

Stakeholder Comments - Energy Imbalance Market 3rd Revised Straw Proposal

California Public Utilities Commission..... 1

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Opening Comments

The California Public Utilities Commission (CPUC) appreciates the opportunity to comment on the California Independent System Operator’s (CAISO) Energy Imbalance Market (EIM) third revised straw proposal. The proper design of the EIM is an important issue for the California energy market, and the CPUC Staff recommends that the CAISO provide sufficient time for the stakeholder process to work through various issues in the implementation of this initiative. Specifically, the CPUC has identified some issues to be addressed in the third straw proposal.

The CPUC staff’s main concerns are:

1. Due to the complexity of the EIM, CAISO should allow sufficient time to get informed and effective feedback from stakeholders so as to avoid potential pitfalls.
2. Convergence bidders could put additional flow on California lines without paying congestion uplift charges.
3. Increased Uplift costs and the impact to California rate payers.

ISO Response

The ISO appreciates the CPUC’s continued participation in the stakeholder process.

1. CAISO stakeholder process should allow sufficient time to fully consider potential unintended negative consequences of the EIM initiative

The CPUC staff agrees with several other stakeholders’ comments (e.g. Powerex, PG&E) who expressed concern that this CAISO initiative may not allow for stakeholders to properly work through all of the issues and give informed and effective feedback on important stages of the various aspects of the proposal. The EIM is expected to have significant impacts on the CAISO Real-Time market. Staff remains concerned that due to the complexity of the changes there is an increased potential for gaming. Rushing the process only increases the likelihood of errors and California ratepayers are likely to get stuck with the price tag.

In particular, Staff believes that the concerns expressed below (potential gaming due to convergence bidding and the allocation of uplift charges) present challenges that should be assessed more carefully. As such, the CPUC staff suggests separating these items out for additional discussion before moving on to the final round of comments in order to allow for more discussion of these issues. CPUC staff agrees with PG&E and Powerex that taking a phased-in

approach would be beneficial. This could allow extra time to study potential problems that arise and further develop stakeholder input on this important initiative.

ISO Response

The ISO has conducted five in-person stakeholder meetings and six web conferences during the course of this stakeholder process. The ISO believes that it has adequately addressed the market design issues to allow the initial EIM implementation to proceed, and will continue to monitor market outcomes and propose future refinements, as it does with all aspects of its markets.

The coordinated dispatch across the ISO and EIM footprints is one of the most significant benefits of the EIM. The ISO appreciates the concerns that the CPUC staff has raised, but does not consider these concerns to outweigh the benefits to be achieved through EIM operation or to be a reason to delay implementation of EIM transfers. Launching the market at a time when the number of EIM Entities is limited, and transfer capacity may be naturally limited by the transmission rights that can initially be made available, provides an opportunity to identify and resolve those issues in a manner that minimizes any potential negative impacts and operational challenges. As noted in the Draft Final Proposal, transmission services, the flexible ramping product, and other design elements are slated or open for further consideration by the ISO through further stakeholder initiatives and processes.

The ISO considers it premature to develop an implementation phasing approach at this time. Any phasing approach should be considered and developed after initial testing and market simulation has occurred. The ISO believes that any phasing that prohibits transfers between ISO and EIM area undermines the ability to exercise and benefit from the full design and would delay moving to higher transfer capability. The phase-in approach proposed would require additional preparation and implementation cost.

Others have also proposed other phasing approach that would start with a low transfer level (i.e. 100MW) before moving to a higher level of transfers. Although it is premature to lock-in timing and level of transfers of such a phasing approach now, a phasing approach that starts with a low transfer before transitioning to higher transfers may be more appropriate to consider after testing. Proposed phasing approach could be addressed as part of a briefing to the Board of Governors of testing and market simulation results prior to start of the EIM.

2. Convergence bidders could put additional flows in California lines without paying congestion uplift

First, CPUC staff is concerned that convergence bidders may put additional flow on transmission lines to take advantage of new differences between the Day-Ahead (DA) and Real-Time (RT) market prices. The DA market will not take into account EIM schedules (because the EIM will only run in real time), whereas RT settlements will take EIM schedules into account and use transmission congestion within the market optimization. This could create situations where DA schedules are cleared, but then run into transmission constraints that bind in real time due to additional flows put on by the EIM.

Convergence bidders could potentially game such a situation by using so-called “offsetting bids”. Offsetting bids is a strategy where a virtual bidder places a virtual demand bid at a node where demand is high, and a virtual supply bid on the other end of a line supplying that node

and where loop flows are anticipated by the virtual bidder (but not anticipated by the DA schedule). If loop flows do show up in real time that cause the constraint to bind, then the congested node must pay higher prices (congestion uplift) to meet its energy supply and the virtual bidder sells at the higher price. This would result in congestion uplift costs that would accrue to the Real Time Congestion Offset account paid for by ratepayers.

Secondly, CAISO will model EIM flows in the DA as part of the Full Network Model initiative, but this model will not take into account EIM transmission constraints. The CPUC staff is concerned that this could leave open the possibility for systemic price differences between the DA market and RT market (if DA schedules unexpectedly violate transmission constraints in RT it would create a systemic price difference). These systemic price differences could be gamed using offsetting bids, described above, as a result of constraints that bind in real time and cause uplift costs.

Staff is concerned about this issue because there were already significant problems last year with loop flows and it is possible that the EIM will increase these problems. With the EIM construct, Scheduling Coordinators (SCs) may have a greater ability to create schedules that generate loop flows and cause congestion in the CAISO using the “offsetting bid” strategy laid out above.

ISO Response

The ISO’s current Full Network Model Expansion stakeholder initiative is proposing market design and modeling changes which will improve consistency between the day-ahead market and real-time market by more accurately modeling real-time loop flows in the integrated forward market. After the improved modeling is implemented the ISO will review if modifications are necessary to the ISO’s allocation of the real-time congestion offset.

3. EIM participants should bear the cost of the externalities they create in accordance with cost causation principles

While the CPUC staff agrees with PacifiCorp’s comments that they should not pay for congestion uplifts caused purely by load in CAISO, the current proposal’s load-based approach ignores the fact that PacifiCorp flows may cause congestion within the CAISO system, and vice versa. Cost causation principles should be employed requiring each entity to take responsibility for the congestion uplift charges that it causes to the other’s system. Otherwise, the entities exacerbating loop flows and causing congestion uplifts on the other’s system could unfairly benefit from inflicting these costs.

For example, if an entity controlling two generators knew that it could increase the output of one generator to cause congestion in the neighboring Balancing Authority Area’s line, thereby causing prices to spike at the congested node, then it could profit if its second generator were situated to supply that node such that it could take advantage of the higher price. As a general principle of cost causation, each participant in EIM should at least bear the cost of the externalities that it creates.

ISO Response

Currently within the WECC, it is the responsibility of each BAA to manage real-time loop flow impacts within its BAA. With the EIM, each BAA is responsible for the real-time congestion balancing account based upon the constraints located within its BAA. In addition, the more detailed modeling of the EIM footprint will improve visibility in to real-time market flows and provide more efficiency dispatch of resources across the EIM footprint.

Company	Date	Submitted By
Pacific Gas & Electric	September 9, 2013	Will Dong (415) 973-9267 Paul Gribik (415) 973-6274
Opening Comments		
<p>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 August 13, 2013 3rd Revised Straw Proposal (“Proposal”).</p> <p>PG&E appreciates the CAISO working with stakeholders to improve the EIM design and holding the technical workshops that provided clarifications on key design elements. PG&E understands that three additional workshops are planned to address other topics that can benefit from additional discussions.</p> <p>Although much of EIM design is seemingly decided, there are numerous elements that are still in flux. It is important that the CAISO and stakeholders have the time needed to resolve the remaining open issues and digest and respond to the remaining three workshops. Depending on the changes made in the planned Draft Final Proposal and the timing of the technical workshops, the CAISO should be open to adjust the EIM schedule, and, if necessary, allow for an additional round of comments and an additional proposal.</p> <p>PG&E provides eight recommendations on the EIM implementation process and design. We also ask for clarification on three elements of the design.</p> <ol style="list-style-type: none"> 1. CAISO should phase in the transfer capability for EIM implementation; 2. CAISO should address convergence bidding uplift allocation before EIM goes live; 3. Protections should be implemented to mitigate the problem of base schedule in one BAA causing congestion in another BAA; 4. EIM entities should not be able to opt out of commitment costs incurred by the CAISO; 5. CAISO should have authority to dispatch committed units and commit fast-start resources in the EIM entity; 6. CAISO should examine the impact of the EIM on the proposed RIMPR BCR changes; 7. Following the EIM simulations, the CAISO should seek Board approval for implementation readiness before go-live; and 8. CAISO should develop an EIM reversion plan as part of its implementation planning <p>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. Therefore, absence of comments on a particular element of the proposal should not be perceived as PG&E’s endorsement. We may offer input on the other elements at a later date.</p> <p>Ultimately, PG&E’s support of an EIM will depend on achieving a level of comfort that the</p>		

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 Entities and the CAISO in regards to cost allocation and market obligations.

ISO Response

The ISO appreciates PG&E's continued participation in the stakeholder process.

1. CAISO Should Phase In the Transfer Capability for the EIM Implementation

The proposed EIM requires integrating Balancing Authority Areas (BAAs) with different forward markets, scheduling practices, and different Real-Time (RT) dispatch mechanisms into a combined RT market. The EIM must combine:

- The CAISO BAA with its existing Security Constrained Unit Commitment (SCUC) based day-ahead market that only considers transmission constraints within the CAISO BAA;
- A group of BAAs which rely on forward scheduling using bilateral contracts and physical transmission rights;
- The RT dispatch of CAISO and the other BAAs into a single Security Constrained Economic Dispatch (SCED) based market that enforces the transmission constraints in the combined footprint; and
- The CAISO BAA which is subject to California's Green House Gas (GHG) regulations with BAAs which are not subject to these rules.

This type of integration of BAAs with disparate Day-Ahead market structures and GHG requirements into a single, combined RT market is unique and complex undertaking. The scope of the proposed EIM is ambitious, both from the perspective of market operations and size of the BAAs which the EIM will integrate. No organized market in the United States has attempted to do this.

The CAISO and its stakeholders have been putting forth their best efforts to put in place a robust EIM design. However, given the complexity and novelty of this EIM, one simply cannot anticipate all the possible outcomes, both desirable and harmful ones, prior to the EIM's launch. Given the complexity, there will be unanticipated issues, and, although helpful, the planned simulations are unlikely to uncover all of the shortcomings of the design. Because the EIM may expose millions of customers to potentially costly market risks, adequate safeguards and potential refinements to the EIM are critical to successful implementation. One reasonable safeguard is a phased implementation of the EIM. This can be done by phasing in the EIM transfer capability between the CAISO and PacifiCorp.

PG&E recommends a one-year phased implementation of the EIM by limiting the incremental real-time transfer capability between the CAISO and PacifiCorp to 100 MW for the first year of EIM operation. This allows EIM to adjust flows between BAAs while still providing some safeguard against potentially significant market manipulation or disruption.

Given the breath and complexity of the EIM initiative, a phased implementation is prudent. It is important to safeguard the market used to serve over 30 million customers from unnecessary risk. At the same time, the 100 MW limit is not unduly burdensome. The CAISO has indicated

at an April 11, 2013 stakeholder meeting that the initial available transfer capacity is not likely to exceed 100 MW. Thus, the impact of limiting the EIM transfer for a relatively short period of time is minimal.

Operating the EIM within the 100 MW transfer capability limit accomplishes two main objectives. First, it allows the CAISO and market participants to thoroughly test the EIM design. Unlike market simulation, this “test” will be performed with real data (e.g., actual market participant bidding and scheduling and real transmission constraints enforced) and with all the design elements running across the entire market, uncovering issues that may have escaped simulations. The CAISO will be able to evaluate the effectiveness of the EIM design (e.g., under/over-scheduling penalties) and the reasonableness of the uplift costs (e.g., RTCO, BCR); and along with the DMM be able to assess if the market power mitigation rules are working as expected. Second, this phase allows the EIM Entities to gain operational experience with the real-time energy market before additional transfer capability is made available.

PG&E recommends that the phase-in period last one year. This should capture any seasonal effects such as changes in system and resource conditions; it should also provide adequate time to resolve any design or operational issues. Near the end of the phase-in period, the CAISO would report out to the CAISO Board on the performance of the EIM (including a report by the DMM) and seek Board approval before moving into unrestricted EIM operation.

ISO Response

The ISO has conducted five in-person stakeholder meetings and six web conferences during the course of this stakeholder process. The ISO believes that it has adequately addressed the market design issues to allow the initial EIM implementation to proceed, and will continue to monitor market outcomes and propose future refinements, as it does with all aspects of its markets.

The coordinated dispatch across the ISO and EIM footprints is one of the most significant benefits of the EIM. The ISO appreciates the concerns that PG&E has raised, but does not consider these concerns to outweigh the benefits to be achieved through EIM operation or to be a reason to delay implementation of EIM transfers. Launching the market at a time when the number of EIM Entities is limited, and transfer capacity may be naturally limited by the transmission rights that can initially be made available, provides an opportunity to identify and resolve those issues in a manner that minimizes any potential negative impacts and operational challenges. As noted in the Draft Final Proposal, transmission services, the flexible ramping product, and other design elements are slated or open for further consideration by the ISO through further stakeholder initiatives and processes.

The ISO considers it premature to develop an implementation phasing approach at this time. Any phasing approach should be considered and developed after initial testing and market simulation has occurred. The ISO believes that any phasing that prohibits transfers between ISO and EIM area undermines the ability to exercise and benefit from the full design and would delay moving to higher transfer capability. The phase-in approach proposed would require additional preparation and implementation cost.

We appreciate PG&E’s proposed phasing approach recognizes the benefits of testing transfers between areas by starting with a low transfer level (i.e. 100MW) before moving to a higher level of transfers. However, the ISO believes it is premature to lock-in timing and level of transfers of such a phasing approach now, Rather any phasing approach that starts with a low transfer

before transitioning to higher transfers would be more appropriate to consider after testing and market simulation. Proposed phasing approach could be addressed as part of a briefing to the Board of Governors of testing and market simulation results prior to start of the EIM. Proposed phasing approach could be addressed as part of a briefing to the Board of Governors of testing and market simulation results prior to start of the EIM.

2. CAISO Should Address Convergence Bidding Uplift Allocation before EIM Goes Live

The latest proposal would allocate a portion of Real Time Congestion Offset (RTCO) costs incurred on a transmission constraint in an EIM Entity's BAA back to Convergence Bidders who received revenue that were in part funded by such uplifts. PG&E supports this approach, which is consistent with recommendations made by the CAISO's DMM. As discussed below, PG&E believes this type of allocation is appropriate to deter exploitation of structural difference between the day-ahead and real-time markets. Given the EIM will introduce such differences across the combined foot print – in the EIM Entities and the CAISO BAA – the CAISO should also adopt a similar approach for RTCO costs incurred on CAISO constraints.

In its paper "Real-time Revenue Imbalance in CAISO Markets," the DMM recommended allocating a portion of RTCO costs to convergence bidding, to the extent these day ahead virtual schedules contributed to real time binding constraints and benefitted from the resulting imbalance revenue. According to the DMM, this is a necessary measure to reduce the incentive for virtual bidders to exploit the structural difference between the day-ahead and real-time markets. In this case, the difference is in the day-ahead and real-time limits on a transmission constraint. PG&E agrees with the DMM recommendation.

From the perspective of an EIM Entity, the proposed real time EIM clearly introduces structural differences between the CAISO's day-ahead market and the EIM. This is because the CAISO may not model the final base schedules of the EIM Entities in its Day-Ahead market (due in part because the final base schedules are not known when the DA market is run); it also may not model the transmission constraints in an EIM Entity's BAA in its Day-Ahead market.

Consequently, a transmission constraint in the EIM Entity that may not bind when its base schedule is evaluated may be violated when the CAISO's DA schedule and the EIM Entities' final base schedules are considered together.

For the same reasons, the EIM would introduce structural differences from the perspective of a CAISO market participant. By not modeling EIM Entities' final schedules and transmission constraints in the CAISO's day-ahead market, a constraint within the CAISO BAA that is not binding in the CAISO's day-ahead market can bind or be violated when the CAISO's DA schedule and the EIM Entities' final base schedules are considered together.

This type of difference can be exploited by convergence bidding and lead to RTCO costs to manage the constraints. The latest EIM proposal has put forth a method to mitigate this uplift risk on EIM Entity constraints. PG&E encourages the CAISO to promptly commence a stakeholder process to extend this type of protection to CAISO constraints, for they are also affected by structural differences introduced by the EIM. Without such a mechanism in place, the EIM implementation should not proceed beyond the Phase-In state (100 MW transfer capability between CAISO and PacifiCorp) to limit the potential gaming opportunity.

The proper allocation of RTCO uplifts to convergence bidders is appropriate, and is not in conflict with CAISO's ongoing effort to improve modeling consistency between its day-ahead and real-time markets. PG&E appreciates these efforts, including the new Full Network

Modeling (FNM) Expansion initiative. However, we believe these efforts alone do not adequately protect California customers from excess uplifts resulting from convergence bidding exploitation and only provide a first line of defense against market exploitation. The structural difference introduced by the EIM, as explained above, will still exist with the expansion of the FNM. PG&E believes the appropriate way to address the associated cost risk is to adopt the DMM's recommendation, and apply it across all constraints within the EIM, including those inside the CAISO. This change in cost allocation provides a second line of defense and is especially prudent given the history of convergence bidding gaming. Without this protection, the level of costs/risks of implementing the EIM could outweigh the possible benefits for California customers.

ISO Response

Currently within the WECC, it is the responsibility of each BAA to manage real-time loop flow impacts within its BAA. With the EIM, each BAA is responsible for the real-time congestion balancing account based upon the constraints located within its BAA. In addition, the more detailed modeling of the EIM footprint will improve visibility in to real-time market flows and provide more efficiency dispatch of resources across the EIM footprint.

3. Protections should be Implemented to Mitigate the Problem of Base Schedule in One BAA Causing Congestion in Another BAA

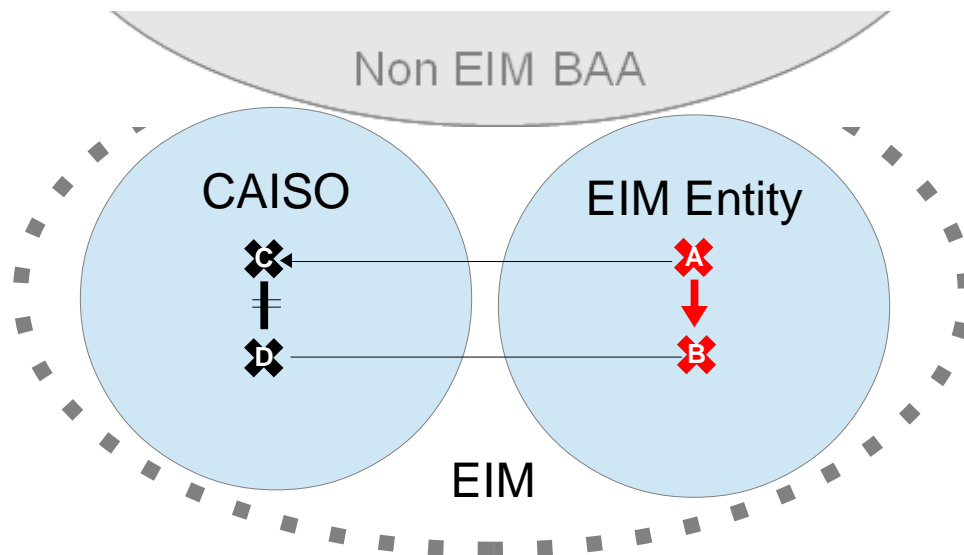
The current proposal would allocate Real Time Congestion Offset (RTCO) costs incurred to eliminate a constraint violation caused by CAISO's Day-Ahead schedules and EIM Entities' base schedules back to the BAA where the violated constraint lies. There are situations where schedules from one BAA may contribute to flow on a constraint that is inside another BAA, possibly causing a violation of the constraint that must then be managed by the EIM. Participants outside of the BAA where a constraint violation occurs may be paid to adjust their Day-Ahead or base schedules in order to alleviate flow on the binding constraint contributing to RTCO. Meanwhile, under the current proposal, the entire RTCO uplift costs needed to fund the adjustment in Day-Ahead or base schedules are borne by the EIM Entity where the constraint lies.

This may induce participants in some BAAs to over-schedule at certain nodes or change their scheduling practices and benefit from imbalance revenues that will be funded in part by RTCO costs charged to participants in other BAAs. In particular, some entities may find it profitable to over-schedule supply and load in their base schedules so that they will be paid to remove the over-schedules in EIM. To reduce the incentives to engage in such practices, PG&E recommends putting over-scheduling penalties in place. Such over-scheduling penalties were part of the original EIM proposal; the CAISO later removed them in the 2nd revised straw in light of the currently proposed RTCO allocation method. However, as discussed in this section, these penalties are still needed because base schedules within one BAA can cause congestion, and potentially drive up RTCO costs in another BAA.

PG&E prefers an over-scheduling penalty relative to no protection. However, a more comprehensive solution that would protect against both over-scheduling and other scheduling practices that may result in similar overloads may be to modify the RTCO allocation to dis-incent participants from behaving in manipulative behavior.

The simplified example below illustrates the need for over-scheduling penalties (an expanded

numerical example is provided in the Appendix). Consider a simple case where the EIM is made up of two BAAs: CAISO and an EIM Entity, where there are four nodes (A, B, C, and D) connected by transmission lines forming a loop. This simple system is depicted in the diagram below. Assume the EIM Entity has a base schedule that injects power at node A and withdraws power at node B. Given the particular network configuration, this schedule will send energy on path A→B, but due to the effect of loop flow, it will also cause some power to flow on path C→D. Let us further assume in the real time EIM, there is transmission constraint on path C→D within the CAISO, which causes price separation at nodes A and B whereby the LMP price at nodes A and B are \$10 and \$20 per MWh, respectively.



Without an over-scheduling penalty, participants in the EIM Entity may have the incentive to over schedule injection at node A and withdraw at node B, relative to the actual energy demand in the EIM Entity. This is because the Real Time (RT) imbalance payment they receive at node B (as a load) will exceed any RT imbalance charges they will pay at node A (as a resource). In this simple example, without a penalty, a participant with a base schedule on path A→B will receive a \$10 profit from each MW of over-scheduling.

More broadly, PG&E asks the CAISO to revisit the proposed RTCO allocation method to investigate possible methods to share RTCO uplifts arising from reducing violations on 1) CAISO constraints caused by base schedules from EIM Entities and 2) EIM Entity constraints caused by the CAISO's Day-Ahead schedules or base schedules of other EIM Entities. Such an approach would better reflect cost causation. It would also reduce the likelihood of market participants altering day-ahead or base schedules in one BAA to cause congestion in another BAA from which it could profit in EIM. Until such an approach is developed, an over-scheduling penalty is appropriate.

ISO Response

The 2nd Revised Straw Proposal eliminated the original over-scheduling penalty because analysis showed it would be ineffective, and while examples like PG&E's have not appeared to be likely in the near-term EIM implementation, the ISO committed to monitoring such behavior and implementing changes in EIM design if issues appeared. Nevertheless, to ensure that EIM provides protections that stakeholders feel are needed, the Draft Final Proposal includes an

over-scheduling penalty. The ISO will continue to monitor all aspects of EIM outcomes to determine whether further changes are needed.

4. EIM Entities Should Not be Able to Opt Out of Commitment Costs Incurred by the CAISO

Currently, the proposal allows an EIM Entity to avoid any allocation of Bid Cost Recovery (BCR) charges to cover commitment costs from other BAAs that arise from commitment decisions made in EIM, if that EIM Entity elects not to allow real-time unit commitment through the EIM. However, as reflected in our prior comments, the decision of an EIM Entity not to allow EIM to commit its resources does not prevent EIM from committing units across the combined foot print to benefit the EIM Entity that made the decision not to allow EIM to commit its resources. The EIM will commit units whenever it is economic to do so, even if this involves committing a resource in one EIM Entity or CAISO for the benefit of an EIM Entity that has elected not to allow commitment within its BAA. Allocation of commitment costs should be based on the causation principle and the beneficiaries should pay. By shielding certain EIM Entities from EIM commitment costs, the current proposal violates the cost causation principle and is fundamentally unfair to the other EIM BAAs paying the EIM commitment costs.

In fact, the current proposal may provide the unintended, perverse incentive for EIM Entities to choose not to allow real-time unit commitment through the EIM. By making this choice, these EIM Entities are protected from BCR uplifts, while allowing them to potentially benefit from EIM commitments in other BAAs that allow commitment by EIM. This creates a free rider problem that may lead to more EIM Entities choosing not to allow commitment through the EIM. As a result, the Market Operator will have a smaller resource pool to commit in real time, and this would reduce the benefit of an expanded real-time market.

For these reasons, PG&E believes commitment cost should be fairly allocated to all EIM Entities that benefit from it, and no EIM Entity should be exempt from this allocation.

ISO Response

EIM Entities are no longer allowed to opt out of unit commitment.

5. CAISO Should Have Authority to Dispatch Committed Units and Commit Fast-Start Resources in the EIM Entity

As currently proposed, 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 (RA) and are not out-of-service are generally available to the CAISO. To have real-time must offer rules for CAISO participants (which can benefit the EIM Entity) and no similar rules for the EIM Entity is discriminatory.

Based on our understanding, similar rules may already exist in EIM Entities that allows the transmission provider to commit and dispatch RA-equivalent resources. For instance, according

to PacifiCorp's OATT, Network Resources must be made available to the Transmission Provider for re-dispatch to alleviate any transmission constraints, so long as the re-dispatch is performed on a least-cost, non-discriminatory basis. This flexibility provided by PacifiCorp should be incorporated into the CAISO's EIM tariff so the Market Operator can commit and dispatch all RA-equivalent resources (or in the case of PacifiCorp, Network Resources) across the combined foot print.

PG&E understands 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 in the EIM lessens the possible benefits as compared to the Benefits Study. It is in the interest of all participants to maximize the potential EIM benefits.

ISO Response

EIM Entities are no longer allowed to opt out of unit commitment.

6. CAISO Should Examine the Impact of an EIM on the Proposed RIMPR BCR Changes

Currently the Bid Cost Recovery (BCR) process nets all profits and losses for a resource across all markets and all hours in the day. If a resource is committed in the Day-Ahead (DA) market but is then determined to be uneconomic in the Real-Time (RT) optimization that unit may not receive an actual start-up instruction and would then not be eligible to recover any minimum load costs for the original DA award.

With the upcoming Renewable Integration Market and Product Review (RIMPR) changes netting BCR across all markets would no longer be the case. Once these changes are implemented, a unit that is committed in the DA market is eligible to recover any and all physical costs (except start-up) so long as it follows the final RT dispatch award, even if that award is to de-commit the unit. These BCR costs would then be allocated back to any and all net-load entities from the Day-Ahead market (i.e. any participant with Day-Ahead demand in excess of self-scheduled supply in the IFM market).

While the chance of reversing a commitment decision made in the DA market may be low in today's RT market, it could increase under the EIM. Currently the CAISO optimization models are relatively consistent across the DA and RT markets. The footprint is identical and the available economic units are reasonably similar. With the introduction of additional BAAs and resource sets, the economic baselines of the CAISO's DA market may be significantly reset by the economic availabilities in the EIM market. Furthermore, if the EIM entities introduce a resource set that is generally priced lower than the original CAISO's DA set, then it is possible that the marginal generators from the DA market would no longer be economic and may not be started up as expected. Hence, the likelihood of reversing a DA commitment decision increases under the EIM. These marginal units from the CAISO's DA market will most likely require BCR payments (because the final LMP would not cover the full extent of their costs), and under the proposed RIMPR / BCR changes they would be able to recover their full minimum load and energy cost recovery payments from the DA commitment.

Thus, under an EIM, the proposed RIMPR BCR changes may lead to an additional increase in BCR costs, borne solely by net-load participants in the CAISO's DA market. PG&E believes this issue warrants consideration, and asks the CAISO and the DMM to examine its potential

impact, including any new gaming opportunities it may introduce.

ISO Response

The bid cost recovery rules are the same in the EIM Entity and ISO. The BCR mitigation measures approved by the ISO Board will be implemented in Spring 2014, prior to go-live of the EIM.

7. Following the EIM Simulations, the CAISO Should Seek Board Approval for Implementation Readiness Before Go-Live

The current implementation schedule provides a period of two to three months for market simulations; however, it does not require subsequent Board approval before go-live. PG&E recommends the CAISO adopt best practices from its MRTU deployment experience, which is to provide sufficient time for robust market simulation, review the simulation results with stakeholders on a weekly basis, and seek Board approval before going live with the EIM.

Seeking final Board approval after the simulations is appropriate for the EIM. This is a complex initiative and one that will impact over 30 million customers both within and outside of the CAISO. Board consideration following the simulations will create a valuable opportunity for the CAISO to present simulation results and allow stakeholders to provide feedback to the Board about the simulations before the EIM goes live. Board sign off helps to ensure the readiness for deployment is reviewed by a diverse set of stakeholders, including Board members, and reduces the risks associated with going forward with potentially critical issues unresolved.

ISO Response

The ISO will brief the ISO Board on the results of the market simulation. As is the case with any market design changes, the ISO would request a delay in implementation from the Board and FERC if issues are identified and unresolved during market simulation.

8. CAISO Should Develop an EIM Reversion Plan as Part of Its Implementation Planning

PG&E recommends a reversion plan be developed for the EIM. In the unlikely event of an EIM market failure, this reversion plan would allow each BAA to operate its system reliably independent of the joint EIM. This plan should include provisions for EIM Entities and market participants to retain its existing operational systems, processes, and key personnel for a minimum amount of time (e.g., 6 months) after EIM goes live. Having a reversion plan as part of a large scale implementation is best practices and an approach taken by the CAISO with its 2009 MRTU implementation.

ISO Response

The ISO is not aware of any reduction in existing operational systems, processes, or key personnel that are planned by an EIM Entity or market participant. Because EIM is an extension of the ISO's existing real-time market, the ISO's existing market could continue operating as it does now without participation by EIM Entities. Similarly, EIM participation does

not replace existing functions of its participants. Instead, EIM provides increased opportunities for the ISO and EIM Entities to benefit from diversity of their resources and joint optimization of system dispatch.

Other Clarifications

In addition to our recommendation above, PG&E would appreciate further clarification and discussion on the three areas below in the next proposal.

A. Flexible Ramping Sufficiency Test

Based on PG&E's understanding, the initial schedule used as the starting point in the ramp sufficiency test for a trading hour starting at time "T" is the schedule produced by EIM, run in the prior hour, for the time 7.5 minutes before T, not the base schedule at time T-7.5 that was submitted by the EIM Entity for that hour.

An EIM Entity may offer sufficient rampable capacity for the hour starting at T with its base schedule. However, it may fail the sufficiency test if in the prior hour the EIM, based on economics, deployed capacity above the EIM Entity's base schedule. That is, the EIM may ramp up resources in the EIM Entity to a level such that the remaining upward ramping capability for the BAA can no longer cover its flexible ramping requirement. Yet the base schedules submitted by the EIM Entity, which would have considered the need to meet its flexible ramping requirement, may have preserved enough ramping capability to pass the sufficiency test. In such a case, the sufficiency test would have incorrectly failed and prevented the EIM Entity from participating fully in the EIM for the upcoming hour.

PG&E understands that CAISO plans to address such issues in an upcoming technical workshop and appreciates the CAISO's continuing investigation of this issue.

ISO Response

If a BAA is providing EIM transfer out during the last 15-minute interval of the preceding hour, that BAA's flexible ramping sufficiency test will be reduced by the amount of the EIM transfer out.

B. Losses

The CAISO should provide a discussion on how losses will be treated in an EIM Entity's base schedule, how the CAISO will determine whether adequate supply is scheduled by an EIM Entity to meet its share of losses arising from its base schedule, and how any shortfall or excess will be treated and made up or absorbed in EIM.

The discussion should address the following questions:

- How incremental system losses will be calculated?
- How the incremental system losses will be allocated to nodes in the EIM footprint?
- How a share of the system losses will be allocated to nodes within an EIM Entity?
- When it is appropriate to serve the system losses allocated to nodes in the EIM Entities with resources outside of California and thereby not incur GHG costs to

serve those losses?

ISO Response

The Market Operator forecast will be at the Demand Forecast Zone level, i.e., including losses. Similarly, base schedules should equal scheduled demand including losses. An EIM Entity's demand is adjusted to equal the sum of supply in the base schedule, and is subject to under- and over-scheduling penalties if it does not match the Market Operator forecast and has deviations from actual demand. Incremental losses due to EIM dispatch are included in the market optimization as they are in the existing ISO market, and are settled as part of the LMPs. The proposed treatment of GHG accounts for losses as described in section 3.9 of the Draft Final Proposal.

C. EIM Administrative Rate

The CAISO provides some discussion on the calculation of the EIM administrative rate that will be charged to EIM Entities (19 cents per MWh). This rate will be in effect for the year 2014 and is expected to change in 2015 based on new cost of service study to be filed with FERC. PG&E asks the CAISO to provide additional clarification on the administrative fee calculation.

The initial administrative rate, although in effect for a short time, is important because it may establish a precedent for its calculation. The possible precedential nature of this calculation is reinforced by the EIM Governance White Paper that states, "*Any EIM governance structure should have the objective of preserving for EIM participants, both at the outset and in the future, the significant and tangible benefits of the EIM*". Therefore, a clear understanding of the 2014 administrative cost rate calculation is important.

PG&E asks the CAISO to provide additional detail on the rate calculations (expressed in cents per MWh) presented in the Proposal to the 2012 cost of service study. The supporting reference provided by the CAISO does not provide specific link to a document but links instead to the 2012 Grid Management Charge (GMC) Initiative process page which contains numerous documents. PG&E did review the Feb. 15, 2011 Draft Final GMC Proposal but was unable to tie the rates in the Proposal to any rates or supporting data in the 2011 document. PG&E asks the CAISO to provide the numerator and denominator used to calculate each of the rates provided on page 68 and a reference to the document (and page) of the source document

ISO Response

The ISO will include an EIM administrative rate in its tariff filing of the market design. These rates will be in effect for October through December 2014. The current ISO Grid Management Charge (GMC) annual revenue requirement and cost of service study was filed and approved by FERC to be effective from January 1, 2012 through December 31, 2014. The ISO will commence a stakeholder process to update the cost of service study and annual revenue requirement, which will be filed with FERC in 2014 to become effective in 2015 for both the ISO's balancing authority area and the EIM.

The ISO derived an EIM administrative charge by evaluating the components of its existing GMC and determining what aspects of the services provided are attributable to EIM functions.

The 19 cents represents the amount all users of these real-time services pay – it is not a new charge but rather a way to evaluate the actual costs of running the elements of the ISO market that the ISO will be offering as EIM functions. Because the rate is driven by the volume for the entire market, including California, that gets the services that the EIM participants will be purchasing, the volume of participation by PacifiCorp does not affect the overall rate. The \$96 million figure was derived from data filed with FERC as part of the ISO 2012 GMC restructuring – it is the cost of all real time services provided by the ISO, and the 500TWh is the allocated portion of real-time volumes. As noted above, the ISO will be updating the studies for its rate case in 2014.

Conceptually EIM is made up of two components (1) the real-time market portion of the Market Services and (2) the real-time dispatch portion of System Operations. CRR Services are not applicable to the EIM. To determine an EIM rate the cost of service study was expanded to break down Market Service and System Operations into their components. This was applied to the 2012 budget where the real-time market and real-time dispatch were combined to derive and EIM administrative rate. After performing this analysis for EIM the allocations came out as follows:

	Total	\$ in thousands	
		RT Market	DA Market
Market Services			
Revenue requirement			
% from 2010 cost of service study	100%	63%	37%
2012 revenue reqmt after applying fees	\$49,391	\$33,031	\$16,361
2012 estimated volume in thousands of MW & MWh	557,462	557,462	557,462
Rate in \$ per MW or MWh	\$0.09	\$0.06	\$0.03
System Operations			
Revenue requirement			
% from 2010 cost of service study	100%	48%	52%
2012 revenue requirement after applying fees	\$131,512	\$62,630	\$68,889
2012 estimated volume in thousands of MWh	469,179	469,179	469,176
Rate in \$ per MWh	\$0.28	\$0.13	\$0.15

CRR Services is not applicable

Combining the real-time components for EIM

Real-time market	6 cents per MWh
Real-time dispatch	13 cents per MWh
Total EIM	19 cents per MWh

Company	Date	Submitted By
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I. Introduction

Pursuant to the schedule established by the California Independent System Operator Corporation (“ISO”) for its Energy Imbalance Market (“EIM”) Stakeholder Process, PacifiCorp submits the following comments to the ISO on the 3rd Revised Straw Proposal dated August 13, 2013. PacifiCorp has been an active participant in the ISO’s Stakeholder Process, including submitting comments: on April 19, 2013, to the ISO’s Initial Straw Proposal; on June 14, 2013, to the ISO’s Revised Straw Proposal; and on July 26, 2013, to the ISO’s 2nd 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 rules and practices.

To the extent PacifiCorp raised issues in prior comments that have not been addressed in the 3rd Revised Straw 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.

In Part II of these comments, PacifiCorp presents summary comments on five key issues:

- A. Significant Changes from the 2nd Revised Straw Proposal
- B. Unit Commitment
- C. List of EIM Charge Codes
- D. Definition of EIM Entity
- E. Settlement Metering

PacifiCorp strongly supports the ISO’s ongoing efforts with respect to the development of the EIM and 3rd Revised Straw Proposal. PacifiCorp continues to appreciate the ISO’s flexibility and responsiveness to comments made by PacifiCorp and other parties. PacifiCorp has found the ISO’s stakeholder process to be informative and collaborative. While work remains, the results of the stakeholder process are demonstrated by the enhancements to the EIM design reflected in the 3rd Revised Straw Proposal.

Several parties, commenting on the drafts of the ISO’s straw proposal, have raised concerns regarding the timing of the ISO’s stakeholder process.

Generally, these commenters suggest that the ISO’s current schedule should be extended because it does not allow adequate time to develop high quality proposals. PacifiCorp continues to support the currently proposed timing for the stakeholder process and is seeking an implementation framework that will reduce overall risk and allow for a smooth transition to a

functional EIM. Once the EIM proposal is complete, the process will evolve to include testing and market simulation, the results of which will be reviewed to ensure a smooth transition. In light of this, the current schedule is reasonable and PacifiCorp is prepared to move forward as planned. This is also demonstrated by the relatively narrow and continually narrowing scope of remaining issues. Therefore, it is reasonable to continue in accordance with the ISO's plan to develop a draft tariff framework and the filing of modified tariffs with the Federal Energy Regulatory Commission ("FERC") for approval.

ISO Response

The ISO appreciates PacifiCorp's continued participating in this stakeholder initiative.

II. COMMENTS ON KEY ISSUES - A. Significant Changes from the 2nd Revised Straw Proposal

PacifiCorp supports the following significant changes reflected in the 3rd Revised Straw Proposal.

- The ISO's clarification that the EIM Entity will determine the eligibility of resources within its Balancing Authority Area ("BAA") to participate in the EIM;
- The determination to eliminate the minimum shift optimization and not to adjust base schedules;
- The decision to require that base schedules be submitted hourly;
- The expanded discussion of the reciprocity proposal not to apply an incremental transmission charge to EIM dispatches across BAA boundaries for the first year while data is gathered and future options regarding a potential transmission charge are considered; and
- The proposal that the Market Operator will not calculate the greenhouse gas ("GHG") emissions cost to be included in the market optimization, but rather the EIM Participating Resource will submit a separate bid for GHG compliance obligation costs

ISO Response

These design elements have been retained in the Draft Final Proposal.

B. Unit Commitment

The 3rd Revised Straw Proposal includes a number of references to the ability of an EIM Entity to elect whether or not to participate in the ISO's unit commitment process. The ISO makes it clear that if the EIM Entity elects to have the EIM commit generators in the real-time market, then the transfer will include bid cost recovery payment costs for both energy above minimum load and commitment costs. In section 3.4.3, the ISO also states that if the EIM Entity elects to allow unit commitment in RTUC, then all resources with economic bids that are available for the 15-minute RTUC commitment (online or offline) will be eligible to ensure sufficient ramping capability.

In commenting on drafts of the ISO's proposals on unit commitment, a number of parties raised concerns related to the ability of EIM Entities to choose whether or not to participate in unit commitment and the allocation of commitment costs. Upon review, and in order to resolve this key issue, PacifiCorp has decided that it will elect to have EIM Participating Resources within PacifiCorp's BAAs included in the ISO's unit commitment process. This decision is primarily based on the conclusion that this approach should provide the most efficient utilization of resources, especially with respect to management of flexible ramping needs across the EIM footprint. In addition, PacifiCorp is hopeful that resolution of this critical issue will narrow the list of remaining issues and may relieve some parties' concerns with respect to the ISO's stakeholder timelines.

This decision also contributes to the resolution of other issues potentially created by allowing EIM Entities to elect whether or not to participate in unit commitment. For instance, in section 3.7.8.3 of the 3rd Revised Straw Proposal, the ISO indicates that it will combine the energy and commitment components after considering BAA transfers in to a single real-time bid cost recovery allocation amount and will allocate this amount to measured demand. Further, this section states that the two components for an EIM Entity BAA will be allocated to the EIM Entity Scheduling Coordinator and then allocated by the EIM Entity according to its tariff. If the EIM Participating Resources in all EIM BAAs are required to participate in unit commitment, the separation of the energy and commitment components, which PacifiCorp understands is a relatively difficult process, would be unnecessary. Additionally, PacifiCorp understands that only units that are identified as Participating Resources, and are physically capable of starting within the real-time dispatch horizon, will be committed or decommitted as part of the EIM unit commitment process.

PacifiCorp understands that its decision to participate in the ISO's unit commitment process will result in a market and software design that will effectively require other EIM Entities to similarly participate in unit commitment to avoid having to implement additional functionality that may never be used. PacifiCorp requests that the ISO make this clear in the final draft proposal.

ISO Response

In the Draft Final Proposal, unit commitment is no longer optional for EIM Entities.

C. List of EIM Charge Codes

In its comments on the 2nd Revised Straw Proposal, PacifiCorp requested that the ISO include in the 3rd Revised Straw Proposal a section that sets forth a comprehensive list of all charge codes applicable to EIM Participating Resources and the EIM Entity, noting that this information is critical for purposes of system design, billing determinants, and setting expectations for potential participating resources. In response, the ISO included some explanation in the 3rd Revised Straw Proposal, and has hosted a number of workshops on key issues related to EIM charges and charge codes. PacifiCorp understands that the ISO has not yet finalized a comprehensive list of charge codes. However, even though a charge code list is likely to continue to develop as the EIM design and Order 764 implementation evolves, at least a preliminary list of charge codes would be useful for stakeholders. It should be understood that the list will continue to be refined and amended as the ISO finalizes its straw proposal and tariff language.

With respect to the discussions of specific charge types:

- In section 3.7.8.1.1, the ISO states, “The real-time net scheduled interface change settlement amounts represents settlement amounts for the energy which flows between the BAAs as a result of EIM. The real-time net scheduled interface settlement amount is calculated as the real-time net schedule interchange direction flow (MWhs) multiplied [by] the LMP of the pricing node at the corresponding intertie.” This section is unclear. Assuming that "change settlement amounts" should be interpreted as "charge settlement amounts", the ISO should clarify how this impacts settlements. BAA allocations are based on MWh net interchange volume, not on revenue. This could represent a fictitious transaction at the EIM boundary, the use of which is not clear.
- In section 3.7.8.2, the ISO states that if the virtual schedule creates a credit to the out-of-market congestion uplift, then no allocation is made to the virtual schedules. This section goes on to state that if the virtual schedule creates a charge to the out-of-market congestion uplift, then the virtual bucket is allocated to convergence bid schedules in proportion to each schedule’s congestion revenue that is collected through the out-of-market congestion uplift. The proposed methodology for isolating real time congestion costs caused by convergence bidding is reasonable given that convergence bidding only occurs within the ISO markets and should not be allowed to have an impact on the EIM. As noted in prior comments on the Revised Straw Proposal, PacifiCorp supports this policy.

ISO Response

The ISO has posted a preliminary list of charge codes on the initiative website.

D. Definition of EIM Entity

The 3rd Revised Straw Proposal includes a number of references to the definition of EIM Entity, at least two of which include reference to the EIM Entity as a “balancing authority and transmission service provider.” However, in its most recent matrix of responses to stakeholder comments, the ISO clarified that while the EIM Entity is a balancing authority, it does not imply that it must have both load and generation obligations.

PacifiCorp agrees that an EIM Entity must be a balancing authority but suggests that the definition of EIM Entity does not need to include a requirement to be a transmission service provider. PacifiCorp understands that an EIM Entity will be required to submit balanced base schedules and satisfy the resource sufficiency requirements, and therefore, would support modification of the definition to accommodate a generation- or load-only balancing authority. As noted in section 3.8 of the 3rd Revised Straw Proposal, concepts of reciprocity among the ISO and EIM Entities will inform ongoing consideration of potential transmission service requirements. PacifiCorp proposes that for initial EIM implementation it should be a transmission customer who voluntarily offers its transmission rights to be used for EIM dispatch between EIM Entities and between an EIM Entity and the ISO. With respect to intra-BAA transmission usage, the EIM Entity should establish the requirements for transmission usage within its BAA. The concept of reciprocity would apply as between EIM Entities and between EIM Entities and the ISO and should be designed to reflect non-discriminatory treatment of similarly situated participants. While PacifiCorp understands that a set of reciprocity rules still needs to be developed for all EIM Entities and the ISO, PacifiCorp recommends that the straw proposal include a modified definition of EIM Entity to

accommodate a generation- or load-only balancing authority to encourage expanding the EIM footprint.

ISO Response

The ISO has clarified the definition of the EIM Entity and added an additional defined term EIM Transmission Service Provider. An EIM Transmission Service Provider must make some transmission available in order to support EIM dispatch within the EIM Entity and between EIM Entities.

E. Settlement Metering

In Section 3.7.6 on settlement metering, the ISO writes, “Generators will have the option to either be Scheduling Coordinator Metered Entities (SCME) or [an] ISO Metered Entity (ISOME).” However, PacifiCorp understands that this election is made by the EIM Entity on behalf of all generators within its BAA. PacifiCorp requests that this be clarified in the draft final proposal.

The ISO states in the same section:

[c]oncurrent with its compliance with FERC Order No. 764, ISO is making 5-minute metering a requirement for generation resources. This 5-minute requirement will also apply to generating resources of the EIM Entity BAA. This includes all generators whether bidding into EIM or not bidding. This is to reduce the risk of neutrality. However, load resources will continue to be submitted in hourly values similar to today’s market.

The language of this section **must be** clarified to allow explicitly for the option of 15- minute settlement meters in the EIM Entity to be disaggregated into 5-minute data for purposes of settlement of non-participating generating resources. This clarification would provide consistency between the straw proposal and the project scoping discussions PacifiCorp has had with the ISO.

ISO Response

Section 3.7.6 has been updated to allow SCME to submit meter data in intervals up to one hour. The SCME is not allowed to determine how the submitted meter data will be disaggregated. If 15-minute settlement meters are used, the 5-minute meter value will be calculated by dividing the 15-minute meter value by three. To minimize neutrality and to provide more accurate settlement of uninstructed imbalance energy, the ISO highly recommends that non-participating resource move to 5-minute meter intervals over time.

Also, any resource that is participating in the EIM must be metered in 5-minute intervals.

III. ADDITIONAL COMMENTS AND QUESTIONS

Definitions.

PacifiCorp proposes adding a definition of “Base Schedules” (or “Base Forecasts”) and “Balanced Base Schedule” (or “Balanced Base Forecast”). A useful basis for this definition may

be found on page 12, which states, “forward energy schedules, referred to as base schedules in this document, consist of hourly forecasts of load, generation, and interchange provided by the EIM Entity Scheduling Coordinator hourly granularity.” In addition, the term “base schedules” is used sometimes to refer to load plus supply plus interchange, sometimes just for load, sometimes just for interchange, and sometimes appears to be confused with the term “resource plan.” If it is the case, as it seems, that there are different types of base schedules, PacifiCorp recommends the development of multiple definitions to clarify which type of base schedule (or resource plan) is required in a given context.

ISO Response

The ISO has defined the terms “Base Schedule” and “Resource Plan”

Page 3.

The day-ahead process description also should clarify that the EIM Entity Scheduling Coordinator is submitting balanced base schedules, as opposed to the more general language that is currently used. The same comment applies with respect to the definition of EIM Entity Scheduling Coordinator on page 9

ISO Response

The EIM Entity Scheduling Coordinator will be submitting resource plans which are comprised of load, generation and intertie hourly base schedules.

Section 2.1. New Terms

The definition of EIM Entity Scheduling Coordinator should state that it is responsible for settling uninstructed imbalance energy.

ISO Response

The change is included in the Draft Final Proposal

Section 3.1.4. Role as EIM Entity Scheduling Coordinator

PacifiCorp suggests adding the underlined language to the following statement, “The EIM Entity Scheduling Coordinator will be responsible for all financial obligations arising as a result of meeting these requirements, including financial settlement with non-participating resources, with load within its EIM Entity BAA, with interchange using dynamic schedules dispatched by the Market Operator, and neutrality charges and uplifts.”

With respect to the role of the EIM Entity Scheduling Coordinator, PacifiCorp prefers a structured implementation that would not require the duplication of systems or resources between the ISO and the EIM Entities and would provide for a streamlined interface for submission of the base schedules and Operational Information Exchange that needs to occur. Streamlining the data flow while still providing the EIM Entity with the information it requires

to perform its balancing authority responsibilities could be achieved with some modifications to the EIM Entity Scheduling Coordinator role and also could have the effect of reducing potential barriers to entry for EIM Entities.

ISO Response

Section 3.1.4 has included non-participating load. However, dynamic schedules that are participating in the EIM, will be represented by an EIM Participating Resource Scheduling Coordinator, not the EIM Entity Scheduling Coordinator.

See sections 3.3.2 on facilitation of submission of base schedule data.

Section 3.2.1. Operational Information Exchange

PacifiCorp proposes that, if possible, the ISO should modify the operational information exchange tables to clarify the procedures that will apply if the EIM Entity elects to use the Market Operator's forecast. The current version of the provision appears to assume the EIM Entity is using its own forecast.

ISO Response

Whether an EIM Entity uses the market operator forecast or not, the load base schedule is included in the resource plan submitted by the EIM Entity Scheduling Coordinator.

Section 3.2.5. Local Market Power Mitigation

With respect to Default Energy Bids ("DEBs"), PacifiCorp understands that DEBs are unit-specific. Nevertheless, it may be useful for the ISO to include examples of DEB calculations for representative wind, solar, geothermal, hydro, natural gas and coal facilities.

The ISO should clarify that the EIM Entity has discretion to determine which non-participating resources within its BAAs must register in the master file. For example, an EIM Entity should have discretion to determine a MW threshold or other rules it deems appropriate.

ISO Response

For DEBs, see appendix D of the Market Instruments BPM available at <http://bpmcm.caiso.com/Pages/BPMDetails.aspx?BPM=Market%20Instruments>

The Draft Final proposal clarifies that there is a MW threshold for metering, telemetry and registration.

Section 3.3.3. Supply and Flexible Ramping Constraint Sufficiency

This section of the 3rd Revised Straw Proposal states that the EIM Entity Scheduling Coordinators for EIM Entities with inadequate or excessive energy supply shall make the appropriate modifications to the base schedules from *non-participating resources* no later than 40 minutes prior to the operating hour. However, PacifiCorp understands that appropriate

modifications to base schedules will be made for *all* resources, not just non-participating resources. In fact, normally modifications to base schedules needed for balancing will be made by participating resources. PacifiCorp requests that the final draft proposal be modified to clearly indicate this point.

ISO Response

The draft final proposal has included the clarification. Base schedules can be modified for both participating and non-participating resources.

Section 3.3.8. Intertie Schedules with Other Balancing Authorities

In the 3rd Revised Straw Proposal, the ISO states “The EIM will not support dynamic transfers with external BAAs unless there are pre-existing dynamic schedules or pre-existing pseudo-ties registered as EIM Participating Resources.” PacifiCorp does not agree that only pre-existing dynamic schedules or pre-existing pseudo-ties registered as EIM Participating Resources should be supported by the EIM. The EIM should allow for and include the addition of new dynamic transfers, if they are added consistent with the policies, procedures, or business practices of the EIM Entity. PacifiCorp requests that the final draft proposal be modified to clarify this issue.

ISO Response

The draft final proposal has included the clarification.

Section 3.3.11. Variable Energy Resource Production Forecast

The ISO should clarify what it means by “poor forecast accuracy” in relation to a decertification of variable energy resource forecaster.

ISO Response

The draft final proposal has included the clarification.

Section 3.7.8. Neutrality and Uplift

The third paragraph in section 3.7.8.1.1 which describes how the proportional transfer method is calculated seems to be missing unaccounted for energy (“UFE”) in the denominator. The spreadsheet example provided did include UFE in the denominator. Moreover, the words “interface change” should be changed to “interchange” in several places.

This section states:

As discussed in Section 3.4.3, the Market Operator will enforce a flexible ramping constraint requirement for the ISO BAA and each EIM Entity BAA. The costs of resolving the flexible ramping constraint for each BAA will be calculated for each BAA separately based upon the individual BAA requirement. A BAA is

only responsible for its associated flexible ramping requirement and not the other BAA requirement even if flexible ramping capability is procured in one BAA to meet another BAA's requirements.

The 3rd Revised Straw Proposal does not appear to indicate how the localized flexible ramping constraint (FRC) costs would be computed. PacifiCorp recommends clarification regarding how the localized FRC costs would be calculated per BAA. Additionally, given that the method for compensating FRC resources will differ between the ISO and other EIM Entities, the ISO should assure that resources providing flexible ramping capacity into the ISO's BAA will be compensated commensurately with internal resources providing the same service.

ISO Response

Section 3.7.8.1.1 has been clarified.

The flexible ramping constraint costs be BAA will be based upon the shadow price of the constraint. There is no difference in the compensation formula for resources within the EIM footprint. An EIM Entity can allocate the FRC costs differently than the ISO currently does.

Section 3.8. Transmission Service

As noted in prior comments, PacifiCorp supports the ISO's proposal not to impose an incremental transmission access charge for EIM transmission usage in the first year of the EIM. PacifiCorp agrees that further consideration of transmission service can be informed by actual EIM operational experience and as additional balancing authorities consider participation. PacifiCorp proposes that for initial EIM implementation it should be a transmission customer who would be voluntarily offering its transmission rights for EIM dispatch between EIM Entities and between an EIM Entity and the ISO. This would not constitute "as available" transmission, but rather would be a quantity of firm transmission rights, voluntarily offered by a transmission customer for EIM dispatch, for a specified time interval. Under the ISO's Alternative 1, the ISO and the EIM Entity would be relying on their existing transmission rates to collect their transmission revenue requirements.

As such, the ISO's description of Alternative 1 on page 85 of the 3rd Revised Straw Proposal should be modified slightly as follows:

Replace the concept of: "No-cost transmission use is available through EIM, being dispatched on an as-available basis, with existing transmission rates (which have been set without an EIM existing) continuing in place."

With: EIM transmission will be utilized between EIM Entities and between EIM Entities and the ISO using firm transmission rights offered by transmission customers for EIM dispatch with no incremental charge, because the firm transmission rights have been purchased under existing transmission rates (which have been set without an EIM existing).

The title of Alternative 1: "No-Charge, As-Available Transmission" also should be modified to "Transmission Customer Supplied Transmission" because the current title no longer accurately reflects the state of the ISO's proposal on transmission. PacifiCorp proposes that the ISO modify the language in Alternative 1 to more closely align with the concept described above which recognizes that firm transmission rights, purchased by a transmission customer, could be voluntarily offered for a specified time interval for EIM dispatch.

With respect to intra-BAA transmission usage, each EIM Entity should establish the requirements for transmission usage within its BAA. The concept of reciprocity would apply as between EIM Entities and between EIM Entities and the ISO and should be designed to reflect non-discriminatory treatment of similarly situated participants. Language should be included under Alternative 1 that allows the EIM Entity to design rules to allow transmission customers to make their transmission available for EIM dispatch even if they are separate companies from the EIM Entity. Moreover, the EIM Entity also should have the ability to establish requirements for making transmission available for EIM usage within its BAA. PacifiCorp agrees that the principle of reciprocity among the ISO and EIM Entities is important and may be achieved through a number of approaches. PacifiCorp looks forward to working with the ISO to develop a more specific proposal with respect to reciprocity requirements and use of transmission for EIM dispatch.

In addition, PacifiCorp suggests the following language changes to section 3.8. Proposed changes are underlined: "If an EIM Participating Resource wishes to bid into EIM beyond its existing transmission rights contracts, the transmission service provider may determine whether or not it would be responsible for non-firm transmission service charges, unreserved use excess usage charges, or other charges..."

Alternative 2 in the ISO's 3rd Revised Straw Proposal also should reflect the same concept that would allow the EIM Entity to design rules to allow transmission customers to make their transmission available for EIM dispatch even if they are separate companies from the EIM Entity.

PacifiCorp supports the ISO's proposal to move forward with Alternative 1 with the suggested changes identified as part of the final draft proposal. These concepts should also be reflected in Section 1 on Transmission Service in the ISO's 3rd Revised Straw Proposal.

ISO Response

The language changes are included in the draft final proposal. The ISO believes this discussion in the Draft Final Proposal is consistent with PacifiCorp's comments.

Company	Date	Submitted By
Portland General Electric (PGE)	September 6, 2013	Cathy Kim

Opening Comments

Portland General Electric (PGE) appreciates the opportunity to comment on CAISO's Third (3rd) Revised Straw Proposal on the Energy Imbalance Market (EIM) posted on August 13, 2013. We recognize the challenges that CAISO faces with implementing a market model that consists of many complexities and appreciates the efforts taken by CAISO during the stakeholder process. PGE continues to weigh many of the proposed concepts in this 3rd Straw Proposal, but would like to focus on the following at this time:

ISO Response

The ISO appreciates PGE’s continued participation in the stakeholder initiative.

Stakeholder process, tariff framework and timeline

Under this new market design, PGE has concerns that the process is moving too quickly with an aggressive timeline that doesn’t allow for many of its stakeholders to completely gauge and understand key EIM design concepts. Many stakeholders have expressed concerns related to resource sufficiency in the Day Ahead and Real Time market, flexible ramp sufficiency, transmission usage and cost allocation, uplift and neutrality allocations, CARB obligations and GHG emissions costs, etc. PGE proposes that CAISO take the time to layer in several technical workshops on key critical and independent concepts so that robust discussions can occur and influence the design process. Potential EIM entities would not want to be at risk of market disruptions, uncertainty, reliability and compliance issues, and unwarranted costs that could have been rectified during the planning and stakeholder process. With the current timeline proposed, PGE believes it is premature to start the tariff framework in a matter of a few weeks with the current state in mind. PGE suggests that the CAISO coordinate additional technical workshops that would lead to another revised straw proposal. PGE further believes that CAISO should provide stakeholders with an ample amount of time to evaluate and comment on the draft final proposal.

ISO Response

The initial tariff process is to review the proposed tariff framework. The tariff language will be developed through the stakeholder process beginning in November and completing the end of January.

Cost Uncertainty

PGE does not yet have a clear understanding of the approximate cost of entry into the CAISO EIM. PGE would especially benefit from additional detail on what it would take to participate on the Balancing Authority (BA) side. For example, how many systems need to be installed and/or modified to enable participation? Would entities need to hire additional personnel, and if so, what types of personnel? How much back office work (reporting, settlements, etc.) would entities need to perform as a result of participation? Entities need to have a better understanding of the costs of participating in the EIM in order to accurately assess the potential value to the entity of participating in the EIM.

ISO Response

The cost of participation in EIM may vary between market participants, based on factors for which the ISO does not have cost estimates. For a market participant that bids routinely in the existing ISO market, the cost on the BA side may be minimal, while for others there may be additional costs. The ISO will be glad to work with potentially interested participants to assist in understanding the requirements and costs.

Dynamic Transfer Functionality

To foster optimal EIM functionality, PGE understands that dynamic transfer would be necessary to allow for greater access to external sources and sinks in its market model. It has been stated that there are limitations to this dynamic transfer and that the transfer capability limits are imposed by BPA. Can CAISO comment on how some of these restrictions may be removed in order to encourage potential EIM entities to participate? In Section 3.3.8, it states, “*The EIM will not support dynamic transfers with external BAAs unless there are pre-existing dynamic schedules or pre-existing pseudo-ties registered as EIM Participating Resources.*” PGE would like clarification on these pre-existing dynamic schedules and whether or not CAISO will only allow for dynamic transfers within the EIM model. Currently, BPA has a dynamic pilot in place that allows for sub-hourly adjustments of Variable Energy Resources to CAISO and would like to know if CAISO expects to expand on this pilot outside of the EIM construct.

ISO Response

Section 3.3.8 has been clarified. The sentence cited referred to dynamic transfers to EIM Entities rather than dynamic transfers between EIM Entities. Dynamic transfers to the ISO are available even if the resource is not located in an EIM Entity, through existing tariff provisions and pro forma agreements. The ISO is working with BPA and PacifiCorp to establish operating procedures for EIM’s transmission usage, but this is separate from the current intra-hour scheduling pilot with BPA.

Over-scheduling and certification

In Section 3.3.11, “*the EIM Participating Resource Scheduling Coordinator must be certified by the Market Operator to use its own forecast for scheduling and can be decertified due to poor forecast accuracy and/or strategic scheduling that undermines market efficiency*”. Can CAISO elaborate on what this certification process will look like and what metrics will be used to determine forecast accuracy? PGE would also like to reiterate the concerns of over-scheduling, particularly overstating VERs forecasts and would suggest that CAISO look into a balanced solution so that EIM entities cannot take advantage of the EIM market whether they are under-scheduling load or over-scheduling generation.

ISO Response

Section 3.3.11 has been clarified, and the ISO would have follow-up discussions with an EIM Entity that is interested in providing its own VER forecasts. An over-scheduling penalty concerning scheduling of load has been included in the Draft Final Proposal. At this time, the ISO concludes that other provisions for flexible ramping and financial settlement will address concerns of overstating VER forecasts, but will monitor this as well as other aspects of EIM performance and propose additional measures if needed.

Greenhouse Gas Adder

PGE seeks greater clarity on the GHG adder that can be bid in by the Participating EIM Resource and how it will be accounted for in the EIM. Although a GHG bid adder may be

placed on a participating resource, this still prevents an entity outside of California from managing the surplus energy being sent to an EIM. If the unit was dispatched to meet loads outside of California, the adder would not be applicable. If the units were dispatched into California then PGE would want the carb adder to be included in the dispatch price. The GHG adder would send an artificial price signal to energy that may not even transfer into California. How will this adder be extracted from the price when energy only flows into an EIM BAA?

ISO Response

The GHG compliance bid price is an adder to the energy bid price only for the portion of the imbalance energy produced by an EIM Participating Resource that is deemed to be imported into California. The GHG compliance bid price is not added to the bid cost for the remaining imbalance energy that is deemed to not be imported into California. This is achieved by having a separate control variable in the optimization model for the portion of the imbalance energy produced by an EIM Participating Resource that is deemed to be imported into California. The GHG compliance bid is associated with these variables, whereas the energy bid is associated with the traditional control variables for the Imbalance energy.

Company	Date	Submitted By
Powerex Corp.	September 10, 2013	Gifford Jung 604-894-6040

Opening Comments

Powerex is pleased to have this opportunity to provide these comments in response to the Energy Imbalance Market (EIM) Design Third Revised Straw Proposal (“Third Straw Proposal”). Powerex's comments provided herein are supplemental to its previous comments submitted in this stakeholder process.

ISO Response

The ISO appreciates Powerex’s continued participation in the stakeholder initiative.

The CAISO should delay CAISO-EIM transfers and associated issues to a second phase

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 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 initial 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) independent governance, (ii) carbon charges, (iii) CAISO transmission charges, and (iv) 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 dynamic scheduling of imports.

Powerex urges the CAISO to consider this phased in approach for several reasons. First, Powerex has serious concerns with the CAISO's proposal to delay independent governance of the EIM until well after the EIM market is fully designed and launched. Using the CAISO's governance structure, which is structured primarily with California's interests in mind, to oversee the development and initial operational phase of a multi-state EIM that will operate predominantly outside of California is problematic in itself. Enabling transfers between the CAISO and the EIM, prior to implementing independent governance of the EIM, increases this governance concern considerably. In Powerex's view, the design and implementation of CAISO/EIM transfers should only occur after the EIM has an independent governance structure in place to oversee and develop a framework that is designed and operated in a manner which takes into consideration the differing interests of all EIM entities and participants.

Second, Powerex believes the CAISO's carbon proposal raises numerous legal, equity, and efficiency issues that require considerably more discussion. Including carbon-related issues in the initial EIM design that will be brought before the Federal Energy Regulatory Commission ("FERC" or "Commission") for approval significantly increases the likelihood of opposition to the EIM as a whole, and thus the potential for significant delays in implementation of the EIM. Powerex further discusses these carbon-related concerns below.

Third, Powerex has raised numerous concerns with EIM transmission pricing which are largely associated with transfers between the CAISO and the EIM Entities. The CAISO's primary response to these concerns is to provide free transmission service for the first year (or longer) while a more thorough discussion on transmission design can take place. Similar to Powerex's carbon concerns, Powerex believes the CAISO's free transmission approach also presents serious legal, equity and efficiency issues which increase the likelihood of opposition to the EIM. Delaying CAISO/EIM transfers until after these transmission design issues have been worked through will greatly reduce transmission pricing concerns with the initial EIM implementation.

Fourth, EIM Entities and the CAISO will continue to operate in very different market designs in their respective temporal markets prior to the EIM. Attempting to develop and launch an EIM on top of an existing OATT framework that is also designed to be co-optimized with the CAISO's real-time market significantly raises the risk of substantive unintended consequences. Designing and stabilizing an EIM without a co-optimized dispatch with the CAISO market will simplify the EIM design challenges considerably. At the same time, this approach would provide additional time for the CAISO to make necessary design changes in its market, such as improving the CAISO's resource sufficiency framework, which may be required to prudently and equitably enable CAISO/EIM transfers.

Fifth, the CAISO has stated that it expects very limited transfer capability between the EIM and the CAISO in the first year, and hence delaying CAISO/EIM transfers should be expected to only marginally reduce the potential benefits of the EIM. For all of these reasons, Powerex urges the CAISO to consider a phased approach, with CAISO/EIM transfers moved to a second phase of implementation.

ISO Response

The co-optimized dispatch is one of the most significant benefits of the EIM. The ISO appreciates the concerns that Powerex has raised; however, the ISO considers it premature to develop an implementation phasing approach at this time. Any phasing approach should be considered and developed after initial testing and market simulation has occurred. The ISO

believes that any phasing that prohibits transfers between ISO and EIM area undermines the ability to exercise and benefit from the full design and would delay moving to higher transfer capability. The phase-in approach proposed would require additional preparation and implementation cost.

Others have also proposed other phasing approach that would start with a low transfer level (i.e. 100MW) before moving to a higher level of transfers. Although it is premature to lock-in timing and level of transfers of such a phasing approach now, a phasing approach that starts with a low transfer before transitioning to higher transfers may be more appropriate to consider after testing.

The ISO's Governing Board has been found to be independent by FERC. That fact, and the fact that the EIM design must be approved by FERC after consideration of all comments and protests, is sufficient to ensure that the initial EIM framework takes all interests into consideration and does not result in a preference for any entity.

As discussed below, the ISO does not believe the concerns that Powerex raises concerning the carbon-related issues or transmission services charges are a valid reasons for delay of the many benefits from implementation of the EIM.

With regard to Powerex's last two concerns, the ISO recognizes that there are always certain issues in a new market that arise after implementation, regardless of the number of pre-launch simulations. Launching the market at a time when transfer capacity may be limited provides an opportunity to identify and resolve those issues in a manner that minimizes any potential negative impacts and operational challenges. As noted in the Draft Final Proposal, transmission services and other design elements are slated or open for further consideration by the ISO through further stakeholder initiatives and processes.

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

Powerex continues to have very serious concerns with the CAISO's approach to transmission rights and pricing in the EIM. Powerex has provided substantive comments on EIM transmission design issues in both this stakeholder process and the PacifiCorp stakeholder process which it believes have not yet been thoroughly addressed.

As a threshold matter, Powerex reiterates its strong support for the CAISO's efforts to achieve dispatch efficiency in both the EIM and its own wholesale energy markets. Powerex also believes this pursuit of dispatch efficiency should include examining, among other issues, transmission pricing design. However, Powerex does not believe that the laudable objective of dispatch efficiency should be a single over-arching goal that justifies the CAISO's current proposed EIM transmission design which (i) largely ignores equity and efficiency issues associated with OATT transmission rights and investments; (ii) provides preferential transmission pricing to EIM participants, ahead of CAISO demand and non-EIM export demand; and (iii) violates FERC's fundamental open and non-discriminatory access and transmission pricing principles. Further, Powerex believes the CAISO's proposed transmission design will lead to significant unintended consequences, including undermining the dynamic efficiency of western wholesale energy markets by distorting transmission investment price signals.

ISO Response

The ISO agrees that the EIM must be consistent with FERC's non-discriminatory open access transmission policies. As discussed below, the ISO believes that the proposal is consistent with those policies.

Powerex's concern incorrectly describes the transmission service proposal. In the initial implementation, EIM will function using transmission capacity rights that PacifiCorp makes available within its system and through other transmission service providers who have paid for transmission service, under these transmission service providers' OATTs. PacifiCorp, the EIM Entity, is making it a prerequisite that EIM Participating Resources be an existing long term transmission customers. In real-time, PacifiCorp will be within the market footprint operated by the ISO, whose tariff differs from the pro-forma OATT to promote efficient dispatch within the market footprint. Principles of non-discriminatory access apply between similarly situated market participants, and market participants within the market footprint are not similarly situated as those who are outside the market footprint. A longer-term transmission rate design will be further considered in a subsequent stakeholder process.

Transmission Charge Comparability

In Section 3.8 of the Third Straw Proposal, CAISO reiterates its proposal that, since the transfer capability between the ISO and initial EIM Entities may be limited; there would initially be no charge between the ISO and EIM Entities for EIM's use of "as-available" transmission. CAISO explains that once the EIM is in place, EIM Entities will be included in the real-time market footprint, making it reasonable to extend its transmission access charge concept (which applies to load and exports) to the entirety of the new footprint, including the EIM Entities. CAISO endorses the alternative of no-charge, as-available transmission, although it provides three other alternatives for comment.

Alternative One, which CAISO supports, is no-charge, purportedly as-available transmission either as a transitional approach for a year or a permanent structure. CAISO claims this would reflect reciprocity by mutually waiving transmission charges, and states that it will continue to assess its current transmission access charge except for energy dispatched within the ISO and EIM footprints. Citing to its own tariff exclusively, CAISO argues that the position that there is a disparity between charges that would accrue to the use of such transmission service in the day-ahead market and the EIM is not accurate. It claims that transmission used in the EIM is "effectively a Transmission Ownership Right" and that use of such rights does not trigger access charges.

CAISO characterizes Alternative Two as "a step toward a regional transmission rate design" as it would consider the percentage of demand settled in the EIM compared to the total settled demand and seek to collect such percentage through an EIM-wide revenue requirement. CAISO explains that "[t]his approach would consider an access charge to load and exports to Balancing Authority Areas ("BAAs") that are not EIM Entity BAAs, based on the amount of positive demand deviation consumed in real-time." CAISO claims that transmission rights holders, even if not the EIM Entity, "could be assured of recovering transmission revenues for the portion of their capacity that is made available to and used by EIM" under this approach.

Alternative Three - Transfer Charge as a Minimum Shadow Price - would impose a transmission charge based on the amount of transfer from one BAA to another. Using this option, LMPs would reflect the cost of transmission. CAISO perceives downsides to this approach, explaining,

among other things, that it would impose a constraint on cost-based dispatch among resources in different EIM Entities, which it characterizes as a “hurdle rate” and creating “friction”.

In Alternative Four -- Transmission Access Charge Applicable to Load and Wheeling -- an option CAISO brings forth in response to stakeholder comments, CAISO explains that if equal access to all market participants in its market across all timeframes were a primary goal, one way to reach this goal would be “to assess the CAISO’s transmission access charge only to load within the ISO’s BAA and to wheeling schedules (which impose transmission costs but would not otherwise contribute to the ISO’s transmission revenue requirement), and not to exports on any intertie in any market.” CAISO makes clear that it is not proposing the adoption of Alternative Four.

Recognizing that “designing an appropriate EIM transmission service rate will be among the critical issues” that need to be resolved in the longer term, CAISO believes that due to lack of both consensus and information at present, Alternative 1 is appropriate to adopt for at least the first year of the EIM.

ISO Response

This portion of Powerex’s comments appears to simply be a summary of Powerex’s perspective on the ISO’s discussion of transmission service alternatives, and does not appear to raise issues in need of response.

Alternative One is Inconsistent with Open Access Transmission Policies and should not be Implemented Even for a Transition Period

In the excerpt above, CAISO, on the one hand, acknowledges how critically important designing an appropriate EIM transmission service rate is, and, on the other hand, all but gives up on doing the right thing right now with regard to the design of that transmission rate. Speed, however, is not nearly as important as accuracy. Flawed market design concepts incorporated into the EIM at the outset will only impede the long-term (and even short-term) success of the EIM, lead to market distortions, preclude its expansion to other BAAs, and open the door to troublesome market activities by those seeking to access this newly-available “free” transmission.

Powerex has highlighted its concerns regarding the “free” transmission proposal in comments in response both to the First and Second Straw Proposals. It appears that CAISO has proffered Alternative Four in the Third Straw Proposal in response to Powerex’s concerns. While Powerex is appreciative of this addition, CAISO has not veered from its support of Alternative One’s no-charge, as-available transmission, and has even suggested that this could be more than a one-year transitional approach and instead may be a permanent solution. Powerex has grave concerns that this approach is ill-advised and contrary to the dictates of the Federal Power Act.

The FERC has recognized that selective discounting of transmission services violates the Federal Power Act’s prohibition on undue discrimination and preference. Consequently, Commission policy prohibits transmission service discounts except when necessary to increase throughput on a transmission provider’s system and requires that any such discount be offered to all eligible customers for the same time period on all unconstrained paths that go the same point of delivery. In its Transmission Pricing Policy Statement, the Commission recognized that “a utility must allocate among individual customers or classes of customers that portion of the

total revenue requirement that is attributable to providing transmission services, in a manner which appropriately reflects the costs of providing transmission service to such customers or classes of customers.”

ISO Response

Powerex’s concern incorrectly describes the transmission service proposal. As described in the Draft Final Proposal, the ISO’s transmission service proposal does not provide “free” transmission. As implementation planning has progressed with the first EIM Entity (i.e., PacifiCorp), it is apparent that no “as-available” transmission will be in use between the ISO and PacifiCorp. Instead, PacifiCorp Energy (which operates PacifiCorp’s merchant functions), as a transmission customer and EIM Participating Resources, will offer firm transmission rights that it currently subscribes to, on the Pacific AC Intertie and between its own BAAs, for use in EIM for any potential Market Operator dispatch instructions resulting in EIM transfers between BAAs. PacifiCorp will notify the Market Operator with the amount of transmission that is available for EIM transfers through the transmission profile on dynamic e-Tags. Other transmission customers with transmission rights between these BAAs could also nominate all or a portion of such rights for EIM usage on a voluntary basis. PacifiCorp Energy has paid for the firm transmission rights being offered voluntarily to support EIM transfers between PacifiCorp and the ISO. Within PacifiCorp’s BAAs during the first year of EIM operation, EIM Participating Resources will be long-term firm transmission customers of PacifiCorp. PacifiCorp expects their EIM use to not exceed their reserved capacity for long-term firm point-to-point customers or prior month coincident peak demand for network customers, and any EIM use in excess of rights would be assessed an unreserved use charge. All market participants within the EIM market footprint have the same opportunity to bid as EIM Participating resources.

FERC has accepted the elimination of pancaked rates between transmission service areas as fully consistent with the Federal Power Act. Alternative One is not equivalent to selective transmission service discounting which distinguishes among customers receiving the same service. All customers purchasing energy in the EIM pay the non-pancaked rate. Any BAA in the Western Interconnection will be eligible to join the EIM. There is accordingly no undue discrimination.

[Powerex comment, continued]

While the Commission supports the elimination of pancaked rates where appropriate, it has found in various proceedings that limiting benefits of pancaked-rate elimination to discrete customers is not appropriate. For example, in the proceedings that led to both PJM Interconnection, L.L.C. and Midwest Independent Transmission System Operator, Inc. (“MISO”) becoming ISOs, concerns were raised that transmission owners would reap the benefits of the single-system rate for transmission transactions while customers with pre-existing contracts would be bound by those prior rate arrangements. The Commission determined that it was unreasonable for transmission owners to implement a restructuring that limits the benefits of the new rates to certain entities. The Commission went so far as to determine that pre-existing agreements must be amended to ensure that no customer pays pancaked rates that would exceed the tariff rate. In response, MISO suggested that there be a phase-in of the renegotiation. However, the Commission determined that this process to address critical comparability issues should be concluded *before* MISO was to commence operation.

This precedent highlights the imprudence of CAISO's proposal to wait until a year *after* implementation to address these comparability concerns. As in these examples, CAISO should resolve the problems that Powerex has identified *before* implementing the market. As CAISO has acknowledged the existence of other alternatives, there is no valid justification to pursue a path that raises these comparability concerns.

ISO Response

These examples involve fact patterns very different from the EIM proposal. The ISO does not propose to charge a different rate to different groups of customers receiving the same service. The impact of the elimination of pancaked rates in the EIM is similar to the impact of removing pancaked rates within an ISO or RTO, which FERC has consistently approved. FERC has also directed the elimination of pancaked rates between RTOs, such as between MISO and PJM and has approved the elimination of pancaked rates between MISO and its Seams Services customers and between ISO-New England and the New York ISO. The ISO believes the Alternative One proposal will satisfy applicable FERC requirements and is an appropriate rate to charge upon implementation or even on an ongoing basis if that is the final proposal as the result of further stakeholder efforts. In any event, the ISO maintains an open mind on the nature of the permanent rate.

[Powerex comment, continued]

Beyond these legal concerns, Powerex believes the CAISO's proposal to offer free transmission service in the EIM is both inconsistent with efficient market outcomes and raises serious equity issues for both California ratepayers and external market participants. To be clear, Powerex does not object to the CAISO's primary motivation for supporting free transmission in the EIM – to improve dispatch efficiency by eliminating rate pancaking.

Powerex does, however, strongly object to the manner in which the CAISO seeks to achieve this objective – by effectively setting up a bilateral transmission free trade zone, between it and the respective EIM Entities. In effect, the CAISO proposes to offer PacifiCorp (and other EIM Entities and/or participants) free use of the CAISO transmission grid to serve load in the EIM footprint, in exchange for PacifiCorp offering the CAISO free use of the PacifiCorp grid to serve CAISO load. This is in contrast to the widely accepted and appropriate methods of eliminating or reducing rate pancaking – either through transmission rate consolidation into a single transmission access charge or single OATT transmission rate structure; or alternatively, transmission rate consolidation into multiple differing regional transmission access charges. Importantly, such transmission rate consolidation:

- i. Is implemented across all market timeframes to prevent “shifting” of trading, scheduling and/or dispatch activities between different market timeframes (i.e., Day Ahead to Real-time) as well as other unintended undesirable outcomes; and
- ii. Should result from a thorough and inclusive transmission stakeholder process which includes consideration of existing transmission investments, negotiations of interim and long-term rates and potential transfer payments, negotiations of phase-in periods, as well as other equity and market efficiency issues.

ISO Response

The ISO does not believe that Alternative One will have adverse market impacts as suggested by Powerex. The ISO will monitor the effects during the initial implementation period.

The ISO has not stated a preference between Alternatives 1 and 2 as a longer-term transmission rate design. However, the ISO has explained that setting a regional EIM transmission rate under Alternative 2 at the outset of EIM operation would not be possible, since there is no history at this time to allow an estimation of the actual volume of EIM imbalance energy. The ISO has explained that until actual historical data can be developed, Alternative 2 does not differ from Alternative 1 in practical terms. Thus, the ISO intends to initially implement Alternative 1, and consider Alternative 2 and other alternatives that may emerge, in a subsequent stakeholder process. The timing of this subsequent stakeholder process will also allow the ISO and its stakeholders to have a better sense than is now possible of the extent and scope of ultimate EIM participation.

[Powerex comment, continued]

Approval of the CAISO/PacifiCorp bilateral “free transmission” construct would be both unprecedented and deeply troubling. Extension of this construct, for example, could lead to transmission providers elsewhere in the western interconnect setting up transmission free trade zones through bilateral negotiations amongst only themselves, thereby similarly providing each other with inappropriate competitive advantages in western wholesale markets. The potential Balkanization and widespread discrimination resulting from such an approach would fly in the face of FERC’s thrust toward uniform regional transmission and rate policies.

ISO Response

Transmission providers already have the ability to avoid multiple transmission service charges in the form of FERC-approved rate structures for RTOs and ISOs. Consolidation of transmission services and the elimination of pancaked rates are desirable, rather than undesirable, outcomes.

[Powerex comment, continued]

Another point to consider is the disparity in PacifiCorp’s transmission rates and CAISO transmission access charges. On an estimated basis, PacifiCorp’s customers can procure firm and/or non-firm OATT transmission rights to serve PacifiCorp demand for approximately \$3 per MWh. In comparison, CAISO’s customers are exposed to a transmission access charge (“TAC”) of approximately \$9 per MWh in serving CAISO demand. Under the CAISO’s free transmission proposal, PacifiCorp’s demand would therefore pay only \$3 per MWh to deliver power from a generator located in the CAISO footprint, across both the CAISO and PacifiCorp transmission systems, while CAISO demand would continue to pay \$9 per MWh in CAISO TAC for deliveries from the same generator, with power flowing only across the CAISO transmission system. Clearly, this outcome raises serious equity issues for CAISO demand, as well as the potential for unintended outcomes in both the long-term and short-term energy and transmission markets.

ISO Response

This is not unusual or not just and reasonable. Many non-pancaked rates, such as in PJM, involve payment of the rates in the zones of delivery, which may differ significantly from the transmission rate in the source zone.

The difference between transmission rates for network service loads in PacifiCorp's versus loads in the CAISO's BAAs (as cited by Powerex) has little if any short-term significance in considering these alternative transmission rate designs. In a market such as EIM, loads in each area pay rates reflecting the transmission characteristics within their BAAs, regardless of where the marginal generator is located. Similarly, within the ISO's BAA, loads served in different participating transmission owners' TAC areas pay different rates for the local "low voltage" transmission rates. During the subsequent stakeholder process to consider a longer-term EIM transmission rate design, an issue for consideration is whether any regional transmission rate should cover all or a portion of each BAA's transmission facilities.

[Powerex comment, continued]

As Powerex has previously pointed out, there is no specific nexus between transmission rate pancaking and an EIM. Unfortunately, the CAISO and PacifiCorp have incorrectly included dispatch efficiency benefits associated with reduced rate pancaking in their initial evaluation of EIM benefits, thereby creating a false impression of such a link.

Reducing or eliminating rate pancaking must be addressed in a more holistic manner through transmission rate re-design (and/or consolidation) across all market timeframes as part of a separate initiative. In such an initiative, Powerex believes transmission rates can be re-designed to achieve increased dispatch efficiencies across all market timeframes, with due consideration to equity issues as well as long-term transmission investment incentives (both within and outside the CAISO), and in a manner consistent with FERC's open access and transmission rate design policies.

ISO Response

As the ISO noted, it retains an open mind regarding the permanent transmission service charge. This does not preclude implementation of a just and reasonable interim charge.

[Powerex comment, continued]

Powerex believes the CAISO's continued defense and justification of free transmission in the EIM, even on a temporary basis, only serves to reinforce the impression that certain EIM design decisions were made prior to stakeholder involvement, and are not subject to change regardless of the validity of arguments and alternative proposals brought forth in this stakeholder process. This, in turn, highlights the independent governance concerns previously discussed.

ISO Response

The stakeholder process provides the opportunity for the ISO and PacifiCorp to receive stakeholder input. The ISO remains committed to giving full consideration to all stakeholder

comments prior to finalizing the proposed EIM design.

[Powerex comment, continued]

Powerex encourages the CAISO to simply apply its existing transmission rate design to the EIM, and explore alternative transmission rate design proposals in a separate initiative from the EIM.

ISO Response

The ISO believes that requiring payment of two transmission charges would interfere with the efficiency of the EIM, at least during start-up of the EIM structure. PacifiCorp is voluntarily making available its transmission rights to support EIM transfers between PacifiCorp and the ISO. PacifiCorp's transmission to support EIM transfers is not transmission as an ISO PTO and therefore does not receive revenue recovery from ISO TAC. PacifiCorp's transmission to support EIM transfers is effectively a TOR and the ISO does not charge the user of a TOR the TAC charge.

OATT Investments Must Be Respected

Powerex has previously raised several concerns related to the interaction of the proposed EIM market and the OATT framework that will continue to exist outside the CAISO footprint, including:

1. The potential for EIM transmission use to conflict with OATT usage priorities, particularly during periods of OATT curtailments; and
2. The fact the proposed EIM design will dispatch the EIM on a level playing field with dispatches in its real-time 15-minute market, independent of OATT usage priorities, in contrast to the "as available" statements of the CAISO.

These concerns remain largely unaddressed by either the CAISO or PacifiCorp. Moreover, Powerex is increasingly concerned that the CAISO continues to take a widespread approach of largely ignoring transmission investments under the OATT framework in the design of the EIM, and in its markets more generally. While Powerex recognizes there are challenges associated with operating a centrally dispatched LMP market on top of an existing OATT framework, these challenges should not be resolved by simply ignoring, and thereby undermining, existing investments and ongoing investment incentives in long-term OATT transmission. The more appropriate approach is to explore solutions which achieve LMP dispatch efficiency while returning appropriate proportionate value back to OATT investors.

Powerex urges the CAISO to commence dialogue on these important seams issues between the proposed EIM design and the OATT framework. At the same time, Powerex concurrently urges OATT providers across the western interconnect to tread carefully in enabling any CAISO/EIM use of their transmission systems prior to these issues being thoroughly discussed and resolved in an equitable and efficient manner. Real-time deliveries to and from the CAISO-EIM footprint and the rest of the west should continue to occur under the hourly and sub-hourly scheduling options available within the OATT framework.

The economic consequences of permitting the CAISO to continue its approach of ignoring external OATT investments in its market design, and expanding 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 greatly exceed any expected overall efficiency benefits of an EIM.

To be clear, Powerex is not advocating solutions that undermine the ability to achieve dispatch efficiency in either the EIM or other western wholesale markets. Rather, Powerex is advocating for open dialogue to address these transmission seams issues in an equitable manner consistent with efficient energy and transmission market outcomes – both short-term and long-term.

ISO Response

The ISO has previously responded to the comments and concerns that Powerex repeats here. Concerning these issues:

First, Powerex suggests that the EIM would use capacity that becomes available in real-time due to curtailment of firm OATT scheduled service based on capacity forecasts. The EIM only operates in real time, and so does not affect any OATT customers' right to schedule or use its scheduled capacity. The ISO does not have the authority or ability to restore curtailed capacity to firm OATT customers, and the ISO does not believe that capacity that becomes available due to the vagaries of load forecasts should sit unused. Under the pro forma OATT, capacity available in real time (regardless of why it is available) will be made available, rather than kept idle, by allowing network customers to make alternative non-firm transactions and for the transmission provider to provide energy imbalance service, as the EIM does. One of the benefits of the EIM proposal is that it facilitates the efficient use of available transmission capacity.

Second, Powerex asserts that the existing ISO market structure (which would be extended in the EIM) inappropriately disregards OATT usage rights in neighboring transmission service territories. Specifically, Powerex contends that the ISO should require day-ahead e-tags for day ahead physical interchange schedules. EIM does not affect day-ahead operations and rights; rather, EIM operates to meet real time needs not satisfied by day-ahead transactions, doing so as economically as possible. The ISO's existing Transmission Access Charge has been in place for several years. This stakeholder process does not contemplate revisions to the ISO's existing market structure, which FERC has found to be just and reasonable and equivalent or superior to pro forma OATT service.

Third, Powerex raises concerns that the ISO will allocate transmission usage to EIM dispatches on a level playing field with dispatches in its real-time 15-minute market and will be agnostic to transmission usage priorities established under external transmission providers OATTs.

Powerex states that this is an attribute of the existing market structure. Again, this stakeholder process does not contemplate revisions to the ISO's market structure. The ISO is adopting a 15-minute market to comply with FERC's directive in Order No. 764. Powerex's concerns regarding the 15-minute market would need to be addressed in a different forum.

Based on contracts, the ISO already allows certain OATT customers with transmission ownership rights in the ISO balancing authority area to have the option to sell their transmission to the ISO on a quarterly basis, in exchange for day ahead congestion revenues on a respective path, consistent with the design developed and implemented by the ISO and PacifiCorp on the

Malin to Round Mountain transmission path. The ISO remains open to considering how this concept may be of additional benefit in the context of EIM, but presently does not propose to extend this outside of its balancing authority area.

Concerning issues within the scope of this stakeholder process, the ISO refers Powerex to the discussion in section 3.8 of the Draft Final Proposal, which can now reflect the status of the ongoing EIM implementation with PacifiCorp. The transmission rights between the ISO and PacifiCorp that PacifiCorp voluntarily will make available to EIM are its existing firm rights, which PacifiCorp Energy has obtained under PacifiCorp's OATT and the OATTs of other transmission service providers, and will be reflected in e-Tags for dynamic schedules. Any curtailments affecting non-EIM participants will occur through the normal mechanisms for managing dynamic schedules. Management of EIM dispatch using these dynamic schedules and transmission rights are fully consistent with both EIM's goals and the transmission service providers' OATTs.

The CAISO's existing resource sufficiency framework and proposed EIM resource sufficiency framework is materially deficient

Powerex has submitted substantive comments on the CAISO's proposal to ensure that EIM Entities are required to be resource sufficient, thereby preventing "capacity leaning" on the CAISO and/or other EIMs. Powerex has also highlighted deficiencies in the CAISO's own resource sufficiency framework that, if not addressed, will likely lead to the CAISO leaning on EIM Entity(s) to solve its capacity shortfalls. Powerex provides the following additional comments.

First, Powerex urges the CAISO to ensure that all EIM Entity(s) are resource sufficient in the day ahead timeframe. It is a well-established principle in organized markets 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 have been completed.

Powerex understands the CAISO intends to provide an advisory day ahead resource sufficiency check of each EIM Entity, without **any** consequences for EIM Entity(s) that fail this check. Powerex believes this advisory check should be expanded to include the following consequences:

- 1) Posting publicly in the day ahead timeframe notice of failure of any EIM Entity(s) of this check;
- 2) Suspension of an EIM Entity(s) EIM imports from all other EIM Entity(s) and the CAISO in circumstances of 3 failures of the check within any calendar month; and
- 3) Referral to FERC of any repeat monthly suspensions within any 12 month period for further investigation

Powerex believes these additional consequences will strike the right balance of providing incentives to ensure day ahead resource sufficiency is achieved, while recognizing that circumstances can arise which inadvertently lead to an infrequent failure of the day ahead resource sufficiency check.

Second, Powerex believes the CAISO has failed to address its concerns of a resource sufficiency **shortfall** due to the over-statement of generation resources in an EIM Entity's base schedules. Specifically, Powerex stated:

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.

The CAISO appears to have misinterpreted Powerex' comments as focused on over-generation conditions. To the contrary, Powerex concerns are centered on the CAISO's need to ensure sufficient resources are available to meet firm load obligations by ensuring that:

- (1) Load is not understated in the base schedules; and
- (2) Generation and/or imports are not over-stated in the base schedules.

The CAISO only proposes to address the load understatement issue (with the use of penalties), ignoring the potential for generation and/or imports to be over-stated. Powerex notes this approach not only leaves a significant source of reliability risk unaddressed, it is also both inequitable and inefficient to institute penalties for an EIM Entity that under-states load in its base schedules, while providing the EIM Entity the unfettered ability to over-state generation resources in its base schedules.

Third, Powerex has highlighted significant gaps in the CAISO's current resource sufficiency framework related to imports, which can, and likely will, lead to the CAISO leaning on the EIM to solve its resource sufficiency shortfalls. Powerex recognizes that this is an existing reliability (and market efficiency) gap that exists today, prior to the implementation of an EIM. However, under the proposed EIM, the CAISO will now have the unique ability to solve this challenge by centrally dispatching units outside the CAISO grid, thereby increasing the risk of a resource shortfall in neighboring regions.

As previously discussed, this resource sufficiency gap exists, due to:

- 1) A lack of visibility into the source generation behind CAISO day ahead imports, primarily driven by the lack of a robust day ahead e-tag requirement;
- 2) A lack of clarity in the delivery requirements of the three types of energy products in the CAISO market (firm, unit contingent, and non-firm);
- 3) No effective differentiation between import awards which provide capacity commitment and those that do not; and
- 4) The inability of the CAISO to accurately procure RUC, operating reserves and/or flexi-ramp due to the lack of prospective visibility resulting from 1) -3) above.

Powerex urges the CAISO to either address these gaps in this stakeholder process, or alternatively, to commence a separate stakeholder process focused on import resource sufficiency in its markets.

Fourth, Powerex urges the CAISO to provide substantially more details, including example calculations and detailed parameters on its proposed resource sufficiency check. In particular, Powerex requests the CAISO set forth both the framework and parameters that will be used in evaluating the resource sufficiency “credit” provided to differing types of generation and to different qualities of imports. For example, specifically what is the methodology and calculations for determining how much capacity be attributed to variable energy resources? How will imports that may be subject to curtailment due to insufficient capacity held at the source balancing authority be treated versus imports that are not subject to such curtailments? Will firm exports be treated similar to firm load obligations? Will the CAISO allow potential curtailments to exports to qualify as capacity resources available to meet firm load?

Finally, in the Third Straw Proposal, and in the stakeholder call, the CAISO appeared to suggest that it will only assess resource sufficiency on those resource ranges (and loads) that are bid into the EIM (i.e., the CAISO will treat base schedules as fixed flows in the resource sufficiency test). Powerex understands from further discussions with the CAISO that this is incorrect. Powerex requests that the CAISO confirm that the resource sufficiency test will encompass all base schedules, as well as, EIM bids and offers within physical operating ranges, ensuring that the EIM entity has sufficient capacity to meet all of its firm load obligations. Clearly, ignoring any portion of an EIM entity’s load obligations and/or resource commitments, including those inherent in base schedules, would make any resource sufficiency test meaningless.

ISO Response

In the Draft Final Proposal, the ISO has added an over-scheduling penalty for load, and added details concerning the calculation of the flexible ramping constraint, resource sufficiency criteria, and settlement allocations for revenue neutrality. The flexible ramping and resource sufficiency requirements must be met by EIM Entities prior to the operating hour, and since EIM operates as a real-time market, there is no need to apply these requirements many hours in advance of real-time. The ISO continues to believe that these provisions will adequately address the issues raised by Powerex, including resource over-scheduling.

The CAISO’s carbon proposal remains inconsistent with elements of CARB’s Cap and Trade program, while raising serious jurisdictional issues

Powerex reiterates its concerns with the CAISO’s approach to carbon in the EIM. As previously

described, the CAISO's approach is designed to efficiently select individual low emission generators from an EIM participant's portfolio of resources while leaving higher emission generation for deemed delivery to the EIM participant's local load. This organized, algorithmic approach will systematically deem delivery of low emission generation to the state and artificially enhance the states' ability to reach its GHG related goals through the appearance of reduced GHG emissions in the spot market when likely little benefit has actually been created. A market optimization that purports to differentiate between low and high emission resources is spurious if it does not consider the GHG impacts of all activities that result from EIM price signals.

This approach appears inconsistent with AB32's overall principles and with other elements of CARB's program, 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).

Moreover, contrary to the CAISO's response to Powerex previous comments on this topic, there is nothing in the CAISO's proposal that will prevent a long-term response to the powerful price signal provided by the CAISO's dispatch algorithm. (For example, an EIM participant could choose to procure long-term coal resources to "free-up" their low carbon resources for offering into the EIM).

In addition to these previously raised concerns, Powerex believes the CAISO's approach of establishing an implied obligation between each EIM participant and CARB is problematic from a legal perspective.

More specifically, CAISO proposes to use its interstate reach to provide active support for California's Cap-and-Trade program, particularly with respect to dispatch of clean energy imports. In Section 3.9 of the Third Straw Proposal, CAISO states that it "is committed to working with the [CARB] and all market participants through this stakeholder process to ensure that greenhouse gas (GHG) costs are accounted for properly." In actuality, in order to implement the plans it has proposed, CAISO's role in the Cap-and-Trade program, while well intended, will be more than merely a neutral accounting function. This raises legal concerns, especially in light of the multi-state impacts that CAISO's actions will have.

In particular, the CAISO proposes to perform the following functions in support of California's GHG program:

- Allow EIM participants to submit bids with a compliance bid adder to reflect the resource's emission properties and the costs of GHG compliance;
- Adopt an EIM dispatch algorithm which will "evaluate the differences in GHG costs that these resources incur so that energy from among a number of resources with different GHG bids may be differentiated";
- Use the SCED optimization formulation to "select energy produced by EIM Participating Resources outside California for import into California based upon the resources GHG compliance bid adders"; and
- Will create e-Tags as part of the interchange checkout between the ISO and the EIM Entity to clarify the GHG related obligation of the EIM participant.

Translated, what this all means in practice for the EIM program, is that CAISO will:

- Use its bid information regarding resource characteristics and bid adders to identify the most economic sources of imported energy, including carbon costs;
- Use its dispatch authority over EIM bids to "cherry pick" clean energy regardless of whether there is, in actuality, an increase in overall clean energy output; and
- Use its dispatch authority over EIM bids to "deem" energy with higher emission

factors to be delivered to areas outside of California, where the California bid adders are irrelevant and will be disregarded in determining the merit order of dispatch.

Basically, the CAISO proposes to use its interstate reach into neighboring states and adjacent transmission systems to screen and selectively dispatch clean energy resources (and selectively deem electrons from these resources delivered to California) CAISO's plan to function as an electron gatekeeper as a facilitator of CARB's program is not consistent with a multi-state EIM.

Constitutional concerns regarding the extra-territorial effect of California's Cap-and-Trade program on energy markets in the Western Electricity Coordinating Council ("WECC"), and on interstate and cross-border trade in wholesale power have been discussed in the legal community since the launch of the program in January 2013, well prior to the implementation of an EIM. However, these legal concerns with the California Cap-and-Trade program are significantly compounded by CAISO's use of its interstate reach in the context of a FERC-regulated EIM program to support California's GHG program through selective dispatch and allocation of resource output based on a bid component reflecting carbon intensity. More particularly, the CAISO will be requiring out-of-state generators who wish to participate in the multi-state EIM to be governed directly by CARB as a pre-condition of submitting an offer for energy in the EIM. Put another way, a participant will be exposed to potential carbon allowance obligations merely as a result of a submission of a generator offer, not as a result of a conscious decision by the participant to deliver power into the state of California.

Additionally, CAISO has failed to consider the discriminatory impact of its EIM dispatch and allocation proposal on Asset Controlling Suppliers ("ACS") such as Powerex and the Bonneville Power Administration, whose emissions allowances are determined on a system average rather than single-source basis, and who, unlike CAISO, are subject to long-term oversight by CARB in the ACS renewal process. An ACS will be in direct competition with EIM generation in supplying 15-minute energy to the CAISO/EIM footprint, yet face a differing carbon obligation structure.

Powerex's concerns should not be misunderstood. Powerex is supportive of CARB's Cap-and-Trade program. Powerex has also, to date, not opposed the CAISO's modifications to its tariff which facilitate CARB's ability to charge carbon allowances from participants who *choose* to import power into the state of California. However, Powerex is extremely concerned that CAISO's inclusion of the Cap and Trade program in the EIM design goes well beyond what would be expected in a multi-state organized market. Moreover, CAISO's role in dispatch and allocation of EIM generation will likely create market distortions that are even greater than could be expected from the CARB program standing alone, and will compound the legal issues already inherent in that program, particularly for imports.

Perhaps the most troubling aspect of the Third Straw Proposal is that it is fundamentally exclusionary, with participation in the EIM program limited to entities that are both willing and able to submit to CARB's jurisdiction for purposes of registration, participation, and oversight in the Cap and Trade Program. CAISO thus preconditions an entity's participation in a FERC-regulated interstate program on submission to a state regulatory regime. This is an impermissible intrusion into FERC's exclusive jurisdiction over interstate transmission and wholesale power markets. Moreover, such a selective approach to EIM participation runs counter to FERC open access principles for RTOs.

Powerex urges the CAISO to reconsider its carbon proposal.

ISO Response

The ISO reiterates that the real-time market falls within existing safe-harbor provisions regarding resource shuffling. Participation in the EIM is voluntary. Since participating resources are dispatched across the EIM footprint, the EIM Participating Resource that chooses to participate is aware that a GHG obligation will be incurred if the resource is dispatched to support an EIM transfer into the ISO.

The CAISO's local market power mitigation runs counter to the voluntary nature of an EIM market and will hamper EIM liquidity, particularly during periods of regional scarcity and over-supply

Powerex continues to disagree with the CAISO's position on the need for local market power mitigation in a voluntary EIM market. Powerex urges the CAISO to consider applying local market power mitigation, or an alternative construct, only to transmission providers' resources in the narrow circumstances where the respective transmission providers' load customers are required to procure from, or be settled against, the EIM for energy imbalance services or other energy or capacity services. All other generation participation and all other load customers' participation should appropriately be viewed as voluntary, with application of LMPM measures both unnecessary and detrimental to market liquidity.

Powerex appreciates this opportunity to comment on the CAISO's Third Straw Proposal.

ISO Response

The ISO's understanding is that all deviations by load and generation in the balancing authority areas that participate in EIM will be settled based the energy imbalance service provided by the transmission provider responsible for providing this service in that BAA. Therefore, settlement of non-participating entities uninstructed deviations will rely on this energy imbalance service. Therefore, it is appropriate to have mitigation rules in place to ensure reasonable prices for the energy imbalance service being provided to all entities in the EIM.

Company	Date	Submitted By
Sacramento Municipal Utility District (SMUD)	September 6, 2013	Gary Lawson Gary.Lawson@smud.org (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) August 13, 2013 "Energy Imbalance Market (EIM) 3rd Revised Straw Proposal" (3rd Revised Straw Proposal) and its August 20, 2013 stakeholder meeting in Portland, which SMUD attended.		

ISO Response

The ISO appreciates SMUD's continued participation in the stakeholder initiative.

Transmission Service Charge

SMUD continues to back establishment of a charge for EIM use of as-available transmission that should be included at EIM start-up. While we are pleased with the CAISO's design changes to ensure participant resource efficiency and minimize "leaning" on the EIM, there remains a fundamental equity issue: this arrangement shifts costs from entities participating in the EIM to those participating in the real-time CAISO market.

Based on the CAISO's statement in Portland and in the 3rd Revised Straw Proposal (at 69), it appears the CAISO has determined not to include a transmission charge in the first year of implementation. SMUD encourages the CAISO establish a specific plan for transmission service rate development before EIM implementation in October 2014. This will ensure a framework is in place to assess the first year of operations and develop a rate that is ready to implement for the second year.

While SMUD understands the CAISO's position that "existing transmission rates of the ISO and EIM Entities were not based on an expectation that an EIM would exist" and therefore, "transmission revenue recovery will be fully compensated by existing transmission rates..." (*id.* at 70), SMUD sees no reason why such an over-collection cannot be applied to reduce future rates. In any event, not charging for the use of transmission, even for a limited period, does not strike SMUD as sound policy. Moreover, it would eliminate one of the expected cost components of transacting in an EIM.

ISO Response

As implementation planning has progressed with the first EIM Entity (i.e., PacifiCorp), it is apparent that no "as-available" or "free" transmission will be in use between the ISO and PacifiCorp. Instead, PacifiCorp Energy (which operates PacifiCorp's merchant functions), as a transmission customer and EIM Participating Resource, will offer firm transmission rights that it currently subscribes to, on the Pacific AC Intertie and between its own BAAs, for use in EIM for any potential Market Operator dispatch instructions resulting in schedules between BAAs. PacifiCorp will notify the Market Operator with the amount of transmission that is available for EIM transfers through the transmission profile on dynamic e-Tags. Other transmission customers with transmission rights between these BAAs could also nominate all or a portion of such rights for EIM usage on a voluntary basis. PacifiCorp Energy has paid for the firm transmission rights being offered. Within PacifiCorp's BAAs during the first year of EIM operation, EIM Participating Resources will be long-term firm transmission customers of PacifiCorp. PacifiCorp expects their EIM use to not exceed their reserved capacity for long-term firm point-to-point customers or prior month coincident peak demand for network customers, and any EIM use in excess of rights would be assessed an unreserved use charge.

The ISO's stakeholder documents have included "Alternative 2" as one alternative longer-term transmission rate design, which would apply a regional EIM transmission rate to EIM usage and may take the form of applying the resulting revenue to transmission service providers' revenue requirements for the next year. However, setting a regional EIM transmission rate under Alternative 2 at the outset of EIM operation would not be possible, since there is no history at

this time to allow an estimation of the actual volume of EIM imbalance energy. The ISO has explained that until actual historical data can be developed, Alternative 2 does not differ from Alternative 1 in practical terms. Thus, the ISO intends to initially implement Alternative 1, and consider Alternative 2 and other alternatives that may emerge, in a subsequent stakeholder process.

Transmission Capacity

The proposal at Section 3.2 pg 17 states:

“The Market Operator will calculate, and EIM Entity Scheduling Coordinator will submit or confirm, actual values for dynamic schedules reflecting the EIM transfers to the Market Operator within 60 minutes after completion of the operating hour, to update these values in accordance with WECC business practices via an update to the e-Tag.”

SMUD requests that the CAISO clarify the following issues in the next proposal: How will the available transmission capacity for transfer between EIM Entities and between the Market Operator be determined within the hour? Will the dynamic schedule require a transmission reservation at the beginning of the hour to reserve the transmission capacity? Will this be accomplished through an initial e-Tag at the beginning of the hour, which is then updated after the hour with the actual interchange that occurred?

ISO Response

Available transmission capacity available for EIM transfers will be based upon the transmission profile tagged in the dynamic schedule prior to the start of the operating hour. The energy profile will be updated after the operating hour based upon actual EIM transfers. If derates occur within an hour, the derate would be recorded in the ISO’s outage management system.

Impacts to COI

SMUD continues to stress the importance of ensuring there are no unintended impacts to non-EIM transmission. To this end, SMUD supports the comments submitted by the Transmission Agency of Northern California (TANC) and believes discussions between the CAISO and COI parties are in order.

ISO Response

As the ISO has previously noted, EIM’s operation will be limited to transmission that is otherwise available to the ISO market and transmission rights that are made available by EIM Entities such as PacifiCorp. Please refer to the section later in this set of responses to stakeholder comments for further discussion of TANC’s current comments.

Company	Date	Submitted By
Six Cities	September 6, 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

Alignment of EIM Costs with Benefits

In previous comments in this stakeholder process, the Six Cities have urged the ISO to develop an approach for allocating Energy Imbalance Market (“EIM”) costs that aligns those costs with the benefits resulting from implementation of the EIM. The “costs should align with benefits” concept is one formulation of the cost causation principle. The Six Cities have urged the ISO to develop 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.

The alignment of EIM costs with benefits should seek to achieve two objectives. First, the market participants in one BAA should not be forced to bear extra or incremental costs in order to produce benefits for the market participants in a different BAA. That is, the EIM should “do no harm” to the participants in any BAA. The Six Cities view compliance with the “do no harm” principle as a fundamental requirement for an acceptable EIM design.

While the “do no harm” rule is a necessary element of the EIM design, it is not by itself sufficient to satisfy the cost causation principle. Assuming that EIM implementation produces overall benefits that exceed overall costs, the cost causation principle and fundamental fairness also require that participants in the different BAAs bear shares of overall EIM costs that are roughly proportional to the shares of overall EIM benefits they receive. If, hypothetically, implementation of the EIM resulted in overall benefits of \$200 million, with \$150 million (75%) accruing to participants in BAA 1 and \$50 million (25%) accruing to participants in BAA 2, the cost causation principle requires allocation of approximately 75% of the EIM costs to BAA 1 and approximately 25% of the BAA costs to BAA 2.

Some of the cost allocation approaches described in the 3rd Revised Straw Proposal appear to focus on the “do no harm” objective. For example, in the 3rd Revised Straw Proposal, as in the 2nd Revised Straw Proposal, the ISO proposes to allocate congestion costs to the BAA in which the transmission constraint giving rise to the congestion is located. It is not clear, however, that it will be possible to isolate all of the impacts of congestion within a BAA and assign the associated costs to that BAA. As the ISO noted at page 22 of the matrix of comments and ISO responses on the first Revised Straw Proposal, “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 full costs for managing congestion by BAA may not be attainable.

The ISO’s proposed approach for the allocation of neutrality uplift costs based in part on energy transfers among EIM BAAs follows to some degree the concept of assigning costs in proportion

to benefits, but only very roughly. The neutrality costs transferred from one EIM BAA to another under the proposed allocation process may be either more or less than the benefits the transferee BAA received as a result of the energy transfers. The 3rd Revised Straw Proposal still lacks a commitment and a process for conducting a comprehensive assessment of all costs and all benefits resulting from implementation of the EIM and assuring that responsibility for costs is reasonably aligned with receipt of benefits as required by the cost causation principle.

ISO Response

Both neutrality charges and bid cost recovery payments include a proposal to transfer charges from EIM entities with EIM transfer to other EIM Entities or the ISO.

The ISO believes it is appropriate to calculate congestion costs for each BAA based upon the constraints located within the BAA. This provides incentives for resource plans of EIM Entities to resolve congestion prior to commencing the EIM.

Effects on Uplifts Associated With Virtual Bids

In previous sets of comments, the Six Cities and other stakeholders have 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 3rd Revised Straw Proposal appears to address the effects of EIM implementation on virtual bids that are affected by constraints within an EIM BAA (*i.e.*, external to the ISO transmission grid). With respect to other virtual bids, however, the 3rd Revised Straw Proposal points to the ISO's efforts to improve the accuracy of the ISO's Day-Ahead modeling process and promises to consider changes to the allocation of convergence bidding uplifts resulting from constraints within the ISO if the efforts at improved modeling are insufficient.

There is no reason to anticipate that improvements in the modeling of the Day-Ahead process will be sufficient to offset potential impacts of the inherent differences between the Day-Ahead market in the ISO BAA and the EIM covering the expanded EIM area. Even if the new and improved Day-Ahead model reflects with reasonable accuracy the anticipated transmission conditions, loads, and resource utilization within the ISO and in neighboring BAAs operating separately, the implementation of the EIM will change the resource utilization pattern in Real-Time. Indeed, that is the stated purpose of the EIM. And because the EIM will function as a single integrated real-time market, changes from the Day-Ahead model are likely to affect nodes internal to the ISO separate and apart from the effects of constraints in an EIM BAA. The ISO cannot ignore the effects of implementing the EIM on the outcomes of the virtual bidding process even within the ISO BAA. 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 ISO believe improved model in the ISO's day ahead market will address the real-time congestion offset by more accurately reflected real-time flows in the clearing of the day-ahead market. After the improved modeling is implemented the ISO will review if modifications are

necessary to the ISO's allocation of the real-time congestion offset.

Local Market Power Mitigation

The Six Cities generally support the ISO's proposal to apply a modified version of the Local Market Power Mitigation ("LMPM") methodology currently in effect for the ISO to mitigate bids of resources participating in the EIM. However, at page 28 of the 3rd Revised Straw Proposal, the ISO indicates that it plans to apply LMPM to a resource only if that resource is necessary to address a constraint within the same BAA. The Cities oppose that aspect of the ISO's LMPM proposal. The Six Cities understand the ISO's proposed limitation on the application of LMPM to reflect the general principle that each BAA participating in the EIM is responsible for resolving congestion within that BAA prior to the EIM optimization. Conditions may change, however, causing unanticipated congestion in Real-Time, and a resource may be dispatched to relieve congestion not only within the BAA in which the resource is located but also in any other EIM BAA. Under the ISO's proposal, a resource with market power relative to a constraint located in a different BAA could be dispatched at an unmitigated bid price to relieve that constraint. Permitting the exercise of market power, even if the affected BAA has not been successful in resolving congestion, is not acceptable. Bids by resources with market power relative to any constraint - - wherever located - - should be mitigated.

ISO Response

As clarified in the Draft Final Proposal, the ISO proposes deem the EIM transfer constraints between EIM Entities (and between the ISO and EIM Entities) as competitive and will monitor to see if this designation should remain.

As a practical matter, however, the ISO does not believe that given actual network topology a situation has existed in which a supplier in the ISO has had local market power in another BAA, or vice versa. Moreover, the ISO notes that today all BAAs are responsible for mitigating congestion on constraints within that BAA.

Commitment Costs

In the 3rd Revised Straw Proposal (as in the 2nd Revised Straw Proposal), the ISO proposes to charge an EIM BAA for Bid Cost Recovery for commitment costs only if the EIM BAA has agreed to allow the ISO to commit resources within the EIM BAA. The Six Cities oppose this aspect of the proposed EIM design. The ISO's matrix of comments and responses on the 2nd Revised Straw Proposal provided no justification for the ISO's proposed treatment of commitment costs. However, the ISO suggested during the August 20th meeting on the EIM that the proposed treatment of commitment costs is premised on a theoretical reciprocity of resource commitment by EIM BAAs that do not allow the ISO to commit resources within their BAAs. As described below, it appears highly unlikely that resource commitments to support the EIM will be symmetric. Under these circumstances, the ISO's proposed treatment of commitment costs will impose a disproportionate and unfair burden on ISO load.

Under the proposed EIM design, the ISO will commit resources to meet the imbalance needs of the entire ISO/EIM area. Within the ISO BAA, Resource Adequacy Resources that are able to do so must participate in the Real-Time Market and, therefore, will be subject to commitment to meet EIM requirements. The ISO as Market Operator, however, will not have authority to

commit resources within an EIM BAA unless the EIM BAA agrees to allow such commitment. There does not appear to be any obligation for an EIM BAA to commit resources within its area to support EIM needs. Moreover, since participation in the EIM is voluntary for resources within an EIM BAA, it appears that neither the EIM BAA nor the ISO (with the EIM BAA's permission) could commit resources within an EIM BAA without the agreement of individual resources.

Given the apparent differences in the availability requirements applicable to resources within the ISO BAA versus resources within EIM BAAs, there is no reasonable basis for an assumption that resource commitments within EIM BAAs will be balanced in comparison with commitments of resources within the ISO BAA. It is far more likely that the ISO will use its greater authority to commit resources within the ISO to support the needs of EIM BAAs. Under these circumstances, it is unreasonable to allow EIM BAAs to effectively opt out of paying for commitment costs of resources committed to meet their needs.

ISO Response

EIM Entities no longer can opt out of unit commitment. This allows the bid cost recovery to net energy cost/revenues and commitment cost/revenues.

Greenhouse Gas Costs for ISO Resources Used to Serve Load Outside of California

In the context of developing a methodology for compliance with California's Greenhouse Gas regulations, the ISO has indicated that it is possible to identify which resources are used to meet the needs of which BAA. It therefore should be possible for the ISO to identify which resource commitment costs are incurred to meet the needs of EIM BAAs and to assign those costs to the appropriate BAA. To the extent an EIM Entity can demonstrate that it has incurred commitment costs in order to meet EIM requirements in the ISO BAA, it would be appropriate to allocate such costs to the ISO BAA.

The method for identifying and tracking greenhouse gas ("GHG") compliance costs described in the 3rd Revised Straw Proposal generally appears reasonable. The Six Cities, however, request clarification of one statement included in the discussion of GHG compliance. The 3rd Revised Straw Proposal states at page 79 that "[l]oad in EIM Entity BAAs outside California will not be assessed GHG emission costs." The ISO assumes that resources located within California that have a GHG compliance obligation will incorporate the GHG emission costs into their energy bids. See 3rd Revised Straw Proposal at page 78. If energy produced by a resource located within California provides the marginal source of supply for load outside the ISO BAA, such external load should be responsible for paying the full offer price for such marginal resource, including any emissions costs implicitly incorporated in the bid price. The Six Cities request confirmation that the ISO expects load outside the ISO BAA to pay emissions costs to the extent such costs are incorporated in the energy bids for California resources used to serve load external to the ISO BAA.

ISO Response

Since the GHG costs for ISO resources is embedded in the energy bid, if an ISO resource is the marginal unit and there are EIM transfer out of the ISO, the energy price in EIM footprint will be based on the ISO resource.

Transmission Charges

The 3rd 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. As one possible way of addressing such concerns, the 3rd Revised Straw Proposal suggests at pages 73-74 that Transmission Access Charges and Wheeling Access Charges might be applied only to loads within the ISO BAA and to wheeling schedules (not including exports or EIM energy transfers). The Six Cities oppose any narrowing of the current application of transmission access charges but do not take a position at this time regarding application of transmission charges to EIM transfers. If implementation of the EIM goes forward without transmission charges for EIM transactions, however, the ISO must be alert for potential market distortions and prepared to act promptly to address any that appear.

ISO Response

The ISO's and PacifiCorp's ongoing implementation planning has allowed additional discussion of transmission charges in section 3.8 of the Draft Final Proposal. Among the key points is that there is no free transmission: EIM will function using transmission that is currently available to the ISO market and transmission for which PacifiCorp Energy already holds firm rights. As with all aspects of EIM operation, the ISO will review market results and propose changes to the market if unintended consequences are found. The ISO will commence a stakeholder process to review additional alternatives for transmission service, but for this to be meaningful, this will be the most useful after sufficient operational data has been collected. See section 3.12 on future design enhancements.

Adequacy of Measures to Prevent Leaning

The 3rd Revised Straw Proposal includes several measures to discourage leaning by one EIM BAA on the capacity resources of another participating BAA. As noted in the Six Cities' previous comments on the 2nd Revised Straw Proposal, the Cities support the ISO's proposal to apply a flexible capacity requirement for each BAA participating in the EIM. The Cities also support the proposal to apply a graduated penalty for underscheduling of load. However, the Cities remain concerned that the "anti-leaning" measures proposed to date may not be adequate to avoid diminution of reliability within the ISO. Several commenters have suggested that in addition to a penalty for underscheduling of load, there also should be a penalty for overscheduling by resources. This seems particularly necessary when the ISO has no plans to assess the likely availability of resources included in the base schedules submitted by EIM BAAs (3rd Revised Straw Proposal at page 7), and there is no difference in the price for settlement of instructed imbalance energy versus uninstructed imbalance energy (Comments/Response matrix for the 2nd Revised Proposal at page 56). Although the Six Cities appreciate that resource adequacy procurement is outside the scope of the Real-Time market, it is not inconsistent with the Real-Time focus of the EIM to include measures to encourage resources to perform as represented in the base schedule or, for those participating in the EIM, as directed by the ISO as Market Operator.

ISO Response

The draft final proposal includes an over-scheduling penalty.

Recovery of Stranded Costs from Withdrawing Participants

In their comments on the 2nd Revised Straw Proposal, the Six Cities requested an explanation for how EIM costs would be recovered in the event the EIM terminates or one or more EIM Entities choose to withdraw. The ISO's response at page 56 of the Comments/Response matrix for the 2nd Revised Proposal simply asserts that start-up costs are recovered through the initial implementation agreement, and on-going costs will be covered by the EIM administrative rate. The ISO's response implies that there could be no unrecovered or "stranded" costs resulting from withdrawal of an EIM BAA, but that premise does not seem self-evident. At a minimum, the EIM design should include a provision for analysis to determine whether any stranded costs will occur as a result of withdrawal of a BAA from the EIM and make clear that any stranded costs identified will be the responsibility of the withdrawing BAA.

ISO Response

The EIM implementation costs for new EIM Entities are recovered upon their start-up, as determined in the Implementation Agreement and filed with FERC. These costs are not refundable to an EIM Entity if it no longer participates in the EIM. No exit costs are expected if an EIM Entity stops participating.

On-going costs are recovered through the administrative rate.

Company	Date	Submitted By
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Opening Comments

The following are Southern California Edison's (SCE) comments on the California Independent System Operator's (CAISO) Third Revised Design Straw Proposal and Issue Paper (Proposal) for an Energy Imbalance Market (EIM) issued on August 13, 2013.¹ SCE continues to support the development of an EIM. 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. The CAISO should be commended in their effort to resolve numerous issues and present solutions in revised proposals. However, while progress has been made, there are remaining issues and questions that need to be resolved before the Proposal can be finalized per the schedule on September 23, 2013.

SCE comments on the following issues:

- The CAISO should develop a phased EIM implementation plan allowing the CAISO more

time to resolve, design, and test the numerous outstanding complex issues.

- Convergence bidding has many complexities that need resolution before finalizing an EIM proposal.
 - SCE remains concerned that Convergence Bidding will not function properly in the proposed EIM design.
 - SCE requests the Market Surveillance Committee issue an opinion on whether Convergence Bidding can function as originally designed in light of the proposed EIM.
 - The Department of Market Monitoring (DMM) proposal for Convergence Bidding uplift allocation looks promising and should be fully developed.
 - The CAISO should implement the DMM's Convergence Bidding uplift proposal expeditiously within the current CAISO market.
- An EIM that conforms to the California Air Resources Board's regulation on Greenhouse Gas Emissions (GHG) has multiple complex issues that impact the design and operation of an efficient EIM.
 - The CAISO must fully explain how price formation will occur in the EIM given the complexities caused having two prices one with and without GHG.
 - SCE recommends that bidding for GHG should be linked to compliance costs and thus subject to a bid cap and bidding limitations.
 - The CAISO should offer more detail on the treatment of GHG in the EIM.
 - Discrepancy in the treatment of GHG between the day-ahead (DA) and real-time (RT) markets creates incentive differences for generators.
 - Lack of a provision to allow entities to utilize the CARB's Qualified Export (QE) Adjustment. creates market (GHG and electricity) inefficiencies
 - The CAISO should consider making EIM Export Allocation Payments subject to refund given the regulatory uncertainty associated with GHG compliance for EIM Entities
- SCE seeks further information on the flexibility capacity constraint and how it would function with a generation balancing authority with only variable energy resource generation.
- SCE seeks clarification on Bid Cost Recovery and Neutrality Settlement
- The CAISO should explain if existing provisions to curtail exports already prevent excessive resource leaning.

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

ISO Response

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

1. While SCE continues to support an EIM, the CAISO should develop a phased EIM implementation plan to allow more time to resolve numerous complex issues

SCE continues to support the development of an integrated EIM with PacifiCorp. While much progress has occurred, there are still numerous complex issues that need resolution. A phased

process would allow benefits to be obtained while offering more time resolve these issues needed to implement an integrated EIM. SCE recommends that Phase 1 be a separate EIM (with full 15-minute and 5-minute LMP markets) established for PacifiCorp under the current CAISO schedule.^{2 3} This design phase should ensure robust 15-minute scheduling exists between the CAISO and the EIM. This would allow the CAISO and PacifiCorp to ensure their systems are working as intended and any problems would not impact the current CAISO market. Phase 2 would be the joint optimization of resources (15-minute and 5-minute) located in CAISO and PacifiCorp. While Phase 1 is operating, there would be additional time to resolve the numerous EIM design complications and run simulations of joint optimization to ensure the processes are working as intended. There are two reasons that a phased approach has advantages.

First, a separate EIM for PacifiCorp does not require the resolution, design and testing of the following issues:

- GHG compliance issues (given that imports of GHG will be treated as they are today using E-tags)
- Including a separate GHG component in the locational marginal price (LMP) for imports into California
- Transmission pricing
- Flexible Ramping Constraint requirement & sufficiency tests (resource leaning)
- EIM Entity Unit Commitment
- Uplift cost allocation & revenue neutrality
- Convergence bidding

Second, according to CAISO studies, it would provide dispatch benefits of \$2.3-\$23 million per year to PacifiCorp and is possible under the current schedule. Moreover, this approach allows for 15-minute interchange scheduling at the interface between the CAISO and the EIM entity, expected under FERC Order 764 market changes, which should capture the bulk of any remaining benefits.

SCE believes the current scope of the full EIM proposal is likely to face delays due the aforementioned unresolved issues and necessary CAISO system changes. Having the capability to implement Phase 1 greatly increases the likelihood of an EIM implementation in October 2014.

In terms of schedule and process, we recommend the CAISO first seek CAISO Board approval of the implementation of Phase 1 with the current target of an October 2014 go live for PacifiCorp's EIM. At the same time, the CAISO could present, for information purposes, the current conceptual design for Phase 2. The Board would also approve the continuation of moving forward with Phase 2 design, system changes, and testing, but stop short of approving full implementation. Once there is resolution on Phase 2 issues and designs have been tested, based on these results, the CAISO would return to the Board, request any modifications as needed, and then gain final approval of the Phase 2 issues.

Finally, in addition to the issues listed above, there are still many unanswered questions that need resolution before the establishment of a final CAISO + PacifiCorp EIM proposal, currently scheduled for September 23, 2013. For example, the CAISO scheduled an EIM technical workshop on September 3, three days prior to comments due date. The CAISO has also

alluded, in their response matrix, to having additional technical workshops.⁵ These actions make it clear there are still many issues that need understanding by stakeholders and issues resolved before the establishment of a final proposal.

Furthermore, some of aforementioned issues would require changes in the CAISO model and rely on the progress of the Full Network Model Expansion initiative. The Phased approach would allow the CAISO, and market participants, more time to make changes to their model and software systems.

Due to complexities such as GHG pricing and lack of a day-ahead market for EIM Entities, the CAISO's EIM proposal is not a simple extension of the current market design. Rather, the EIM proposal changes the very economic meaning of an LMP in areas external to the CAISO, and will have new material impacts on convergence bids settlements. These design proposals need to be well understood and simulated to understand their impacts. In a rush to meet the current schedule, there is a risk of creating a poor design that may result in a failure to deliver the intended benefits of a wider EIM and instead result in detrimental consequences. We note the EIM has the potential to extend throughout large portions of the WECC – the CAISO and market participants require thorough testing and simulation to ensure we “get this right”.

In summary, given the complexity of the EIM coupled with the potential wide reaching impacts of the market, a phased approach as rational and prudent. The phased approach can still deliver material economic benefits and should increase the likelihood of an October 2014 go-live. The phased approach allows more time to resolve complex issues, which SCE details in the following sections. It also allows time to test the design to ensure the fully co-optimized market CAISO+EIM delivers value to all stakeholders.

ISO Response

The ISO has conducted five in-person stakeholder meetings and six web conferences during the course of this stakeholder process. The ISO believes that it has adequately addressed the market design issues to allow the initial EIM implementation to proceed, and will continue to monitor market outcomes and propose future refinements, as it does with all aspects of its markets.

During the year-long period between now and the EIM implementation date of October 2014, the ISO will conduct extensive testing of these market changes, first through internal processes and then followed by market simulation testing. This is the ISO's standard procedure for implementing major market changes that affect market participants. Indeed, the ISO has been engaged in implementation since the ISO Board approved the implementation agreement with PacifiCorp in March 2013. The ISO believes this process can successfully resolve issues that may arise.

The coordinated dispatch across the ISO and EIM footprints is one of the most significant benefits of the EIM. The ISO appreciates the concerns that SCE has raised, but does not consider these concerns to outweigh the benefits to be achieved through EIM operation or to be a reason to delay implementation of EIM transfers. Launching the market at a time when the number of EIM Entities is limited, and transfer capacity may be naturally limited by the transmission rights that can initially be made available, provides an opportunity to identify and resolve those issues in a manner that minimizes any potential negative impacts and operational challenges. As noted in the Draft Final Proposal, transmission services, the flexible ramping product, and other design elements are slated or open for further consideration by the ISO

through further stakeholder initiatives and processes.

The ISO considers it premature to develop an implementation phasing approach at this time. Any phasing approach should be considered and developed after initial testing and market simulation has occurred. The ISO believes that any phasing that prohibits transfers between ISO and EIM area undermines the ability to exercise and benefit from the full design and would delay moving to higher transfer capability. The phase-in approach proposed would require additional preparation and implementation cost.

Others have also proposed other phasing approach that would start with a low transfer level (i.e. 100MW) before moving to a higher level of transfers. Although it is premature to lock-in timing and level of transfers of such a phasing approach now, a phasing approach that starts with a low transfer before transitioning to higher transfers may be more appropriate to consider after testing. Proposed phasing approach could be addressed as part of a briefing to the Board of Governors of testing and market simulation results prior to start of the EIM.

2. Convergence bidding has many complexities that need resolution before finalizing an EIM proposal

A primary reason for convergence bidding was to resolve the problem of participants either under-scheduling or over-scheduling in the day-ahead market and in turn creating price differences between the day-ahead and real-time market. By enabling virtual load and supply bids, prices could converge improving market efficiency. The Proposal establishes a real-time market of CAISO+EIM while the day-ahead load remains only CAISO, making the day-ahead and real-time markets fundamentally different. As explained in more detail below,

SCE questions whether convergence bidding can converge prices as intended between two fundamentally different markets. As a result, SCE requests the Market Surveillance Committee investigate and issue an opinion on the ability of convergence bidding to operate as intended under proposed EIM structure.

In response to concerns of uplift created by convergence bidding, the Proposal outlines a solution that would assign some of the convergence bidding uplift costs back to virtual bidders when it is associated with constraints that become infeasible in the EIM footprint. SCE supports further investigation of the solution to resolve the assignment of uplift costs, and recommends CAISO apply a workable solution CAISO wide.

ISO Response

The Market Surveillance Committee will be providing an opinion on the EIM design. Additional responses are below.

a. SCE remains concerned that convergence bidding will not function properly in the proposed EIM design

The Department of Market Monitoring (DMM) uplift allocation proposal addresses an important, but narrow issue, related to the cost allocation when DA schedules create infeasibilities in the 15-minute EIM footprint. However, the much larger and general issue is the structurally different between day-ahead market (CAISO only) and the real-time market (CAISO & EIM Entities) remains unaddressed. SCE does not support simply addressing “part of the problem” while

ignoring the more general issues.

SCE has noted this concern in every round of comments and the CAISO has not yet provided any reason to conclude these concerns are unwarranted or have been addressed. A host of modeling and behavioral actions related to nodes within the EIM can impact prices within the current CAISO footprint. These include EIM Base Schedules, EIM load forecasts and the distribution of the load (LDFs) within the EIM, EIM transmission outages, EIM transmission constraints, and modeling of unscheduled flow within the EIM, to name a few. Changes in any of these assumptions between the day-ahead market and the 15-minute real-time market will impact prices, not only in the EIM, but also likely *within the CAISO footprint*. Once again, these model changes will provide virtual bidders the opportunity to “bet against the CAISO” and when they win, the market will not ‘self-fund’ and require uplift. SCE does not find this outcome reasonable.

Moreover, impacts on CAISO prices may be predictable by EIM Participants. For example, an EIM Participant may learn it can impact prices on particular CAISO nodes depending on whether or not it includes a generator in its Base Schedule. In this situation, it could potentially profit by placing Virtual Supply or Virtual Demand bids on impacted CAISO nodes in light of its private knowledge of its Base Schedule strategy.

In sum, SCE contends that convergence bids only converge prices and do so without resulting in uplift requires 1) a ‘closed system’ in which the market operator maintains constant limits between the day-ahead and real-time market topology , and,

2) where physical and virtual market participants take ‘bets’ against each other’s actions anywhere bids are allowed within that market. Neither of these conditions is true in the EIM proposal. That is, the CAISO will systematically change the market between day-ahead and real-time, and rules only allow virtual transactions in a subset of the ultimate real-time market footprint. As a result, SCE questions if Convergence Bids can properly converge prices in the proposed EIM design. Additionally, it seems highly likely that ‘bets against the CAISO’ (and possibly against EIM entities) will force load to pay unjust and unreasonable uplift costs. Finally, SCE notes the proposal would require only CAISO load to pay this uplift while resources within PacifiCorp have the ability to impact and profit from convergence bidding settlements—SCE does not find this result reasonable.

ISO Response

The ISO believe improved model in the ISO’s day ahead market will address the real-time congestion offset by more accurately reflected real-time flows in the clearing of the day-ahead market.

b. SCE requests the Market Surveillance Committee issue an opinion on whether Convergence Bidding can function as originally designed in light of the proposed EIM market

Given the complicated nature of this problem, and in light of the material uplift issues already experienced with Convergence Bidding, SCE formally requests the Market Surveillance Committee explore this design and issue an opinion on if Convergence bids can function properly, and without uplift, in the proposed EIM design.

ISO Response

The Market Surveillance Committee will provide an opinion on the EIM design.

c. The Department of Market Monitoring (DMM) proposal for Convergence Bidding uplift allocation looks promising and should be fully developed

In the current Proposal, the CAISO offers a new uplift allocation method for Convergence Bids. SCE appreciates the CAISO moving away from the approach in the Second Proposal as it created additional pricing issues. The new proposal recognizes that the CAISO will model EIM Entity transmission in the day-ahead market, but will not enforce transmission limits. However, in the 15-minute and 5-minute markets, the CAISO will enforce the transmission limits. As a result, the CAISO may clear bids in the day-ahead market that ultimately create infeasible flows in the 15-minute and 5-minute markets when the market enforces the EIM constraints.

Under the revised proposal, the CAISO will take note of any flows cleared in the day-ahead market (both Virtual and Physical flows) that ultimately exceed the path levels enforced in the 15-minute EIM market. When the day-ahead flow exceeds the 15-minute limit, the CAISO has, in effect, an infeasible flow. In general, restoring an infeasible flow to feasible limits creates uplift. The CAISO proposes to allocate the uplift associated with returning the line to feasible limits to the virtual and/or physical flow that created the infeasibility.

SCE supports the CAISO developing the DMM proposal in full. While limited examples have been provided, SCE encourages the CAISO to simulate “real world” cases using the full network EIM model and representative bids to ensure the proposal produces reasonable results. The testing and results should be shared with stakeholders to allow a final evaluation.

ISO Response

The ISO’s current Full Network Model Expansion stakeholder initiative is proposing market design and modeling changes which will improve consistency between the day-ahead market and real-time market by more accurately modeling real-time loop flows in the integrated forward market. After the improved modeling is implemented the ISO will review if modifications are necessary to the ISO’s allocation of the real-time congestion offset.

d. The CAISO should implement the DMM’s Convergence Bidding uplift proposal expeditiously within the current CAISO market

Assuming the aforementioned testing indicates reasonable performance, the CAISO should implement Convergence Bidding Uplift proposal in the current market. As noted, the CAISO currently allows Convergence Bidders to profit from modeling changes between the CAISO day-ahead and real-time market. This current situation in today’s CAISO operations directly compares to the problem identified in the EIM, and the same solution should work in both cases.

SCE raised the material concern of “betting against the CAISO” in comments on docket ER13-10606. The Federal Energy Regulatory Commission (Commission) acknowledged this concern in their Order and noted “**The Commission encourages CAISO to pursue its evaluation [of proper uplift allocation] vigorously and to propose solutions to the observed difficulties promptly when they become evident.**” (Emphasis added) If the proposal proves viable, the

CAISO should promptly file with the Commission for implementation in the current market.

ISO Response

See response above.

3. The California Air Resources Board’s regulation on Greenhouse Gas Emissions (GHG) creates multiple issues that impact the design and operation of an efficient EIM

Given that GHG is a compliance cost for transactions involving California, but not PacifiCorp, GHG policy has created multiple complications which impact market incentives. The Proposal effectively creates two prices at nodes in EIM BAAs dependent on where the power is deemed delivered. The price formation of this two-LMP system has yet to be fully explained and vetted, nor are we aware of any electricity market in North America that has an analogous pricing algorithm that can provide insight on price formation. Additionally, the Proposal’s treatment of GHG creates asymmetric incentives for participation in the day ahead market and real-time market. Finally, only EIM Participants are allowed to submit separate GHG bid component in addition to the energy bid. These significant deviations from existing market practices are untested and require careful analysis to ensure they do not distort the markets (either the CAISO’s or the EIM Entities’) in unintended ways.

ISO Response

There is a single LMP calculated at each pricing location, be it within the ISO, or within an EIM Entity BAA, or elsewhere in the FNM. That LMP applies to the total imbalance energy produced or consumed at that pricing location. The effect of the GHG compliance marginal cost for imbalance energy produced by EIM Participating Resources that is deemed to be imported into California is an additional LMP component for all pricing locations in EIM Entity BAAs. This LMP component is the negative of the GHG compliance marginal cost, effectively reducing the marginal energy cost in EIM Entity BAAs, or conversely increasing the marginal energy cost in the ISO, depending on the reference view. The reference that was selected in the model formulation (export from EIM Entity BAAs, rather than import into California) results in the additional LMP component for pricing locations in EIM Entity BAAs, rather than in California, to isolate existing Market Participants from a change in the LMP calculation.

The proposed GHG compliance treatment is not asymmetric between the day-ahead and real-time markets. In the day-ahead market, the GHG compliance cost is implicitly included in the energy bids of imports into California. In real-time, it is necessary to separate this cost from the cost of imbalance energy produced in EIM Entity BAAs so that it would only apply to the portion of that energy that is deemed imported into California. For other imports into California tagged on ISO interties, the GHG compliance cost is implicitly included in the energy bids, similarly to the day-ahead market.

a. The CAISO must fully explain how price formation will occur in the EIM given the complexities caused by pricing GHG

The CAISO has offered a completely new system for price formation with the introduction of two LMPs for every node in the EIM Entity. The CAISO has not fully explained this complex new

system for price formation. SCE is concerned that new system for LMP formation has not been fully designed nor vetted, which could result in inappropriate pricing and market disruption.

While SCE appreciates the CAISO's provided theoretical layout of LMP with equations on Page 79-81 of the Proposal, these concepts are not carried into its examples. For instance, the formulas show that the transmission line flow and locational market prices (LMP) are determined with the use of shift factors representing the percentage of generator power flow 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. SCE has been unsuccessful in attempts to replicate the examples with a model representing the formulas. Part of the problem is due to the shift factors that represent physical flow.

To obtain the results in the examples, the shift factors would have to unrealistically change between examples. If the shift factors are held constant, then different LMP results occur due to line and shift factor constraints. To summarize, the examples provided 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_j (EIM energy export allocated to EIM Entity generator j) is not defined.⁸ 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. This is also important as the allocated exports appear in the simplified objective function proposed by the CAISO, and yet how the allocated exports are calculated and its relationship to other elements (e.g. the bids, the clearing prices) is not clear from the Proposal.

SCE recommends the CAISO publish complete examples (with the shift factors) of the Security Constrained Economic Dispatch (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.

Finally, a second bidding component, to capture GHG costs, has been added to the formation of the LMP. In SCE's view, the intent of the GHG component should be to compensate a generator for a cost that only occurs if a non-clean resource exports to California. SCE fails to see any economic rationale to allow a resource with no GHG obligation to establish the price for a component that is intended to recover GHG compliance costs. In addition, the proposal effectively creates two components subject to market bidding because there are no restrictions on this bid, except that the combination of the energy bid and GHG bid cannot exceed \$1000/MWh. This has the ability for behaviors that were not intended. For example, what happens if a unit bidding a negative GHG price is marginal?

ISO Response

The GHG proposal is not based upon shift factors. The bidding rules have been updated in the draft final proposal – minimum bid is \$0.00 and the value is used for all hours in a trade day.

The variable E_j , defined as the net imbalance energy export from EIM Entity BAAs allocated to generator j , is not calculated by a formula in the mathematical formulation because it is a control variable, which means that its optimal value is determined by the optimal solution based on the GHG compliance bid, as shown in the objective function. Furthermore, this control variable does not participate in transmission constraints where shift factors appear. This control variable is only constrained by the net interchange between all the EIM Entities as a group and the ISO, and by the optimal dispatch of the individual EIM Participating Resources. This variable is also

not constrained by any inter-temporal or resource operational constraints, such as ramp rates or unit commitment constraints. Therefore, to illustrate the application of the proposed GHG compliance method, we chose to avoid using shift factors in the examples since they do not have a material effect. We simply assumed LMPs that would of course be calculated using shift factors to reflect the cost of transmission congestion, however, for the sake of simplicity, we did not show that particular aspect of LMP calculation as it is not relevant in the examples.

Because the net imbalance energy export allocations to EIM Participating Resources are not constrained by either transmission or resource constraints, we did not see a reason that would necessitate mitigation of GHG compliance bids. The optimal allocation is solely determined by the GHG compliance bids, which are selected in merit order among all EIM Participating Resources. For the same reason that the optimal allocation is not affected by transmission or inter-temporal constraints, including the GHG compliance revenue and cost in the Bid Cost Recovery will not contribute any shortfall because the revenue will never be less than the cost.

b. SCE recommends that bidding for GHG should be linked to compliance costs and thus subject to a bid cap and bidding limitations

The original Proposal used the emission factor (metric tons/MWh) for a resource and a GHG index gas price (\$/ metric ton) to determine the GHG cost of a GHG emitting resource exporting to California. In the Third Proposal, EIM Participating Resources are able to submit their GHG compliance bid prices in \$/MWh. SCE assumes the reason for the change is because some parties commented that individual participants may have different costs for GHG compared to an index price. If the market is competitive and price formation works correctly and drives parties to submit bids reflective of their costs, then this is a reasonable proposal. It would be a false assumption to assume all parties would only bid their actual GHG compliance costs in the GHG bid. However, as aforementioned above, the CAISO has not demonstrated that its newly proposed system for LMP formation with GHG bids will work correctly. As the GHG price component was added to allow for the recovery of a cost when an export occurs to California, SCE recommends that GHG be considered a cost recovery element subject to bidding limitations.

The GHG component can be viewed similar to a cost recovery component, such as start-up costs, as it sets the export allocation payment⁹ which is intended to compensate resource for GHG compliance cost when exporting to California. In order to allow entities to have some flexibility to submit values reflective of their individual GHG costs, while at the same time minimizing the potential for entities to take advantage of potentially inappropriate price formation, SCE recommends the following bidding limitations:¹⁰

- Resources submit a \$/metric ton bid subject to a bid range between zero
- and 150% of the GHG index price
- Limit the GHG bid to one value (\$/metric ton) per day per resource
- Only allow GHG-emitting resources to bid GHG costs¹¹

Moreover, SCE does not support using a GHG bid component to represent a “willingness to sell to California”. Eligible EIM bids participate in the price formation of the GHG shadow (i.e. the “GHG clearing price”) paid to all units deemed to import to California. We find no economic justification to increase the GHG shadow price simply because a unit prefers not to sell to California. If EIM Participants want such a feature, it should be handled outside of the GHG

pricing mechanism.

SCE's proposed limits on bids will balance flexibility for a generator to recover legitimate costs and limit the financial impact of any possible exploitation of the new LMP pricing algorithm. The limit of one value per day is reasonable given that GHG costs should not vary within a day. The limitation of GHG bidding to only GHG emitting units is reasonable because there is no justification for allowing non-emitting units—for example hydro units—to set the GHG price that all EIM Participants, deemed to export to California, get paid when they do not incur GHG costs.¹² In summary, SCE's proposal for GHG cost bidding is a balance between allowing resources the flexibility to recover their cost while limiting potential distortions caused by the new price formation methodology.

ISO Response

The GHG compliance bid is fixed for the trading day. The original proposal suffered from a considerable administrative cost for verifying and validating emission factors for generating resources that are located in external control areas for which the ISO has limited authority. It also raised questions on the selection and maintenance of an appropriate GHG emission price index. The revised proposal sidesteps all these issues and simplifies implementation by allowing the submission of a GHG compliance bid that is evaluated economically among all EIM Participating Resources, thereby transferring responsibility for pricing emission costs to the same entities that bear these costs. This is comparable and consistent with how energy imports are priced in the day-ahead market where it is assumed that GHG emission costs are implicitly included in the energy bids. Furthermore, as explained in the previous response earlier, there is no need to mitigate GHG compliance bids as their optimal selection is based solely on their merit order without impact from transmission or resource constraints.

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

SCE appreciates that the CAISO has responded to some of SCE's questions in its stakeholder meetings and written responses to comments, but CAISO has not addressed a number of substantial concerns. In the last round of comments SCE asked a number of questions related to the settlement of deviations when the export allocation changes. In its written responses, the CAISO responded with a brief answer that does not offer the necessary detail to understand the new complicated price formation. In a subsequent workshop and design proposal, the CAISO should address the following questions, which SCE has offered previously:

- i. 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.

- ii. 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?
- iii. If not, then who has responsibility for that export allocation and how are they compensated for it?
- iv. 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?
- v. What price will Generator Y “pay back”? Note that it may have received an export allocation payment on top of the energy (LMP) payment.
- vi. 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?
- vii. Please provide detailed examples on how deviations are settled.

ISO Response

The GHG compliance obligation is based upon instructed imbalance energy, not meter values. The GHG obligation can only be incurred through EIM if the Participating Resource has an energy dispatch that exceeds its hourly base schedule.

d. Discrepancy in the treatment of GHG between the day-ahead (DA) and real-time (RT) markets creates incentive differences for generators

Non-California resources participating in the DA market have the ability to sell “unspecified power” which may enter California with GHG compliance obligation determined by the unspecified emissions rate. In contrast, the Proposal’s real-time market will use the unit specific emission factor for determining the GHG compliance obligation for resources’ power that enters California. Thus, resources with emission rates higher than the unspecified emission factor will prefer to sell day-ahead instead of real-time so they can take advantage of the lower emission rate, therefore incur lower costs. This creates asymmetric incentives between day-ahead and real-time markets, which would also impact resource bidding strategy. CAISO should investigate the implications of this asymmetric incentive to participate in one market rather than the other.

ISO Response

The ISO will monitor the EIM design once implemented.

e. Lack of a provision to allow entities to utilize the CARB’s Qualified Export (QE) Adjustment

CAISO should allow entities to utilize the CARB’s QE Adjustment to appropriately reduce their GHG compliance obligation for non-tagged wheels of electricity. Given the existing market design, entities can reduce their GHG compliance obligation with the CARB if they show that they imported into California and exported from California within the same hour, even if that import and export is not tagged as a wheel through California. This is possible by showing

CARB the Etags for the entity's imports as well as the e-tags for the entity's exports in any given hour. Under the EIM Proposal, however, the CAISO will not provide entities E-tags for their exports to the EIM BAAs. Thus, entities will not be able to use the QE Adjustment to reduce their compliance obligation with the CARB, resulting in higher compliance costs for those entities and for California as a whole.¹⁵ While the volume of exports from CAISO to PacifiCorp may not be substantial, the volume of exports from CAISO to other parts of the WECC is considerable. The lack of consideration of the CARB's QE Adjustment in the EIM design is an issue that may seem relatively small at this point if only PacifiCorp joins the EIM, but the issue will become exacerbated if and when other WECC balancing authorities join the EIM. The CAISO should design the EIM so that it will not have to later re-design its market to resolve outstanding issues such as the QE Adjustment.

ISO Response

The QE Adjustment is a CARB rule, not an ISO market rule. While individual resources are not e-Tagged, the resource is provided the quantity of its EIM transfers to the ISO for each 5-minute interval.

f. The CAISO should 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. 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 unjust and unreasonable payments intended to recover GHG cost. Accordingly, SCE recommends the CAISO consider making all Export Allocation Payments subject to FERC Refund until it is certain that EIM Participating Resources will incur GHG costs for California's Cap-and-Trade Program. This is reasonable as the purpose of the export allocation payment would have not been needed.

ISO Response

An EIM Participating Resource will only be dispatched to meet California load if its total bid (GHG + Energy) is economic. Thus it is lower cost to meet ISO load with external EIM resources including GHG, than with internal ISO resources. As such, the ISO believes the refund request is unwarranted.

4. SCE seeks further information on the flexibility capacity constraint and how it would function with a generation balancing authority with only variable energy resource generation (VERs)

The Proposal mentions the Flexible Capacity Sufficiency test will utilize information from the resource plan submitted by EIM Entity Scheduling Coordinator. However, there is no detail on what resources from the resource plan are used in calculating resources available to meet flexibility need under EIM. SCE has the following questions about resources meeting flexibility need:

- Do units online, but not bid into EIM count or not count?
- Do capacity ranges excluded from EIM dispatch count?
- Does EIM Entity regulation capacity count?
- Does demand response in the CAISO or EIM Entity count?
- Do firm contracted imports count?

On August 12, CAISO held a technical workshop to describe their flexible ramp sufficiency tests and constraints in the EIM. SCE has the following questions regarding the constraints in presentation:

- Clarification of the joint flexible requirement
- Source of the available transmission used in the constraint

The Proposal includes constraints for the individual balancing authorities as well as the joint combinations when diversity can be taken into account. The constraint recognizes that total requirement can be less than the individual balancing areas due to diversity of load.

However, some of the constraints between two balance authorities do not appear to recognize diversity in the equations. For example, the equation:

$$FRC0 + FRC1 \geq \max(0, FRR0 + FRR1 - \text{available imports})$$

Should this instead be:

$$FRC0 + FRC1 \geq FRR0 \& 1 \leq \max(0, FRR0 + FRR1 - \text{available imports})$$

The CAISO has not explained where the value of available imports will come from in the flexible capacity constraint. Does it come from the base schedule submitted by the EIM Entity? If yes, then is this import capability actually available in the EIM optimization?

Finally, SCE has concerns if the flexibility test design will work with “generation only” balancing authorities, particularly if they consist of only variable energy resources. In this case, the resource plan will have matched forecasted generation and exports and may appear on a forecast basis to meet their flexibility need. In real-time, however, the generation will not meet schedule and instead will be buying and selling 15 and 5 minute energy to the EIM. EIM will take care of the difference between actual and forecast, and they will have exported their intermittency to external balancing authorities. Will the CAISO’s proposal prevent this outcome?

SCE assumes the CAISO proposes to enforce the flexible capacity constraints in the 15-min market. The details regarding its enforcement and deployment in the 5-min market need to be explored, as well as the cost allocation of these constraints, especially the joint constraints.

ISO Response

The ISO held a technical workshop on September 17 on the flexible ramping constraint.

5. SCE seeks clarification on Bid Cost Recovery and Neutrality Settlement Bid Cost Recovery needs more equitable treatment of assignment of cost

The CAISO Bid Cost Recovery (BCR) structure is based on costs netted against revenues over a twenty-four hour horizon. In this proposal, the CAISO is proposing to separate BCR into two cost components: (1) energy and, (2) unit commitment costs. The energy cost component will be allocated based on a daily sum of the absolute value of all uninstructed imbalance energy of load and supply. Suppose a unit in EIM Entity A is committed in real-time for a span of four hours, and EIM entity B has zero deviations in those four hours, but over the trade date it has a large net deviation, the EIM Entity B will be assigned a portion of the energy bid cost recovery from EIM Entity A, this can create a mis-alignment in attributing bid cost recovery to appropriate entities

For the unit commitment cost component, the CAISO is proposing to make it optional for an EIM Entity to elect real-time unit commitment. Consider a unit in EIM Entity A that is committed in the real-time market and EIM Entity B elects not to participate in real-time unit commitment, the unit commitment costs would fall mostly on EIM Entity A even if the unit received real-time dispatches due to the requirements of EIM Entity B. More discussions are needed to consider the implications of real-time unit commitment options in the EIM market where there is a disparity in must-offer obligation requirement across the EIM footprint.

SCE requests that CASIO provide a technical workshop on Bid Cost Recovery payments to suppliers and the cost allocations in EIM market. SCE suggests that CAISO provide examples showing the difference in BCR market allocations for BAA Entities that participate in real-time unit commitment versus BAA Entities that choose not to participate in real-time unit commitment.

ISO Response

Since unit commitment is no longer optional in the EIM. All real-time market costs and revenues are netted over the day.

b. Real-Time Market BAA Neutrality Settlement

One of the major contributors to Real-Time Market Neutrality is Uninstructed Deviations. CAISO is proposing that after making BAA proportional transfer adjustments, the Real-Time Market BAA Neutrality will be allocated to CAISO and the EIM BAA Entities and the allocation of this neutrality is up to the individual EIM Entity. For example, in CAISO, this neutrality amount is allocated to Measured Demand and for PacifiCorp EIM Entity, under its current tariff (Schedule 4 and Schedule 9), this amount would be allocated equally based on tiers of load and supply deviations. What might be the implications when market participants across the EIM footprint do not share a consistent set of neutrality cost allocation rules such that generators in the PacifiCorp EIM Entity that deviate will share in the market neutrality and the generators in the CAISO who deviate will not?

ISO Response

Since participation in the EIM is voluntary, the ISO believes that is appropriate for each EIM entity to determine its allocation of neutrality.

c. BAA Real-Time Congestion Balancing Account

Please provide examples of how credits for Existing Transmission Contract and Transmission Ownership Right will be handled in the BAA Real-Time Congestion Balancing account for both CAISO and EIM Entity. Please confirm if both 15-min and 5-min shift factors will be used to determine marginal congestion cost contributions to the BAA Real-Time Congestion Balancing Account. Will these shift factors be posted on OASIS?

ISO Response

There is no change in existing policy for TOR/ETC congestion credits; they will be calculated based on the difference between the congestion component of the 15-minute and 5-minute LMP at the balanced TOR/ETC sink and source, for the 15-minute and 5-minute imbalance energy, and they will fall out of the 15-minute and 5-minute BAA RT Congestion BA from each binding transmission constraint in each BAA. The congestion component of the LMP is synthesized from the binding constraint shadow price contributions using the applicable shift factors. The 15-minute and 5-minute shift factors will be published in consistent with the ISO's Data Release 3 policy.

d. Flexible Ramping Constraint Cost Allocation

Each EIM Entity BAA will receive its own Flexible Ramping Constraint Costs based on the individual BAA procurement requirement. Will the CAISO be allocating the costs based on 75% Load and 25% Supply Deviations for the EIM Entity BAA as well as for the CAISO BAA?

ISO Response

The FRC costs will be allocated to the EIM Entity Scheduling Coordinator. The costs will be allocated within the EIM Entity based upon its OATT.

6. The CAISO should explain if existing provisions to curtail exports already prevent excessive resource leaning.

The CAISO has Section 40.6.11 in its tariffs which allows curtailment of exports in emergency situations, which states, "At its sole discretion, the CAISO may curtail exports from Resource Adequacy Capacity to prevent or alleviate a System Emergency." Can this provision, or a modification to specify flexible reserves, be used to curtail transfers from the CAISO to the EIM when resources in the CAISO become scarce? If yes, this would help address SCE's concerns expressed in previous comments that the proposal may limit the ability of a balancing authority to utilize ample resources from a neighboring balancing authority.

ISO Response

In the flexible ramping proposal, the ISO has attempted to balance the concerns stated in stakeholder comments with maintaining the efficient use of EIM bids to utilize the available resources. (SCE's previous comments themselves include support for measures that would prevent entities from coming into EIM short on resource capacity and ramping capability, and leaning on other BAAs.) Section 40.6.11 addresses System Emergency conditions, which are a narrow set of conditions beyond the normal control of the ISO, including conditions requiring immediate manual or automatic action to prevent loss of Load, equipment damage, or tripping of system elements which might result in cascading Outages or to restore system operation to meet Applicable Reliability Criteria. In contrast, the flexible ramping proposal applies to normal system conditions, to ensure that all EIM Entities maintain adequate resources to contribute to the efficient use of EIM bids. The flexible ramping proposal is not intended to discourage assistance between EIM Entities during emergency conditions.

Company	Date	Submitted By
TransAlta Corporation	September 6, 2013	Cameron Stonestreet (403) 267-3694

Opening Comments

TransAlta has reviewed the Third Revised Straw Proposal. This iteration has filled in the much of the substantive details and resolved several issues associated with implementing this proposed Energy Imbalance Market (EIM).

TransAlta is generally supportive of EIM development. We feel it should bring stability to pricing and provide a more efficient and reliable marketplace. However, we have several specific points we would like to highlight:

ISO Response

The ISO appreciates TransAlta's continue participation in the stakeholder initiative.

Size of the EIM:

It is noted in the EIM Governance EIM White Paper up to two additional seats could be added to the EIM Transition Committee. This would seem to indicate the EIM could include up to two additional EIM Entities before the October 2014 implementation.

It would be helpful if information could be provided giving a better indication as to the potential size of this initial proposed EIM. We understand discussions with potential EIM Entities are ongoing and confidential. However, we suggest that as soon as feasible, any additional EIM participation be made public. This would help market participants determine the EIM's total impact on the market and on their activities. Similarly, it would provide the clarity needed to reduce market uncertainty.

At this time, it seems improbable for another EIM Entity other than PacifiCorp to join the EIM before the October 2014 implementation date. Could the CAISO give a sense of the time it

would take to add an additional Balancing Authority Area (BAA) to the EIM.

ISO Response

The ISO is discussing EIM participation with additional entities, but it would be premature to identify these entities before their participation is announced publicly. The ISO will make such announcements as soon as feasible, but these discussions are often subject to non-disclosure agreements.

Implementation requires sufficient time for network modeling and other system changes to be accomplished. Depending on the complexity of the BAA, the timeframe will be 12-18 months. In addition, implementation of new EIM Entities will align with the ISO Spring/Fall software release cycle.

No Transmission Charges on Intertie

TransAlta understands the justifications for the CAISO's approach to collect experience-based data in order to construct an effective and compliant long-term EIM Transmission Tariff. However, we do not agree with not charging for EIM transmission over the first year and/or the longer term.

Fundamentally, the EIM should be held to the same standards as any other importer. Availability and costs of transmission should be included in the EIM to ensure market efficiency.

The treatment of transmission charges is fundamental to the EIM. By including Transmission Tariffs sooner rather than later, the EIM will be able to achieve its final structure more quickly. A delay could skew the market results and not provide a true indication of the benefits and costs of the EIM to the market and EIM Entities.

TransAlta is concerned "free" transmission at the intertie could be viewed as both uneconomic and providing favorable treatment to the EIM. We understand these cost impacts would likely be limited by the potential size of these transmissions. However, on a principles basis, TransAlta is concerned this approach may not be aligned with Federal Energy Regulatory Commission (FERC) supported Transmission Service Guiding Principles.

Specifically, non-EIM market participants could potentially bear EIM costs created by the "free" transmission. These costs could result from discriminatory access, inconsistent application of cost causation principles and inconsistent rates across market timeframes. Costs resulting from any one of the aforementioned issues would contravene FERC supported Transmission Service Guiding Principles.

TransAlta believes it would be beneficial for the CAISO to outline its Transmission Tariff development process as soon as possible. As noted on page 74 of the Third Straw Proposal, CAISO already intends to outline "its strategy for stakeholder engagement based on [stakeholder] input on this issue [transmission tariff]". Developing a clear upfront process for the collection of data, review of approaches and development of transmission tariff would provide market participants a meaningful way to engage in the development of a compliant EIM Transmission Tariff while also reducing market uncertainty and thereby providing an unobstructed indication of EIM benefits.

The key considerations in an EIM Transmission Tariff development should consider the extent to which the EIM might impact the rights of firm transmission holders. In addition, eventual

solutions should support market based solutions and exclude non-market processes for allocating transmission for EIM use.

As a final note, a clarification of the following question would be helpful:

- Would this approach be used each time a new BAA joined the EIM or would an eventual transmission tariff be adopted to apply to each new EIM Entity?

ISO Response

As implementation planning has progressed with the first EIM Entity (i.e., PacifiCorp), it is apparent that no “as-available” or “free” transmission will be in use between the ISO and PacifiCorp. Instead, PacifiCorp Energy (which operates PacifiCorp’s merchant functions), as a transmission customer and EIM Participating Resource, will offer firm transmission rights that it currently subscribes to, on the Pacific AC Intertie and between its own BAAs, for use in EIM for any potential Market Operator dispatch instructions resulting in schedules between BAAs. PacifiCorp will notify the Market Operator with the amount of transmission that is available for EIM transfers through the transmission profile on dynamic e-Tags. Other transmission customers with transmission rights between these BAAs could also nominate all or a portion of such rights for EIM usage on a voluntary basis. PacifiCorp Energy has paid for the firm transmission rights being offered. Within PacifiCorp’s BAAs during the first year of EIM operation, EIM Participating Resources will be long-term firm transmission customers of PacifiCorp. PacifiCorp expects their EIM use to not exceed their reserved capacity for long-term firm point-to-point customers or prior month coincident peak demand for network customers, and any EIM use in excess of rights would be assessed an unreserved use charge.

The ISO’s stakeholder documents have included “Alternative 2” as one alternative longer-term transmission rate design, which would apply a regional EIM transmission rate to EIM usage and may take the form of applying the resulting revenue to transmission service providers’ revenue requirements for the next year. However, setting a regional EIM transmission rate under Alternative 2 at the outset of EIM operation would not be possible, since there is no history at this time to allow an estimation of the actual volume of EIM imbalance energy. The ISO has explained that until actual historical data can be developed, Alternative 2 does not differ from Alternative 1 in practical terms. Thus, the ISO intends to initially implement Alternative 1, and consider Alternative 2 and other alternatives that may emerge, in a subsequent stakeholder process.

As outlined in section 3.12 of the Draft Final Proposal, the ISO will begin collecting data on EIM usage upon EIM implementation in October 2014, and analyze the first six months of data during the second quarter of 2015 for presentation in that stakeholder process. The stakeholder process will be completed in the first quarter of 2016 for implementation in Fall 2016.

Uplift Charges and EIM Training

TransAlta appreciates the ISO’s efforts to follow with cost-causation principles in terms of allocating any uplift charges. We look forward to additional details on how these uplift costs will be determined and allocated.

We would also like to thank the CAISO for its commitment to provide EIM technical workshops. The workshops to date have been very informative and provide some needed clarity. We look forward to continued opportunities to better understand the operational functioning of the

eventual EIM.

ISO Response

Since the submission of comments on the Third Revised Straw Proposal, the ISO has held technical workshops on both Neutrality and Bid Cost Recovery.

EIM participation of non-EIM resources

It was mentioned during CAISO's August 20th in person EIM stakeholder session in Portland that non-EIM resources could potentially participate in the EIM. It was suggested this could be accomplished through pseudo-ties. If this is correct, it would be helpful if the CAISO could provide confirmation and further details. However from the proposal, it seems the EIM Entity would have the final authority to determine which resources could participate. If this is the case, then it would be helpful for the CAISO to outline which criteria might be used to determine who could participate in the market (e.g. pseudo ties, etc.).

ISO Response

The EIM Entity determines which resources are allowed to participate in the EIM from their BAA. In the case of a pseudo-tie, the resource is treated as if it is located within the EIM Entity BAA.

Company	Date	Submitted By
Transmission Agency of Northern California	September 6, 2013	
Opening Comments		
The Transmission Agency of Northern California (TANC) appreciates the opportunity to provide comments on the California Independent System Operator's (CAISO) August 13, 2013 Energy Imbalance Market (EIM) Third Revised Straw Proposal (Revised Proposal).		
ISO Response		
The ISO appreciates TANC's continued participation in the stakeholder initiative.		
Reliable operation of the California-Oregon Intertie (COI)		
As TANC indicated in its March 15, 2013 letter to the CAISO, its April 19, 2013 comments on the CAISO's EIM Straw Proposal, and its June 14, 2013 comments on the CAISO's Revised Straw Proposal, TANC requires adequate information to review the details of the EIM to ascertain that the proposed EIM will not adversely affect the reliable operation of the California-Oregon Intertie (COI), including the ability to operate and schedule transmission. Based upon		

review of the Third Revised Straw Proposal, the CAISO has still not provided all the requisite information. In particular, TANC is still seeking confirmation that non-EIM participating transmission assets (e.g., the California-Oregon Transmission Project) will not be adversely impacted by the EIM, or that the CAISO is willing to enter into a mitigation agreement to resolve any such adverse impacts. In addition, as stated in previous comments, TANC is still requesting the CAISO to conduct appropriate studies and testing of the EIM, with the inclusion of impacted systems, before any EIM implementation to ensure that no adverse impacts occur on non-participating transmission systems or that mitigation measures and/or compensation occurs to resolve impacts.

In its June 14, 2013 comments on the Revised Straw Proposal, TANC identified the need for, and requested, the CAISO to propose operating procedures to address the issue of parallel flows and the impact that the EIM may have on non-EIM participants. TANC appreciates the mention in the Third Revised Straw Proposal (Section 3.4.2 Congestion Management) of a network market model tool that will be used to monitor and control for actual flows. It also mentions that the “market operator will coordinate measures, where applicable, to ensure EIM dispatch does not exacerbate constraints affected by loop flow.” However, the question remains as to how the CAISO will specifically accomplish this task. TANC requests that the CAISO’s Draft Final Proposal provide additional detail on the market model tool and proposed measures to allow TANC to determine whether these operating procedures adequately address the issue of parallel flows and impacts that the EIM may have on non-EIM participating facilities. TANC also requests that the CAISO provide information on a compensation mechanism for the use, intended or otherwise, of non-EIM transmission facilities. TANC has reservations regarding the potential for the EIM to potentially impact not only real-time flows across the COI, but also any potential for unintended consequences on the COI Operating Transfer Capability (OTC).

TANC understands that the current proposal is not to charge a transmission access charge for at least the first year of EIM operation due to the fact that the transfer capability may be limited. However, this approach does not mitigate for the fact that volumes dispatched in the EIM will flow on adjacent systems of non-EIM participants. The CAISO should include a compensation mechanism for the mutual use of non-EIM participants’ transmission associated with parallel flow impacts.

TANC also echoes the comments made by the Bonneville Power Administration on the Second Revised Straw Proposal (dated July 26, 2012), which encouraged the CAISO to continue to elaborate on how the EIM Entity identified transmission rights will be confirmed and/or verified as available within the EIM footprint.

TANC believes it is appropriate to hold focused discussions between the CAISO and COI parties regarding how the proposed EIM may impact non-EIM participants and will be contacting the CAISO directly to discuss these matters.

ISO Response

As implementation planning has progressed with the first EIM Entity (i.e., PacifiCorp), additional information is now available concerning the transmission that EIM will use between the ISO and PacifiCorp. PacifiCorp Energy (which operates PacifiCorp’s merchant functions), as a transmission customer and EIM Participating Resource, will offer firm transmission rights that it currently subscribes to, on the Pacific AC Intertie and between its own BAAs, for use in EIM for dispatch instructions resulting in schedules between BAAs. The ISO will manage this transmission usage as a dynamic schedule, using protocols that would otherwise apply to

dynamic scheduling. PacifiCorp will notify the Market Operator with the amount of transmission that is available for EIM transfers through the transmission profile on dynamic e-Tags. Other transmission customers with transmission rights between these BAAs could also nominate all or a portion of such rights for EIM usage on a voluntary basis. PacifiCorp Energy has paid for the firm transmission rights being offered under existing OATT provisions. EIM use is not expected to exceed the capacity that is reserved for long-term firm service.

As essentially being the implementation of a dynamic schedule with PacifiCorp, no additional agreements with TANC appear necessary. Implementing a new dynamic schedule between PacifiCorp and the ISO does not require special system impact studies or compensation to transmission operators or transmission service providers who are not on the transmission path of the dynamic e-Tag.

Bonneville Power Administration is a transmission service provider on the transmission path of the dynamic e-Tag, and will have approval rights for use of its system. The ISO and PacifiCorp continue to conduct analyses together with BPA to ensure EIM's reliable use of BPA's transmission.

Company	Date	Submitted By
Utah Associated Municipal Power Systems	September 6, 213	
The Proposal states that CAISO will not implement Order 764 until Spring 2014.		
When will PacifiCorp implement?		
ISO Response		
Please refer to the PacifiCorp stakeholder process.		
The EIM will financially settle based on EIM schedules compared with base schedules not on actual metered load and resource balance.		
Is this true and does this preclude an entity from managing its own load/resource balance in real time?		
ISO Response		
Non-participating load, non-participating generation, and participating generation will be settled individually.		
Non-participating load is settled as uninstructed imbalance energy and calculated as the difference between the base schedule and meter.		
Non-participating generation is settled as uninstructed imbalance energy and calculated as the		

difference between the base schedule and meter. Non-participating resources can have their schedule updated due to physical changes, for example a forced outage. In this case the difference between the base schedule and the 15-minute schedule will be settled as instructed imbalance energy.

Participating generation will be economically scheduled and dispatched. Differences between the base schedule and 15-minute schedule are instructed imbalance energy. Differences between the 15-minute schedule and the 5-minute dispatch are also instructed imbalance energy. Differences between the 5-minute dispatch and the resource's 5-minute meter value are uninstructed imbalance energy.

Local market power mitigation

In the "local market power mitigation process", what are the "uncompetitive conditions" that the process will test for?

ISO Response

If the constraint is binding and the 3-pivotal supplier test fails. This test is described in detail in the documents cited in the September 23 draft final proposal (pp 27-28).

In the 15-minute market:

What is meant by "producing generation schedules"? Is PacifiCorp as the EIM Entity going to allow for the 15-minute market to "start-up and shutdown generators"? Is PacifiCorp going to allow 15-minute energy bids at the interties as part of EIM?

ISO Response

In the draft final proposal, EIM Participating Resources are able to offer unit commitment of their participating resources by the EIM.

The EIM Entity can determine the conditions under which resources are allowed to participate in the EIM from their BAA, including whether imports/exports with non-EIM BAAs can economically bid in the EIM.

The Proposal states that CAISO "will only allow market participants to update 15-minute generation and intertie schedules for physical reasons."

Who are "market participants? Does this apply to entities in PACE? How does this fit with Order 764?

ISO Response

15-minute scheduling is a core element of FERC Order No. 764. The term "market participant" includes both participating and non-participating resources. The ability to have updated 15-minute schedules is most relevant to non-participating resources since their base schedules will not be economically re-dispatched. If a non-participating resource has a forced outage, this

information is reported to the ISO through its outage management process. If the outage is known prior to the start of a 15-minute market optimization, the resources will receive an updated 15-minute schedule which limits their exposure to 5-minute prices. The difference between the hourly base schedule and the 15-minute schedule that reflects the forced outage is considered instructed imbalance energy, and is settled at the 15-minute LMP.

5-minute market

In the 5-minute market, does the phrase “dispatch instructions for generators” only apply to EIM participating generators?

ISO Response

Yes

Under Settlement,

Why is generation and load settled separately and with different calculations? What does settlement between base schedules and 15-minute schedules settling at 15-minute LMP’s have to do with Energy Imbalance? (3) The Proposal applies to settlement with the EIM Entity. Is there a proposal on how it will be handled within an EIM Entity?

ISO Response

Non-participating load scheduled using hourly intervals, and is settled through EIM Entity Scheduling Coordinators based upon the difference between the hourly base schedule and hourly meter. Loads deviations are priced at load aggregation points, which are comprised of multiple load nodes, using a weighted average of demand at these nodes and the sub-hourly LMPs produced by the market optimization.

Non-participating generation can be settled through EIM Entity Scheduling Coordinators with more granular metering, and the price is the locational marginal price at the individual generation node.

The rules for settling non-participating resources are determined by the EIM Entity according to its tariff.

The EIM has two timeframes for market optimization: the 15-minute market, which includes real-time unit commitment, and the 5-minute market for the final economic dispatch.

Participating generation utilizes five minute meter values. Participating generation is priced in both the 15-minute market based on differences between the base schedules and 15-minute dispatches, and the 5-minute dispatch changes from the 15-minute market, both being settled at the locational marginal price at the individual generation node.

The Proposal states that settlement will use neutrality accounts and that they will be allocated consistent with guidelines that CAISO developed in 2012.

What are they and is their application to this process valid?

ISO Response

See the beginning of Section 3.7.8

The ISO believes that the seven principles are applicable to any market design development.

BAA Real-Time Congestion Balancing Account

What does the “BAA Real-Time Congestion Balancing Account” have to do with EIM?

ISO Response

Congestion that remains in the EIM Entity Scheduling Coordinator’s resource plan will result in neutrality as the EIM will redispatch resources to resolve the congestion. EIM Participating Resources, non-participating supply resources, and non-participating loads are settled as described above, using time intervals that reflect their metering capability and scheduling and dispatch processes. There can be a difference between payments to supply resources, and charges to load, for their imbalance energy, and the difference is allocated as “neutrality” settlements.

10.How will PacifiCorp handle the “bid cost recovery account”?

How will PacifiCorp handle the “bid cost recovery account”?

ISO Response

According to its tariff, as is being developed through PacifiCorp’s stakeholder process.

GHG

What is the “cost of greenhouse gas compliance obligation”?

ISO Response

Complying with California Air Resources Board (CARB) mandatory reporting regulation for energy that is consumed in California, and surrendering compliance instruments to CARB for GHG emissions.

Transmission

Transmission used by the EIM should be paid for to avoid subsidizing the process.

ISO Response

Ongoing implementation process with PacifiCorp has allowed the discussion of transmission service to be added in section 3.8 of the Draft Final Proposal. Transmission usage within PacifiCorp's BAA and through other transmission service providers' systems will be paid in full through the transmission service providers' OATT rates, and transmission usage within the ISO controlled grid will be paid in full through the ISO's transmission access charge.

15-minute energy schedules granularity

If Order 764 will result in financially binding 15-minute energy schedules, why are base scheduled restricted to hourly granularity.

ISO Response

See discussion at the end of section 3.2.2

The Straw Proposal shows a timeline for "Activities Prior to Operating Hour" for the EIM Entity SC and EIM Participating Resource SC.

What is the proposed timeline for other scheduling entities?

ISO Response

Only EIM Entity Scheduling Coordinators, EIM Participating Resource Scheduling Coordinators and ISO Scheduling Coordinators interface with the EIM. Individual resources and load serving entities participate through these scheduling coordinators. All are subject to the same relevant market timelines.

Under Local Market Power Mitigation section, the "tests" for market power seem to be based on a flow-based structure and effects on constraints rather than contract path structure that is used in PacifiCorp

How will Local Market Power Mitigation work in PacifiCorp? Is the number of sellers to the EIM one of the criteria that will be looked at? How can "resource bids and import or export bids for scheduling limit constraints" be "deemed competitive by definition"?

ISO Response

As described in the draft proposal and technical workshop on LMPM, the LMPM procedures that will be implemented in the PacifiCorp are similar to those in place with the ISO. The competitive path assessment methodology used in the LMPM procedures considers the number of sellers that control the supply capable of providing counterflow needed to relieve congestion on constraints within a BAA in the EIM.

Import and export bids are not subject to mitigation under LMPM procedures.

As clarified in the Draft Final Proposal, the ISO proposes deem the EIM transfer constraints between EIM Entities (and between the ISO and EIM Entities) as competitive and will monitor to see if this designation should remain. If any of these transfer constraints are not deemed competitive by default and are subjected to the dynamic competitive path assessment, this could trigger mitigation within and EIM Entity if congestion occurred into that area and the overall supply of counterflow to mitigated that congestion (after substracting the supply controlled by the 3 largest suppliers) was insufficient to meet the demand for counterflow.

Load Aggregation Points

What or where will the Load Aggregation Points be in the Pace BA?

ISO Response

They will be defined by PacifiCorp.

Company	Date	Submitted By
Western Area Power Administration (Western)	September 5, 2013	

Opening Comments

Enclosed for your consideration are the latest comments from Western Area Power Administration on the CAISO's EIM straw proposal(s). Western reserves its right to provide additional comments on subsequent EIM straw proposal modifications as they may occur in the future.

ISO Response

The ISO appreciates WAPA's continued participation in the stakeholder process.

EIM Entity

Based on Western's understanding of what was presented by the CAISO at the stakeholder meetings, the minimum eligibility requirements for an EIM entity is a NERC-registered balancing authority area. Could you please confirm that this is true?

ISO Response

Yes, an EIM entity must be a registered BAA.

Transmission

As an owner and operator of over 17,000 miles of high voltage transmission lines, Western believes it is imperative that it be compensated whenever any excess transmission capacity is used by others in the furtherance of EIM activities (i.e., no free transmission), and furthermore, that whenever such transmission capacity is used, that such usage is properly tracked and accounted for.

ISO Response

As implementation planning has progressed with the first EIM Entity (i.e., PacifiCorp), it is apparent that no "as-available" or "free" transmission will be in use between the ISO and PacifiCorp. Instead, PacifiCorp Energy (which operates PacifiCorp's merchant functions), as a transmission customer and EIM Participating Resource, will offer firm transmission rights that it currently subscribes to, on the Pacific AC Intertie and between its own BAAs, for use in EIM for any potential Market Operator dispatch instructions resulting in schedules between BAAs. PacifiCorp will notify the Market Operator with the amount of transmission that is available for EIM transfers through the transmission profile on dynamic e-Tags. As explained in section 3.8 of the Draft Final Proposal, EIM transmission usage will be limited to the amount that is made available by transmission customers and transmission service providers within EIM Entities' BAAs.

EIM Transmission Capacity

Western believes that EIM should not cause any valid forward energy schedules to be curtailed. Western seeks clarification from the CAISO regarding EIM's usage of an EIM Entity's transmission capacity. By becoming an EIM entity, what portion of the EIM entity's transmission capacity must the EIM entity make available to the CAISO EIM? What physical priority would the EIM Entity have in using its transmission capacity for its EIM base-schedule and non-EIM energy schedules? If an EIM entity's Base-Schedule and non-EIM Schedules are within the scheduling limits of its internal paths and at the interties according to the EIM Entity's own congestion management protocol, but the CAISO EIM shows congestion on the EIM entity's facility because of "loop flows" caused by resources of other entities in the CAISO EIM footprint, what scheduling priority protection is afforded to the non-EIM-schedules on the EIM Entity's own transmission? In Section 3.4.2 Congestion Management of the 3rd revised proposal, it is stated that "transmission constraints will be relaxed ... and the EIM Entity will become responsible for managing its congested constraints ..." Does the CAISO expect the EIM Entity to curtail its forward energy schedule on its own transmission facility to accommodate EIM power flow or deny the tags of the EIM power flow?

ISO Response

The progress of implementation planning with PacifiCorp has allowed additional explanation in section 3.8 of the Draft Final Proposal. EIM has no provisions that would cause it to curtail valid forward energy schedules. In the event that schedules are curtailed through WECC's UFMP or ECC processes, or other similar processes, the priority of EIM's transmission usage will be determined by the transmission rights that are made available to EIM. For example, PacifiCorp Energy will make its capacity on scheduled paths available to EIM through the transmission

profile of dynamic schedules, and PacifiCorp Energy holds firm transmission rights, which would be honored through existing curtailment procedures. In the event that a transmission service provider makes its capacity available within its EIM Entity or as otherwise unused capacity on interties between EIM Entities, EIM's dispatch processes will not curtail existing self-schedules using the same transmission systems. EIM's dispatch process will not add to flows on congested transmission, and may provide counterflow that relieves congestion. In the event that EIM has used all of its available bids to relieve congestion, but flows on congested transmission still exceed the transmission network's capacity, the EIM Entity and transmission service providers within its BAA would use other available mechanisms (e.g., WECC's UFMP or ECC) to manage the remaining congestion.

Transmission Services

The manner in which the EIM structures transmission services related to transmission used for transfers within and between BAAs within the EIM footprint is an area of concern for Western. The EIM is proposing to track transmission utilization through an after the fact dynamic tagging process. Western operates 3 of the 6 constrained paths within the Western Interconnection. At times unscheduled EIM flows may have a direct impact one or more of these constrained paths. Western feels strongly that the EIM must have the ability to track transmission utilization on a path specific real time basis differentiating between normal inadvertent power flows and EIM flows in order to have the ability to accurately manage congestion associated with EIM activities within our specific BAA. Western also believes that some form of loss recovery and transmission revenue recovery mechanism must be developed for transmission utilization across the EIM.

ISO Response

EIM's use of dynamic e-Tags is not only "after the fact". As explained in section 3.8 of the Draft Final Proposal, dynamic e-Tags will be used to communicate the available transmission capacity before real-time, and will be subject to the normal approval process of all transmission service providers along the scheduled transmission path between the ISO and EIM Entities. This process provides these transmission service providers with the ability to track transmission utilization and manage congestion as would normally occur for dynamic schedules. Loss recovery and transmission revenue recovery will also be established through the normal protocols for dynamic schedules between the ISO and EIM Entities.

Company	Date	Submitted By
Western Power Trading Forum	September 6, 2013	

Opening Comments

WPTF appreciates the opportunity to comment on the ISO's 3rd Revised Energy Imbalance Market (EIM) straw proposal dated August 13, 2013 and the discussion at the August 20 EIM meeting, as well as the technical presentations of August 12 and 13th related to uplift allocation,

convergence bidding and flexible ramping.
WPTF offers comments in the following areas.

ISO Response

The ISO appreciates WPTF's continue participation in the stakeholder process.

The CAISO Should not Support any EIM Design that Restricts Participation

In the ISO's third EIM proposal, the ISO proposes to cede authority to the EIM Entity to determine who can have access to the EIM. WPTF strongly believes that the ISO must only file an EIM design that has non-discriminatory access for participation within the EIM and at the boundaries of the EIM.

To the extent that an EIM Entity believes it necessary for technical reasons to limit EIM participation, then that EIM Entity must be required to justify to FERC that such technical limitations warrant temporary limitations on EIM participation. Any restrictions must be objective, based on technical requirements, and clearly specified. Under no circumstances should ability to restrict participation be based on EIM Entity "discretion".

Specifically, with respect to the PacifiCorp EIM, up to the issuance of the third EIM proposal, the ISO has stated that there would be open participation within the EIM and participation access at the boundaries of the EIM not unlike the participation opportunities that exist at the current ISO intertie points. However, PacifiCorp has now proposed to limit access within the EIM in two ways. First, they propose to limit the ability to become a Participating Resource to those entities that have long term firm transmission rights that matches their EIM participation in size. Second, PacifiCorp has proposed that to participate from outside the EIM, a Participating Resource has to be a Designated Network Resource. PacifiCorp is also proposing to not support bilateral market participation in the EIM at the EIM intertie points, and this is one basis PacifiCorp offers to limit participation at EIM boundaries.

The ISO should not support Pacificorp's proposed limitations on EIM participation. It is counter to the underlying principles of ISO markets, to have broad participation and open access, and it is not consistent with assumptions used in estimating the benefits of the EIM.

WPTF opposes the EIM participation limits proposed by Pacificorp, and urges the ISO to reconsider and revise its position of ceding authority to the EIM Entity to determine whether the EIM is open for competition or not; it is critical that the ISO take a stand on this issue in its EIM policy and ultimate filing at FERC

ISO Response

Since the EIM is a voluntary market, the ISO believes it is appropriate to all EIM Entities to determine the terms of their participation in the EIM. An EIM Entity will determine the requirements for participation by resources within its BAA, but would not discriminate among resources in applying those requirements. Concerning participation of resources outside an EIM Entity using economic bids at its interties with non-participating BAAs, the ISO will enable that functionality in EIM, but is not in a position to determine whether such participation is supported by its implementation of intra-hour scheduling. PacifiCorp's requirements for EIM

Participating Resources within its BAAs to have obtained transmission rights is part of ensuring that all EIM transmission usage has contributed to transmission revenue recovery, which is a concern in a number of stakeholder comments. Section 3.12 of the Draft Final Proposal lists the schedule for a subsequent stakeholder process that will consider alternatives for a longer-term transmission rate design.

Clarification is warranted regarding the proposed requirement that neighboring BAAs must have 15-minute scheduling in place.

WPTF seeks clarification as to whether the ISO can accept bids/schedules at EIM boundary points when the neighboring BAAs may not have 15-minute scheduling in place. For example, the ISO's Order 764 proposal calls for the ability for a participant to submit hourly block schedules, struck on the first 15-minute interval, and anticipated that parties could have single interval curtailment possibilities for schedules that were out of the money for subsequent intervals. Such mechanisms should enable participation at the intertie points irrespective of whether the host BAA fully supports 15-minute scheduling. WPTF seeks clarification on these points.

ISO Response

The EIM is using the ISO real-time market. The real-time market contains all functionality outlined in the ISO FERC Order No. 764 market design changes. However, as discussed above, each EIM Entity may determine the terms of EIM participation within its BAA, and the ISO is not in a position to determine whether such participation is supported by the EIM Entity's implementation of intra-hour scheduling.

WPTF requests further discussion of the comparison of the ramp test and the ISO's must offer rules and anticipated future rules

The ISO has proposed that the EIM participants' portfolios must satisfy a ramping test, intended to limit the extent to which one EIM Entity would have the ability to "lean on" another EIM Entity or the ISO. Yet the ISO is also proposing to implement must offer bid requirements as part of its flexible capacity must offer requirement. As a result, the EIM will have a different mechanism to ensure ramping than will the ISO BAA. WPTF requests further characterization from the ISO about the extent of, and implications of, these different mechanisms.

ISO Response

Due to must offer obligations and RUC within the ISO, the ISO will not perform a flexible ramping sufficiency test on ISO day ahead schedules.

The modification in the 3rd Revised Proposal to allow GHG cost submission by Participants is seen as a significant enhancement to the prior proposal

WPTF supports the CAISO proposal to allow EIM participants - both internal EIM participants and imports to the EIM - to bid their GHG costs for flows deemed to California. Participant-specified costs will at a minimum place the ability to manage differences between the presumed

carbon costs and the ultimate actual carbon costs with participants and not with the ISO. WPTF seeks a minor clarification; that is, for the ISO to clarify whether the carbon costs are expected to be specified at a fixed level by resource by hour, a fixed level by resource by day, or by an amount that varies in some other ways – for example – by output level in addition to any time varying capability. Clarity from the ISO on the structure of these bids would be useful.

ISO Response

In the draft final proposal, the ISO clarified that the GHG bid adder is a single value by day for the resource. In addition, the GHG bid adder must be $\geq \$0.00$

The proposed congestion imbalance and convergence bidding treatment requires further refinement

WPTF appreciates the ISO's further thinking on the treatment of convergence bids given the EIM constraints and the movement away from adjusting convergence bidding payments per se, due to the inability to incorporate the EIM constraints in the CAISO's DA prices. However, further refinement is needed on the proposed treatment of convergence bids in the ISO's 3rd revised proposal. The policy proposal as drafted discriminates against convergence bidders by allocating congestion imbalance offset charges to them when the convergence bidders "profit" from the EIM treatment but does not provide an offset charge credit when the convergence bidders "lose" from the EIM treatment. The proposal must be modified to provide a more balanced approach.

ISO Response

Allocating credits to Convergence Bidders from EIM Entity BAA Congestion Balancing Accounts is inconsistent with EIM Entity Scheduling Coordinators resolving congestion in the base schedules of the hourly resource plans. The credit to the BAA congestion balancing account arises when there is not congestion in the base schedule, but congestion does arise in real-time. The credit should remain with the EIM Entity that submitted a base schedule without congestion.

The CAISO's proposed bid cost recovery policy does not recognize that ISO resources may be committed to serve EIM load.

The ISO has proposed to allocate ISO commitment costs to the EIM if the EIM Entity opts to have the ISO perform commitment of EIM Entity resources, and to not do so if the EIM Entity self commits. However, not allocating ISO commitment costs fails to reflect that ISO resources may be committed to serve EIM Entity load at times. Under these conditions it may be appropriate for the EIM Entity load to share in the cost recovery of those RT commitments. WPTF asks that the ISO consider further the bases for not allocating those RT commitment costs also to EIM Entity load.

ISO Response

In the draft final proposal, EIM Entities cannot opt out of unit commitment in EIM.

More detail and specificity is needed for the EIM proposal

The ISO has presented descriptions and examples for many technical design aspects. We request additional technical information that ensures market participants have the details (e.g., equations) necessary to understand all the elements of the design.

Thank you for your ongoing consideration.

ISO Response

The ISO hosted five technical workshops between the 3rd revised straw proposal and draft final proposal.

Company	Date	Submitted By
Xcel Energy	September 6, 2013	David Lemmons

General Comments

The Third Revised Straw Proposal shows progress toward a workable EIM. We appreciate the effort expended by the CAISO to address the issues raised by the stakeholders and look forward to further improvements. As described more fully in our comments, we remain concerned with revenue neutrality issues. We believe the design proposal requires more substantive coordination with non-participating transmission providers and the Western Interconnection Reliability Coordinator.

ISO Response

The ISO appreciates Xcel's continued participating in the stakeholder process.

High Priority Issues: Participant definitions, obligations and agreements

Based on the CAISO's response to Xcel Energy's comments on the Second Revised EIM Straw Proposal, we look forward to modification to the sections of the straw proposal describing the roles and responsibilities for each EIM participant. We support EIM process modifications that would allow participating loads and resources to provide information directly to the CAISO rather than have the Balancing Authority gather and submit data from multiple parties for the reasons stated in our previous comments.

ISO Response

Changes to sections 1, 2.1, and 3.1 provide clarifications of the roles and responsibilities of each EIM participant. Section 3.3.2 adds a process for EIM Participating Resources to submit hourly base schedules and resource plans directly to the Market Operator.

Section 3.4.2 Congestion Management

There appear to be conflicting statements in the congestion management section in this document. In response to a comment by Xcel Energy related to withholding, the CAISO states that since participation is voluntary, neither physical nor economic withholding are prohibited behaviors. However, Section 3.4.2. Congestion Management in the Third Revised EIM Straw Proposal reads “EIM Participating Resource Scheduling Coordinators *must submit energy bids with sufficient generating capacity in EIM to enable efficient congestion management on these constraints*” (emphasis added). This appears to put a requirement on the resource owners to provide some level of dispatch capability. We request these two statements be reconciled. Further, the amount of generating capacity to manage a constraint is not equivalent to the amount of capacity needed solely to supply load, hence the amount required under this provision is indeterminate until an after-the-fact evaluation. We recommend that the CAISO strike the sentence quoted above, in part due to the sentence which follows in the proposal stating that if there are not sufficient bids, the CAISO will address the issue through administrative measures.

We remain strongly concerned with the language in the straw proposal as it discusses dispatch for congestion. Language such as found at the top of page 54 stating “...EIM Entities use of UFMP *when the EIM has exhausted available, effective bids*” (emphasis added) seems to be a recipe for revenue neutrality uplift problems. We recommend more detail be added to clarify when these costs will be borne by the EIM participants versus when the costs will be borne by all impacting entities, whether within or outside of the EIM.

The additional detail may need to include coordination proposals to be established with the Western Interconnection Reliability Coordinator. Revenue neutrality uplifts associated with an incomplete design around congestion management could inappropriately push costs onto some market participants that should be borne by others, whether participating in the market or not. For example, if base schedules of the market participants use firm network or firm point-to-point priority service, then non-firm external loop flow contributions to congestion within the EIM footprint should be first curtailed and no redispatch costs incurred internal to the EIM footprint until firm curtailment obligations are established.

In the second paragraph, first sentence of Section 3.4.2, we believe the CAISO should add language at the end of the current sentence so it would read:

The marginal congestion component of the 15-minute and 5-minute LMPs in all locations (both ISO BAA and EIM Entity BAA) will include congestion contributions from binding network constraints within the ISO-EIM Entity footprint, *as well as redispatch obligations due to external curtailments enforced on the ISO-EIM Entity through UFMP or ECC.* (added language in italics)

Finally, we believe the document needs more detail addressing the issue of coordination measures to address constraints impacted by loop flow, as mentioned in the final paragraph on Section 3.4.2. Depending on the transmission rights of different parties, it may be appropriate for the EIM to dispatch with an impact on these constraints. If the market operator plans to coordinate measures needed to address the congestion, how will the market operator pass the cost of the coordination to the appropriate parties?

ISO Response

Revisions in Section 3.4.2 clarify that economic bid submission is voluntary by EIM Participating Resources, that external curtailments are enforced through UFMP or ECC, and for other related details.

Submission of bids by specific resources within EIM Entities is voluntary, but at the EIM Entity level, certain flexibility in resource plans is expected, and the ISO has described what would occur if resource plans do not have the needed flexibility. For example, if EIM Participating Resources within an EIM Entity do not submit energy bids with sufficient generating capacity in EIM to enable efficient congestion management, EIM may exhaust its available bids, and the EIM Entity will be required by reliability standards to use other mechanisms to manage its transmission constraints. The amount of generating capacity needed to manage a constraint is not indeterminate until an after-the-fact evaluation, because EIM offers multiple opportunities for feedback to the EIM Entity about anticipated congestion. First, the ISO's day-ahead market will include an advisory dispatch for the EIM footprint, using base schedules and bids that are available at that time. Then, the ISO's real-time unit commitment includes advisory dispatches extending about five hours into the future. The ISO will inform EIM Entities if congestion occurs in either advisory market run. The ISO believes that its proposed neutrality settlements help to resolve Xcel's neutrality concerns.

The ISO has ongoing discussions with the Reliability Coordinator for coordination of EIM operations and data access. Revenue neutrality impacts associated with congestion management through UFMP or ECC exist regardless of EIM's implementation. EIM does not limit schedule adjustments through UFMP or ECC, because EIM does not adjust self-schedules regardless of their transmission priority. If an EIM Entity or transmission service provider believes that non-firm external loop flow contributions are contributing to congestion within its area, EIM does not limit its ability to use WECC procedures to request curtailments.

Over and Under Scheduling Penalties

Xcel Energy appreciates CAISO's consideration of the over-scheduling issue. We still believe that it would be better to address the issue up front rather than monitor for potential abuse after the market begins. What threshold of abuse would be required for CAISO to act? What systems would CAISO employ to detect this abuse? We would appreciate reassurance to stakeholders that market abuse will be detected and mitigated.

ISO Response

The draft final proposal includes an over-scheduling penalty.

Greenhouse Gas

Xcel Energy appreciates the modifications made by the CAISO to address concerns related to the GHG issue. We believe the revised proposal allows an entity to manage their own price risk exposure associated with retirement of GHG certificates. The revised design does not eliminate potential new compliance obligations for parties outside of California. However, this design revision provides more flexibility than the previous straw proposal.

ISO Response

Thanks.

Market Costs

Xcel Energy is concerned the CAISO has not yet provided a summary of settlement cost codes that will be part of the EIM design. Therefore, it is not possible to make an evaluation related to settlement cost accounting under the EIM. Based on the response to Xcel Energy's previous comments, it appears that the CAISO is assuming that the \$0.19 is just one of the cost components to settle in the EIM market. We would like to review the details of the proposed charge types and estimated magnitude of these charge types for some sample operating days. This will help us evaluate potential costs and benefits to our customers. If there are costs beyond those currently identified, it is unclear if the minimum administrative costs identified in Section 3.7.10.2 would include or exclude any of these additional costs. Please provide this information in the final draft straw proposal.

ISO Response

The ISO has posted a preliminary list of charge codes on the initiative website.

Additional Issues: Interaction with Reliability Coordinator (RC)

The CAISO provides a short section related to interactions with the WECC RC in the Third Revised Straw Proposal. Xcel Energy appreciates this addition and believes it provides very high-level expectations related to the interactions with the RC. As the EIM progresses, we expect that the CAISO and the RC will develop more detailed operating procedures as needed.

ISO Response

Thanks.

Local Market Power Mitigation (LMPM) and Market Monitoring

Xcel Energy recommends the Market Monitor provide reports to the EIM Transitional Committee during the two-year period. We recommend addressing this briefly in the straw proposal and in more detail in the proposed governance document.

The CAISO market monitor proposes to use an LMPM methodology somewhat similar to that used within the CAISO market for the EIM footprint. Xcel Energy agrees with a need to have clearly stated market monitoring and supports a methodology adjusted for differences between the CAISO and EIM structures. However, the current proposal does not recognize the impact of significant differences between the EIM and CAISO structures. Instead, the market monitor will remove most of the rules related to the CAISO structure and assume comparable rules are not needed in the EIM.

As an example, the CAISO and market monitor are proposing to look only at resources within the EIM Entity BA to determine market power. The BA boundary has no bearing on whether a

resource can or cannot provide comparable relief to a congested element. Therefore, the market monitor should not use the BAA boundary as a limitation on the market power evaluation. Failing to consider external resources with strong influence on congestion could allow the undue exercise of market power in circumstances where internal resources to manage the constraint have been exhausted.

ISO Response

The ISO Market Monitor will include the EIM as part of its quarterly and annual reports on ISO market issues and performance.

As clarified in the Draft Final Proposal, the ISO proposes deem the EIM transfer constraints between EIM Entities (and between the ISO and EIM Entities) as competitive and will monitor to see if this designation should remain.

As a practical matter, the ISO does not believe that given actual network topology a situation has existed in which a supplier in the ISO has had local market power in another BAA, or vice versa. Moreover, the ISO notes that today all BAAs are responsible for mitigating congestion on constrains within that BAA.

The Market Monitor has noted that a more likely scenario is that due to the concentration of ownership of supply within an EIM area an EIM Participant may have overall market power throughout an EIM area that LMPM provisions are not designed to mitigate. If this resulted in uncompetitive market outcomes with that EIM area, this could be mitigated by including EIM transfer constraints between EIM Entities (and between the ISO and EIM Entities) in the competitive path assessment test. This would trigger mitigation within and EIM Entity if congestion occurred into that area and the overall supply of counterflow to mitigated that congestion (after subtracting the supply controlled by the 3 largest suppliers) was insufficient to meet the demand for counterflow.

Flexible Ramping

One concern caused by the CAISO proposal relates to the 15 minute scheduling requirements and the hourly flexible ramping constraint proposed by the CAISO. The CAISO is proposing to limit the amount of EIM energy flow between EIM Entities if one of the EIM Entities does not provide sufficient flexible ramp capability. The CAISO states that the market operator will not allow any incremental interchange for the full hour in which an EIM Entity does not provide sufficient ramping capability. However, this position could change significantly within the hour due to changes in scheduled interchange, variable generation output, etc. We request that the CAISO consider the inter-relationship between these two issues and ensure that the proposal provides balance between the concerns of leaning on the market and market access to all like-situated resources. We recognize that the hourly review may require fewer market operator administrative resources than a review for each 15-minute period.

Xcel Energy also requests that the CAISO provide clarity on its interpretation of “providing flexible capability” in the EIM. If the EIM Entity has physical control of a quick-start unit, it should count toward the flexibility needs of the EIM Entity, regardless of the market offers made. From discussions in the paper and at stakeholder meetings, the CAISO suggests that only those units that are able to participate in the RTUC process would count toward the flexible capacity requirement. This is an unnecessary requirement. Any unit that may be called upon by either

the CAISO or the EIM Entity should count toward the flexible capacity requirement in the EIM. Xcel Energy supports the goal of reliable and efficient operations within the EIM. However, overly restrictive practices will reduce the amount of benefit seen by all parties by increasing unit commitment costs for ramping at the BA level.

ISO Response

The flexible ramping constraint seeks to prevent leaning during normal market conditions and does not preclude imports into an EIM Entity from other EIM Entities in emergency situations even if the flexible ramping sufficiency test failed.

Short start resources that are available for unit commitment in the EIM can be used to meet the flexible ramping sufficiency test and the flexible ramping constraint requirement.

Real-Time Uplift Charges

We appreciate the revisions to section 3.7.8 to provide more detail. In the paragraph at the top of page 62, it appears that the CAISO used the wrong term in the discussion. In two places in this paragraph, the CAISO states something “results in neutrality”. These statements should state they result in lack of revenue neutrality or similar. If something results in neutrality, there would be no uplift.

ISO Response

The ISO has clarified section 3.7.8

Section 3.3.11. Load Aggregation Points (LAPs)

Xcel Energy appreciates the CAISO review of our stated concern and looks forward to modifications in the final straw proposal document.

ISO Response

The ISO included the proposed language in the draft final proposal.

Section 3.3.12. Network Constraint & Contingency Definition

Based on the addition of the last sentence in this section, Xcel Energy asks if only the transmission operator portion of the EIM Entity can submit this information to the CAISO or if *any* Transmission Operator within the EIM Entity BAA will be able to submit information conferring the status of transmission lines within the EIM footprint? This is similar to the EIM Participating Resources submitting information directly to the Market Operator as opposed to providing the information to the EIM Entity and then the EIM Entity submitting it to the Market Operator. The CAISO will receive the information sooner if the transmission operator that administers the transmission line provides it rather than going through an intermediary

ISO Response

Revisions to section 3.3.12 address these concerns.

Section 3.6.8 Business Continuity

We recommend adding the following language to the straw proposal in this section:

The CAISO and the EIM Entities will develop procedures providing details to address assumptions used by both the EIM Entity and the Market Operator in the event of loss of communications. At a minimum, these procedures will address assumptions for interchange between the EIM Entity and the rest of the CAISO/EIM footprint. The CAISO will also ensure that procedures exist to address an instance of communications failure with an EIM Entity that causes a separation of the market dispatch area into distinct market islands.

ISO Response

The language has been added.

Section 3.7.1. Settlement of Non-Participating Resources

Xcel Energy recommends that the last sentence of the second paragraph in this section be deleted and replaced with the following sentence:

The EIM Entity will determine how it will address these charges with the non-participating parties under its OATT.

The proposed language makes it clear that the settlement between the EIM Entity and any non-participating resource/load is beyond the scope and outside of the EIM. The current language makes it appear that the CAISO plans to require one of the two methods mentioned. We do not believe that is the case, but it is unclear with the current language in the straw proposal.

ISO Response

The change is reflected in the draft final proposal.

Sections 3.7.5. Inadvertent Energy Accounting and 3.7.7.1 e-Tagging

Xcel Energy understands CAISO's intent to utilize dynamic schedules to reflect the energy transfers between BAAs under the EIM. While we continue to believe a waiver from the tagging requirements would allow more efficient operations, the CAISO's proposal may be a workable solution. However, the CAISO did not address the primary issue in our previous comments related to these two sections. In both Sections 3.7.5 and 3.7.7.1, the CAISO has included the exact same language related to dynamic schedules and tagging. Since Section 3.7.5 discusses Inadvertent Energy Accounting, we recommend that the language in Section 3.7.5 be revised to read as follows:

In the WECC region, each BAA is responsible for tracking inadvertent energy and administering the inadvertent payback through processes established by WECC. This

responsibility does not change with the EIM. To assist BAAs within the EIM with accounting for inadvertent energy between BAAs, the Market Operator will maintain a dynamic schedule with resources in each EIM Entity BAA. Therefore, the EIM transfers will not constitute inadvertent energy. [END OF SECTION]

The rest of Section 3.7.5 is currently included, and more appropriate, in Section 3.7.7.1.

ISO Response

The change is reflected in the draft final proposal.

Section 3.7.8.3 Real-time Bid Cost Recovery Allocation

Xcel Energy understands the proposal for an EIM Entity to elect whether it will participate in the CAISO RTUC process and the commitment of short-start units. Based on what the CAISO has in different sections of the document, it appears an off-line short start unit could meet an entity's Flexible Ramping needs only if that EIM Entity elected to participate the RTUC process. Is this interpretation correct? Why would a short-start unit under the authority of the EIM Entity not qualify to meet the reliability issue around the flexible ramping requirement in a comparable manner? Additional details with respect to this aspect of the EIM proposal will help potential stakeholders evaluate their options for RTUC participation. We note that the CAISO discusses parts of this issue in several different sections of the straw proposal. To the extent that the CAISO can move this discussion to a single location, it would provide a clearer discussion and understanding by all parties.

ISO Response

Yes. Short start units would need to submit hourly economic bids to be evaluated in RTUC. Since unit commitment is no longer optional for the EIM entity, the ISO has strived to remove all discussions of the unit commitment optional in the draft final proposal.