

Day-Ahead Market Enhancements (DAME) Initiative

Submitted by	Organization	Date Submitted
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Please provide written comments on each of the revised straw proposal topics listed below:

The Public Power Council (PPC) appreciates the opportunity to provide comments on the Day-Ahead Market Enhancement Revised Straw Proposal from June 8, 2020. PPC represents the interests of most consumer-owned utilities located in the Pacific Northwest. PPC’s members range from small rural distribution utilities that do not own generation to very large urban utilities that own both generation and transmission facilities, but all PPC members are statutory preference customers of the Bonneville Power Administration (BPA). PPC’s members are interested in the potential development of this proposal from several perspectives: as purchasers of preference power or transmission services from BPA, as load serving entities in the current and/or future EIM footprint, and as possible and planned EIM participants themselves.

PPC remains very supportive of CAISO’s efforts to enhance the day-ahead market. The challenges CAISO faces managing the increased amount of variable resources with the limited existing day-ahead market design have been well documented throughout this stakeholder process and in CAISO reports that have been published over the past several years. Operators now routinely rely on out-of-market actions such as load conformance, RUC adjustments and exceptional dispatch to set up the CAISO BAA with sufficient flexible capacity to reliably meet real-time operating conditions. The regular reliance on out-of-market actions creates inefficiencies and has undermined and the economic signals provided by market prices. Prices in the real-time market now systematically clear below day-ahead market prices because of these out-of-market actions.¹

Current Proposal Improves on Status Quo, But Does Not Fully Achieve Objectives

The Day-Ahead Market Enhancements initiative set out to address the challenges facing CAISO by modifying the day-ahead market so it:

- 1) Commits deliverable physical supply to meet CAISO’s day-ahead net load forecast and cover uncertainty that may materialize between day-ahead and real-time net load. This

¹ [CAISO Energy Market Price Performance Report](#), September 23, 2019.

is achieved through the introduction of Reliability Capacity and Imbalance Reserve products.

- 2) Co-optimizes new capacity products, energy, and ancillary services when scheduling resources in day-ahead market. This would replace the current sequential IFM and RUC.

PPC is very supportive of Reliability Capacity, Imbalance reserves, and co-optimization of these products with energy and ancillary services. Implemented correctly, these enhancements will set up the CAISO market to efficiently procure the products it needs to achieve grid reliability. A successful implementation of these enhancements will have many benefits to market participants. It will help ensure that CAISO's grid reliability needs are met efficiently through the least-cost market-based solution, establish price signals that reflect reliability and operational needs of the grid, and minimize out-of-market actions.

Day-ahead market enhancements are also critical to the potential extension of the day-ahead market to EIM balancing authority areas (EDAM). PPC believes ensuring procurement of physical supply sufficient to meet the load forecast, and fairly compensating all resources that contribute to meeting this need, are critical elements of a market design and price formation model that can serve as a foundation for EDAM.

As described in more detail below, PPC is concerned that the revised market formulation does not fully accomplish the objectives the Day-Ahead Markets Enhancement initiative set out to achieve. As described in detail further below, PPC is concerned the new formulation does not optimally procure necessary products, most efficiently ensure reliable operations, or comparably compensate all resources for the services they provide. We appreciate the significant improvements in the current proposal compared to status quo, including the creation of Imbalance Reserves and Reliability Capacity, and strongly encourage CAISO to continue to include these improvements in future proposals. However, the current proposal would need additional modifications to serve as the starting point for EDAM price formation and requires more work with stakeholders to address outstanding stakeholder concerns.

Further Stakeholder Discussions Needed to Refine CAISO's Proposed Enhancements

PPC understands the revised market formulation was meant to address California Load Serving Entities' valid concerns that result from the enforcement of the Reliability Energy (REN) constraint. We appreciate CAISO's responsiveness to stakeholder comments. However, the specific changes included in the most recent proposal would undermine some of the objectives that CAISO is trying to achieve in this initiative. PPC has concerns about this price formation model for the CAISO BAA and as a basis for the EDAM market design.

PPC is sympathetic to the difficulty of finding a market design in this process that can fully accommodate the diverse range of stakeholder needs and perspectives. We are optimistic about finding a potential path forward and remain committed to further exploration of new

proposals that can address stakeholder concerns, fully achieve the intended benefits of this initiative, and serve as a foundation for EDAM market design. PPC appreciates CAISO staff's ongoing work on this initiative and commitment to working with stakeholders on a solution.

1. Updated market formulation:

PPC has many concerns with the market formulation in the revised straw proposal. Under the revised market formulation, CAISO would calculate Reliability Capacity Up (RCU) needs through enforcing the REN constraint in the second market pass, but then unwind the pricing and settlement implications of the constraint through a subsequent market pass. PPC is concerned that the multiple pass approach does not comparably compensate all resources for providing physical supply, and depending on final market formulation, may potentially result in insufficient physical supply to meet the load forecast. The multiple market passes will also reduce the optimality of the market solution. PPC understands this proposal was developed to address stakeholder concerns raised about the previous proposal but has serious concerns with some of the proposed changes. We are optimistic CAISO can find a workable framework for all stakeholders.

FAILS TO COMPENSATE RESOURCES SIMILARLY FOR PROVIDING THE SAME SERVICE

CAISO's previous proposal ensured that there was sufficient physical supply to meet the load forecast through the REN constraint.²

$$\sum REN_{i,t} = \sum (EN_{i,t} + RCU_{i,t} - RCD_{i,t}) = D_t$$

The formulation of the REN constraint ensures that when the market clears below the operator load forecast, the sum of physical energy and RCU equal the operator's forecast of demand. The shadow price of this constraint is paid to both physical energy awards and RCU. This price formation and settlement is appropriate because both products provide the same service, ensuring enough physical supply to meet the operator load forecast. Both products are a one-to-one substitute for meeting the REN constraint. The substitutability of the products and the identical contribution they make to meeting the REN constraint means they should be compensated similarly.

CAISO's new proposal includes a market pass that enforces the REN constraint to calculate the RCU needs. Just as in the previous proposal, physical energy and RCU are one-to-one substitutes to satisfy this constraint. But in the updated proposal, the CAISO then relaxes the constraint in a subsequent pass - procuring the fixed amount of RCU calculated in the prior market pass. This produces an outcome where only the RCU, not physical energy, receives a payment. This is concerning to PPC because the contribution of physical energy to meeting physical supply needs is explicitly considered when setting the RCU need but the physical energy is no longer compensated for that contribution. Despite the one-to-one

² Formula from California ISO Day-Ahead Market Enhancements Appendix C: Draft Technical Description, Version 7.1, February 3, 2020

substitutability of these two products and the identical service they provide in ensuring sufficient supply, the current proposal would compensate RCU for the capacity it provides, but not the physical energy.

This discrepancy creates adverse market incentives. For example, during the last DAME meeting stakeholders pointed out the incentive this creates for a physical resource to sell RCU day-ahead rather than energy. By doing so, resources could get both the day-ahead capacity payment and real-time energy payments. This incentive could lower economic physical energy offers in the day-ahead market.

May potentially lead to insufficient physical supply to meet load forecast

PPC understands that CAISO published an additional presentation after the first revised proposal stakeholder meeting that addresses concerns that the original three pass market formulation could leave the balancing area short on physical supply.³ These concerns resulted from relaxing the REN constraint in the third market pass. When the REN constraint is enforced, physical supply with the same bid-in costs as virtual supply is relatively more valuable than that virtual supply. This is because the marginal cost of bid-in demand met by physical energy is the cost of the supply minus the cost savings from reducing the need for reliability capacity. Virtual supply does not reduce reliability capacity needs. When the REN constraint is relaxed in the third market pass, the value premium of physical energy is removed, and virtual supply will likely displace physical energy that was awarded in the previous market pass. Because only the RCU need is locked in during the third pass, lower cleared physical energy will result in total physical supply short of the load forecast.

In response to these concerns, CAISO published an updated document that included a fourth market pass that trued up any potential physical supply shortfall in the third market pass. Currently, the revised straw proposal does not reflect this additional market pass, but PPC understands that this is CAISO's proposal. PPC believes the fourth market pass solves the concern raised above and appreciates CAISO's responsiveness to stakeholder feedback. However, the updated formulation with a 4th pass does not address the other two concerns PPC has raised.

Reduces optimality of market solution

As described above, the revised proposal calculates a reliability capacity need in a market pass with the REN constraint and then procures that capacity in a subsequent market pass that relaxes the REN constraint. This can lead to virtual supply displacing physical supply. To ensure total physical supply can meet the load forecast, additional RCU needs to be acquired in an additional subsequent market pass. The final resulting market solution has higher total production costs. This is less optimal than the previous proposal and does not fully achieve the benefits co-optimization could provide relative to the existing IFM-RUC sequential pass.

³ CAISO [Discussion on updated formulation](#), June 17, 2020

2. Variable energy resources:

No comments currently.

3. Accounting for energy offer cost in upward capacity procurement:

PPC supports finding a methodology to account for energy offer costs in upward capacity procurement. Given the relatively high likelihood the Reliability Capacity and Imbalance reserves will be called upon, a market solution that jointly considers capacity costs and the expected value of the associated real-time energy would be an improvement over the status-quo. During the previous stakeholder meeting, participants raised concerns that the proposal to cap real-time must offer energy bids, which would allow high-priced energy resources to reflect higher capacity costs, could lead to price distortion. This should be explored further in the stakeholder process. CAISO staff also highlighted the potential challenges of determining a real-time bid cap associated with CAISO's P97.5 load forecast prior to the market run. PPC looks forward to further discussion on this topic.

4. Market power mitigation for reliability capacity and imbalance reserves:

During the stakeholder meeting, CAISO staff highlighted the ongoing difficulty of calculating a default capacity bid. PPC is unsure if it would support using spinning reserves as a proxy and supports the continued work towards calculating a default capacity bid. If that remains unworkable, PPC encourages CAISO to explore seasonal and hourly shaping as well as controlling for real time conditions while using spinning reserve prices as a proxy. CAISO data shows the anticipated need for the new capacity products and the prices for spinning reserves vary significantly by season and hour. A P90 calculated on a long-term average may misrepresent a competitive price for capacity in many intervals.

5. Please include additional comments including considerations for other possible solutions or concerns to any of the above topics:

CAISO should continue to explore additional market formulations

Several stakeholders raised valid concerns about the previous proposal. This includes the potential for load to "double pay" for capacity already contracted for under Resource Adequacy contracts, energy bids that may not consistently clear with bid prices, and reduced opportunity for load to hedge price risk between the day-ahead and real-time market. While PPC appreciates the CAISO's efforts to address these concerns in its latest proposal, the resulting market formulation is problematic, particularly as a basis for a potential EDAM market design.

As stated above, we understand the difficulty CAISO faces in attempting to address all stakeholder concerns. Additional discussions are needed for CAISO and stakeholders to continue to work together to develop a solution that best meets the objectives set out by the

CAISO. PPC is committed to exploring solutions that would meet those objectives, address stakeholder concerns with the prior proposal, and our concerns with the current proposal. Addressing the divergent stakeholder needs to formulate a market design that is acceptable to all participants will be important for realizing the intended benefits of the day-ahead market enhancements and creating a design that is a workable foundation for EDAM. PPC looks forward to continuing to work on meeting this objective.