

Comments of Powerex Corp. on Energy Imbalance Market Year 1 Enhancements

Submitted by	Company	Date Submitted
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Powerex appreciates the opportunity to comment on CAISO’s November 10, 2014 Issue Paper and Straw Proposal on Energy Imbalance Market (“EIM”) Year 1 Enhancements. In the Issue Paper and Straw Proposal, CAISO sets out certain proposed design “enhancements” intended to address FERC compliance directives, follow through on commitments that CAISO made during the original stakeholder process, and address other implementation issues.

Powerex submits these comments with the hopes of assisting the CAISO with the re-development of a clear and focused scope for the initial phase of the current initiative. More specifically, Powerex believes it is imperative that, before considering possible enhancements to the existing EIM structure, several corrective steps be taken to ensure the existing EIM market structure is able to operate in a manner that (i) actually delivers significant efficiency and cost-saving benefits, (ii) does not impose significant new costs or inefficiencies on non-EIM markets and transmission use, and (iii) does so without undermining system reliability.

As discussed further below, there are clear signs that the current EIM structure has experienced severe implementation issues. For example, CAISO recently requested that FERC grant waiver of the CAISO Tariff to permit CAISO to retroactively rerun and resettle its EIM market after just weeks of operation.¹ Powerex does not believe that the implementation challenges the EIM has been experiencing reflect operator errors or deficiencies, but reflect underlying market design issues. For that reason, Powerex believes that there is both a need and an opportunity to draw some lessons from the initial implementation efforts and reassess the existing EIM market design *before* embarking upon any further design changes.

In particular, Powerex recommends that CAISO: (1) reconsider the need for a capacity-based resource sufficiency mechanism; (2) provide stakeholders with significant additional transparency concerning EIM market operations, including for the initial period of implementation; and (3) conduct a robust and inclusive assessment of the costs and benefits associated with EIM implementation. Proceeding without first evaluating and modifying the core EIM market design in light of the initial operating experience runs the risk of increasing the

¹ *Cal. Indep. Sys. Operator Corp.*, Petition for Limited Waiver and Request for Expedited Consideration, Docket No. ER15-402-000 (filed Nov. 13, 2014) (“Petition for Waiver”).

overall complexity of the EIM, while failing to achieve intended efficiency and reliability benefits.

1. Resource Sufficiency

Throughout the stakeholder proceedings leading to development of the EIM and before FERC, Powerex and other stakeholders expressed concern that CAISO's proposal to adopt an "energy only" resource-sufficiency test, supplemented by a subjective flexible ramping requirement, was inadequate to ensure that each balancing authority area ("BAA") participating in the EIM would consistently have sufficient resources available to it to reliably serve load.² The proposed EIM design, Powerex argued, would result in "capacity leaning" either on other participating BAAs and/or on the energy-only resources voluntarily offered into the EIM. Powerex urged CAISO to adopt a robust *capacity*-based resource-sufficiency test similar to that accepted by the Commission for use in the Southwest Power Pool, Inc. EIM.³

CAISO dismissed these concerns, claiming that its proposed measures were adequate to ensure that there would be sufficient resources available through the EIM to serve load. CAISO further argued that development and implementation of a capacity-based mechanism was unnecessary and beyond the scope of development of the EIM:

The ISO is only proposing an expansion of its real-time market. That market does not incorporate a forward capacity requirement, and the ISO does not believe it is appropriate in its proposal to attempt to impose forward capacity requirements on Energy Imbalance Market Participants. Instead, the ISO is proposing robust scheduling and bidding requirements applicable for a real-time market to ensure the availability and adequacy of energy . . . the Proposal protects EIM Entity balancing authority areas from real-time leaning on other balancing authority areas, including the ISO balancing authority area, by isolating any EIM balancing authority area that fails to meet these requirements from accessing the resources available in other balancing authority areas in the EIM Area.⁴

The CAISO further added that its proposed measures should be fully tested before implementation of additional requirements.⁵

With the EIM now fully implemented, both CAISO and, to a lesser extent, market participants have had an opportunity to assess the efficacy of CAISO's proposed measures and their impact on market outcomes. Unfortunately, there is now significant evidence that validates the efficiency and reliability concerns expressed about the EIM's lack of a robust resource sufficiency framework.

² See, e.g., *Cal. Indep. Sys. Operator Corp.*, Protest of Powerex Corp., Docket No. ER14-1386-000 at 65 (filed Mar. 31, 2014).

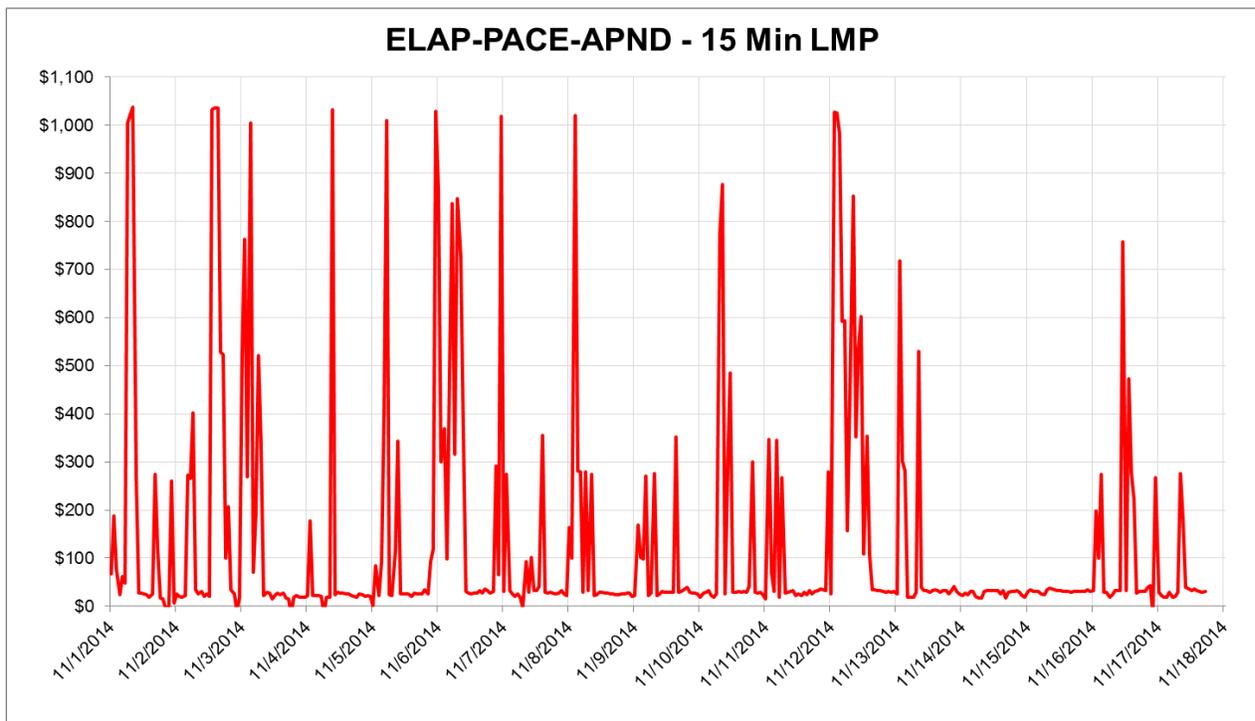
³ *Id.*

⁴ *Cal. Indep. Sys. Operator Corp.*, Motion and Answer to Comments and Protests of the California Independent System Operator Corporation, Docket No. ER14-1386-000 at 35-36 (filed Apr. 15, 2014).

⁵ *Id.*

More specifically, in its petition for waiver, CAISO directly attributes high prices experienced during the initial implementation of the EIM to a lack of resources participating in the EIM. This is the very definition of resource *ins*ufficiency, which CAISO insisted its market design would avoid. In particular, CAISO explains that a “lack of sufficient effective economic bids in the real-time market” has triggered application of CAISO’s transmission and system balance constraints, which CAISO uses when there are insufficient resources to clear its markets.⁶ More specifically, CAISO notes that the participation of PacifiCorp’s resources has been less robust than anticipated and that “third-party participating resources in PacifiCorp’s BAAs have not yet begun participating in the EIM, which further limits the pool of available resources.”⁷ CAISO also notes that the “PacifiCorp East and PacifiCorp West BAAs have experienced several forced outages of large EIM participating resources, which led to short term supply deficiencies in the market.”⁸

The circumstances identified by CAISO in its filing are consistent with the dramatic price spikes observed since implementation of the EIM. For example, as shown in the chart below, 15-minute prices in the PacifiCorp East BAA have spiked to approximately \$1,000/MW in numerous intervals since implementation of the EIM.



⁶ Petition for Waiver at 1, 10-11.

⁷ *Id.* at 9-10.

⁸ *Id.* at 10.

Similar pricing outcomes have been observed in the 5-minute market and in the PacifiCorp West BAA. In other words, these pricing outcomes have not been limited to just a single BAA in the EIM or to just the 15-minute dispatch.

These are not the only signs that the EIM's lack of a robust resource sufficiency mechanism is resulting in reliability risks and leaning on other resources. For instance, Powerex has also noticed, from publicly available OASIS data, an increase in the number of emergency e-tags issued for deliveries sinking in both the PacifiCorp West and PacifiCorp East systems in the initial weeks of implementation of the EIM.

Another stakeholder also recently noted in response to CAISO's request for waiver at FERC that the problem is not an *overall* lack of resources, but a lack of resources actually *participating in the EIM*:

Prior to the implementation of the EIM market, there was no evidence that the PacifiCorp BAAs were experiencing resource shortages that inhibited its ability to satisfy load-following/Energy Imbalance requirements. Nor was there evidence following implementation of the EIM that the PacifiCorp BAAs were unable to satisfy its load-following/Energy Imbalance requirements. The high prices seen in the first two weeks of the November are created by the CAISO having insufficient EIM Participating Resources, at times, to permit the market to clear and market rules that did not recognize this condition and provide mitigation, not an endemic and unforeseen problem existing prior to implementation of the EIM.⁹

CAISO characterizes the resource insufficiency that it is experiencing as “transitional” and emphasizes that CAISO and PacifiCorp are working to resolve these issues by striving to increase the participation of PacifiCorp's available resources and encouraging the participation of third parties. Powerex does understand and respect the enormous challenges faced by CAISO market operators in implementing the EIM at the same time that they gain experience with an expanded Full Network Model and the Fifteen Minute Market—implementing three fundamental market changes within a matter of six months would test the capabilities of any market operator.

Powerex believes, however, that the collective experience of the CAISO and all affected parties during the initial implementation of the EIM point to *fundamental design choices* that warrant reconsideration and discussion by stakeholders. While CAISO states that it is working with PacifiCorp to increase the number of economic offers available, hoping to encourage additional *voluntary* participation in the EIM in no way makes up for the lack of *committed* resources, and does not address the fundamental problem. While it is entirely appropriate to rely on voluntary participation to reduce the *cost* of keeping the lights on, the EIM must be able to keep the lights on even if *no* voluntary resources elect to participate. Encouraging additional voluntary participation, while beneficial from a dispatch *cost* perspective, neither guarantees that sufficient physical resources will be available for dispatch nor that the resources that do participate will

⁹ *Cal. Indep. Sys. Operator Corp.* Motion to Intervene and Answer of Deseret Generation & Transmission Co-operative, Inc. to Petition for Limited Waiver and Request for Expedited Consideration, Docket No. ER15-402-000 at 7 (filed Nov. 17, 2014).

meet their performance obligations. A robust, capacity-based resource sufficiency framework is essential to ensuring reliability, enabling the EIM to meet its intended purpose as an efficient, energy-only market.

Moreover, even if it were appropriate to *rely* on voluntary participation to reliably meet load, CAISO operated real-time markets, including the EIM, are currently experiencing multiple implementation issues that discourage such participation. For example, CAISO continues to experience problems with its own basic settlement processes going back to the May 1, 2014 implementation of the Fifteen Minute Market. Additional problems arose with its October 15, 2014 implementation of the expanded Full Network Model, leading to recognized inconsistencies between the public prices posted on OASIS and the actual prices at which CAISO dispatches resources and settles transactions. These problems were compounded by the November 1, 2014 implementation of the EIM, leading to aberrant pricing in the CAISO's own 15-minute and 5-minute real-time markets at interties connecting the CAISO grid with PacifiCorp. These systems-related implementation problems compound concerns already expressed about the CAISO's approach to bid mitigation, which can result in CAISO over-riding participant's voluntary offer prices (and still dispatching the resource at the mitigated price), potentially resulting in confiscatory outcomes.

Powerex also generally supports CAISO's new proposal to apply its resource sufficiency tests to CAISO's own BAA. But this exercise promises to be of little utility unless CAISO takes the steps necessary to address the flaws in its own existing resource sufficiency framework.¹⁰

In short, based on the limited, but highly troubling, information available regarding CAISO's implementation of the EIM, it appears that the concerns expressed by stakeholders regarding the adequacy of CAISO's resource sufficiency mechanisms may have been well-founded. And, until CAISO requires EIM Entities, and its own BAA, to make an affirmative demonstration that they have committed sufficient *capacity* to reliably meet load – through a combination of baseload and dispatchable generation and capacity-backed firm imports – and that these resources will be able to perform in real-time, CAISO will have no assurance that the issues that have characterized the first few weeks of EIM implementation will not come to characterize the performance of the EIM going forward.

2. Transparency

If stakeholders are to identify issues and assess the performance of the EIM going forward, and make suggestions for improvements, they need to fully understand the various factors playing a role in market outcomes. At present, however, market participants have limited visibility regarding EIM market operations, including the magnitude of the capacity deficiencies CAISO is experiencing and the actions that CAISO has taken to address these shortfalls. In order to facilitate stakeholder consideration of the problems CAISO has been experiencing and potential

¹⁰ If left uncorrected, these flaws will require CAISO operators to address shortfalls by taking extraordinary steps in real-time to maintain reliability, such as entering into out-of-market, bilateral transactions with intertie and/or internal resources (i.e. exceptional dispatches) or inserting subjective "load adjustments" into CAISO's dispatch algorithms in an attempt to increase the supply that is dispatched.

solutions, Powerex requests that CAISO provide additional information regarding its initial implementation of the EIM, including:

- Disclosing the hourly flexible ramping requirement determined by CAISO for the PacifiCorp East and PacifiCorp West BAAs;
- Disclosing the maximum upward imbalance actually experienced each hour in the PacifiCorp East and PacifiCorp West BAAs;
- Disclosing the hourly amount of presumed capacity diversity benefit and associated transfer capability, as well as how this amount was determined;
- Providing a table setting forth the different causes of resource insufficiency and their frequency of occurrence (i.e. data error, over-stated inter-BAA capacity diversity, over-stated transfer capability, under-performance of flexible resources, etc.);
- Providing a full explanation of the steps CAISO took during the initial implementation of the EIM to procure resources to make up for any shortfalls, including any operational intervention and adjustments; and
- Providing information regarding how frequently the PacifiCorp East and PacifiCorp West BAAs failed the pivotal supplier test.

Not only should CAISO disclose the aforementioned information for past periods, but CAISO should commit to provide such information to stakeholders on an ongoing basis going forward. Providing additional transparency regarding CAISO's implementation of the EIM will support stakeholder participation by providing market participants with a more complete understanding of the problems facing the CAISO market, minimizing the potential for misunderstandings, and, ultimately, increasing the quality of proposals vetted through the stakeholder process.

3. Cost-Benefit Analysis

In addition to providing stakeholders with additional transparency regarding operation of the EIM, Powerex believes that stakeholders must have a clear understanding of the costs and benefits associated with implementation of the EIM before they can accurately assess the merits of any proposed enhancements to that market and its impacts on all affected parties. For that reason, Powerex requests CAISO to conduct a full, objective, cost-benefit analysis of implementation of the EIM, *with stakeholder input*, which can then be used as the foundation for further discussion concerning potential solutions to the resource sufficiency issues confronting CAISO and possible enhancements going forward.

Powerex emphasizes that any such analysis must consider the full range of benefits and burdens associated with implementation of the EIM, including the numerous impacts the EIM has had on CAISO's other markets and on the use of existing transmission rights under PacifiCorp's OATT. It is not enough, for instance, for CAISO to point out that there has been an increase in flows between BAAs participating in the expanded EIM footprint. Whether an increase in flows between CAISO and the participating EIM Entities is an improvement over outcomes absent an

EIM cannot be judged in the abstract and depends on myriad factors, including whether these EIM flows are displacing other non-EIM transactions. For example, transmission customers are being denied access to transmission capacity on the COI to make room for *potential* EIM transfers (that may or may not materialize), and are also experiencing an increase in curtailments. Setting aside transmission exclusively for the use of EIM participants imposes a significant cost on other market participants and economic efficiency, which must be taken into account in any cost-benefit analysis of the EIM. CAISO also needs to consider what portion of such inter-BAA EIM flows truly reflect the implementation of the EIM or whether these transfers could have occurred anyway – due to, for example, implementation of 15-minute scheduling and/or PacifiCorp's participation in the CAISO's Fifteen Minute Market.

There are also indications that CAISO and PacifiCorp's EIM design decisions are imposing new, unintended costs on those entities transacting within the PacifiCorp footprint. For example, PacifiCorp's decision to apply EIM congestion charges to all Firm OATT transmission schedules submitted after T-57 has had a chilling effect on participants' willingness to utilize their rights for hourly and sub-hourly schedules in real-time. It could be argued that this particular design feature has largely unwound much of the intended benefits of FERC's Order No. 764 in the PacifiCorp footprint by discouraging the use of firm OATT rights for new sub-hourly schedules submitted after T-57.

A thorough, objective, cost-benefit analysis also should provide market participants with transparency regarding the methodology used by the CAISO in assessing benefits. For example, before claiming that the EIM has created a diversity benefit in the form of a reduction in the flexible reserve capacity carried in each BAA, one must conduct a detailed reliability-based study of such diversity. In order to support a claim of diversity benefits, the study must demonstrate that the total reduction in flexible reserves is indeed available as a result of a *consistent* diversity between the participating BAAs that materializes in every hour and that there is transmission *consistently* available to facilitate the associated inter-BAA transfers. Failure to provide such a study raises the question as to whether the claimed reduction in flexible reserves is little more than leaning on voluntary offers in the EIM, with an associated increase in reliability risk if such voluntary offers fail to materialize. Any such cost-benefit analysis must also consider to what extent any purported diversity benefits could be achieved by the participating BAAs without joining an EIM.

Similarly, any claim that the removal of pancaked rates has increased dispatch efficiency must objectively examine the extent to which the existence of such rates impeded efficient dispatch in the first place. Any such analysis must take into account that OATT transmission customers often had "sunk" firm transmission rights at the time they entered the day-ahead and real-time markets; thus, the existence of pancaked rates did not hamper their participation in these markets.

There are substantial efficiency benefits that *can* be realized through a well-designed EIM, but ensuring that these benefits exceed the total costs of implementation requires a robust, refined, market design founded on an objective understanding of *all* of the costs and benefits truly attributable to the initiative. Powerex urges the CAISO to have additional stakeholder dialogue on this topic.

4. Conclusion

Powerex firmly believes that a well-designed intra-hour energy market can confer real reliability and economic benefits on participating market participants and transmission providers. All information available about CAISO's initial implementation of the CAISO EIM with PacifiCorp suggests that initial implementation of the EIM has, more likely, increased reliability risk within the expanded EIM footprint without any clear demonstration that implementation of this market has resulted in *net* economic benefits for market participants. Given this experience, Powerex recommends that the initial focus of CAISO's EIM Year 1 Enhancements stakeholder initiative should be on solving these implementation and core market design problems ahead of all other issues identified in its Issue Paper and Straw Proposal.