

Comments on Renewable Integration Phase 2 Paper

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Powerex appreciates the opportunity to provide these comments on the CAISO's Renewable Integration Phase 2 Paper.

Enhancements to Existing Market Design

Multi-Settlement System for AS

Powerex believes the CAISO could enhance its existing market design by creating a multi-settlement system for AS. In Powerex's opinion, a multi-settlement system for AS would create a more efficient market dispatch for AS and allow the CAISO more flexibility in incorporating energy from renewable resources. However, Powerex believes that the CAISO must ensure that creating a market where AS awards can be bought back does not lead to reliability concerns that could arise from implicit AS bids. Powerex believes the CAISO will need to implement a strict day ahead AS e-tag requirement to ensure the suppliers of AS on the interties have the capacity and transmission to deliver on their award.

Enhancements to RUC

Powerex also believes that it would be more efficient to perform RUC and IFM simultaneously to ensure an efficient dispatch that gives the ISO sufficient energy and capacity to reliably operate the system. Furthermore, Powerex believes it would be highly beneficial to extend RUC to the interties for system resources, to create more liquidity for capacity for the CAISO. However, Powerex believes that the CAISO market rules continue to have significant gaps on the interties which undermines the ability for the CAISO to have an efficient and effective RUC market today.

A clear prerequisite of an efficient and effective RUC market is the CAISO having transparency on the actual physical capacity that has been committed in the IFM both internally to the CAISO and on the interties. Powerex believes transparency is being undermined in two key areas on the interties, with serious reliability implications. First, the CAISO needs to be clearer to participants on the interties of the physical requirements for submitting bids of each respective energy type: firm energy, unit contingent energy and interruptible energy. Powerex understands that both firm energy and unit commitment energy is expected to include a Day Ahead capacity

commitment from the supplier to the CAISO. Interruptible energy includes no such capacity commitment. The CAISO should be clear to participants that submit firm energy and unit contingent energy bids on the interties that the CAISO expects participants to have the generating capacity and transmission capacity supporting these bids in place in the Day Ahead timeframe. A “promise” or “hope” to acquire this generating capacity or transmission capacity in real-time provides no real physical Day Ahead capacity to the CAISO, undermines transparency for the CAISO on the true quantity of committed intertie capacity, undermines the RUC market process, and provides for serious reliability risks.

Second, the CAISO needs to implement a strict Day Ahead e-tagging requirement for firm energy and unit contingent energy awards on the interties otherwise insufficient capacity is committed in the RUC process. Most IFM intertie energy awards are tagged¹ Day Ahead which indicates that the award has both the generation capacity and transmission capacity to deliver on its obligation. However, Powerex understands around 9%, on average, of DA awards are not tagged until RT. Without the DA e-tag, the CAISO cannot be assured that un-tagged awards are backed with generation capacity and/or transmission capacity. The CAISO should implement a strict DA e-tag requirement to ensure all DA awards for firm energy or unit contingent energy are backed by generation capacity and transmission capacity. The e-tag process is widely accepted as the appropriate mechanism for ensuring resources are indeed physically committed to serve the specified load. This is essential to the CAISO RUC process to ensure the CAISO can commit sufficient additional capacity for reliable operation, as necessary.

This DA e-tag requirement should have a minimal impact on liquidity since historically only about 9% of DA awards are not e-tagged, and there are now significant alternative, more appropriate, market mechanisms for participants to utilize in the IFM market. Those participants who wish to e-tag IFM awards in real-time will still be able to participate in the IFM as interruptible energy or as a convergence bid. While Powerex recognizes there are some additional costs associated with bidding energy as interruptible energy or as a convergence supply bid in the IFM, these costs are entirely consistent with cost causation principles. Effectively, participants who have not procured the generation or transmission capacity for their IFM intertie supply award are charged for the CAISO backstopping this DA capacity shortfall through additional contingency reserves or commitment of units in the RUC market if necessary.

New Spot Market Products

Pay for Performance Regulation

Powerex believes the CAISO would benefit from the design of a non-discriminatory regulation service that includes the following:

- Single clearing price for regulation service for all resources that takes into account opportunity cost;
- Mileage payment that recognizes the work performed by the regulation resource in response to CAISO dispatch;

¹ See DMM Comments on Straw Proposal for E-Tag Timing Initiative, December 10, 2009 at <http://www.caiso.com/2480/2480e27c256a0.pdf>

- Net energy payment to recognize the amount of energy supplied/consumed by the regulating resource; and
- An accuracy adjustment that recognizes the physical characteristics of the underlying regulation resource.

A single clearing price for capacity for all resources providing regulation service ensures that the market receives the right price signals for investment in regulation service and does not create phantom scarcity signals.

The mileage payment would be an improvement to the CAISO's current market since it would compensate regulating resources that move in response to CAISO dispatches. Those regulating resources that "stand-ready", but are not dispatched for energy, would still be compensated through the capacity payment.

Powerex believes that regulating resources should be compensated/charged for any energy that they provide/consume. Traditional regulating resources operating within their regulating range may be providing energy on a sustained basis and that incremental regulating energy should be compensated at the higher of the resources bid or the RT LMP.

The CAISO should recognize the physical characteristics of the resources providing regulating service and ensure that any accuracy adjustment does not unduly penalize the regulating resource; otherwise, there would be a disincentive to bidding the resource.

Load Following Reserve

Powerex believes the CAISO should investigate the requirement for a load following reserve, LFR, product. Powerex believes the CAISO could model the LFR product similar the Regulating Reserve product discussed in the FERC NOPR. The LFR product could have a stand-by capacity payment, mileage payment for following load, and an energy payment or charge, as appropriate. This LFR product may, under most circumstances, eliminate the requirement for a flexible ramping constraint..

Reflecting Constraints in Market Prices

Powerex believes that the CAISO should strive to design their markets so that all constraints are reflected in the market prices. Any out-of-market dispatches to address minimum on-line or ramping constraints need to be reflected in the market prices so that the market has the right price signals for appropriate investment in resources. Without those price signals, the market will not respond with resources that help the CAISO solve those constraints.

Allocation of Integration Costs

Powerex believes that to the extent VERs are similar to interruptible resources, VERs should be responsible for the operating reserves to reliably incorporate those resources. Traditional resources are providing both capacity and energy to the CAISO markets . To the extent that some or all of the energy from the VERs can not be relied upon from a capacity perspective, the

CAISO should acquire the operating reserves needed to “firm up” that part of the VER energy and assign those costs to the VERs.

Alternatively, the CAISO could treat all VER energy bids that are subject to reduction in output similar to virtual bids. In this manner, Powerex believes that the appropriate uplifts will be charged to VER energy bids to ensure they can be reliably integrated into the CAISO without shifting costs to other parties.

It is inappropriate for the CAISO to allow energy only VER products to be disguised as having capacity with cost of the real capacity necessary to backstop these VERs being borne by others. Moreover, market clearing prices for suppliers providing both energy and capacity will be significantly undermined by enabling energy only products to compete inappropriately with energy and capacity products.

Modifications to Intra-Day Market Settlements

Full Hour Ahead Market

Powerex believes that the CAISO should investigate a full HAM. Powerex believes a HAM would provide a more efficient dispatch of the market closer to RT. In addition to the more efficient dispatch, Powerex believes a full HAM would lead to better price convergence between the DAM/HAM and RTM. For administrative simplicity, the implementation of a HAM could be coordinated with the multi-settlement improvements for the AS market and accommodate a potential future 15-Minute Market.

15-Minute Market

An incremental improvement over a HAM would be a 15-Minute Market. However, Powerex does not believe the CAISO should implement this sub-hourly market until the rest of WECC implements sub-hourly scheduling. When/if CAISO does implement a full HAM, the CAISO should implement the software in a way that would allow CAISO to easily transition it to a 15 minute market.

Uneconomic Adjustment Priority for VERs

Powerex believes it would be unduly discriminatory to provide a different scheduling priority to VERs when a market solution is available. Powerex believes that this proposed priority is unnecessary if the CAISO lowered their bid floor to appropriately allow resources to make their preferences known through their bids rather than administratively set uneconomic adjustment priorities. It is simply unacceptable for the CAISO to discriminate between suppliers with different resources.

Longer Term Procurement Issues

Capacity Market/Forward Reserve Market

Powerex supports the CAISO investigating a forward market for both Capacity and Reserves. Other ISOs have successfully implemented capacity markets and Powerex recommends that the

CAISO investigate experiences in other markets and begin a stakeholder process for further discussion.

Powerex is aware that forward contracts for capacity and reserves are being negotiated in WECC bilateral markets outside the CAISO. In Powerex's opinion, the CAISO can serve as an appropriate intermediary for longer term capacity and reserves. The CAISO is in the best position to estimate the forward reliability requirements for capacity and reserves across the CAISO grid, and to ensure that the correct price signals are sent to the market so that capacity and reserve investments are made and committed ahead of time. Absent the CAISO taking on this forward looking role, the CAISO may one day find it is unable to acquire sufficient capacity and reserves in the Day Ahead market as investments will not be made or external capacity and reserves will be committed to other participants outside the CAISO. This is particularly necessary given the tremendous increase in capacity and reserves necessary as a result of a shift towards greater intermittent resources serving CAISO load.