

Stakeholder Comments Template

Submitted by	Company	Date Submitted
Grant McDaniel	Wellhead	2/21/18

Wellhead appreciates this opportunity to comment on the CAISO’s Revised Flexible Capacity Framework Proposal. As a codeveloper of the world’s first hybrid Electric Gas Turbines (EGT) Wellhead is a leader in flexible generation technology with gas-fired hybrid products that have eliminated Pmins, start-times, minimum run times, and even minimum down times.

Wellhead notes that the CAISO properly defined the problem statement when it states that *“the ISO’s assessment of the current flexible capacity product shows that it is overly inclusive, and risks exacerbating the ISO’s operational challenges by sustaining largely inflexible resources (long starting, long minimum run times, and high Pmins) at the expense and financial viability of more flexible resources”*. As detailed below, Wellhead believes the proposed Revised Flexible RA Framework contains some interesting elements that we can support; however, we believe the CAISO is still working with too many constraints in their current market mechanisms and as a result, the proposed framework fails to deliver any tangible incentives for market participants to either change their behavior or make any investments to increase the physical flexibility of their resources. Ultimately this means that this proposal will have no meaningful impact on the existing Flex RA fleet and will not provide a pathway for an orderly retirement of less flexible resources. Additionally, the CAISO’s decision in this latest revision to reverse course and ignore the physical flexibility attributes such as start times, Pmin, minimum down time, and minimum up time also fails to acknowledge the direct linkage these variables can have on the total GHG output and may negate the very emissions reductions the state is trying to achieve¹.

Wellhead does believe that the proposed enhancements to the DA market (independent of this initiative) will provide the CAISO with an improved granularity of the IFM and should result in less uncertainty in the 15-minute market, but that proposal achieves the additional capability independent of this Revised Flexible Capacity Framework. Wellhead believes that the CAISO should further explore other market opportunities such as decreasing the minimum number of intervals in RTUC used to ensure there will be sufficient capacity which would allow commitments less than the current 60 minutes for a least some subset of the 15-minute uncertainty. This decrease would allow the CAISO to begin to gain access to some of the more

¹ NREL WWIS-2 Study

advanced physical flexible attributes, and therefore avoid wasteful fuel burn to cover RT uncertainties. This type of capability, along with others, would allow the CAISO to begin to properly construct a flexible RA framework that could incent real changes for the proposed RT products.

The CAISO also requested that stakeholders provide input on methods to quantify the amount of overlap between the proposed 5-minute product and regulation. Wellhead finds that the methodology contained in the NREL WWIS-2 study, to which CAISO provided technical review, to be sound. That method states that total regulation should equal the geometric sum of base requirement (1% of load) and the *contribution of wind and PV (which cover 95% of 10-minute forecast errors)*. It is this later half which covers 95% of the 10-minute forecast errors from wind and PV which should be added to quantity of the 5-minute product procured.

It should be noted that the same study provided that the remainder of the flexible reserves should be equal to the geometric sum of wind and PV forecast errors (covering 70% of 1-hour errors) on a zonal basis. The *zonal* basis recommended in this study does raise an interesting question as whether there is a locational value to Flex RA, based upon the varying uncertainties of wind and PV coming from different locations. Requirements based on the zonal uncertainties could be very helpful to informing an orderly retirement. It would be informative to compare the CAISO's proposed methodology to that proposed by the NREL WWIS-2 study.

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:

Wellhead agrees with the two drivers identified by CAISO, recognizing that these drivers are not the root cause, but symptoms. While this may seem to be an obvious statement, it is important in that the root cause (locational VER uncertainty) will change over time and may present new symptoms as renewable penetration increases.

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:

Wellhead agrees that aligning the flex RA products with the timing of the market mechanisms; however, Wellhead recommends that the CAISO add an Hourly product. The hourly product

would take the definitions and the MOO currently assigned to the proposed 15-minute product, but would only cover 70% of the 15-minute uncertainty. The remaining 30% of 15-minute uncertainty would be covered by units that can complete a full cycle within 30 minutes. This would require a change to the RTUC, but that change should be minimal and would provide the CASIO with much need additional capabilities and incentivize new behaviors and investment in new flexible technologies that will ensure CAISO can meet reliability requirements without negating the emissions reductions gained from wind and PV.

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:

No comment at this time

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:

Day-ahead load shaping – Wellhead agrees with the eligibility requirements, but believes that the ability to self-schedule any IFM awards will create a reasonable potential for downward-ramping deficits to occur on a regular basis

15-minute product – See notes from above. Wellhead believes this uncertainty should be covered by two products 70% Hourly and 30% 15-minute. Where eligibility is:

- Hourly: Start-time ≤ 60 Minutes, Capacity = ramp rate * 15 minutes
- 15-minute: Full Cycle time ≤ 30 minutes, Capacity = Pmax

5-minute product – Wellhead agrees with the eligibility requirements, but believes that these resources should also be qualified for either spin, or regulation. Furthermore, Wellhead recommends that CAISO include 95% of the 5-minute forecast error to regulation.

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:

Wellhead agrees with the proposed allocation methodology

Other

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

Comments:

Wellhead encourages the CAISO to trust the market by providing a framework that will incent behavioral changes and investment in new flexible technologies that provide a pathway to an orderly retirement of less flexible resources. If the framework does not provide these incentives, then it should be rejected.