

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 Second Revised Draft Framework Proposal posted on April 27, 2018.

Submit comments to InitiativeComments@CAISO.com

Comments are due May 17, 2018 by 5:00pm

The Second Revised Draft Framework Proposal posted on April 27, 2018 and the presentation discussed during the May 3, 2018 stakeholder meeting may be found on the [FRACMOO](#) webpage.

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

Calpine generally supports the current iteration of the FRACMOO2 proposal. In particular, Calpine appreciates CAISO's efforts to link flexible capacity requirements to clearly defined operational needs and the elimination of a start time criterion from flexible capacity eligibility criteria. The elimination of the start time criterion correctly recognizes that CAISO spot markets can commit long start resources to address real-time flexibility needs.

Before pushing the proposal further, given all of the changes to product definitions and eligibility criteria in recent iterations of the proposal, a refreshed analysis of the supply of available capacity relative to estimates of need for various flexible capacity products would be helpful. For example, as Calpine has suggested with respect to previous versions of the proposal, if available supply is abundant relative to need and/or if newly defined flexible

capacity requirements are likely to be satisfied by procurement to meet system and local requirements, then separate flexible capacity procurement requirements may not be needed.

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 were related to operational needs.

Comments:

Calpine continues to support CAISO's decomposition of flexible capacity needs into ramping and uncertainty needs. Further, Calpine agrees that it makes sense to tie the need for real-time flexible capacity to the need for the CAISO's proposed Imbalance Reserve Product, which will target similar needs in the operational time frame.

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 does not generally object to the CAISO's proposed product definitions. Calpine does not understand the following argument in the proposal's description of product definitions:

The ISO's

...procurement of imbalance reserves in the day-ahead market will ensure the correct mix of upward and downward imbalance reserves are available in real-time. Flexible RA capacity requirements simply need to ensure sufficient flexible capacity is available to provide for the largest imbalances in a single direction. Therefore, the ISO proposes to set flexible capacity requirements for the real-time flexible capacity at the maximum absolute value of forecasted monthly imbalances.

If the need for real-time flexible capacity is tied to the need for imbalance reserves, the real-time flexibility capacity need should cover a relatively high percentile (perhaps the maximum) of the projected sum of upwards and downward imbalance reserves. (Presumably, CAISO intends to procure reserves in both directions even when it generally expects imbalances in one direction.) It is not obvious that this is equivalent to the maximum absolute value of forecasted monthly imbalances.

Quantification of the flexible capacity needs

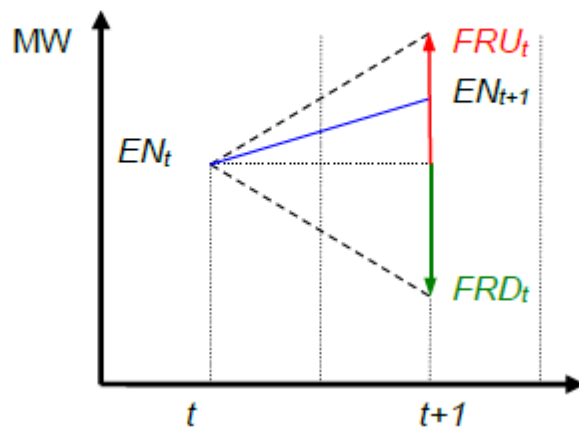
The ISO has provided data regarding observed levels of imbalances, in addition to previous discussion of net load ramps.

Comments:

By proposing to set real-time requirements equal to the maximum absolute value of the forecasted imbalance, Calpine believes that the CAISO may be underestimating the need for real-time flexible capacity. The direction of imbalances is not observed until they are realized. In actual operations, the CAISO must prepare for imbalances in either direction. For example, suppose the maximum forecasted imbalance in any hour is 10 GW in the upward direction. Under the conditions in which the CAISO might expect the 10 GW to materialize, it would need to prepare not only to move up by 10 GW but also down by a certain amount. 10 GW of real-time flexible capacity would only be sufficient to address every ex ante conceivable imbalance if the direction of the imbalance were known ahead of time

Calpine requests clarification of the CAISO’s proposal to link the need for 5-minute flexible capacity to the need for flexible ramping product. First, does the CAISO intend to identify the need for flexible ramping product that is *coincident* with the maximum forecasted monthly imbalance that will set the overall real-time flexible capacity need? Second, is the CAISO proposing to set the need for 5-minute flexible capacity high enough to cover the entire range of uncertainty covered by FRP, i.e., both up and down. For example, would CAISO set need sufficient to cover the entire range between FRU_t and FRD_t in the following figure from the FRP Draft Final Technical Appendix.¹

FIGURE 1: SIMPLIFIED FRP ILLUSTRATION OF CONCEPTUAL MODEL



Eligibility criteria, counting rules, and must offer obligations

¹ <http://www.caiso.com/Documents/Addendum-DraftFinalTechnicalAppendix-FlexibleRampingProduct.pdf>

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 has proposed new EFC counting rules for VERs and storage resources that are willing to provide flexible RA capacity.

Comments:

Calpine supports the CAISO's proposed requirements that resources providing real-time flexible capacity be dispatchable within the relevant time frames (5 or 15 minutes). Similarly, Calpine believes that it is appropriate to remove the start time eligibility criterion for the real-time flexible capacity products. As Calpine has indicated in previous comments, the CAISO can access the 5- and 15-minute flexibility of long-start resources by committing them day-ahead.

Calpine does not object to an EFC deliverability analysis but is confused by the discussion of it in the proposal. For example, in the example on p. 25, the CAISO suggests that a 50 MW solar project may have 50 MW of downward flexibility in the middle of the day but may not be deliverable then and hence may not be able to provide downward flexibility. If the resource is not deliverable, then would it be curtailed and reduce the need for its own downward dispatch to address ramps? The proposal also suggests that an EFC deliverability test would examine whether "the output of a flexible resource can be ramped from Pmin to (Pmin + EFC) simultaneously with other flexible resources in the same generator pocket to match the net load ramping need without being constrained by the transmission capability," but given that, under the current proposal, Pmin could count towards day-ahead requirements regardless of a resource's start time and could count for real-time requirements for certain short start units, shouldn't the deliverability test consider whether a resources can be ramped from zero to the top of its flexible range?

With respect to the must-offer obligation, the proposal suggest that all flexible capacity resources besides VERs would be subject to a 7x24 must-offer obligation. VERS would be subject to a MOO that reflects their forecasted output. In addition, the proposal indicates that certain energy or duration limited resources might be treated similarly to VERs.² Calpine requests clarification of how the CAISO proposes to treat demand response and/or other energy or duration limited resources.

Calpine requests further analysis to determine whether the 25% cap on the provision of real-time flexible capacity by solar resources is warranted or sufficient. It is at least conceivable that some of the largest real-time imbalances are associated with poor solar conditions, e.g., a storm passing over a major solar resource area. In those circumstances, will the CAISO have sufficient real-time flexible capacity if as much as 25% of the need is satisfied by solar.

² p. 28.

Calpine does not understand the CAISO's justification for only counting the discharge capacity of storage towards real-time flexible capacity requirements. The proposal notes "Although the full range of charge and discharge can be used when addressing predictable ramping needs (which is addressed in greater detail below), it is not clear that the same can be said when trying to address more uncertain needs," To the extent that imbalances may be uncertain, presumably CAISO needs resources that can cover imbalances in both directions. On the other hand, to the extent that the CAISO only needs to cover imbalances in a single direction, it can position storage accordingly, i.e., it is expecting upward/downward balances, it can position storage so that it is charging/discharging. For example, a 10 MW storage resource could be positioned to draw 10 MW to make its entire 20 MW range from 10 MW charging to 10 MW discharging accessible to respond to upward imbalances.

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 offers no comments on the allocation of flexible capacity needs at this juncture.

Next Steps

The ISO is currently planning to issue a draft final framework on June 6, 2018. However, given the schedule change in the CPUC's RA proceeding, the ISO will not release a draft final framework until July 10, 2018. The ISO seeks stakeholder input regarding next steps that should be taken to further enhance the ISO's framework. Options include, but are not limited to, another full iteration or working groups.

Comments:

Calpine supports one or multiple working group meeting before the release of a draft final framework in July 10, 2018 rather than another iteration of a formal proposal. Calpine appreciates that formal proposals require significant CAISO staff time summarizing comments and obtaining formal management approval which might be better spent on the substance of the proposal itself.

Other

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

Comments:

Calpine offers no further comments.