Department of Energy

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CAISO Day-Ahead Market Enhancements Initiative
Bonneville Power Administration Comments on the Revised Proposal
July 13, 2020

Submitted by	Company	Date Submitted
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Bonneville Power Administration (Bonneville)[1] appreciates the opportunity to support – with caveats – the CAISO's Day Ahead Market Enhancements (DAME) Revised Straw Proposal.

Bonneville believes the reliability issues in the CAISO BAA are real and the need for enhancements to the existing day-ahead market to more effectively identify and procure the resource attributes needed to serve net load – including its steep daily changes – are critical.[2] The goal of enhancing the day-ahead market is to efficiently position the resources procured to meet reliability requirements and reduce inequitable out of market actions that are currently used to meet changes in net load. When evaluating proposals in this policy initiative, Bonneville considers four criteria and this Revised Proposal addresses – but does not fully resolve – all four:

1) **Reliability** – the market solution should be reliable and CAISO operators should depend far less on the sequential Residual Unit Commitment (RUC) process and their own out of market actions to assure reliability than they do today;
2) **Equity** – the market solution should award and compensate resources providing equivalent attributes to the market in a fair and equitable manner;

[1] Bonneville is a federal power marketing administration within the U.S. Department of Energy that markets electric power from 31 federal hydroelectric projects and some non-federal projects in the Pacific Northwest with a nameplate capacity of 22,500 MW. Bonneville currently supplies 30 percent of the power consumed in the Northwest. Bonneville also operates 15,000 miles of high voltage transmission that interconnects most of the other transmission systems in the Northwest with Canada and California. Bonneville is obligated by statute to serve Northwest municipalities, public utility districts, cooperatives and then other regional entities prior to selling power out of the region.

[2] The reliability challenges of the CAISO BAA are increasing significantly with the growing penetration of variable energy resources (VERs) as evidenced in section 4 of the DAME Straw Proposal by the growing net load imbalance (Figure 16), growing operator adjustments (Figure 17), and high frequency of ramp infeasibility (Figure 18).

3) **Efficiency** – the market solution should be efficient and reduce the extent of the documented use of RUC and OOM in the CAISO BAA, which are an indication that the market is less efficient than it can or should be; and
4) **Extensibility** – the market solution should be applicable to one or more BAAs; how does a multi-BAA market solution work when each BAA undertakes its own version of sequential RUC and OOM to its own confidence level after the market solution is run?

Please provide your organization's overall position on the DAME straw proposal:

- Support
- (●) Support w/ caveats
- Oppose
- Oppose w/ caveats
- No position

Please provide written comments on each of the straw proposal topics listed below:

1. Updated market formulation:

With these day-ahead enhancements, reliability will be sustained through the addition of Reliability Capacity and the Imbalance Reserve Product (IRP). These new products will allow for both incremental and decremental requirements, they will be nodal and they will be co-optimized with energy and ancillary services thereby reducing the CAISO BAA operators' need to go outside the market to position physical resources temporally or geographically to meet net load. Procuring these products inside the market creates a more equitable, efficient and effective market solution for the CAISO BAA, particularly when Reliability Capacity and IRP are 60-minute and 15-minute products, respectively, allowing for more efficient and effective use of transmission external to the CAISO BAA. Finally, when consistently applied, these Reliability Capacity and IRPs can extend the reliable and efficient solution in the CAISO BAA across multiple BAAs.[3]

However, this Revised Proposal makes critical modifications from the February 3rd Straw Proposal that concern Bonneville. First, the Revised Proposal moves away from the Reliability Energy concept in the Straw Proposal to focus on Reliability Capacity as its primary vehicle to address and provide compensation for meeting the forecasted reliability needs of the CAISO BAA.[4] This change is a well intentioned effort to address the use of virtuals in the day-ahead market to provide greater price certainty to some entities. In and of itself this change is not bad, but how it is implemented in the Revised Proposal adds complexity and it remains unclear how

[3] Other BAAs throughout the West have similar growing challenges due to complementary public policy objectives and declining costs that are increasing the presence of VERs throughout the West. Other entities are responding by procuring flexible capacity over longer term horizons, which we believe will reduce the pool of available import resources that the BAAs in the West can procure and call upon within shorter-term (ie. day-ahead and real-time) windows.

[4] Reliability Capacity would commit and compensate the generation required to meet the forecast of net load at the 50th percentile and the Imbalance Reserve would commit and compensate the generation required to meet the forecasted uncertainty of net load at a 95% confidence level.

the Reliability Capacity would be priced. Second, an additional market pass – for a total of up to four passes – was proposed between June 15 and 17 workshops attempting to remediate the quantity and pricing impacts on Reliability Capacity. Third, the Revised Proposal no longer proposes to change how VERs bid in the day-ahead market. Fourth, the elimination of Reliability Energy (REN) removes the need to modify the existing Congestion Revenue Right (CRR) process.

The first two of these modifications make the proposal more difficult to fully support, as we did the Straw Proposal. As Boneville described in our Record of Decision to sign an Implementation Agreement moving Bonneville towards joining the Western EIM:

"…the EIM is just one aspect of a well-designed energy market. Additional mechanisms are required to compensate Bonneville for the capacity value of the flexible, carbon-free federal power it chooses to provide. To that end, Bonneville sees the CAISO process to develop a day-ahead market for flexible capability, potential improvements to resource adequacy requirements, and potentially extending the CAISO day-ahead market to EIM Entities (a market feature known as EDAM) as positive future steps toward a comprehensive, well-designed market."[5]

Bonneville believes there remain multiple opportunities to refine this Revised Proposal and we encourage continued dialogue towards this end – particularly when it honors the CAISO's approach for the Revised Proposal:

"As described further below, this revised approach includes an initial market run that uses the net load forecast as an input and produces the amount of additional capacity needed for reliability needs. Under this approach, this amount of additional capacity needed for reliability is used as an accurate fixed requirement input into a subsequent market run."[6]

Bonneville believes this revised approach described above can be honored through modifications offered by Powerex in which they propose to use the initial market run to establish a quantity and price for Reliability Capacity. In other words, this would be a unit commitment run that connects the month-ahead Resource Adequacy process with the day-ahead market. RA resources would be required to offer into this market – as RA resources are required to offer into the IFM and RUC today. Resources awarded at this initial stage must offer into the CAISO's real-time markets. A second run then incorporates virtual supply and demand, and would set the day-ahead market clearing price for energy. This proposal merits further exploration.

Scenarios presented and solvers prepared by ISO staff have been particularly helpful to advance the discussion in this initiative and further refine proposals. In further exploring proposals, Bonneville suggests the following areas of inquiry:

- How – and the degree to which – changes in unit commitment and dispatch resulting from a DAME proposal affect Bid Cost Recovery, which in turn could change costs currently allocated to load serving entities. Bid Cost Recovery was $123 million in 2019

[5] Administrator's Record of Decision, Energy Imbalance Market Policy – Adminstrator's Preface, Bonneville Power Administration, September 26, 2019, page P-2.

[6] Day-Ahead Market Enhancements, Revised Straw Proposal, California ISO, June 8, 2020, page 13.

making it the third largest cost category behind the day-ahead and real-time market categories for total wholesale energy costs within the ISO.[7] Bonneville believes one or more of the proposals in this initiative have a meaningful opportunity to reduce Bid Cost Recovery. If, for example, RA resources are required to bid $0 for RCU, could multiple competing resources be differentiated by their total production costs including energy, capacity and commitment costs for start-up and minimum load. In another example, an RA resource bids $0 for RCU, but has $3 worth of start-up and minimum load costs, whereas a Non-RA resource offers $2 for RCU and has little or no commitment cost. Would BCR uplifted to load be reduced by $3 if the Non-RA resource were committed? Therefore, Bonneville asks that future examples incorporate commitment costs, as well as energy and capacity costs.

- Are there implications for reselling RA between regions in an expanded day-ahead market? For example, if much of California were experiencing mild conditions, RA resources that do not need to be committed in California could be committed as RCU for other jurisdictions in the West and receive capacity compensation for doing so.

During the workshops, there was also another proposal introduced by WPTF that Bonneville cannot support because it does not meet the stated criteria above. WPTF re-introduced its concept of implementing only the IRP then monitoring the results of that implementation to see if any further policy changes would also be needed. Bonneville believes the proposal offered by WPTF is unacceptable. It assumes the critical reliability needs of the CAISO BAA can be met by IRP alone, the inefficiencies of the existing RUC are sustainable and the scalability requirements of EDAM do not need to be met in this initiative.

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

Bonneville believes additional exploration on the need for the real-time offer cap and potential solutions to address gaps would be beneficial, particularly in light of alternative proposals that attempt to price Reliability Capacity in a different manner than that of the Revised Proposal.

3. Variable energy resources:

Bonneville supports the CAISO's more simple approach to VERs in this Revised Proposal. Bonneville agrees that VERs are not typically capable of providing upward flexibility but can readily provide downward flexibility needed for reliability or in response to price signals. VER bidding does not need to change. However, the expected VER forecast should be incorporated into the initial unit commitment run, similar to how the expected VER forecast is incorporated into RUC today.

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

As we indicated in our previous comment, Bonneville believes additional work is needed to address market power mitigation for reliability capacity and imbalance reserves. The work

[7] 2019 Annual Reporton Market Issues and Performance, Department of Market Monitoring, California ISO, presented July 6, 2020, Slide 3 (and page 7 of the written report).

should be renewed when the market formulation is further solidified since the market formulation itself may inherently contribute to mitigating market power, for example, through increased liquidity. While market formulation would not be the sole mitigation approach, market power mitigation can and should be scaled to the degree of harm incurred through the exercise of market power. The CAISO's Revised Proposal offers some simplified approaches that could serve as a good starting point for further discussions on this topic.

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

Settlement and cost allocations

Bonneville continues to believe that the settlement and cost allocations for Reliability Capacity and IRP should follow cost causation. Bonneville understands that this is the CAISO staff proposal on Tier 1 in that reliability capacity and imbalance reserve costs are allocated first to net demand deviation and net virtuals. However, Bonneville would like to better understand the proportions between Tier 1 and Tier 2, since Tier 2 is uplifted to metered demand. In principle, Bonneville would encourage the CAISO to allocate as much as possible to Tier 1, as Bonneville believes this tier most closely follows cost causation. That said, additional work and discussion are needed in this area of the proposal for a better understanding of the settlement implications.

Bonneville supports the inclusion of the GMC in the reliability capacity, imbalance reserves and day-ahead corrective capacity since these products will all be co-optimized through the market like energy and ancillary services are today that similarly bear GMC, which suppliers typically incorporate into their bids.

Deliverability approach for reliability capacity and imbalance reserves

Bonneville agrees that the new reliability capacity and imbalance reserve products should be procured on a nodal basis. To achieve this, Bonneville supports the deployment scenario approach put forward by the CAISO since the market solution must have more than one deployment scenario to test in order to adhere to the security constraints in the model. This approach is also similar to the proposed approach to enhance the deliverability of the real-time flexible ramping product.

Imbalance Reserve Requirement

Bonneville is revisiting support for the regression approach in determining the imbalance reserve requirement. Specifically, Bonneville would like to better understand the role of the proposed scalar because upon further review of Figures 13 and 14 from the Straw Proposal, it is not clear to us that the regression approach – after the scalar is applied – remains superior in covering uncertainty. It is clear that the regression approach has a better fit. However, best fit is not the sole objective in determining the superiority of one approach or another. Bonneville would appreciate the ISO making available the data it used in the analysis of the imbalance reserve requirement approaches so that stakeholders can provide more informed feedback on the method for deriving the imbalance reserve requirement.