operator isolate the impact of that failure to the relevant BAA?
- The discussion at pages 48-49 of the 2nd Revised Straw Proposal indicates that uninstructed imbalance energy and instructed imbalance energy will be settled at the same prices. If that is the case, what incentives will resources have to follow EIM dispatch instructions?
- The 2nd Revised Straw Proposal at pages 58 and 64 discusses the anticipated process for expanding the EIM to include additional EIM entities and related recovery of EIM costs. There is no discussion, however, regarding recovery of EIM costs if an EIM Entity decides to withdraw from the EIM. What is the anticipated arrangement for recovering EIM costs in the event the EIM terminates or one or more EIM Entities choose to withdraw?

### ISO Response

See section 3.6.2 through 3.6.4 and 3.6.7 on how reliability events will be handled.

The FERC Order No. 764 market design changes modified generation metering from 10-minute granularity and 5-minute granularity. As a result, the price for instructed imbalance energy from RTD is settled at the same price as uninstructed imbalance energy. The 5-minute price reflects the replacement cost of the energy not delivered.

The start up costs are recovered through the implementation agreement approved by FERC. The EIM administrative rate covers the ongoing costs of an EIM Entity BAA participating in the EIM.

Company	Date	Submitted By
Sacramento Municipal Utility District (SMUD)	7/23/2013	Gary Lawson <a href="mailto:Gary.Lawson@smud.org">Gary.Lawson@smud.org</a> (916) 732-5802

### Opening Comments

The Sacramento Municipal Utility District (SMUD) appreciates the opportunity to provide its comments to the California Independent System Operator Corporation's (CAISO) July 2, 2013 "Energy Imbalance Market (EIM) 2nd Revised Straw Proposal" (2nd Revised Straw Proposal) and its July 9, 2013 stakeholder meeting. Given the numerous changes proposed and the CAISO's stated intent to provide more details in its next revision (3rd Revised Straw Proposal), SMUD will provide only very limited comments at this time.

### **ISO Response**

The ISO appreciates SMUD's continued participation in this initiative.

### **Market Rule Oversight**

SMUD appreciates the CAISO's recognition and decision to address governance matters in August with introduction of a parallel stakeholder process. It is important that this process track the other EIM activities to ensure all aspects of EIM development are in-sync.

### **ISO Response**

The ISO has posted a governance white paper and will discuss the topic at the August 20 stakeholder meeting.

### **Transmission Service**

As included in SMUD's prior comments, we continue to support a charge for EIM use of as available transmission and believe it should be included at EIM start-up. Based upon representations from the CAISO both in its responses to commenters and in its 2nd Revised Straw Proposal (at 61), however, the CAISO is still evaluating this issue and will discuss it further in future papers. SMUD will await further analysis by the CAISO. Additionally, SMUD hopes that the CAISO might explore options beyond the three it provided in the 2nd Revised Straw Proposal.

### **ISO Response**

The 3<sup>rd</sup> revised Straw Proposal contains additional discussion of alternatives for the transmission service rate, in section 3.8. The ISO invites additional comment on this topic.

### **Greenhouse Gas Emissions Costs for Imports into California**

While the 2nd Revised Straw Proposal provides additional information on the EIM's greenhouse gas (GHG) emission process, SMUD is concerned that the compliance obligation for importing GHG resources into California is still uncertain. Without requiring more granular e-tagging for imports into the CAISO, there is risk that resource shuffling could occur and compliance obligations avoided. SMUD therefore supports the CAISO continuing discussions with the California Air Resources Board and stakeholders.

### **ISO Response**

The real-time market, including EIM, will be considered in the safe harbor provisions regarding resource shuffling.

### **Charges for Under-Scheduling**

SMUD believes the proposal to charge for under-scheduling if an EIM Entity uses its own load forecast (instead of the CAISO's) may essentially force an EIM Entity to use the CAISO's



forecast, which under some circumstances the EIM Entity may be better able to provide a more accurate forecast. Moreover, SMUD observes that if use of the CAISO's forecast affects reliability within the EIM Entity BA, it could disincentive participation in the EIM or yield unnecessary uplifts. This issue should be explored further and a structure developed that will encourage the use of forecasts by the entity best able to provide them (which in many instances may very well be the CAISO).

SMUD supports a higher threshold for hourly submitted base schedules vs. base schedules updated every 15 minutes. An EIM Entity should have more accurate forecast data within the hour for each 15-minute interval to provide a more precise forecast. (2nd Revised Straw Proposal at 27).

It is unclear from the 2nd Revised Straw Proposal whether the CAISO proposes to tie the underscheduling charge as a percentage of the relevant load aggregation point LMP or proposes a flat dollar charge similar to the Interim Scheduling Charge (i.e. \$150/MWh). SMUD supports a percentage charge (i.e. 125% of the LMP for the deviations from under-scheduling) because this corresponds more directly with the price of energy and does not disincent participation.

SMUD also supports a ratcheted percentage charge based on the amount of deviation beyond the 4% bandwidth – for example, deviations of 5%-10% would see a charge of 125%; deviations of 11%-15% would see a charge of 150%; etc.

### **ISO Response**

The proposed under-scheduling does not apply if the EIM Entity's forecast is within 5% of actual demand (revised in the 3<sup>rd</sup> Revised Straw Proposal from 4% in previous versions, along with adding a higher charge for large deviations as requested by some stakeholders including SMUD). If the EIM Entity is able to produce better forecasts than the ISO, its forecasts should be well within this tolerance band, and this provision would not be a disincentive from using its forecast or from EIM participation. The ISO believes even an hourly forecast can be well within this tolerance band.

The under-scheduling charge is a percentage of the LAP LMP.

### **Impacts to COI**

SMUD stresses the importance of addressing potential impacts to non-EIM transmission, specifically intra hour changes to load flow and capacity on the California Oregon Intertie. Although the EIM is not intended to diminish non-participating transmission rights-holders, there may be unintended impacts and therefore we continue to request the CAISO to examine this issue more carefully. For instance, in the case of unscheduled flow curtailments on Path 66, SMUD believes that EIM transactions should be of the lowest priority, and that EIM transaction in the direction of unscheduled flow should be curtailed first before (other) schedules are curtailed. Otherwise, EIM will have an impact on other existing path rights holders.



### ISO Response

Scheduling priority is applicable to self-schedules, such as resources' capacity that is not within an economic bid range offered to EIM. EIM dispatches will use only the economic bid range of resources that are offered by EIM Participating resources, within transmission capacity that is made available through EIM Entities, and will not adjust any self-schedules regardless of whether they have firm or non-firm priority. Thus, EIM dispatches do not carry any of the scheduling priority that self-schedules have, and do not rely on transmission rights that are not offered to EIM. When unscheduled flow causes congestion, EIM will not dispatch resources that would contribute to that congestion, and in fact may be able to provide counter-flow and reduce the congestion, thereby avoiding adjustments to self-schedules or to the schedules of non-EIM participants.

Company	Date	Submitted By
Salt River Project "SRP"	7/26/2013	
<b>Opening Comments</b>		
SRP attended the July 9th Stakeholder Meeting in Phoenix and appreciates the opportunity to continue participating in CAISO's EIM stakeholder process. SRP wishes to gain further insight on the topic area of base schedules and presents the following questions:		
<b>ISO Response</b>		
The ISO appreciates SRP's continued participation in this initiative.		
<b>1 How is the base schedule for a Participating Resource determined by the EIM Scheduling Coordinator?</b>		
It is understood that the base schedule for each resource will be within the bid range that is provided from the EIM Participating Resource Scheduling Coordinator to the EIM Entity Scheduling Coordinator. What MW value is assigned to the following two resources, generator A and generator B which each have bid ranges of 100-300 MW (assume load forecast is 200 MW)?		
<b>ISO Response</b>		
Since load was assumed to be 200MW, then each generator must have a base schedule equal to 100MW and upward dispatchability to 300MW each.		
Assume that the load forecast is 250 MW. Then a base schedule from generator A could be 100MW with upward dispatchability to 300MW. This would then make the base schedule from generator B equal to 150MW with 50MW of downward dispatchability (down to 100MW) and upward dispatchability to 300MW.		
<b>2. Also, if generator A was associated with the Load Serving Entity, can there be both a 200 MW schedule from generator A to serve the anticipated load and a bid into the market by generator A, such as the 100-300 MW bid?</b>		

The goal is to understand how the EIM Entity Scheduling Coordinator factors in and matches the bid ranges from various resources with the load forecast and its accompanying obligations to create the overall base schedule submission to the ISO.

**ISO Response**

Yes. See additional example above.

**3. The CAISO supply adequacy rule is summarized as follows:**

The EIM Entity shall be deemed to have insufficient energy supply if the sum of base schedules from non-participating resources and the sum of the highest quantity offers in the energy bids from EIM Participating Resources is less than total demand forecast. Is the reference to non-participating resources equate to a resource that self schedules and is not participating in that market period? Could it also be a resource that does not participate at all in the market and correspondingly does not have a Participating Resource Scheduling Coordinator?

**ISO Response**

If a resource is not participating, then its schedule is treated like an ISO self-schedule. The non-participating resource is represented by the EIM Entity Scheduling Coordinator. Any deviations will be settled with the EIM Entity Scheduling Coordinator.

**4. Page 14 of the July 2nd proposal states that “EIM base portfolios of OH-75 establish the initial basis for EIM energy settlements subject to adjustments for 15 minute intervals.”**

Is the basis for settlement OH-75 or OH-40 since the EIM Entity Scheduling Coordinator can update the base schedules until OH-40?

**ISO Response**

The 3<sup>rd</sup> revised straw proposal only allows hourly base schedules hourly with hourly granularity. The resource sufficient evaluation does allow the EIM Entity Scheduling Coordination to resolve identified issues prior to the start of the financially binding 15-minute market interval at T.37.5. The hourly base schedule received at T-40 is the final schedule used for settlement of deviations.

Company	Date	Submitted By
Western Electricity coordinating Council	7/26/2013	
<b>Page 9, item G - Please clarify how the EIM Entity will</b>		
<p><i>Submitting and maintaining their system operating limits (inter-ties and internal constraints) as needed for the market. This includes adjusting/conforming limits as required due to differences between actual flow as measured by actual telemetry or state estimator and the flows calculated by the market model (market flow). Note that small differences in actual and</i></p>		

*market flows can arise due to differences in the model and actual conditions such as load distribution factors, unscheduled flow, network topology and impedances.*

It seems like this is suggesting the EIM Entity will adjust their limits if the EIM Operator SE solution is not good enough. Is that the intention?

**ISO Response**

The issue is not whether the state estimator solution is valid. In fact, telemetry and the state estimator solution are the benchmark for accuracy of the market’s network model, particularly in cases when small differences in modeled flows on congested constraints can lead to significant congestion costs. The text notes that small differences between actual and market flows can arise due to several factors, including (1) differences between varying actual nodal loads and the network model’s load distribution factors, (2) unscheduled flow due to uninstructed deviations from base schedules and EIM dispatches, or due to injections and withdrawals in non-EIM BAAs that cannot be represented in EIM’s modeling, (3) differences between reported outages and the actual network topology, and (4) errors in network impedances as entered in the network model. When such issues arise, EIM Entities will be able to adjust the transmission limits used by the market optimization, to conform the modeled flows to the actual flows.

**Page 10, section 3.1.4**

The balanced load, generation, and interchange schedules should be the same schedules submitted to the WECC RC for reliability studies.

**ISO Response**

This has been added.

**Section 3.1.1 and 3.1.3**

Clarify that current functions will be handled by the ISO/EIM Entity only for the respective BAA

**ISO Response**

This has been added.

**Section 3.1.2**

Says “The MO may or may not commit, start-up or shut down any resource in the EIM Entity BAA...” This is unclear – based on the discussion in Phoenix, it appears this refers to the option of the EIM entity to allow commitment or not in RTUC. Please clarify this in the documentation.

**ISO Response**

This has been clarified.

**Page 16**

The row “Within OH+60 min” says the EIM action will be “estimated dynamic schedules may be updated by EIM Entity”. Please clarify whether this is for the EIM dynamic schedules or all dynamic schedules?

**ISO Response**

The EIM Entity will update dynamic schedules other than the one that the Market Operator manages to track net interchange from EIM dispatches.

**Page 31, paragraph 2**

It seems the measure of sufficiency should be total demand forecast plus export schedules less import schedules to more appropriately reflect the obligations of the EIM Entity.

**ISO Response**

“Sufficiency” as discussed here refers to “resources”, which includes interchange with other BAAs. A clarification has been added. As discussed in other paragraphs, sufficiency also includes ramping capability.

**Page 31, last paragraph**

Reference to “NERC and WECC policies” should probably be to “NERC and WECC standards”.

**ISO Response**

This change has been made.

**Page 32, paragraph 3**

Says “In this case, the EIM Entity must include this adjustment in the transmission capacity that it reports to the Market Operator as being available to EIM.” Is this just a matter of defining the appropriate limit, or is it separate reporting for TRM?

**ISO Response**

The EIM Entity must report the capacity available to EIM after accounting for TRM, but the straw proposal does not require TRM to be separately reported to the Market Operator.

**Section 3.6.1**

Reference to “resource sharing groups” is supposed to be “reserve sharing groups

**ISO Response**

Noted.

**Page 45, paragraph 3**

Says "...which may require the EIM Entity to initiate the procedures under WECC regulations." WECC standards do not *require* that the UFMP be used, it is a tool that is available to transmission operators of qualified paths, not to BAAs, and this should be clarified.

**ISO Response**

The text does not say that WECC regulations require UFMP to be used. Instead, it says that conditions may require the EIM Entity to initiate UFMP.

**Page 58, section 3.7.10.1**

Reference to implementing EIM for the entire "WECC" should be for the entire "Western Interconnection".

**ISO Response**

This change has been made.

**Section 3.6.4**

*"The EIM will not automatically initiate the UFMP, but will alert EIM Entities to conditions that EIM cannot resolve"* – What does the "alert" look like?

**ISO Response**

The means of communication will be developed together with the EIM Entity.

**Page 44, section 3.6.2**

Says "The EIM dispatches and demand forecast deviations will be netted for each EIM Entity BAA to produce a dynamic net interchange schedule for AGC purpose." Is it expected that this dynamic net interchange schedule will be provided to the RC on a real-time basis?

**ISO Response**

If requested by the RC, it can be provided.

**Page 44, section 3.6.3**

Says "The Market Operator will not issue Exceptional Dispatches to EIM Participating Resources. The EIM Entity may do so for EIM Entity BAA purposes." Coordination among the Market Operator, the EIM Entity and the RC should be discussed to ensure proper and sufficient communication.

**ISO Response**

The ISO has initiated such discussions with the RC.

**Page 45 last paragraph**

Says “Subject to the EIM Entities’ dynamic transfer policy dynamic transfers to EIM Entities may make resources outside the EIM footprint available to the EIM...” Is this only for resources that are either dynamically scheduled or pseudo-tied into the EIM Entity? How do you assure that if the same resources has dynamic schedules with more than one EIM Entity that it is not double counted?

**ISO Response**

If multiple EIM Entities have dynamic schedules with the same resource, EIM would see each EIM Entity’s dynamic schedule as a separate resource. It should be expected that the resource operator has operating procedures with the EIM Entities and any other BAAs that also control shares of the resource, to ensure that the resource is not double-counted.

**Page 51, first paragraph of 3.7.7.1**

Says “The Market Operator will use the WECC Interchange Tool to receive e-Tag information related to the EIM Entity BAA’s interchange points with other BAA’s that are not ISO.” – have discussions been held with OATI or WECC on this? WECC holds the contract with OATI for the WIT and coordination will need to include WECC.

**ISO Response**

The ISO has discussed the data availability with OATI and the WECC RC. Further coordination including WECC is also expected.

**Overall (this may be an offline type question)**

What data will be provided to the RC on EIM flows and transactions on a real-time basis? How can we best coordinate between the RC, the ISO and the EIM Entities?

**ISO Response**

The ISO has initiated coordination with the RC on issues including data exchange.

**General question**

The market solution and dispatch instruction is driven heavily by the state estimator solution, yet settlements are driven by meter data. While this is typical for energy market operations, what is CAISO plan to ensure proper SE solutions prior to market launch? Are there metrics in place to provide confidence that new EIM participants models and the SE solution are accurate?

<b>ISO Response</b>
<p>The ISO's current real-time market operation is integrated with the ISO's state estimator, as described in the ISO's Business Practice Manual for Market Operations. The ISO's state estimator already models the entire western interconnection at 220 kV and higher voltages, and often at lower voltages as data are available. The ISO's market network model already has a representation of the high voltage network in the Southwest, and a separate, current stakeholder process concerns expansion of the market network model to ultimately cover the entire western interconnection. The ISO will go through extensive market simulation testing of EIM in 2014 prior to EIM's October 2014 start of operations, and will report on the results of the market simulation testing.</p>
<b>General question</b>
<p>Are there any efficiencies that can be gained by using the WECC RC WSM instead of duplicating all of the modeling that is currently done by the EIM participant and the WECC RC already?</p>
<b>ISO Response</b>
<p>As noted above, the ISO's state estimator already models the entire western interconnection, and the market network model will be expanding beyond its current representation of the Southwest. The ISO coordinates its state estimator model and solutions with the WECC RC. The ISO includes these functions in its existing real-time market systems because the situational awareness achieved by this approach is integral to the ISO's real-time market operation, including using the state estimator solution as the starting point for real-time dispatch.</p>
<b>General question</b>
<p>What safety measures are in place to ensure that the EIM does not result in problematic dispatch that actually drives generation in the wrong direction? WECC RC has seen occasions where system frequency is outside of frequency trigger limits and the RC logged reason is "CAISO market issues". With more generation under dispatch control by the CAISO, we need to be sure that this issue is properly mitigated.</p>
<b>ISO Response</b>
<p>The ISO is confident in the reliability and robustness provided by its real-time market operations. This statement in WECC's comment is not sufficient to support an informed response, but if WECC or the RC has questions about any issues, please contact the ISO.</p>

Company	Date	Submitted By
<b>Western Power Trading Forum</b>	7/26/2013	Ellen Wolfe, Resero Consulting, 916 791-4533, ewolfe@resero.com
<b>Opening Comments</b>		
<p>WPTF appreciates the opportunity to comment on the ISO's 2nd Revised Energy Imbalance Market (EIM) straw proposal dated July 2, 2013 and the discussion that was offered at the ISO's July 9,</p>		

2013 stakeholder meeting.

WPTF supports the continued development of the EIM and ISO's ongoing efforts to establish EIM rules that promote market efficiency. WPTF offers comments in the following areas.

### **ISO Response**

The ISO appreciates WPTF's continued participation in this stakeholder initiative.

### **Proposed Elimination of the Minimum Shift Optimization**

WPTF has no significant objection to the ISO's proposal to remove the minimum shift optimization adjustment to base schedules, especially in light of the MSC and DMM comments. Although we understand the ISO's proposal for congestion management and the cost allocation associated with resolving congestion on the base schedules, we request that the ISO include in its next proposal details about how other aspects of reliability will be ensured without the ISO ensuring that the schedules are feasible.

### **ISO Response**

The minimum shift optimization has been eliminated.

### **Convergence Bidding Proposal**

WPTF is concerned with the ISO's proposal to adjust payments to convergence bidders to remove the congestion impacts of any EIM constraints. Whereas the convergence bids would naturally cause DA prices to more closely match the reality of the market that will ultimately present itself in the RT, the CAISO's proposal will negate such benefits of convergence bids impacted by EIM constraints.

Further the proposal will adversely impact the relationship between convergence bidding payments, physical energy payments and CRR payments and will thereby undermine the hedge value of the convergence bidding mechanism. The proposed convergence bid treatment would also create neutrality impacts given the differences in physical and virtual settlements. For these reason WPTF encourages the ISO to reconsider this aspect of its proposal. We ask the ISO to provide more information about what constraints will be represented in the DA model under the anticipated expanded network model representation and to provide further explanation about what will not be modeled in the DA market that would cause prices to diverge in some manner for which the ISO believes convergence is not beneficial. We also ask the ISO to consider market design models from other markets where constraints of adjoining markets affect the price formulation. PJM's interconnections with the MISO and with the NYISO may provide beneficial examples worthy of comparison.

Lastly to the extent the ISO continues with this proposal it is important that the ISO design additional interfaces to provide transparency to the prices applied to the convergence bids, as adjusted by the EIM constraints.



### **ISO Response**

The ISO has modified the settlement of convergence bids on EIM Entity BAA constraints. In addition, the ISO held a technical workshop on the topic.

### **GHG Treatment**

We appreciate the clarification that all EIM resources delivering to CA will receive the marginal carbon cost. Issues to be resolved include further details around the carbon price proposal, the emissions rate to be used for EIM internal resources (for which ARB assigns an emissions rate based on average annual production), and the emissions rate to be used for EIM imports that serve CA load. We ask for further considering regarding the pros and cons of the ISO allowing participants to submit their own carbon related bid adder; while the ISO has identified possible downsides of participants using this adder to influence the likelihood that their resources may be found efficient to serve EIM load only or CAISO load there also seems to be much benefit to a participant managing its risk of carbon by specifying a bid adder that reflects their own expectations about ultimate emissions rates and allowance costs. Further, we ask the ISO's further consideration about its proposal to use the default emissions rate for resources bidding into the EIM at the EIM's boundaries. The use of a default emissions rate will have tendency to distort market results and disadvantage clean resources bidding into the EIM.

We also ask the ISO to discuss the impacts of using an implied emissions rate for imports that may be different than an import rate later assumed by CARB, and we ask the ISO to agree to work with CARB to arrive at an outcome whereby the CARB assumed rate and the ISO emissions rate used would be the same. Absent such an arrangement those in the EIM footprint offering into the ISO will be at risk for differences in treatment between the ISO market and the ARB compliance requirements.

Lastly, WPTF also requests further information on how the ISO intends to convey each EIM participant's resulting energy imports each hour. Detailed information about the market results and inferred CAISO imports should be provided as part of the market results, and we ask the ISO to confirm such information will be provided as part of the market results.

### **ISO Response**

The 3<sup>rd</sup> revised straw proposal allows individual resources to submit GHG compliance cost adders. If a resource is deemed to deliver to California, the EIM Participating Resource Scheduling Coordinator will be notified as part of the market results.

### **Cost Allocation**

WPTF appreciates the ISO's efforts to segregate real time congestion and neutrality costs consistent with cost-causation principles. We look forward to additional details on how these costs attribution will be accomplished.

<b>ISO Response</b>
Additional detail has been provided in the 3 <sup>rd</sup> revised straw proposal. The ISO plans to hold a technical workshop to discuss neutrality allocations.
<b>Separate Ramping Constraint</b>
Application of distinct ramping constraints seems reasonable, but we ask the ISO to detail in writing how it will set the requirements and where and how it will publish the constraint requirements. WPTF seeks further discussion from the ISO about the proposed remedy if the ramp is not provided by the EIM entity. The ISO’s proposal to limit transfer capability provides some measure of protection from one BAA “leaning on” another, but given loop flows such a protection may not be sufficient. Perhaps more importantly, WPTF requests the ISO’s further thinking about whether there may be other measures that would be more effective and market based means of addressing ramp insufficiencies.
<b>ISO Response</b>
Additional information has been included in the 3 <sup>rd</sup> revised straw proposal. In addition, the ISO held a technical workshop to discuss the flexible ramping sufficiency test.

Company	Date	Submitted By
Xcel Energy	7/26/2013	
<b>General Comments</b>		
The Second Revised Straw Proposal shows progress. We appreciate the effort expended by the CAISO to address the issues previously raised. We believe that the CAISO can improve several areas of the proposal. These improvements will help CAISO operate an Energy Imbalance Market and provide greater certainty of benefits to potential EIM participants.		
<b>ISO Response</b>		
The ISO appreciates Xcel’s continue participation in this stakeholder initiative.		
<b>High Priority Issues: Participant definitions, obligations and agreements</b>		
Xcel Energy raised concerns with the proposed Participant definitions and obligations in the previous version of the Straw Proposal. In response to comments, the CAISO stated that only the EIM Entity is responsible for maintaining system balance. While this is true with respect to the Balancing Area role matching generation and load in real-time, Xcel Energy disagrees with the CAISO response with respect to the obligation to ensure balanced schedules as part of an operations plan. The following discussion is intended to clarify our objections regarding this issue. All Load Serving Entities (LSEs) have an obligation to meet their load service needs. The BA has the Reliability Standard requirement only to ensure real-time balance within the BA boundaries. The BA, and any other transmission providers in the BA, will charge entities that fail to maintain balance between loads and resources during the settlement intervals under Schedules 4 and 9 of their		

respective OATTs.

One of the primary benefits of the EIM for both the BAs and for the LSEs within the BA is to make imbalance service more efficient. As currently structured, we are concerned this efficiency will not materialize. The definition of roles for the BA in the Straw Proposal involves adding substantial new interface responsibilities and scheduling coordinator roles not provided today, but which are already the obligations of OATT customers that have settlement responsibility under Schedules 4 & 9 within the BA.

Therefore, Xcel Energy is asking that the CAISO reconsider their proposal and not obligate BAs in the EIM footprint to adopt new market interface capabilities that will be redundant to the systems (or at least the current responsibilities) of the OATT customers subject to settlement under with Schedule 4 and/or Schedule 9. The EIM Entity Scheduling Coordinator should only provide information related to those LSEs (or resources) that do not participate directly in the EIM. Xcel Energy recommends that the CAISO review Attachment AN of the SPP Tariff to see how the SPP and its Balancing Authorities structured the process to allow the Market Participants to provide information directly to the Market Operator. Under the SPP market design, the BA provides information for reliability needs to the market operator and the reliability coordinator. However, all market settlement information, including all base schedule information, is provided to the market operator directly from the resource owner and LSEs (i.e. market participants, not the BA). Please refer to Xcel Energy's comments on the revised Straw Proposal submitted on June 14 for more details related to specific changes needed to address this issue.

As a final comment on this issue, use of a single process for multiple entities to participate is much more efficient than having multiple processes required. Under the CAISO proposal, it is very likely that each Balancing Authority (i.e. EIM Entity) will develop different processes for their LSEs and resource owners to use. For market participants that are then in multiple EIM Entity BAAs, this could lead to an unintended consequence of differing operating practices and potentially different interface software for each EIM Entity

### **ISO Response**

The ISO has sought to balance the need for uniformity across EIM Entities with providing flexibility for the EIM Entity to determine participation rules appropriate for its BAA.

The ISO is evaluating potential options for the market operator to facilitate base schedule submissions and will include any proposal in the draft final proposal.

### **Congestion Management**

Xcel Energy supports CAISO in its desire to do away with the Adjusted Base Schedule determination through minimum shift optimization. We had concerns with the proposal, as it did not address the equity issue created if the minimum shift resolution involved market positions of third parties.

However, the CAISO needs to clarify how the new proposed congestion management process will take into account transmission priority when resolving congestion. Also, clarify how the EIM practices will simultaneously address external loop flow impacts contributing to the constraint. It would be an unacceptable market operations practice, due to the creation of revenue shortfall uplift

costs for market participants, to allow without curtailment same-priority external loop flow impacts upon a limiting element within the market footprint which is in the throes of market redispatch. (We note that some minimum distribution factor threshold for external flow contribution is appropriate.) The market delivery base schedule curtailments and associated redispatch optimization within the market footprint will not generate sufficient revenue to cover the extra redispatch costs associated with the uncurtailed external impacts on constraints in the EIM footprint.

At the Phoenix meeting, CAISO stated its intent to identify the congested element and assign all congestion costs to that BA. This proposed solution will have the effect of making sure the BA addresses simultaneous feasibility of planned delivery within its own footprint in advance of the operating hour, which is good. (This is one of the three techniques CAISO is using to rationalize the elimination of Adjusted Base Schedules.)

However, this proposed remedy creates concerns of its own. The CAISO proposal does not yet take into account any level of transmission delivery curtailment priority in the identification and resolution of congestion.

### ISO Response

The EIM proposal is intended to provide economic optimization of bids that are voluntarily submitted by EIM Participating Resources, within transmission capacity that is made available through EIM Entities. If sources of loop flow impacts offer bids in EIM, EIM would use them to manage their physical network flow impacts within the available capacity. If the sources of loop flow impacts have not offered bids, EIM would have no ability to mitigate their impacts, and congestion management would need to use other tools such as UFMP, ECC, or their own schedule adjustment procedures. The proposal does explain that the EIM will be prepared to coordinate with UFMP, ECC or another Balancing Area schedule adjustment procedure.

Scheduling priority is applicable to self-schedules, such as resources' capacity that is not within an economic bid range offered to EIM. EIM will not adjust any self-schedules regardless of whether they have firm or non-firm priority. Thus, EIM dispatches do not carry any of the scheduling priority that self-schedules have, and do not rely on transmission rights that are not offered to EIM. When unscheduled flow causes congestion, EIM will not dispatch resources that would contribute to that congestion, and in fact may be able to provide counter-flow and reduce the congestion, thereby avoiding adjustments to self-schedules or to the schedules of non-EIM participants.

To the extent that congestion costs result from optimization among EIM bids, LMPs will charge or compensate the participating resources through LMPs. However, to the extent that Xcel's concern is the allocation of congestion offset costs related to infeasible base schedules, the ISO has refined its cost allocation in the 3<sup>rd</sup> Revised Straw Proposal.

### **Concern #1: EIM must prioritize congestion resolution cost allocation with respect to physical delivery rights**

Take for instance an example where a non-firm base schedule delivery is taking place in an adjacent participating EIM footprint and contributing flow to the limiting constraint, while the BA "hosting" the limited element only has firm delivery schedules impacting the constraint. The CAISO proposal

would require the BA with the constraint to accept the redispatch cost associated with its internal constraint. However, the EIM process must adjust schedules within the entire EIM to induce the congestion cost allocation (and as described elsewhere, curtail external contributing impacts comparably) to lower priority flow contributions from external sources. Assignment of the congestion cost through appropriate physical schedule curtailments must be consistent with Order 888.

It is not clear the CAISO has established an EIM mechanism to curtail the external flow impact associated with scheduled deliveries from inside the market footprint, but outside the BA with the limiting element. Comments from CAISO staff at the Phoenix meeting indicated their expectation is that the BA would use the available WECC tools (e.g. the UFAS procedure) to address what are called “unscheduled flow” impacts in this circumstance.

However, despite efforts of WECC participants to update and make the UFAS tools and practices more modern, it is not certain the tool and procedure will be either sufficient or fully available for the task within the market startup timeframe. Moreover, this task is important and potentially expensive to market participants, due to uplift and inequity issues. We respectfully request and advise that the capabilities be addressed as part of the market design and protocols, at a minimum, for deliveries that source and sink inside the EIM footprint.

As an example, SPP uses a tool similar to the NAESB Interchange Distribution Calculator or the WECC WebSAS tools (called the Curtailment Adjustment Tool or “CAT”) to identify by transmission curtailment priority those impacts on limiting constraints which source and sink inside the market footprint. Using this tool they ensure that scheduled physical delivery rights are curtailed in a manner consistent with the tariff curtailment priority and do not allocate congestion cost responsibility to a higher level of delivery priority through schedule curtailment while lower priority impacts are contributing to the internal constraint. Their reliance on interconnection-wide tools therefore is limited to deliveries that have a source or sink outside the market footprint. We recognize that external loop flow contributions to limiting EIM constraints will likely need to rely upon WECC tools. We consider the discussion above to underscore our concern for this issue relative to impacts of scheduled physical rights within the market footprint.

We evaluated and rejected an alternative proposal for CAISO, that if the contribution to a limiting element is due to parallel flows from a neighboring EIM BA using lower transmission service curtailment priority, the CAISO should assign the cost to that BA, not the BA where the congested element is located. However, we rejected the concept, as the neighboring BA will not have the visibility of the constraint nor the information as to the relative curtailment priority of their internal flows with respect to other impacts on the external constraint. The market operator in contrast has visibility over the entire EIM footprint and is therefore most suited to administer the issue with a tool to address physical delivery rights prioritization within the market footprint.

## ISO Response

As discussed above, and as Xcel seems to recognize, EIM is not intended to adjust resource outputs except through voluntary economic bids. The ISO's congestion offset cost proposals seek an equitable allocation of these costs among EIM Entities, but the ISO remains open to specific proposals for further refinement. The ISO is aware of current work by WECC members and the WECC RC to develop ECC to address some of the shortcomings of the existing UFAS tools and practices, but if this work is unsuccessful and changes to EIM can further improve congestion management within the intended purposes of EIM, additional functions can be considered at that time.

## Concern #2: The proposal must appropriately avoid revenue insufficiency

The straw proposal indicates that the CAISO will exhaust market redispatch prior to coordinated reliability curtailments such as the UFMP or RC intervention. However, the proposal must address how loop flow impacts contribute to the need for base schedule adjustments and how mitigation of loop flow impacts will occur. ***Without a simultaneous process to address loop flow impacts at the time of market redispatch, there will be an unacceptable potential for revenue insufficiency for redispatch causing associated revenue neutrality uplift costs in the market footprint.*** For example, Section 3.6.4 anticipates that EIM market dispatch is exhausted prior to recourse to the UFMP. This could create uplift for market participants.

## ISO Response

The EIM proposal does not require market redispatch to be exhausted prior to use of UFMP or RC intervention. Instead, EIM Entities may invoke such tools prior to hearing from the Market Operator that market redispatch has been exhausted, and the involved EIM Entities would inform the Market Operator of the exceptional dispatch that the market should continue to recognize. As discussed above, the ISO would welcome proposals for further refinement of its congestion offset cost allocation.

## Concern #3: The proposal is silent on some seams coordination details

Will the CAISO offer a redispatch option to non-market areas in circumstances where the redispatch by the EIM is an efficient remedy for the external parties' curtailment obligations? If so, the proposal must address the interface for providing the cost allocation to the non-market entity associated with the redispatch service. Further, if the EIM footprint grows to the point of adjacency with another market operator (say for example, AESO), the markets will need to address border price convergence and loop flow entitlements for use in constraining their respective footprints' dispatch optimization. This concern may not require immediate resolution, but the CAISO should constitute the stakeholder and governance process to address them when they arise.

## ISO Response

If a non-market system operator believes that EIM could provide an efficient redispatch option for its curtailment obligations, the ISO would be willing to discuss this opportunity. Indeed, the ISO's seams coordination discussion has proposed that dynamic schedules between EIM and another market operator or non-market system operator could provide such coordination. Similarly, if EIM becomes adjacent to another market operator, the ISO's seams coordination discussion has proposed a mechanism for mutual support for congestion management. The ISO is issuing a governance paper together with its 3<sup>rd</sup> Revised Straw Proposal on EIM design.

## Over and Under Scheduling Penalties

The CAISO proposes to have only an under-scheduling penalty without a comparable over-scheduling penalty. This proposed design may increase the risk of revenue insufficiency for the EIM. We recommend the CAISO adopt a disgorgement penalty structure for over-scheduling outside of a reasonable error tolerance.

Ignoring, for simplicity's sake, the difference between MW and MWH when dealing with 15-minute intervals, here is a scenario of the over-scheduling issue and how it could contribute to revenue insufficiency:

Say an entity provides a balanced delivery schedule of 110 MW (from generation to load). With these established 15-minute base schedules, the generator will schedule a 110 MW injection and the load is schedules 110 MW withdrawal.

Now in real time the load actual metered value is 100 MW. Assume the LMP at the load is \$70 and the LMP at the generator is \$20. Assume the generator was dispatched down to 100MW for the interval (a conservative assumption, the converse puts an even finer point on the issue). Then in settlements, the generator owes \$200 and the load is paid \$700, netting this entity \$500 in revenue. Because there was no payer for this \$500, the settlement value will then be uplifted to the market through revenue insufficiency recovery.

Adoption of a disgorgement penalty in these cases, subject to a reasonable error tolerance, will mitigate the revenue neutrality concerns and reduce the potential for unintended consequences. This issue was a realized concern in the SPP Energy Imbalance Market. There may be some differences compared to the CAISO two-settlement EIM that cause this to be less of a concern with respect to the difference from 15-minute to 5-minute settlements. However, we believe this is still an issue in establishing the 15-minute settlements. Given the potential for revenue neutrality impacts, we would appreciate the CAISO examining this issue in greater detail as part of their stakeholder discussions

## ISO Response

The 3<sup>rd</sup> Revised Straw Proposal (Section 3.3.6.2) contains further discussion of possible over-scheduling penalties, concluding that this mechanism is not needed at this time because the flexible ramping proposals and offset cost allocation proposals already provide sufficient disincentive against over-scheduling. However, the ISO will continue to monitor outcomes of all markets that it administers, and will propose revisions to the EIM design if a need for an over-scheduling penalty develops, and if the ISO's offset cost allocation does not provide adequate disincentives for over-scheduling.

The outcomes of the example offered by Xcel depend on some assumptions, including that there is transmission congestion between the generator and the load, leading to the LMP difference. If the initial 110 MW base schedules would be infeasible by exceeding the transmission constraint's limit, the ISO's offset cost allocation proposals would assign the \$500 cost to the EIM Entity, which would allocate this cost among loads and generators within the BAA containing the constraint. It is possible that the constraint could be located in a different EIM Entity, but it is not clear that this situation will occur in the initial EIM implementation, and changes in EIM design can be considered if it arises later.

If the base schedules are feasible by having flows within the transmission constraint, although the constraint would have been at its limit, the fact that a LMP difference remains after the example's load and generation have reduced from 110 MW to 100 MW means that there must be a second generator on the first generator's side of the constraint. The second generator must have an increased output to offset the reduction in the first generator's output, for the congestion to still be present. For example, the second generator could be at the same location as the first generator and have a bid price of \$20, which makes it the marginal resource that sets the LMPs on its side of the constraint, as the market optimization uses as much of its bid as possible to serve load at the more expensive load location. The first generator would pay \$200 due to its reduced output, which would be paid to the second generator, keeping revenue in balance on that side of the constraint. On the load side of the constraint, other generation (also not mentioned in the example) would have been decremented to balance the reduced load. The \$700 received by the load would be paid by the other generation on the load side of the constraint, based on savings in operating costs as reflected by their economic bids. At worst there are payments between market participants for the changes in their settlement quantities relative to their base schedules, but this does not seem to be a sufficient reason to create a penalty.

Other reasons for considering over-scheduling penalties are also not compelling at this time, but will be monitored. Other stakeholder comments suggest that generation and/or imports in an EIM Entity's base schedule may overstate their actual deliveries, such as materially overstating a VER forecast or including imports from VERs as firm imports without adequate balancing resources. Uncertainty in VER forecasts is one factor that goes into the requirements for flexible ramping for each EIM Entity, and the 3<sup>rd</sup> Revised Straw Proposal describes the bidding requirements and settlement features concerning flexible ramping. Issues of whether BAAs that are the source of pre-scheduled imports from VERs to EIM Entities from non-EIM BAAs provide adequate balancing resources and operating reserves exist today, and are not changed by EIM implementation; their resolution is outside the scope of this stakeholder process.



## Greenhouse Gas

We appreciate the additional detail provided in the revised straw proposal. However, reading the revisions as well as the response to comments, we did not see anything stating an entity is able to opt-out of CAISO market participation<sup>1</sup>. One way to address our concern would be for the EIM design to allow resource owners to exclude resources from serving the California market. In the alternative, if the CAISO takes responsibility under CARB for energy moving from the EIM into California, this would alleviate our concern. Absent one of these alternatives, we are concerned with the default extension of a California state regulatory mechanism into a broader FERC-jurisdictional market structure.

Additionally, details provided in the straw proposal are somewhat confusing. It appears that the CAISO wants actual emissions rates while CARB utilizes an after-the fact calculation to determine each resource's emissions. There was also discussion in Phoenix related to the ability to set the emissions rate for different levels of output by a generator. The CAISO needs to clarify the straw proposal to ensure that these differences are clear. If EIM participants cannot avoid participation in the California market, stakeholders need sufficient detail to evaluate the economic risks of EIM participation associated with creation of CARB compliance obligations and the potential risks associated with the proposal.

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<sup>1</sup> Xcel Energy does note that based on the detail provided in the revised document, a very high emissions rate could effectively keep a resource out of the California market. However, the discussion appears to state that the CAISO (or CARB) requires actual emissions information.

## ISO Response

The ISO has not proposed a flag for a resource to state that it is unwilling to sell energy to California. However, the ISO has modified the GHG proposal to all the resource to supply its own GHG compliance bid adder. The only restriction on the GHG compliance bid adder is that the sum of the energy bid and GHG compliance bid adder must be at or below the current bid cap of \$1000.00

## Marginal Losses and Regulation - Section 3.7.8 and Subsections

We appreciate the detail added to the Second Revised Straw Proposal on the issue of Marginal Losses.

In this same section, the CAISO provides additional detail related to regulation energy and states that the regulation energy will be considered uninstructed imbalance energy. Xcel Energy recommends that the CAISO set a regulation range, such as four percent (4%), and consider anything within this limit as regulation rather than uninstructed deviation. Under the EIM process, the BA will continue to have responsibility for NERC Standards compliance. Any variance between instructed set point (Dispatch Operating Point or DOP) and the variance limit should be considered regulation and treated the same as regulation energy inside the CAISO; only generation outside of that bandwidth would be considered uninstructed imbalance energy. We believe that this treatment provides appropriate information to the BAA without the including the connotation of "uninstructed" on the required service.

In Section 3.7.8.1, the CAISO states that "The load forecast error from RTD is settled at the weighted

average price; however, there is not an offsetting settlement for generation.” (Page 53). In Section 3.7.8.1.1, it states “Uninstructed imbalance energy of generation is settled at the 5-minute LMP; however, there is not an offsetting settlement of Load.” These two statements appear to be contradictory. Please provide a numerical example showing the calculations expected where settling actual Load and generation causes unfunded uplift.

Finally, at the meeting in Phoenix, CAISO staff stated there would be 50-60 charge types in the EIM settlement process. The CAISO must list out each charge type that will be charged to the EIM participants and clearly state if these charge types are in addition to or included in the charges that have been discussed related to EIM participation.

### **ISO Response**

The discussion of regulation energy was in the context of identifying some of the energy settlements that give rise to the need for neutrality charges. The 3<sup>rd</sup> revised straw proposal has updated the neutrality charges combining both load and supply. As correctly observed above, load difference between the RTD forecast and meter can offset generation UIE with a portion of the net difference resolved through regulation.

Since the market design is still in the policy development stage, it is difficult to identify the specific charge codes necessary to implement the design. The number of charge codes is a function of the complexity of the design and granularity of information needed by stakeholders.

### **Additional Issues: Interaction with Reliability Coordinator (RC)**

Xcel Energy appreciates the CAISO’s response to our previous comment. Xcel Energy believes the CAISO should include this type of explanation in the next version of the EIM Straw Proposal.

### **ISO Response**

The ISO has added section 3.6.4 to the 3<sup>rd</sup> Revised Straw Proposal to include this explanation.

### **Local Market Power Mitigation (LMPM) and Market Monitoring**

The CAISO proposes to use the CAISO Department of Market Monitoring (DMM) as the EIM market monitor. We recommend that as part of the governance discussion, the EIM market monitor should report directly to the EIM governing body on EIM issues. Based on discussions at the initial EIM stakeholder meeting, the EIM market monitor should report directly to the EIM Advisory Committee at the start of the EIM market in addition to its responsibility to the CAISO Board of Governors.

### **ISO Response**

The ISO has established a parallel stakeholder initiative to address governance. The governance white paper will be discussed at the August 20 stakeholder meeting in Portland.

### **Default Price**

Xcel Energy believes that the proposed default energy bids are overly restrictive without further detail that provides justification. The CAISO must provide detailed information on the costs it assumes are “marginal cost” as stated in the Straw Proposal<sup>2</sup>.

<sup>2</sup> As examples, are start-up, no load and long-term maintenance costs included in the determination of marginal costs?

### **ISO Response**

The default energy bids are established by an independent firm. The resource also has the option to negotiate the rate with the independent firm.

### **Threshold**

We believe the CAISO proposal to evaluate market power impacts and potential mitigation for resources within the BAA where the constraint occurs is unreasonable. We recommend the CAISO include all resources participating in the EIM that can have significant mitigating impacts on the constraint. There is no technical justification for the BA boundary as establishing a market dominance footprint in a market environment. By excluding resources outside the BA that could have significant influence on the limiting constraint, the CAISO will tend to penalize the resources within the BA, through an excessively conservative market power evaluation. We note that other regional markets have established areas (e.g. “broad constrained areas”) which do not limit the evaluation to the local BAA.

### **ISO Response**

The CAISO believes that it is appropriate to include LMPM provisions in the EIM design, since this is an integral part of the process of congestion management within each EIM Entity BAA. The interfaces between EIM Entities and other BAAs are deemed competitive.

### **Net Buyer Questions**

We request the CAISO clarify how, based on the proposed structure, a resource could be a net buyer. As structured, the EIM Entities are the only load service entity that will deal with the CAISO. There is no expectation in the market structure as described in the straw proposal for LSEs and resources to be matched together so the market monitor could evaluate whether an entity is a net purchaser or not. In the discussion of a net buyer, it is unclear if a net buyer could be a resource, i.e. a resource that actually buys more from the market than it sells. Alternatively, please clarify if the CAISO intends to define a net purchaser as a market participant that has both loads and resources in the EIM and purchases more energy through the EIM than it sells.

Once the CAISO provides additional clarity on the definition of a net purchaser, Xcel Energy can determine a position on the proposed LMPM. However, at this time, the CAISO and the DMM have not persuaded us that, simply because the EIM lacks a day-ahead market, the mitigation process proposed is reasonable. The requirement for balanced schedules, especially if it is at the LSE level rather than the BAA level, provides better market power mitigation than any methodology in the

straw proposal.

### **ISO Response**

The proposed LMPM provisions for EIM do not include or require any determination of whether an entity is a net buyer or net seller.

### **Withholding**

The CAISO needs to add details in the Market Monitoring section related to the assumptions related to economic and physical withholding within the EIM. We recommend, based on the voluntary nature of the EIM process, a policy that there is no withholding as long as the LSEs and BAs provide sufficient resources to cover their requirements, including ancillary services.

### **ISO Response**

Since participation in the EIM will be voluntary, economic or physical withholding will not be behaviors that are prohibited, subject to investigation or referral to FERC under FERC rules prohibiting market manipulation or submission of false information.

### **Flexible Ramping**

We appreciate the expanded discussion in the EIM Straw Proposal related to Flexible Ramping and its interaction with other issues in the proposed market. Based on the discussions in the Phoenix meeting, we have the following comments:

Flexible Ramp Comment 1. If the CAISO is to determine and allocate a Flexible Ramping requirement for the EIM portion of the footprint, the Flexible Ramping requirement evaluation should be based on delivery constraints, not BAA boundaries. A significant benefit in the evaluation of an EIM is the ability to reduce the needed level of Flexible Ramping capability through the diversity benefit that derives from meeting the net of load and renewables across a larger area.

Flexible Ramp Comment 2. In many areas of the Straw Proposal, the CAISO has shown a need for the EIM BA to retain its compliance obligation as a means to avoid placing additional duties and burdens on the market operator. We object in our comments to areas of the EIM design where this philosophy would result in a more expensive or less efficient implementation of a market interface for EIM participants. However, the concept is sound where local authority and responsibility are clear and do not increase the costs or deter participation in the EIM. Therefore, an alternative to the Flexible Ramp Comment 1 above would be for EIM BA participants to retain their current responsibility to determine what is appropriate for Flexible Ramping and their associated compliance obligations with respect to the BAL standards.

- a. We point out that the current generation and load balancing reliability standards are not prescriptive with respect to amounts of resources allocated to compliance, only the measurement of BA compliance itself. If the CAISO determines and allocates a Flexible Ramping obligation to participating EIM

BAs, will the CAISO also assume the BAL compliance obligations of the BA? We do not consider this likely and raise the question so that it can be dismissed. The BAs retain their BAL compliance obligations despite the presence of an EIM market operator, therefore the determination of local Flexible Ramping requirements should remain the purview of the respective BAs.

- b. As currently proposed, we are concerned the Flexible Ramping process outlined in the Straw Proposal will contribute to minimum generation issues due to over-commitment of resources in the EIM. Over-commitment and the associated unit minimum operating points could lead to unneeded curtailment of variable resources and potentially decrease the benefit derived by the EIM market participants. This is another justification for the Flexible Ramping evaluation to remain the purview of the participating EIM BAs.

### ISO Response

The flexible ramping sufficiency test for an EIM Entity BAA will reflect the diversity benefit limited by the BAA's import capability. The formulation of the flexible ramping constraint in the market optimization allows the most efficient resources across the EIM footprint to resolve both the system requirement and individual BAA requirements. This minimizes the potential for over-commitment of resource. In addition, if unit commitment is part of the EIM design, then off-line short start units can be used to meet the flexible ramping sufficiency test.

### Real-Time Uplift Charges

Upon reading the revised uplift section, we feel this is a reasonable starting point for the EIM process. As we understand the description, the CAISO is proposing to allocate uplift costs based on BAA identified imbalance. This prevents charging uplift from the CAISO to EIM participants and vice versa. However, we request that the CAISO provide some simple examples to ensure that all parties understand the proposal. If our understanding is incorrect, the straw proposal needs additional detail to clarify this section. The additional details should address the following questions: How is uplift created in the absence of congestion? Without congestion, wouldn't this be a simple market settlement? We request the CAISO address the examples taking into consideration our comments above with regard to incomplete congestion curtailments as a potential source of uplift in the market.

### ISO Response

The ISO has added additional discussion on how settlement of energy not cleared in the market results in the need for neutrality accounts. See section 3.7.8

### Section 3.3.11. Load Aggregation Points (LAPs)

We recommend adding language to the Straw Proposal to provide clarity that, while the CAISO will calculate the load distribution factors (LDFs), others may identify issues and the CAISO will work with those entities to address the concerns. We believe the CAISO should add the following language to the Straw Proposal: "If the EIM Entity believes the LDFs used by the CAISO needs adjustment, the EIM Entity should provide the CAISO information supporting adjustment. Once the CAISO has reviewed the information, the CAISO will address the concerns appropriately." This

proposed language will address potentially contradictory statements currently in this section related to calculation and verification of the LDFs.

#### **ISO Response**

The ISO can look at adding the language to the draft final proposal.

#### **Section 3.3.15. Network Constraint & Contingency Definition**

Xcel Energy appreciates the CAISO response to our concerns on this issue in the previous version. Due to the response to the issue, we suggest that the CAISO add more detail to this section detailing out the expectations for the potential need for different information based on different operating limits. Additionally, we ask that the CAISO state the EIM participants will be able to review the set of contingencies used as part of the security constrained economic dispatch (SCED) model. Finally, we ask that the CAISO put in this section that the market participants may obtain a copy of the network model for off-line analysis evaluation, subject to appropriate confidentiality restrictions.

#### **ISO Response**

The market model and constraint limits are provided under NDA to market participants. Please refer to the ISO's completed Data Release Phase 3 initiative which outlines market data available. <http://www.caiso.com/informed/Pages/StakeholderProcesses/CompletedStakeholderProcesses/DataReleaseAccessibilityPh3-MarketEfficiency.aspx>

#### **Section 3.7.1. Settlement of Non-Participating Resources**

We believe that this section has more detail than needed. To the extent that the CAISO desires to be clear that it will settle imbalances with the EIM Entity for loads and resources not participating in the EIM, we support the intent of the language. However, the section should end after the first sentence of the second paragraph. A party could construe the second sentence as requiring certain treatment of imbalances. To the extent that the EIM Entity determines how it will settle with non-participants, this sentence is beyond the scope of the EIM Straw Proposal. Based on discussions elsewhere in the straw proposal and at the face-to-face meeting in Phoenix, we understand that the CAISO will delete the third paragraph in its entirety if the CAISO continues forward with the elimination of the Adjusted Base Schedule.

#### **ISO Response**

The intent of the paragraph is to make clear settlement of non-participating resources will be according to the OATT of the EIM Entity.

#### **Sections 3.7.5. Inadvertent Energy Accounting and 3.7.7.1 e-Tagging**

Xcel Energy suggests that the CAISO delete the second paragraph in Section 3.7.5. This paragraph does not relate to Inadvertent Energy Accounting but rather describes the process that the CAISO proposes to use to account for energy flows between BAAs in the EIM and the CAISO. The straw proposal repeats this language in Section 3.7.7.1. To the extent that the CAISO plans to use tags for recording the transfer of energy, Section 3.7.7.1 is the appropriate place for this information.

Xcel Energy reiterates its previous comment related to tagging EIM flows. Other markets have requested and been granted waivers from the NERC tagging requirements. The continued reliance on tagging energy flows is unnecessary under a market construct. The market operator has better means to communicate information to the BAs participating in the EIM. Additionally, after-the-fact tags provide no reliability benefit. A pseudo-tie process would address the energy flow issues needed for BA calculations without requiring e-tag creation.

### **ISO Response**

Section 3.7.5 of the 2<sup>nd</sup> Revised Straw Proposal first notes that inadvertent energy accounting is the responsibility of each BAA, and then explains that the dynamic schedule maintained by the Market Operator may help an EIM Entity in meeting this responsibility. Because the Market Operator does the maintenance of this dynamic schedule, the ISO does not see this as a significant burden on the EIM Entity, and believes section 3.7.5 is a useful explanation of this process, as written. In current development of e-tag standards in WECC and NAESB committees, the ISO has not seen a decrease in emphasis on e-tags for tracking dynamic transfers, and prefers not to seek a waiver. The ISO currently requires e-tags for all of its dynamic schedules and pseudo-ties.