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California Independent System Operator
BPM Change Management Team
250 Outcropping Way
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SUBJECT: Proposed Revision Request 1668

Vistra requests CAISO make targeted clarifications regarding the draft Market Operations and Market Operations Appendices under EDAM-DAME. The following represents a narrow review of Market Operations BPM. Vistra requests additional time to continue reviewing and submitting comments. Our hope would be for revised BPM drafts to be published given the review cycles completed and allow an additional round for more detailed review.

At a high-level, Vistra is concerned that some market operation procedures impacting the Integrated Forward Market or Residual Unit Commitment processes are currently in the EDAM BPM instead of in the Market Operations BPM. On initial review, Vistra believed the Market Operations BPM was more deficient than it may be because many market operations elements changing may be in the EDAM BPM, which does not make intuitive sense since Market Operations is where the procedures for operating the markets are supposed to be documented.

In general, the EDAM BPM should be narrow to procedures that are specific EDAM participation not operations. Under EDAM, the CAISO's Market Power Mitigation, Integrated Forward Market, and Residual Unit Commitment are no longer the CAISO but fully convert to EDAM such that market procedures that are currently in EDAM BPM should be in the Market Operations BPM. ***Vistra respectfully requests the Market Operation elements of the EDAM BPM draft move into the Market Operations BPM including EDAM BPM Section 3.1, 13.2, 18, 19, 20, 22, 23, 24, and 29.***

As currently drafted, it will be too confusing to have different BPMs describing operations for MPM, IFM, and RUC based on logic that is not apparent or intuitive. From a Market Participant perspective as a main user of the Business Practice Manuals, all Market Operations that pertain to the Day-Ahead Market are now EDAM Market Operations as vice versa and Market Operations is the preferred location for a single set of procedures associated with operating the EDAM (i.e., DAM market).

Vistra has not had the time to review the market operations elements in the EDAM BPM draft as this was recently discovered. We respectfully request the CAISO move the market operations information currently in the EDAM BPM draft into an updated Market Operations BPM and allow an additional cycle for reviewing those sections as well.

Market Operations BPM Overarching Comments

- Vistra could not find reference to the EDAM-DAME rule that will allow EDAM Entity BAAs to elect at the onset of their participation whether to implement virtual bidding and if electing then to allow load-serving entities to engage in convergence bidding. Please add a note to Market Operations BPM that points to EDAM BPM Section 20.4 and please add to EDAM BPM Section 20.4 the process by which the CAISO will communicate that an EDAM Entity has elected to allow virtual bidding.
    - EDAM BPM has a market operations section that describes market procedure for suspending convergence bidding, which should be in the Market Operations BPM. This is a CAISO market operations procedure triggered in response to 7.7.6 System Operations in the Event of a Market Disruption or 7.9 Suspension or Limitation of Virtual Bidding. Please move the EDAM BPM Section 20.4.1 into Market Operations as it is a market operation function not an EDAM narrow function.
- Vistra could find little detail in Market Operations about intertie bidding implementation impacting the rules for market operations around intertie offers, clearing, and pricing under EDAM-DAME. The EDAM BPM sections on submitting import and export schedules in the EDAM and section on submitting intertie offers for EDAM areas that elect to allow economic bidding should be in the Market Operations BPM. On first blush, the EDAM draft for this topic is limited in comparison to the intertie rules that have been presented and discussed recently approved by FERC. Please provide additional detail on intertie bidding in IFM at EDAM areas allowing economic offers versus those that do not allow economic offers in the Market Operations BPM.
- Vistra could not find any reference to the Greenhouse Gas Modeling that will be performed in the DAM operations in the draft BPM. Vistra did find sections in the EDAM BPM draft that covered market operations regarding GHG that should be in the Market Operations BPMs. Please move the market operations elements in the BPM draft into Market Operations.
- Vistra could not find any reference to the configurable parameters: flexible enforcement of transmission constraints in deployment scenarios, IR deployment factor, and storage attenuation factors for IR eligibility. These are extremely important elements of market operations – ones CAISO committed to document in its BPM. Please add the relevant explanations including the decisions and values selected for Go Live in the updated draft Market Operations Section 2 and other relevant sections when describing the modeling of Imbalance Reserves.

Retiring SMEC - Transitioning to MEC

Vistra found the use of "system marginal energy cost" remaining in Market Operations as well as the addition of a new uses of the SMEC term even though under EDAM there is no longer the concept of SMEC.

Given the magnitude of the modeling decision to transition from SMEC to MEC, Vistra requests the CAISO explain the modeling choice in Market Operations BPM. Please revise the Market Operations

BPM 6.6.5.4, Power Balance Relaxation, to explain that the CAISO will model individual PBC by BAA where PBC is the sum of generation and imports equals the sum of demand, including exports and transmission losses for each BAA within EDAM. Then the CAISO should explain that the shadow price of the BAA's individual PBC sets the BAA Marginal Energy Cost. The section currently says it sets a System Marginal Energy Cost, which the market will no longer due.

Vistra found this inaccuracy added in Section 3.2.2 and 3.2.3 when describing Reliability Capacity Pricing and Imbalance Reserves Pricing. The IR and RC pricing will have BAA level Capacity price published for RCU or RCD respectively. We suggest aligning the language in the BPM to the OASIS reports naming convention for the RCU/RCD component types. The description should not refer to a System Marginal Energy Cost for Imbalance Reserves or Reliability Capacity as there is no pricing being implemented at a system level, nor does the report refer to it as MEC but instead as IR Capacity and RC Capacity.

Broadly, it appears the BPM may be using the word "system" to refer to "BAA" but system means the entire footprint in traditional energy market operations, which will lead to confusion if not corrected.

Storage Modeling Clarifications

The CAISO Tariff defers much of its storage SOC modeling to its BPMs and as such it is critical the SOC constraints are documented in Market Operations. As storage operator, we rely on the SOC formulations in this manual. If useful, Vistra can provide a mapping of the Market Operations sections currently related to storage that we rely on in our operations so the CAISO can strive not to remove these sections.

IFM Stored Energy Management

Based on FERC filing and the DAME BRS, the modified AS SOC constraints will be enforced in IFM and RUC and the new upper and lower envelope constraints will be enforced in MPM, IFM, and RUC.

On reviewing the BPM, Vistra can no longer find the AS SOC constraint formulation that has been in Section 6.6.2.3. The AS SOC constraint formula is to be expanded to include IRU and IRD awards. Please return the formulation and add the IRU and IRD products

The draft has added a new section 6.6.2.3.1 that should not replace the fulsome calculations for AS SOC previously provided. This section is a suitable home for the new upper and lower envelope equations. The detail should be expanded to include the two envelope equations respectively – lower envelope equation and upper envelope equation.

For the tunable storage deployment/attenuation factor, please add the tunable parameter used for storage in this IFM stored energy management BPM section once the SOC calculations are returned to the BPM.

RTM Stored Energy Management

On review, Vistra cannot find the real-time market AS SOC constraints that have been in the Market Operations BPM. Please return the formulations for stored energy management in the real-time market.

IFM & RUC Market Power Mitigation

Vistra found content regarding Market Power Mitigation in IFM and RUC in the EDAM BPM draft. Please move the MPM detail into Market Operations and integrate with Section 6.5 MPM in IFM and the new Section 6.7 MPM in RUC. Vistra suggests adding to Section 6.5.5 a reference to the Market Instruments section on Default Availability Bids that we requested for that BPM, which should provide the clarity on how the DAB is set for IR. Please add a conforming reference to the Market Instruments BPM DAB for RC section we requested in the new Section 6.7.3.

Vistra also seeks clarity on the following:

- The section includes that IRD bids are not subject to mitigation at the end of the paragraph that generally describes resources included in the MPM to determine uncompetitive conditions that are not subject to mitigation, which is a bit confusing if this is a rule that applies in general. We suggest moving "IRD bids are not subject to mitigation" to its own bullet for clarity. This is how the CAISO drafted Section 6.7.
- The draft states that IRU bids from non-EDAM intertie resources are not subject to mitigation.

Section 6.6 IFM

Vistra notes that it understands the CAISO plans to change the IR requirements quantile regression when it implements EDAM-DAME. We request and updated BPM draft with the new percentiles that will be used to set the requirement.

In Section 6.6, the BPM draft states, "An Imbalance Reserve Demand Curve is used to relax the procurement requirement at high prices, assessing the trade-off between the procurement cost and the operational value of the reserves". Vistra requests the CAISO include the demand curve for Imbalance Reserves. Vistra found a reference to the CAISO reporting the demand curve on OASIS in Market Instruments BPM draft at Section 13. Vistra suggests that in Market Operations BPM the CAISO note that the demand curve will be made available consistent with the Market Instruments BPM Section 13.4. The CAISO should include more detail on how the demand curve is determined for a given operating day in the BPMs.

Section 6.8 RUC

- CAISO should include more clarity in Section 6.8 that explains more fully how the forecast of BAA demand for a non-CAISO BAA is established. On review, Vistra assumes "load forecast zone" means BAAs and then nested BAA zones because now BAAs are effectively "zones" within RUC. Please explain the expanded definition in this section or provide the needed clarity and different terminology for the BAA "zone" versus an internal to BAA zone.
- Section 6.8.2.4.1 should be revised to clarify that for the CAISO EDAM BAA the CAISO may adjust the forecast but that for non-CAISO EDAM BAA the EDAM Entity may adjust its "zone(s)" forecast.
- CAISO should revise PRR 1668 introduction to Section 6.8 so it expressly states that, in EDAM, RUC qualifying resources that submit IFM energy bids must also participate in RUC with RCU. The EDAM BPM includes some of this content in the market operation sections that should be moved into this BPM. For example, Section 20.3 has a narrow reference to this procedure for VERs, which should be included in the Market Operations BPM. Section 8 should include any procedures specific to NGR or MSG in RUC newly implemented. Specific suggestions below.
  - Section 6.8.2.6 currently reads "Resources providing RA capacity that are required to participate in RUC must bid their RA capacity for RCU". We think this can be clarified by adding whether RA resources must offer their RA capacity of must offer a quantity no lower than its RA capacity or its RCU certified MW. Further, it should be improved to reference the Market Instruments BPM that defines what level the Default Availability Bid generated for RA resources not offering RCU bid.
  - Section 6.8.2.6 should be refined to add whether non-RA resources that offered economic energy into IFM that now have a RCU MOO must bid no less than its economic bid or no less than the lower of its economic bid or RCU certified MW. Further,

it should be improved to reference the Market Instruments BPM that defines what level the Default Availability Bid generated for non-RA resources that offered economic energy into IFM not offering RCU bid.

  - Section 6.8.2.6 should be revised to be clear that either an energy bid or self-schedule is required to submit RCU or RCD bids as currently written it may exclude self-scheduling Generic RA resources.

- In Section 2.5.5.2.1, the CAISO revised the value at which a export supporting resource would have its RCU bids inserted into RUC in the event they do not submit a RCU bid as “Default Availability Bid” instead of $0/MWh. In the initial EDAM-DAME filing, the CAISO stated, “If PT exports do not explicitly bid for reliability capacity up, the CAISO will consider them in the RUC scheduling run with reliability capacity up bids at penalty prices that maintain the merit order of their energy bids in the IFM”. Vistra requested clarity in the Market Instruments BPM on what the penalty price associated with the PT exports for PT self-schedules will be in RUC, Default Availability Bid is for RCU, and has requested Market Instruments clarify the generated bid. We further seek clarity in Market Operations on whether or not the reliability capacity bids will be at penalty prices or a Default Availability Bid. For Market Ops, a revision to this section referring to the Market Instruments section that clarifies what the inserted RCU bid value will be for these resources supporting PT exports.
- Section 6.8.3 described that RUC may transition multi-stage generating resources to a lower configuration (but not shut down) to manage congestion and oversupply. The current procedures require MSGs to self-schedule in real-time to meet certain AS obligations. Please describe in more detail the MSG transition decommitment that RUC may perform including whether this can occur when the MSG upper configuration has received an IFM AS award or IR award or whether those awards will be protected in RUC. If RUC can transition a MSG resource to a lower configuration such that it cannot meet an AS or IR award, please confirm that the RUC and RTM bid cost recovery will make the resource whole for any AS no pay or IR unavailability charges due to a RUC MSG transition to a lower configuration if that renders the award unavailable in real-time.
- Section 6.8.4.2, Vistra suggests adding an explanation for the inverse pricing of RCU and RCD. Vistra would expect if the BAA has a RCU target that the RCU pricing would be greater than or equal to zero and the RCD pricing would be the inverse to represent it is undesirable given the BAA need, and alternatively that if the BAA has RCD target that its pricing can be greater than or equal to zero where RCU will have the inverse price to indicate undesirability given BAA need. This section should be clear as to whether when the BAA has set a target in either RCU or RCD direction it is feasible to have a negative capacity price or not and whether it is feasible to have a negative RUC LMP or not.

Section 7 Real-Time Processes

EDAM-DAME Tariff is clear that the RTM MOO created by IRU/IRD and RCU/RCD awards result in obligations to submit economic energy bids covering the award range, not merely self-schedules. The draft BPM language in Section 7.1.6 is clear regarding this obligation, however it is in a section that as a user I would not expect to find it. Vistra suggests moving the must-offer content in Section 7.1.6 associated with IR or RC awards to a section not labeled self-schedules but instead RTM must-offer obligations. This section could make clear the economic must-offer obligations for resources with IRU, IRD, RCU, or RCD awards; generic must-offer obligations remaining for Generic RA capacity beyond its operating range that received energy, IRU or RCU awards; and flexible must-offer obligations remaining for Flexible RA capacity beyond its operating range that received energy, IRU or RCU awards. Similarly to our suggestions on generating bid clarifications, Vistra suggests clarifying that in the event the economic offers for IR, RC, or remaining RA capacity may result in generated economic bids if subject to bid insertion and reference Market Instruments BPM section regarding bid insertion rules.

Appendices Comments

Below are general comments:

- Appendices C.2.1.23 RMR Energy includes a refined definition of RUC Commitment stating the total energy schedule is binding for long-start units, however we understood the functionality to be that only the start-up instruction is binding and that part of the value of RCU/RCD awards was to increase flexibility in real-time market where locking the energy schedule would be counter to that goal. Please provide clarity on whether it was intended to state the RMR energy plus net RCU and RCD awards are binding or if it meant to refer to the start-up instruction.
- Appendices D.2, the explanation of self-commitment for fast start units states that any IRU/IRD bids in IFM or RCU/RCD bids in RUC should lead to the fast-start unit being flagged as self-committing in that interval. As IRU/IRD/RCU/RCD are economic offers and not equivalent to the other examples in this paragraph that drive market outcomes such as self-schedules or self-provisions, please explain why bidding these products economically would result in being treated as self-committed for fast start units. This seems like a possible error.
- Appendices D.3.2, D.6.1, D.6.2, D.6.4, D.7, have self-commitment and commitment cost implementation details removed. Please explain why the examples and details around self-commitments are struck from the appendices. We request that unless the functionality has been removed from the market applications to leave the self-commitment examples and logic in the appendices as this can still be helpful. If it is no longer functional, then we appreciate that clarity.