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.

CLECA appreciates the effort by the CAISO staff to include the ability of resources external to the CAISO balancing authority and to develop a method for variable energy resources (VERs) such as wind and solar to all provide flexibility. The opportunity for VERs to become part of the solution for flexibility needs instead of simply a source of a flexibility problem is promising. The inclusion of these resources will allow more choices among flexible

resources, which should reduce procurement costs, benefitting retail customers in California. On the topic of resource options, CLECA would like to see the addition of detail on how demand response resources can provide flexibility; this was barely mentioned in the Framework.

While the CAISO has clearly made progress in developing its revised flexibility proposal, its documentation has created some challenges for the reviewer.

First, the Framework's use of the term uncertainty is causing confusion. For example, the Framework refers to uncertainty as the difference between the hourly dispatch in day-ahead award and the conversion to a 15-minute granularity in the real-time. As serval parties have mentioned, the need to ramp up in a morning or late afternoon hour is known ahead of time and is not uncertain. On the other hand, we agree that there is uncertainty around the load and VERs forecasts and the actual load and performance of VERs that the CAISO must address operationally.

The second challenge has to do with the relationship between FRACMOO 2 and the new Day-Ahead Market Enhancements initiative. The latter includes replacing the hourly awards in the Integrated Forward Market (IFM) with 15-minute awards and the development of a Day-Ahead Reserve Product. Unfortunately, the CAISO has not presented any details about this new initiative yet, and it would be easier to comment on the two initiatives together once that detail is available and can be discussed. Our initial reaction is that the formation of a 15-minute Day-ahead market would eliminate much of what we believe may have been mis-labeled as 15-minute uncertainty. Without a more detailed understanding of the proposed Day-Ahead Reserve Product, it is difficult to fully evaluate the proposed Flex RA Framework. The Flex RA requirements are dependent on the outcome of the Day-Ahead Market Enhancements, but the reverse is not true. Given that the CAISO plans to gain approval of the Day-Ahead Market Enhancement in third quarter 2018,[1] for implementation in fall 2019, the explicit relationship between that final proposal and the one in this process should be very clear by mid-summer.

One goal of Flex RA is to encourage resource procurement of a portfolio that can meet the CAISO's operational requirements. While the CAISO has explained its operational needs, the Framework does not discuss how these needs might impact resource procurement by load serving entities (LSEs). CLECA realizes this is a difficult task as each LSE has a different strategy which is inherently confidential. As the CAISO acknowledged, the revised Framework would have significant impacts on the RA Availability Incentive Mechanism (RAAIM) which is currently undergoing revisions to resolve unforeseen problems unrelated to FRACMOO 2. We strongly suggest coordination among the following three initiatives to develop rules to obtain the reliability that the CAISO desires: (1) the Day-Ahead Enhancement; (2) the Flex RA and Must-Offer; and (3) Resource Adequacy Availability Incentive Mechanism (RAAIM).

[1] http://www.caiso.com/Documents/2018FinalPolicyInitiativesRoadmap.pdf

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:

The Framework mis-applies the term uncertainty to include future conditions that are actually known ahead of time, i.e. the granularity difference between the hourly Day-Ahead (DA) market and the 15-minute market. As a result, it is difficult to determine if the numerical results are a reasonable outcome that includes both flexibility need plus forecast error. The updating of the result to take into account the 15-minute DA market should resolve this problem. CLECA strongly supports the CAISO's intention to simulate the results of a 15-minute IFM and provide them as part of the next version of the proposal.

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:

The description and quantification of the flexible products, with the exception of the 5-minute product, needs to be updated with the changes proposed for a 15-minute DA market and the DA Reserve Product. Until such an update, any comments on the DA shaping and 15-minute products would be premature.

The CAISO says it plans to add regulation requirements to the 5-minute flexible product which would be procured from Load Serving Entities. This is in contrast to the CAISO's statement "there is sufficient regulation capacity available in the system."[2] Regulation is used to resolve the difference between the 5-minute dispatch award and actual usage, and requires an automated generation control connection with the CAISO, but the 5-minute product does not require this capability. Thus 5-minute flexibility and regulation are two distinct products. It would appear the CAISO's proposal to add regulation to the 5-minute product would create excess 5-minute procurement. In addition, it is still not clear how the market optimization would determine which resources are providing regulation as opposed to 5-minute flexibility.

[2] Framework at 22.

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:

a) Timing of the need for the flexibility product appears to result in more procurement than needed.

The Framework states "While there was no clear delineation month-by-month, the ISO's general assessment is that roughly 75 percent of the day-time uncertainty presents a reasonable starting point for considering how much flexible capacity needs to be available 24 hours a day."[3] Per Figure 5, the uncertainty between hours 8-15 can be three times the amount from hours 20-7. Given the night time appears to have significantly less uncertainty, applying 75% of the day-time uncertainly would require procurement of excess flexible capacity during the night hours. These amounts may need to be adjusted once the updated data from the impacts of the Day-Ahead Enhancements are complete.

b) The estimation of maximum single day adjustments needs additional validation.

The Framework states the uncertainty between the day-ahead and real-time can be over "4,000 MW in either direction, swinging more than 6,000 MW in any single day".[4] In addition, the CAISO states, "it is reasonable to expect flexibility needs at the highest end of the distribution almost monthly".[5] This implies that the CAISO's day-ahead load and VERs forecasts could be significantly improved if 4,000-6,000 MW of error exists. It would likely be cheaper to improve the forecast than purchase additional flexible capacity. As mentioned before, the granularity difference between the hourly day-ahead forecast and the real-time 15-minute forecast is the source of the high amount of what is labeled uncertainty. This hopefully will be resolved when the CAISO updates the analysis for the day-ahead enhancements.

c) If it is cheaper to curtail variable energy resources, then new flexible procurement can be avoided.

The purpose of the RA program is to establish that sufficient resources are built and are available to provide reliability. To the extent is it cheaper to curtail renewable resources during maximum ramping requirements, then there should not be a requirement to contract with resources that cost more than the value of the

[3] Framework, page 25.
[4] Framework, page 31.
[5] Framework, page 31.

curtailment. This is conceptually similar to reducing peak capacity procurement targets when demand response offers a cheaper solution. Therefore, it is not clear that the renewable curtailment should be added back to the historical data to calculate the flexibility requirement.[6] It appears making this adjustment would lead to unnecessary procurement and therefore higher costs passed onto customers.

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:

The Framework would require flexible resources to bid their effective flexible capacity 24 hours a day. An exception is made for variable energy resources as their fuel source is variable. Further assessment is needed to determine the eligibility rules for demand response.

The CAISO is proposing replacement capacity for all use-limited resources that want to provide flexible RA should they reach their use limitations, but does not mention if this applies to the monthly or annual limits.[7] The Commitment Cost Enhancements Phase 3 only requires replacement if the resource exhausts its annual use-limitation.[8] It appears that the CAISO is proposing to require replacement for flexible resources once they reach their monthly limitations as well. CLECA requests clarification on this point.

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:

CLECA recommends the CAISO provide more detail and several examples of its allocation proposal so stakeholders can better understand how changes in procurement will change the allocation. It appears all renewable resource procurement by type, e.g. wind and solar, is treated the same in the allocation. However, if there is a solar resource with storage that reduces flexibility need, then would the entity procuring the resource get the benefit in the

[6] The Framework states the reason is to prevent double counting of the curtailed resource
[7] Framework at 34 and 41.
[8] http://www.caiso.com/Documents/ActionPlan-CommitmentCostEnhancementsPhase3.pdf at 7.

allocation? If not, then it reduces the incentive to procure resource configurations that reduce flexibility need.

Other

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

Comments:

a) The requirements for EIM participants require some clarification

We believe the following is what is intended, but we seek confirmation of our understanding and recommend a clearer discussion in the paper. The framework states that EIM resources could provide the day-ahead shaping product. It is not clear if the CAISO means that EIM resources in the DA market would be treated differently than what is referred to as a purely external resource. Resources located in EIM Entity balancing authorities would submit bids in the DA Market at the CAISO as external interties just like any other resource not located in the CAISO balancing authority. Thus, for the Day-Ahead shaping product, it appears that the EIM resource would be just like a purely external resource. However, if the EIM resource wants to provide 15-min or 5-min flexibility, then it would also have a DA market bid requirement. If so, any award in the DA market would be included in the EIM Base Schedule in real-time. The 15 or 5-minute flexibility would come from the requirement to bid into the Energy Imbalance Market (EIM). As noted in the Framework,[9] the amount of Flex RA contracted to supply CAISO would result in adjustment to the resource's native balancing authority's resource sufficiency condition.

b) The CAISO should provide a sample of the differences between the simple and complex approach to calculate effective flexibility capacity for variable energy resources

PG&E suggested two approaches[10] to calculate the contribution to the monthly effective flexibility capacity for variable energy resources. The simple option has a limitation as it uses the resource's nameplate capacity to allocate its share of monthly contribution toward flexibility. A wind or solar resource will rarely produce at nameplate and the production will vary each month. The complex approach used historical data to calculate contribution and then applies it to future periods. It would be useful to sample different wind and solar projects and compare the results. If they are similar, then the simple approach may be the best solution, or a modification to the simple approach may be discovered.

[9] Framework at 37.
[10] PG&E's Comments on the Draft Flexible Capacity Framework submitted on December 13, 2017 at 1.

c) How does the proposed flexible RA requirement and counting rules compare to historical market operations?

Table 4 presents an assessment of the proposed RA requirement and counting rules using historical data for 2017. The table shows consistent deficiency in the 15-min product, which implies there may have been insufficient 15-min flexible capacity for market operations. Please provide a table showing the frequency and amounts of any flexible sufficiency violations in the 15-minute market for the same time period.