

Stakeholder Comments Template

Submitted by	Company	Date Submitted
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Please use this template to provide your comments on the FRACMOO Phase 2 stakeholder initiative Revised Draft Framework Proposal posted on January 31, 2018.

Submit comments to InitiativeComments@CAISO.com

Comments are due February 21, 2018 by 5:00pm

The Revised Draft Framework Proposal posted on January 31, 2018 and the presentation discussed during the February 7, 2018 stakeholder web conference may be found on the [FRACMOO](#) webpage.

Please provide your comments on the Revised Draft Framework Proposal topics listed below and any additional comments you wish to provide using this template.

The ISO is in the process of updating the data provided in the Revised Draft Framework Proposal. The ISO will include additional observations for 2016 and 2017. Additionally, the ISO will estimate the impacts of 15-minute IFM scheduling. The ISO will release this updated analysis as soon as possible.

Calpine appreciates the CAISO's continued analysis of flexible capacity issues. As discussed below, Calpine does not believe that the revised draft framework proposal ("the proposal") is ready for implementation. In particular, Calpine is concerned about the proposal's arbitrary eligibility criteria for resources to count towards flexible capacity requirements. In addition, Calpine remains unconvinced that the proposal is necessary. As documented in the CAISO's

own analysis, the requirements identified in the proposal are mostly satisfied by procurement to meet the current flexible capacity requirements, with the possible exception of new requirements for resources to address “uncertainty” between the IFM and FMM. As several stakeholders indicated at the February 7th stakeholder meeting, this “need” is likely to shrink significantly once the granularity of the day-ahead market changes to 15 minutes because what the proposal currently characterizes as “uncertainty” is partially attributable to the current difference in the temporal granularity of the IFM and FMM, i.e., because schedules resulting from the IFM are fixed for an hour, the FMM must dispatch resources up and down to account for differences between 15 minute realizations and the IFM that are predictable.

Relatedly, Calpine believes that it is critical to understand the relationship between forward capacity procurement, energy and AS markets, and operations. For example, the design of the new proposed day-ahead load following reserve product may inform the design of real-time flexible RA products. In particular, simulations of the new day-ahead load following reserve product may shed light on the extent to which it is feasible and economic to rely on units with different start times to provide the product and inform eligibility requirements for related flexible capacity products. Consequently, Calpine looks forward to the initiation of the stakeholder process to reform the IFM, the Day-Ahead Market Enhancements stakeholder process, and recommends suspension of the FRACMOO2 initiative until the Day-Ahead Market Enhancements initiative has progressed further.

Identification of ramping and uncertainty needs

The ISO has identified two drivers of flexible capacity needs: General Ramping needs and uncertainty. The ISO also demonstrated how these drivers related to operational needs.

Comments:

Calpine supports the CAISO’s decomposition of ramping needs into predictable and unpredictable components.

Definition of products

The ISO has outlined the need for three different flexible RA products: Day-ahead load shaping, a 15-minute product, and a 5-minute product.

Comments:

Calpine agrees that it makes sense to align flexible capacity products with the time frames in which CAISO can address flexibility issues through its energy and AS markets. The three products may overlook the ability of the CAISO to address changes in system conditions in between the close of the IFM and the FMM. For example, there may be changes that were not forecast day-ahead but become predictable within the operating day but several hours forward. The CAISO may be able to prepare to address such changes by committing resources through

STUC. It is unclear how the CAISO's three products would encourage the procurement of resources that could be used in this fashion.

Quantification of the flexible capacity needs

The ISO has provided data regarding observed levels of uncertainty, in addition to previous discussions of net load ramps.

Comments:

Calpine appreciates the CAISO's additional analysis of real-time "uncertainty." Calpine believes that the characterization of the need for resources to cover real-time uncertainty in the proposal may be conservatively high. The CAISO needs resources to cover the largest unexpected deviations in net load at every *instant*.¹ Characterizing need by adding together the maximum upward and downward deviations that occurred at different points in time, even on the same day, may overstate need. For example, suppose the largest deviations tend to occur in HE 9. The largest upward deviation (within a month) in HE 9 is 5 GW and the largest downward deviation within the same month in HE9 is 3 GW. Further, suppose that downward deviations tend to be the largest in HE 7, i.e., as large as 4 GW. Defining the need as 9 GW, i.e., combining the values from HE 7 and HE 9 (even if they occur on the same day), may overstate the maximum need in any hour, i.e., the 8 GW in HE 9.

Conversely, Calpine does not agree with a potential change to the quantification of need that was discussed at the February 7th stakeholder meeting. The CAISO seemed to suggest that the need might reflect the maximum upward or downward deviation. (Extending the example above, it might be 5 GW.) Calpine does not believe that specifying need in this fashion would address the CAISO's flexibility needs. If the CAISO were relying entirely on capacity procured as real-time flexible capacity to address real-time uncertainty, it would have to position the 5 GW of real-time flexible capacity somewhere in the middle of its range to respond to both upward and downward deviations, in which case it may be insufficient to respond to the largest deviations in either direction.

Calpine is also concerned with the CAISO's proposal to procure sufficient flexible capacity to cover the widest measured range of observed uncertainty. Just as with the Flexi Ramp Product,

¹ i.e., similar to how Flexi Ramp Product requirements are determined. For example, see 7.1.3.1.3. of the Market Operations BPM. (https://bpmcm.caiso.com/BPM%20Document%20Library/Market%20Operations/BPM_for_Market%20Operations_V55_clean.doc), slide 10 of <http://www.caiso.com/Documents/Presentation-FlexibleRampingProductPerformanceDiscussionFeb22018.pdf> and slide 24 of <http://www.caiso.com/Documents/AgendaandPresentation-MarketPerformanceandPlanningForum-Feb202018.pdf>.

how much uncertainty the CAISO decides to cover with flexible capacity should be bounded by cost considerations.

Further, as discussed above, Calpine looks forward to additional analysis of the magnitude of real-time uncertainty based on 15-minute day-ahead schedules.

Eligibility criteria and must offer obligations

The ISO has identified a preliminary list of resource characteristics and attributes that could be considered for resource eligibility to provide each product. Additionally, the ISO is considering new counting rules for VERs that are willing to bid into the ISO markets.

Comments:

Calpine does not support the CAISO's proposal to limit eligibility to provide real-time flexible capacity products to resources that can start within 60 minutes. The proposal acknowledges that slower starting resources could meet real-time ramping needs if they are committed, as is frequently the case in higher load months, for example. Nevertheless, the proposal would implement a 60-minute start requirement without any analysis of the feasibility or cost of relying on slower starting resources. Calpine believes that any eligibility requirements should be based on sound analysis. Ideally in an environment that reflects expected changes to the IFM, such as 15 minute scheduling and a day-ahead load following product, the CAISO should simulate the impact of different types of eligibility requirements. The risk of retirement studies that the CAISO has already performed in the TPP present mixed evidence on the value of faster starting resources. For example, they tend to show that a gas fleet that has more CTs results in lower renewable curtailment but one that has more CCGTs has lower emissions, but these studies have a limited representation of actual market institutions and behavior.² (For example, they allow unlimited renewable curtailment.) Calpine encourages another look at the issue with more realistic representations of market institutions and behavior.

At the February 7th, CAISO staff suggested that the 60-minute start criterion was designed to address the potential that the day-ahead market might not solve due to the combination of self-scheduled renewables and the Pmin burden associated with reliance on long start units to meet real-time flexibility requirements. First, the CAISO has presented no evidence that this risk is significant. Second, to the extent that the CAISO is concerned about self-scheduling, it should implement policies to address self-scheduling directly. Third, it is not obvious that solar self-scheduling is problematic. DMM has documented that that virtually all downward dispatches of solar over the last two years have been economic.³ If the CAISO is interested in

² For example, see p. 4 of <http://www.caiso.com/Documents/SupplementalSensitivityAnalysis-Risksofearlyeconomicretirementofgasfleet.pdf>.

³ For example, see Figure 3.1 of <http://www.caiso.com/Documents/2017FourthQuarterReport-MarketIssues-PerformanceFebruary2018.pdf>.

encouraging even more economic bids from solar, it might consider removing the 25% limitation on the fraction of flexible capacity products that can be provided by solar. In particular, solar is a large contributor to the to the multi-hour ramps that the day-ahead load shaping product is intended to address so it would make sense to allow flexible solar to meet a larger fraction of those needs.⁴

Equitable allocation of flexible capacity needs

The ISO has proposed a methodology for equitable allocation of flexible capacity requirements. The ISO seeks comments on this proposed methodology, as well as any alternative methodologies.

Comments:

Calpine has no comments on the allocation of the CAISO's proposed flexible capacity requirements at this time.

Other

Please provide any comments not addressed above, including comments on process or scope of the FRACMOO2 initiative, here.

Comments:

As indicated above, Calpine believes that the FRACMOO2 initiative should be delayed to reflect the changes to the IFM being contemplated in the Day-Ahead Market Enhancements initiative.

⁴ For example the latest flexible capacity needs assessment suggests that the combination of supply-side and BTM PV can account for more than 90% of the largest three hour net load ramp in certain months. (See Table 2 of <https://www.caiso.com/Documents/2018FinalFlexibleCapacityNeedsAssessment.pdf>.)