

Stakeholder Comments Template

Submitted by	Company	Date Submitted
<i>Peter Spencer Xian Ming “Cindy” Li Patrick Cunningham peter.spencer@cpuc.ca.gov 415-703-2109</i>	<i>Office of Ratepayer Advocates - California Public Utilities Commission</i>	<i>January 6, 2017</i>

The Office of Ratepayer Advocates (ORA) of the California Public Utilities Commission (CPUC) provides the following comments on the California Independent System Operator Corporation’s (CAISO) *Flexible Resource Adequacy Criteria and Must Offer Obligation – Phase 2, Supplemental Issue Paper: Expanding the Scope of the Initiative* (Supplemental Issue Paper) dated November 8, 2016, and the briefing materials presented at the December 9, 2016 stakeholder meeting.

Identified opportunity for enhancing flexible capacity product

1. Ramping speed

The CAISO’s analysis of 2016 Resource Adequacy (RA) resources shows that RA resources have weighted average ramp rates that range from 0.33 megawatts (MW)/minute to 150 MW/minute.¹ The CAISO is considering limitations on the weighted average ramp rate needed for flexible RA to ensure sufficient ramping capacity moving forward and address issues such as:

- a. Large single hour net load ramps;
- b. The transition from low net loads to steep ramps; and
- c. Intra-hour variability.

The CAISO’s analysis shows that 25 to 33 percent of flexible RA MWs come from once through cooling (OTC) resources,² which are expected to retire in 2020-2021 and be replaced with faster starting resources. ORA recommends that the CAISO analyze the ramp rates of expected available flexible RA resources in 2019 through 2024, not just those used for 2016 RA showings. Analyzing the actual flexible capacity expected after OTC facilities retire will provide a more accurate assessment of any necessary limitations on ramp rates. The CAISO does not

¹ Supplemental Issue Paper, p. 6.

² Supplemental Issue Paper, p. 7.

plan to submit the FRACMOO2 proposal to its Board until 2018. Following approval of the CAISO board, the CPUC would consider adoption of the FRACMOO2 proposal in a June 2018 decision, so any changes could not be implemented until 2019, at the earliest.³ There is therefore sufficient time to analyze resources expected in 2019-2024.

The CAISO should also provide information on the ramp rates of OTC resources to identify whether retirement of those resources alone would address any of the ISO's concerns without applying additional procurement limitations. The available ramping capacity of California's resources will be improved by many factors including the changing fleet of flexible resources due to retirement of OTC resources, fulfillment of the CPUC storage mandate, and greater flexibility from new gas fired generation, solar and wind resources. The CAISO should analyze whether these expected changes can address concerns about ramp rates without new rules limiting weighted average ramp rates. This is especially true since adopting new ramp rate requirements might result in increased procurement and higher ratepayer costs. The CAISO's analysis should clearly identify the ramping capability it expects to need in 2019 to 2024 to compare with the capabilities of resources expected to be online in that time period. ORA requests that this analysis also include evaluation of the least-cost method of meeting the CAISO's projected operational needs related to ramp rate.

Additionally, the CAISO implemented its Flexible Ramp Up and Flexible Ramp Down products in the 15 and 5 minute markets on November 1, 2016.⁴ These products are intended to provide more flexible ramping capability to account for uncertainty in forecasting. Therefore, the CAISO should include in its analysis the extent to which these products may already be addressing its needs regarding ramp rates.

2. Cycle time and flexible capacity qualifications

In order to provide greater clarity and precision based on the full cycle time of resources, the CAISO is considering changes to its flexible capacity eligibility requirements for the number of starts required per month. ORA supports clarifications for eligibility requirements but recommends that any CAISO proposal for changes to current requirements regarding the number of starts per month also address the impact any changes would have on flexible capacity availability. If the changes result in more limitations for flexible resource eligibility, procurement costs will increase for ratepayers and analysis should clarify the benefit of any changes compared to the associated costs.

³ December 9, 2016 ISO presentation, p. 4.

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<http://www.caiso.com/informed/Pages/StakeholderProcesses/CompletedStakeholderProcesses/FlexibleRampingProduct.aspx>

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

The CAISO states that reliance on resources with high PMin⁵ to provide flexibility can cause the dispatch of large quantities of inflexible capacity to access the needed flexible capacity of those high PMin resources.⁶ This can lead to over-supply and curtailment of wind or solar resources. The CAISO suggests considering setting requirements for PMin to PMax⁷ ratios of resources to determine if they are eligible to provide flexible capacity.

It is not clear that over-supply related to the use of resources with high PMin should be addressed through additional limitations on flexible capacity that would limit eligible resources. Restricting eligible resources could increase procurement and ratepayer costs. Resources with high PMin can still provide the flexible capacity they report and, as the CAISO states, many peaking resources have a high PMin to PMax ratio, but they also can start and stop frequently and ramp quickly.⁸ The CAISO has not demonstrated that these resources are incapable of providing flexibility; they are simply not the best source of flexibility during times of high supply. Instead, ORA recommends that the CAISO consider whether changes to its market dispatch of resources that balance the need for flexibility with the PMin of resources to obtain optimal dispatch would be a feasible and potentially less costly solution. A market-based approach avoids prescribing PMin to PMax ratios that would unreasonably limit the resources eligible to provide flexible capacity. In addition, rather than causing issues of over-supply, a market-based approach would result in dispatch of resources with high PMin to provide flexibility only when beneficial.

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

Currently, Category Three Flexible Capacity⁹ is not required to be available during holidays or weekends when many of the largest net load ramps are occurring. The CAISO is contemplating changes to require Category Three Flexible Capacity resources to be available seven days a week, similar to Category One and Two Flexible Capacity, while maintaining the requirement of five starts per month.¹⁰ ORA supports this evaluation to ensure that sufficient Category Three resources are available to address the largest net load ramps. However, it is unclear how costs would be impacted by increasing availability to seven days a week without increasing the number of starts. The CAISO's proposal should provide analysis and discussion

⁵ Minimum sustained generation.

⁶ Supplemental Issue Paper, p. 12.

⁷ Maximum sustained generation.

⁸ Supplemental Issue Paper, p. 13.

⁹ Category 1 is flexible capacity to address base flexibility needs throughout the day. Category 2 is flexible capacity to address peak flexibility needs in the afternoon and evenings. Category 3 is flexible capacity to address super peak flexibility needs which only occur a few times per month and year.

¹⁰ Supplemental Issue Paper, p. 13.

of the ratepayer cost impacts that would result from changes to the required availability of Category Three Flexible Capacity resources.

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

Flexible RA showings typically include 40 percent or more long start resources that require day-ahead commitments to re-bid into the real time market.¹¹ However, these resources have very low day-ahead commitment rates. The CAISO is considering limiting the quantity of long start resources in a flexible RA showing in order to ensure that the flexible RA fleet can meet real-time flexible capacity needs.

ORA does not support additional limitations on flexible resource procurement when the issue is a matter of CAISO market signals. Long start resources can provide flexibility; the CAISO's concern is that they are not being committed in the day-ahead market to be available in real-time. Limiting the quantity of long start resources would decrease the competitiveness of flexible RA capacity procurement and increase ratepayer costs. The CAISO should instead explore options to provide a better market signal so long start resources receive a day-ahead commitment and are available in real-time. On November 1, 2016 the CAISO implemented Flexible Ramp Up and Flexible Ramp Down products in the 15 and 5 minute markets in order to provide more flexible ramping capability to account for uncertainty in forecasting.¹² The CAISO should consider a similar mechanism for the day-ahead market to ensure sufficient commitment of long start resources. A market-based solution would address the CAISO's concern for day-ahead commitment of long start resource without administratively limiting the quantity of long start resources that can provide flexible RA.

Additionally, any changes from FRACMOO2 would not be implemented until 2019, at the earliest, and the OTC resources will retire in 2020-2021 with expected replacement by faster starting resources.¹³ The CAISO proposal should explain whether limiting the quantity of long start resources that can be included in RA showings would provide any real benefit for addressing flexibility needs given the changing fleet of flexible resources.

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

¹¹ Supplemental Issue Paper, pp. 14-15.

¹²

<http://www.caiso.com/informed/Pages/StakeholderProcesses/CompletedStakeholderProcesses/FlexibleRampingProduct.aspx>

¹³ December 9, 2016 ISO presentation, p. 4.

ORA supports an assessment to determine whether the utilities' flexible RA showings can meet the CAISO's flexibility needs and looks forward to the CAISO's proposal.