

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 Supplemental Issue Paper posted on November 9.

Submit comments to InitiativeComments@CAISO.com

Comments are due January 6, 2017 by 5:00pm

The Supplemental Issue Paper posted on November 9 and the presentation discussed during the December 9 stakeholder web conference may be found on the [FRACMOO](#) webpage.

Please provide your comments on the Supplemental Issue Paper topics listed below and any additional comments you wish to provide using this template.

Identified opportunity for enhancing flexible capacity product

1. Ramping speed
 - a. Large single hour net load ramps

Six Cities’ Comments: As discussed in greater detail in response to Item 6 below, the Six Cities believe that it would be premature to consider significant modifications to the Flexible Ramping Product prior to developing and implementing a well-defined methodology for evaluating the effectiveness of the Flexible RA fleet to meet system ramping needs.

- b. The transition from low net loads to steep ramps

Six Cities’ Comments: See the response to sub-part 1 a above.

- c. Intra-hour variability

Six Cities’ Comments: See the response to sub-part 1 a above.

2. Cycle time and flexible capacity qualifications

Six Cities’ Comments: See the response to sub-part 1 a above.

3. High minimum operating levels from both RA and flexible RA

Six Cities’ Comments: See the response to sub-part 1 a above.

4. Most significant net load ramps occur on weekends or holiday weekdays

Six Cities’ Comments: The Supplemental Issue Paper includes data documenting the occurrence of large net load ramps on weekends or holiday weekdays. In light of that data, the Six Cities support the expansion of the Must-Offer requirement for Category 3 Flexible Capacity to seven days a week (while retaining the five starts per month requirement for that category).

5. Significant quantities of long start resources may limit the ISO’s ability to address real-time flexibility needs

Six Cities’ Comments: See the response to sub-part 1 a above.

6. There is currently no means in place for the ISO to assess the likelihood that the flexible RA showings will adequately meet all ramping needs

Six Cities’ Comments: Developing and implementing a methodology to assess the likelihood that the Flexible RA fleet will be adequate to meet all ramping needs should

be the threshold task for this initiative. With the exception of Item 4 (occurrence of large net load ramps on weekends or holiday weekdays), for which there are clear data and a straightforward mitigation measure, the discussion in the Supplemental Issue Paper identifies potential concerns or issues in conceptual terms. The fact that the ISO currently has no methodology to evaluate the likely effectiveness of the Flexible RA fleet at meeting system requirements means that the frequency and severity of potential issues are unknown, and that there is no basis for comparing the costs versus benefits of potential modifications to the Flexible Ramping Product or Flexible RA requirements. It makes no sense for the ISO and stakeholders to expend resources seeking solutions to potential problems before establishing that one or more problems in fact exist and analyzing the nature and significance of the problem(s).

The Supplemental Issue Paper states at page 15 that “the ISO will explore the potential costs and benefits of a variety of means to assess the adequacy of flexible capacity showings.” The Six Cities support that effort and urge the ISO to move forward promptly with development of a feasible and transparent methodology for assessing the likely effectiveness of the Flexible RA fleet in meeting the system’s ramping needs. Both the development of the methodology for making such an assessment and application of the methodology to conduct an initial assessment should precede consideration of any significant changes to the Flexible Ramping Product or Flexible RA requirements.

As noted at page 15 of the Supplemental Issue Paper, Southern California Edison Company (“SCE”) presented an analysis at the August 18, 2015 Flexible Resource Adequacy Criteria and Must-Offer Obligation - Phase 2 Technical Workshop (the “8/18/15 Workshop”) proposing a simplified approach to procurement of Flexible RA capacity and recommending that the ISO conduct a multi-dimensional test to ensure that the resources procured by LSEs can satisfy all system flexibility requirements. SCE’s 8/18/15 Workshop presentation included an analysis showing that procuring resources based on a single three-hour Flexible Ramping Product would be likely to result in a portfolio of resources available to the ISO that would satisfy both shorter and longer-term ramping needs. The Six Cities recommend consideration of the analytical

methodology applied by SCE, updated if necessary to reflect more current data on load forecasts and anticipated resource portfolios.

Other comments

Please provide any additional comments not associated with the topics above.

Six Cities' Comments: The Six Cities have the following suggestions for further elements of this stakeholder initiative following development and implementation of a methodology for evaluating the ability of the Flexible RA resources designated by LSEs to meet system ramping needs:

Simplification of Flexible RA Procurement and CAISO Backstop Authority - - SCE's 8/18/15 Workshop presentation also proposed a simplified approach to Flexible RA procurement. Under SCE's proposed approach, LSEs would procure flexible resources based on a single three-hour ramping product. The ISO then would evaluate the capabilities of the overall portfolio shown by LSEs using multiple flexibility criteria. In the event the ISO identified a deficiency in the shown portfolio (*i.e.*, an inability of the shown portfolio to satisfy a specific type of flexibility need), LSEs would have the opportunity to procure additional capacity to meet the deficiency, followed, if necessary, by backstop procurement by the ISO. The SCE proposal also included elimination of the requirement that Flexible RA resources submit economic bids to satisfy the must-offer obligation.

The Six Cities see significant positive features in the approach outlined by SCE. It would simplify application of Flexible RA requirements for all LSEs and would require procurement of additional capacity with specific attributes only when shown to be necessary to meet reliability needs. By simplifying the eligibility criteria and reducing the burdens associated with Flexible RA designation, the SCE approach would be likely to expand the pool of flexible resources available to the ISO. It also would be more likely to preserve the expectations of parties that have contracted for Flexible RA capacity under long-term contracts than an approach that imposes more granular and

prescriptive Flexible RA requirements subject to continuing modification. The ISO should engage in a thorough and open-minded evaluation of the SCE proposal, should identify for consideration by all stakeholders any concerns it may have with the SCE proposal, and should set aside sufficient time for a full discussion of the SCE proposal.

Potential Modification of Eligibility Criteria for Flexible RA to Facilitate Use of Solar PV and Energy Storage Resources - -

Following the development and implementation of a methodology for evaluating the ability of the Flexible RA portfolio to meet system ramping needs and potential streamlining of the Flexible RA procurement process enabled by that methodology, the Six Cities recommend that the ISO consider potential modifications to the eligibility criteria for Flexible RA resources to the extent necessary to accommodate the use of solar PV and/or energy storage resources. At the December 14-15, 2016 ISO Board meeting, the ISO Staff presented a report on the outcome of tests of the ability of a 300 MW solar PV plant to provide ramping energy, regulation up and down, reactive power support, and frequency response for low frequency and high frequency events. The presentation describes an impressive level of performance by the solar PV resource in maintaining a specified ramp rate, accurately following 4-second regulation signals, providing voltage control during the night, and responding to high and low frequency events. The Six Cities understand that energy storage resources also have attributes that would enable them to provide at least some types of needed flexible ramping services.

At this time it is not clear to the Six Cities whether or not the eligibility criteria and performance requirements for Flexible RA resources accommodate the designation of Flexible RA capacity from solar PV or energy storage resources. To the extent the eligibility criteria and performance requirements for Flexible RA create impediments to designation of solar PV and energy storage resources as Flexible RA, the ISO should evaluate whether it would be feasible and appropriate for the ISO to modify the existing eligibility criteria and performance requirements for Flexible RA capacity to expand opportunities for those types of resources to provide some of the different multi-dimensional flexibility needs of the system. Considering the potential modification of

the eligibility criteria and performance requirements, however, should take place after the ISO completes the development and implementation of a methodology for assessing the ability of the designated Flexible RA resource portfolio to meet system flexibility requirements.

Provision of Flexible Capacity by Import or Export Resources - - Page 3 of the Supplemental Issue Paper states that the provision of flexible capacity by import or export resources will be addressed in this initiative. The Six Cities reiterate here their previous comments on the discussion of this topic in the ISO's December 11, 2015 Straw Proposal.

The Six Cities support the ISO's proposal to allow intertie import resources capable of fifteen minute scheduling to provide Flexible RA capacity. The ISO's proposed eligibility criteria for static intertie import resources to provide Flexible RA capacity appear to be reasonable. (Straw Proposal at 4, 12-16). However, all Dynamic System Resources, Resource-Specific or otherwise, should be eligible to provide Flexible RA capacity.

The Six Cities request further information regarding the implementation details for use of import resources to provide Flexible RA capacity. Specifically:

- What are the documentation requirements for establishing that import capacity is resource-specific?
- How will the start-up requirements for the different categories of Flexible RA be applied in the context of import resources?

The Six Cities do not object to the ISO's proposal to apply the RAIM to import resources that have been designated for Flexible RA. If an import resource providing Flexible RA is on outage, any resource (whether an import resource or an internal resource) that certifies its ability to meet the must-offer obligation applicable to the resource on outage for the duration of the outage should be eligible to provide replacement or substitute capacity. This is consistent with the replacement/substitution

rule most recently proposed for internal Flexible RA resources in the Reliability Services Initiative Phase 2.

With regard to the ISO's proposal to consider allowing exports to provide flexible capacity (Straw Proposal at 4, 12, 16), the Six Cities request further explanation as to how exports would be utilized to provide upward flexible capacity, which is the only flexible product recognized at this time. It appears that only fully-dispatchable and recallable exports could provide upward flexible capacity.

With respect to transmission charges applicable to exports, the Six Cities see no reason to exempt exports that provide flexible capacity from measured demand charges. An increase in exports in the middle of the day has the same effect on net load as an increase in load in the middle of the day, and increased load will be subject to measured demand charges. It would be discriminatory to exempt exports from the measured demand charge while continuing to charge increased load. If an export that is providing flexible capacity is decremented, then the reduction in the export would automatically reduce the transmission charges by reducing measured demand. Stated differently, there appears to be no opportunity cost related to transmission charges applicable to exports that stand ready to be decremented; there is a potential opportunity saving, which would be triggered if the export is reduced.

Allocating negative contributions to flexible capacity requirements - - The Six Cities support the ISO's proposal to recognize and allocate negative contributions to flexible capacity requirements. (Straw Proposal at 5, 22-23).

Summary and Proposed Sequence of Activities - - In summary, the Six Cities urge the ISO to pursue the following activities, in the sequence in which they are listed below, as part of this stakeholder initiative:

- 1) Expansion of the Must-Offer requirement for Category 3 Flexible Capacity to seven days a week;
- 2) Development and implementation of a methodology to assess the adequacy of the Flexible RA fleet to meet all ramping needs;

- 3) Consideration of modifications to simplify Flexible RA procurement and ISO backstop authority;
- 4) Consideration of potential modifications to eligibility criteria and performance requirements for Flexible RA to facilitate use of solar PV and energy storage resources;
- 5) Consideration of provisions to allow import or export resources to provide flexible capacity; and
- 6) Identification and allocation of negative contributions to flexible capacity requirements.