

Comments on Renewables Integration Market Vision & Roadmap Revised Straw Proposal

Submitted By	Company or Entity	Date Submitted
Gifford Jung 604-891-6040	Powerex Corp.	Sep. 22, 2011

On August 29, 2011, the California Independent System Operator Corporation posted the Revised Straw Proposal for Renewables Integration Market Vision & Roadmap (“Revised Straw Proposal”) and subsequently hosted a stakeholder call on September 12.

Powerex appreciates the opportunity to provide the following comments on the Revised Straw Proposal. It appears clear, that in response to stakeholder feedback and upon further reflection, the CAISO has shifted to a more incremental approach to market design and development. Powerex agrees with this change. However, Powerex believes that the CAISO is still moving forward too quickly to propose piecemeal market design solutions without fully fleshing out relevant background information, such as:

- a) all of the significant problems and flaws in the current market design;
- b) the major challenges the CAISO and the region will be facing in the coming years; and
- c) the current and planned approaches to some of these challenges in other markets in WECC and in other LMP markets such as the NYISO.

Powerex strongly recommends that the CAISO step-back and spend the necessary time to engage stakeholders in discussions of these problems, challenges and external approaches over the next few months, before moving forward with piecemeal solutions. Piecemeal solutions without all of the major shortcomings and challenges in the current market design fully understood will undoubtedly lead to new market design flaws and challenges.

For example, the CAISO currently has a Day Ahead Residual Unit Commitment, RUC, process. Powerex understands that this process is intended to perform a reliability function to ensure that sufficient capacity is committed in the IFM both system-wide, and in specific transmission constrained locations, to meet firm load in real-time. However, there are numerous shortcomings with this unit commitment process. First, the CAISO’s current market rules and procedures fail to provide the CAISO with transparency into the physical unit commitment behind firm and unit contingent IFM imports. Entities can currently submit IFM firm and unit contingent import bids, and receive corresponding IFM import awards, without having to demonstrate any physical unit commitment capabilities prior to the CAISO’s RUC run. This differs to the rest of the WECC, whereby Day Ahead e-tags are necessary for the primary energy product traded, WSPP Schedule C firm energy.

Second, the CAISO’s RUC run excludes valuable participation from intertie resources. As the CAISO becomes more capacity constrained, reaching out to the lowest cost unit commitment available both within and outside of the CAISO region should be a high priority.

Third, cost causation principles are not currently aligned. In particular, IFM firm and unit contingent awards to variable generation both within the CAISO and imports where there is insufficient capacity committed at the source Balancing Authority Area, BAA, are not being appropriately identified and charged for the incurred RUC and balancing reserve costs necessary to backstop the risk of these resources not being available in real-time.

Fourth, the CAISO may need a second RUC process during the Day-Of market when physical conditions are better known and there is still time ahead of peak load hours to start-up most units in the CAISO and WECC, similar to the NYISO's process.

Fifth, the CAISO may need a RUC down process to commit generation or exports to be available in over-generation situations.

In short, the CAISO should fully explore with stakeholders the major shortcomings in its current market design, and the underlying causes, including:

- The CAISO's current inability to efficiently procure and charge consistent with cost causation principles the appropriate hourly quantity of physical unit commitment both Day Ahead and Day-Of to meet firm load requirements and backstop resources that may not perform in real-time;
- The CAISO's current inability to efficiently procure and charge consistent with cost causation principles the appropriate hourly quantity of balancing reserves necessary to backstop variable generation resources both within the CAISO and imported without sufficient balancing reserves provided at the source;
- The CAISO's current inability to efficiently procure and charge consistent with cost causation principles for the appropriate quantity of ramping services;
- The CAISO's current inability to receive economic bids from a large percentage of resources to both increase and decrease production in real-time; and
- The CAISO's current flaws in its real-time market design, particularly as it relates to intertie transactions versus internal transactions.

Although Powerex believes a stakeholder discussion on proposed solutions outlined in the Revised Straw Proposal are premature in many cases, Powerex nonetheless provides the following initial comments on the CAISO proposed market elements, based on the limited details the CAISO has so far presented.

Short Term Market Enhancements – Today through 2013

Renewable Integration Phase 1 Market Enhancements

Powerex supports the CAISO's proposals as incremental improvements to the Energy Bid Floor and Bid Cost Recovery mechanism. However as previously stated, Powerex continues to believe that the CAISO should monitor the Energy Bid Floor to determine if further reductions to the bid floor are warranted. In addition, Powerex believes the CAISO should conduct a broader review of the bid cost recovery mechanism in its markets, with particular attention to an appropriate hourly bid cost recovery for intertie transactions.

Regulation Energy Management

Powerex has no additional comments to provide at this time.

Dynamic Transfer Policy

Powerex has no additional comments to provide at this time.

Flexible Ramping Constraint

Powerex believes the Flexible Ramping Constraint is effectively a band-aid solution for a broader market design gap related to the efficient procurement and cost allocation of balancing reserves. Powerex believes that the CAISO should be clear that upon implementation, it intends to provide transparency on the Flexible Ramping Constraint by posting the amount of capacity procured and the price paid on OASIS.

Powerex supports further development of the Flexi-Ramp constraint towards a better market mechanism for procuring necessary incremental and decremental balancing reserves in both the Day Ahead and Day-Of market timeframes. However, more details on this issue will need to be fleshed out through further stakeholder discussions.

72-Hour Residual Unit Commitment

Powerex believes further broader discussions on the CAISO's unit commitment process are necessary as previously discussed.

More Granular VER Forecasting for RUC

Powerex supports the CAISO in both receiving better data as it relates to the potential unavailability of VERS in real-time and improving its RUC process. However, Powerex believes the CAISO needs a broader discussion on the shortcomings of the CAISO's current RUC process as previously discussed.

Startup and Shutdown Profiles

Powerex has no comments at this time.

Enhanced Contingent/Non-Contingent Operating Reserve Management

Powerex believes a broader discussion of all capacity commitment mechanisms and cost allocation is needed before moving forward with changes to contingency reserves procurement, deployment, or cost allocation.

Mid-term Market Enhancements – 2013 through 2015

Flexi-Ramp Product

Powerex generally supports the CAISO in the development of new products to efficiently procure, and appropriately charge for, balancing reserves and ramping services. This will be critical for handling the increase in VERS being added both within the CAISO and on the interties. Powerex believes that compensation should be market based and costs allocated consistent with cost causation principles. In addition, dispatchable dynamic resources on the interties should be allowed to participate in the appropriate market framework.

However, it continues to be unclear to Powerex how the CAISO intends various products to fit together in meeting the broader CAISO capacity needs. Again, Powerex urges a broader discussion of CAISO capacity-related challenges and issues including:

- a) energy product types (firm, unit contingent, and interruptible);
- b) contingency reserves;
- c) balancing reserves;

- d) ramping reserves; and
- e) unit commitment.

Powerex agrees with the CASIO's statement that "(f)orecast uncertainty associated with wind and solar production increases the need for the reservation of resource capacity to ensure that operational requirements are met in real time". With the increased integration of variable resources within WECC, capacity may often become scarce, not only within CAISO but also within neighboring BAAs.

Powerex believes that as part of CAISO's market design process, CAISO needs a much improved framework to evaluate imports. More specifically, CAISO needs clear and enforceable rules to be able to differentiate between imports that are being backed up with balancing reserves by the Source BAA and those that are not. Powerex believes the key differentiation for import schedules is not variable resources versus non-variable resources, nor dynamic versus static schedules, but rather, is the Source BAA fully ensuring delivery according to CAISO needs and price signals or not.

VER Availability Updates

Powerex believes that CAISO should have the necessary transparency into the availability of VERs. Powerex also believes that VERs will undoubtedly have to change their availability as physical conditions change. However, market rules should be non-discriminatory, and should not differ between different types of resources. More specifically, Powerex does not agree that VERs should be allowed to bid or schedule, or change their bids or schedules, more frequently than any other type of resource, as such a practice is clearly not "technology agnostic", a guiding principle of the CAISO's market redesign, nor would the practice align with the general principle of establishing non-discriminatory market rules. If VERs are allowed to change their schedule intra-hour at the sellers discretion then all resources should be allowed to change their schedule. If the CAISO wishes to *restrict* some resources from changing their delivery within a given scheduling interval, it should do so through a market mechanism and appropriate payment for the assured firm supply. If properly designed, this will efficiently allow CAISO to procure unit commitment services and/or balancing reserves to backstop these internal resources and imports that do not provide the CAISO with delivery assurance for each hour, and rather choose to be given the ability to change their delivery at the seller's discretion, independent of CAISO prices and needs. The CAISO should allocate the incurred costs for the reserves necessary to backstop these resources on a cost causation basis.

Powerex believes it is important to recognize that the need for the seller to be able to unilaterally adjust their deliveries to the CAISO is not based simply on the characteristic of the resource (variable or non-variable), particularly for bids submitted on the interties. More specifically, the need for the intertie imports to be able to adjust their deliveries to the CAISO is largely an economic choice of the seller. This economic choice is made by the seller in determining which resources (i.e. variable versus baseload or dispatchable) a seller chooses to deliver to meet its CAISO physical import award versus which resources in its portfolio it chooses to deliver to other markets. The economic choice may also be made as to whether or not to procure balancing reserves or unit commitment at the source BAA to backstop VERs that are delivered to the CAISO. Such economic choices should be made in the context of an appropriate price signal from CAISO markets. One can conclude that if the appropriate price signals based on cost-causation principles are not provided by the CAISO, the CAISO markets will increasingly receive less reliable deliveries while reliable supply seeks other markets where the additional capacity standing behind the delivery is recognized and compensated. Powerex believes this will clearly result in inefficient market outcomes.

Decremental Bidding from PIRP Resources

Powerex has no comments at this time, but believes that more details need to be fleshed out in this proposal.

Intertie Pricing

The CAISO has outlined two possible proposals – NYISO approach and Interties get RT price during LLH.

CAISO describes the NYISO approach as imports and exports settling at the RT price (when there is no congestion) with Bid Cost Recovery, BCR, for imports only. An additional congestion charge would apply to the real-time price during congestion periods. The CAISO has not commented on other elements of the NYISO approach, including additional elements to ensure that imports are fully backstopped at the source BAA and additional elements to discourage implicit virtual bidding.

Powerex understands the second proposal presented by the CAISO would essentially make imports price-takers in the off peak hours with no BCR. The CAISO opinion is this would make importers more comfortable with the price risk as an interim step to a NYISO-like settlement.

Powerex encourages the CAISO in looking towards other markets for guidance in dealing with the complex issues associate with real-time market design and intertie pricing. However, Powerex believes it is far too premature for the CAISO to propose adopting the NYISO approach or any alternative real-time market designs.

The CAISO should move this discussion to a separate stakeholder process. It should begin this new stakeholder process by identifying all of the shortcomings of the current real-time market design, with a focus on the differences between intertie and internal resources and market rules. Powerex believes that only some of the problems with the current real-time market design have been identified to date and much more discussion is necessary. Moreover, the CAISO has not fully explained all of the elements of the NYISO approach to its real-time market including intertie treatment.

A robust solution is imperative as there are many outstanding CAISO issues that must be understood before moving forward with real time market design proposals, particularly including proposals where intertie convergence bidding may be reinstated.

Long-term Market Enhancements – 2015 through 2020

Forward Procurement

Powerex supports the CAISO in the review of whether any forward procurement markets are required to acquire the capacity and flexibility to reliably accommodate VERs. As Powerex has commented in other stakeholder processes, the CAISO needs to review its requirements to reliably operate the grid to determine if it would be more appropriate to contract for month-ahead, quarter-ahead, or annual capacity products (including ramping, balancing, and operating reserves) than to rely solely on the DA and RT markets.

Conclusion

Powerex believes that the CAISO has a need for substantial improvements in its current market design. The CAISO has correctly identified the need for improvements in its unit commitment processes, new market mechanisms for procuring and appropriately allocating the costs of balancing reserves and ramping services, and a re-design of its real-time market, particularly as

it relates to intertie transactions and settlement treatment. However, Powerex believes that CAISO is moving forward too quickly with piecemeal proposed solutions without taking the time for a more holistic stakeholder discussion on:

- a) all of the significant problems and flaws in the current market design;
- b) the major challenges the CAISO and the region will be facing in the coming years; and
- c) the current and planned approaches to some of these challenges in other markets in WECC and in other LMP markets such as the NYISO.

Powerex strongly recommends that the CAISO step-back and spend the necessary time to engage stakeholders in discussions of these problems, challenges, and external approaches taken by other ISOs over the next few months, before moving forward with piecemeal solutions. Without a common understanding of all the major shortcomings and challenges in the current market design, piecemeal solutions will undoubtedly lead to new market design flaws and challenges.