

Stakeholder Comments Template

Day-Ahead Market Enhancements Phase 2 Initiative

Upon completion of this template, please submit it to initiativecomments@caiso.com. Submissions are requested by close of business on April 4, 2019.

Submitted by	Organization	Date Submitted
<i>Debra Malin (503) 230-5701</i>	<i>Bonneville Power Administration</i>	<i>04/04/2019</i>

Bonneville Power Administration (Bonneville) appreciates the opportunity to comment on the straw proposal for the Day-Ahead Market Enhancements Phase 2: Flexible Ramping Product (FRP).

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 22,500MW. 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 other regional entities prior to selling power out of the region.

Please provide your organization’s comments on the following issues and questions.

1. Proposed Day-Ahead Market Structure

Please provide your organization’s feedback on the proposed day-ahead market structure topic as described in section 3 of the proposal. Please explain your rationale and include examples if applicable.

Histogram Methodology

In the stakeholder meeting of 7 March 2019, several stakeholders expressed reservations over using net cleared load from the integrated forward market, since the amount of FRP procured under this construct would be a function of (historical) virtual bidding. CAISO’s response to this concern pointed, in part, to the lack of material differences in the error distributions, by hour, between the two methodologies considered. In particular, CAISO asserted that the “range of forecast errors was similar between the market cleared net load uncertainty and CAISO forecast net load

uncertainty.” Bonneville would appreciate the CAISO sharing an expansion of the analysis used to support the choice of methodology to better inform stakeholders on the proposed choice.

1. There are multiple instances in Figures 1 and 2 where the inter-quartile ranges of empirical uncertainty are on opposing sides of the horizontal axis. Understanding that FRP procurement would be based on relatively high and relatively low percentiles of the uncertainty distribution, these differences alone suggest the distributions are sufficiently dissimilar to warrant further analysis.
2. Hypothetical pre-defined confidence levels (stated as 95% in the paper, but as 2.5 and 97.5 percentiles during the March 7th CAISO Stakeholder meeting) are not identified in Figures 1 and 2, so it is difficult to verify that required procurement of FRP would not be materially different under the two methodologies. The ends of the “whiskers” are markedly different in some hours. These differences persist into and are particularly concerning during the morning and evening ramping hours.

Relatedly, Bonneville questions how procurement of FRP would be reliably implemented in an extended day ahead market (e-EDAM) since it will have no historical IFM market solution, the pattern of virtual bidding will not be established, and the superiority of the IFM solution over the BA forecast solution may not be maintained.

In addition, Bonneville requests further analysis on the contribution to net uncertainty due of certain types of import supply (such as “unit contingent” and “non-firm” energy products) and their potential failure to deliver.

General DAME Comments / Feasibility

In the stakeholder meeting of 7 March 2019, CAISO reported high-level conclusions from feasibility studies aimed at the 15-minute granularity portion (Phase I) of the Day-Ahead Market Enhancements initiative. Given the commentary provided by CAISO – only hourly unit commitment is currently feasible; a simplification of the market design relative to the initial ambition of the initiative – Bonneville is concerned that the current “two-pass” approach to the Day-Ahead Market Enhancements initiative may prove suboptimal given extant computing constraints. In particular, some features of the Phase I proposal that appear desirable may ultimately preclude more desirable features of Phase II if computing constraints bind. For example, 15-minute bidding is a desirable component of Phase I and is reportedly feasible in the current computing environment. By comparison, however, Bonneville believes the introduction of the FRP is a more important feature of the DAME initiative – it, in theory, provides a framework for the market to explicitly value – at least in part – the non-energy characteristics provided by physical capacity. To prematurely establish features of the DAM proposed in Phase I (for example; allowing market participants to express in more granularity their operational and commercial constraints and preferences) without knowing how or whether the inclusion of those features may ultimately

preclude the implementation of features from Phase II is imprudent. Bonneville desires a fuller review of the fifteen-minute granularity feasibility study, with a strong preference for a more holistic scope for the feasibility study – a scope that includes salient features from Phase II. In this way, stakeholders may “co-optimize” the development of the suite of DAME enhancements.

Because the FRP is dispatched to resolve imbalance, the FRP could displace EIM dispatches, potentially changing the value of EIM participation. Because of likely DAME Phase 2 impacts on the EIM and CAISO’s stated goal of using DAME Phase 2 as a template for EDAM, it is important for EIM stakeholders to fully understand and realize the benefits from any proposed DAME Phase 2 market design. To this end, Bonneville urges the CAISO to take all the time necessary to ensure technical feasibility, stakeholder understanding and acceptance— especially from EIM participants.

In the spirit of understanding, could the CAISO please provide analysis of expected impact to EIM prices, price volatility and volume?

2. Day-Ahead Flexible Ramping Product

Please provide your organization’s feedback on the Day-Ahead Flexible Ramping Product as described in section 4 of the proposal. Please explain your rationale and include examples if applicable.

Bonneville appreciates the CAISO’s efforts to construct an ancillary-services type product for flexibility co-optimized in the day-ahead market for the following reasons:

- This recognizes the ability to use of the flexibility of PNW hydro systems is greater the farther ahead of real-time operations the need/obligation is established.*
- As opposed to only INC awarded through the RUC today, a day-ahead FRP provides incremental compensation to resources for the upward and downward flexibility needed by and awarded through the integrated forward market, and for a portion of the real-time flexible ramping product requirement awarded in the day-ahead timeframe.*
- The product allows external resources to bid on and provide this product using both 15-minute static transmission schedules and 5-minute dynamic transmission schedules on an equitable basis with those resources located inside the ISO BAA in order to greatly expand the pool of resources available*
- The FRP should also continue to ensure reliability by assessing the deliverability of this new flexible product (which is an enhancement relative to the real-time Flexible Ramping Product today) sequential to the closing of the IFM which would incorporate e-Tags for the awarded quantity.*
- The FRP product is extensible to the EIM should entities decide that such a market outside the ISO BAA is appropriate.*

Bonneville looks forward to a collaborative policy development.

Section 4.2

The CAISO states that it proposes to use historical observations of integrated forward market net load error to identify how much day-ahead Flexible Ramping Product (FRP) is needed for the following day. The paper (in section 3.1) alludes to a CAISO proposal to include cleared virtual supply in the FRP need calculations. During the March 7th Stakeholder meeting, CAISO verbally confirmed this is the case. Could the CAISO please provide more detail on this calculation?

The CAISO is considering procuring a portion of the real-time (five-minute) FRP requirement during the day ahead market as well as in real-time. Additionally, the CAISO will retain the existing practice of allowing fifteen minute resources which have submitted real-time economic bids be eligible for FRP awards in the real-time market. Given these three potential market sources of FRP, out of market exceptional dispatch could be rare. Has the CAISO analyzed the expected frequency and duration of expected exceptional dispatch under the proposed DAME Phase 2?

The CAISO indicated in the March 7th Stakeholder meeting, that CAISO may be proposing only one FRP day ahead clearing price (for both day ahead five-minute and fifteen-minute FRP resources). It seems dissonant for day-ahead FRP and “a portion” of real-time FRP to be cleared in the day-ahead market, at the same clearing price, when they can potentially be procured from a different pool of resources. For instance, real-time FRP must be five-minute dispatchable and the set of import resources that can supply five-minute energy is dependent upon dynamic transmission, leaving the pool relatively small. Imported day-ahead fifteen-minute dispatchable FRP can flow on static transmission (the set of resources that can supply this is relatively larger). Bonneville believes five-minute and fifteen-minute resources have distinct attributes and their day ahead clearing prices should be distinct.

In the unlikely event there are in-adequate FRP bids, the CAISO is proposing to trigger penalty pricing. CAISO is seeking stakeholder comments on whether penalty prices should be tiered or set at the flexible reserve penalty price (currently \$247/MWh). Bonneville would like more detail on how the CAISO’s sub-regional FRP constraints could affect scarcity pricing and methodology for setting penalty prices. Bonneville generally prefers tiered structures over fixed because tiered penalty prices send the market more precise scarcity signals.

Section 4.3

The CAISO is proposing to calculate regional delivery constraints on a fifteen-minute basis. Intertie imports and exports are not likely to be coincident. It is not clear if the CAISO considered this in the intertie constraints.

Section 4.4

In the February 28th Proposal, the CAISO repeatedly mentions a requirement for “dynamic” ramp rates over fifteen minutes. Could the CAISO please clarify if the

CAISO is proposing use of the standard sub-hourly 10-minute ramp rate for fifteen-minute import FRP and is not proposing a requirement for dynamic transmission or signals?

The CAISO is asking for Stakeholder input on a proposed minimum performance evaluation with either disqualification or penalties. Without knowing more about the penalties or duration of disqualification, Bonneville does not have an opinion. Regardless, the CAISO should consider that failure to perform could be unintentional and/or due to no fault of the scheduling coordinator.

CAISO is asking for stakeholder input on tagging requirements for day-ahead Intertie FRP awards. In section 3.2 of the proposal, the CAISO is proposing to replace Residual Unit Commitment with a day ahead reliability and deliverability assessment (RDA) using “energy schedules and flexible ramping awards from the integrated forward market”. Bonneville is not certain how the need for exceptional dispatches under the RDA can be calculated in the absence of requiring import schedules in the day ahead window. In addition, The CAISO is proposing to dispatch FRP-up in real-time above its integrated forward market advisory schedule. The only means to ensure import FRP- up awards have transmission to deliver FRP-up awards is the transmission profile on associated E-tags.

Requiring tagging prior to awards in the day ahead market requires suppliers to purchase transmission without a contract and could result in some interties being deemed non-competitive and could decrease import participation in the day-ahead FRP-up market.

It is unclear if limiting FRP to Resource Adequacy (RA) resources will limit intertie participation in both the FRP and RA markets. This is because the CAISO is currently redesigning RA and the settlement and final zonal limitations have not been disclosed. For this reason, Bonneville does not yet support limiting FRP to RA resources.

Bonneville supports a requirement for tagging day ahead intertie FRP awards after the publication of the day-ahead market run but prior to the RDA assessment. , Bonneville would like more precise information on the proposed timing of the RDA assessment and how hourly unit commitment will be implemented for the FRP before forming an opinion.

Section 4.5

The CAISO is proposing to require submission of bid prices, but not quantities because the ramp rate of the resource will limit the quantity awarded. This may work for internal resources, but intertie resources will need to submit both quantity and price to assure available transmission.

It is not clear how the CAISO will apply the proposed hourly unit commitment constraint to FRP. Bonneville would like more details and examples. For example: Will scheduling coordinators have the ability to submit zero energy FRP bids for one or several intervals if only awarded one interval in the day ahead FRP market?

Because of the proposed hourly unit commitment, it is not clear if the CAISO is proposing to pay day ahead FRP awards for opportunity costs (e.g. a capacity payment) for the entire hour or only for awarded fifteen-minute intervals. Could the CAISO please clarify?

The CAISO is proposing to continue to require Resource Adequacy (RA) resources to submit \$0 bids until EDAM is implemented, at which point CAISO is proposing to allow RA resources to submit economic bids. Bonneville would like more details on why this proposal is justified. Bonneville cannot provide an opinion on this proposal until the RA market redesign is complete and Bonneville learns more about the FRP sub-regions.

The CAISO appears to be considering using the same bid in both directions for FRP-up and down and corrective capacity up and down (e.g. use the same capacity costs for corrective capacity and FRP in real-time.) By collapsing and controlling prices for these products, the CAISO is reducing optionality on the supply side. The CAISO is further limiting optionality by eliminating contingency only flags (section 5) for ancillary service bids. There are many suppliers who are fuel limited and able to provide energy during a contingency event but cannot make themselves available for broader use. (For example: during the spring, Bonneville would gladly accept additional upward dispatch in real-time but not want to accept any downward dispatch.) To increase market participation, Bonneville suggests that the CAISO seek market structures which broaden, rather than limit supplier bid optionality.

The CAISO is seeking stakeholder input on methods to calculate default capacity bids and is proposing to require scheduling coordinators to identify all costs above marginal costs. For hydro, CAISO is proposing to limit default capacity bids to the cost to modify hydro systems from what was scheduled in the day-ahead to real-time. Bonneville believes scheduling coordinators should have the ability to include opportunity and fixed costs as well as marginal costs in bids.

Bonneville would like additional details on the proposed bid cost recovery for FRP.

3. Re-Optimization of Ancillary Services

Please provide your organization's feedback on the re-optimization of ancillary services as described in section 5 of the proposal. Please explain your rationale and include examples if applicable.

The CAISO is proposing to eliminate spin and non-spin price bidding in the real time market because the supply behind the spin and non-spin is a sunk cost, which is already in the market. It appears the CAISO is assuming the opportunity cost for spin and non-spin in the real-time market are \$0. (It appears the CAISO is proposing to set spin and non-spin prices at the market services grid management charge (\$0.11/MWh)). Bonneville believes such a limitation could reduce participation in the real-time spin and non-spin markets and increase the probability of out of market exceptional dispatch.

4. Energy Imbalance Market Governing Body Classification

Please provide your organization's feedback on the EIM Governing Body classification as described in section 6 of the proposal. Please explain your rationale and include examples if applicable.

During the March 7, 2019 stakeholder meeting, CAISO stated its intention to roll forward the DAME Phase 2 design to EDAM. Bonneville encourages to the CAISO to seek EIM Governing Body approval for DAME Phase 2 because the proposed market design is intended to expand beyond the footprint of the CAISO BAA.

APPENDIX C: DRAFT TECHNICAL DESCRIPTION

5. Assumptions and Mathematical Formulations

Please provide your organization's feedback on the assumptions and mathematical formulations included in Appendix C. Please explain your rationale and include examples if applicable.

No comments.