

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. Insufficient ramping speed

Cogentrix Energy Power Management, LLC (“Cogentrix”) agrees with the ISO’s statement in Section 5.1.1 that, “Based on the ISO’s analysis of flexible capacity showings, there is a growing need to ensure that faster ramping resources are procured and made available to the ISO.” Cogentrix recommends prioritizing the procurement of fast start, fast ramp resources. Doing so will help to ensure that the grid has access to resources capable of rapid, intra-hour ramping without requiring the commitment of slow ramping resources in advance of a ramping need. This will provide CAISO with a reliable foundation of fast start capacity that, due to its

prioritized procurement, will always be available to meet the growing and increasingly volatile ramps.

a. Large single hour net load ramps

Comments:

Cogentrix shares the ISO's concern regarding the variability of the ramps as more renewable generation comes online. From large, single hour net load ramps up to the daily multi-hour duck curve ramp including the record-setting ramp that took place on December 19, 2016, the concern is increasingly urgent. Cogentrix agrees with the ISO that the best way to mitigate reliability risks and wide-spread renewable curtailments is to ensure the procurement of fast response assets that the ISO can reliably call upon to meet intra-hour net ramping requirements. Large single hour net loads must be addressed by units that can provide the best absolute ramping speed, including start-up time, to reach PMin. Cogentrix notes that measuring ramp rate on a MW per minute basis without considering start-up time is flawed because the system will be incorrectly optimized based on the scale of units rather than the responsiveness of units. As an example, larger units with longer start times will be dispatched ahead of smaller units with faster start times so that the larger units can ramp off of PMin at a later point in time. This could lead to out of merit dispatch ahead of the ramping need, a risk of over-generation once the larger unit is synchronized to the grid, and excess GHG emissions. To address this inaccurate signal, Cogentrix recommends measuring ramp rate as a percentage of the total capacity per minute, rather than the MW per minute calculation currently used. Measuring ramps in such a way ensures that units capable of the fastest ramp speeds on an absolute basis are prioritized. The concept is related to start time for fast start units, since a 15 minute start is equivalent to a 6.67% per minute ramp rate from cold versus a 0.56% per minute ramp from cold for a 3 hour start. Again, units that are able to ramp to PMin (or even PMax) from cold within a few minutes, an attribute that is highly beneficial for managing large ramps, should have that flexibility recognized in the definitions and should be prioritized over units that are unable to achieve fast ramping until after a multi-hour start.

Cogentrix recommends changes to the current flex capacity definitions and categories, in conjunction with the CPUC, that emphasize shorter start times and increased ability to cycle, both in terms of greater number of starts and shorter minimum run times.

	Current Category 1	Cogentrix Proposed Category 1	Current Category 2	Cogentrix Proposed Category 2	Current Category 3	Cogentrix Proposed Category 3
Max Start Time	3 hours	15 minutes	3 hours	1 hour	3 hours	3 hours
Number of Starts/Day	2	3-4	1	2-3	1	1
Minimum Run Time	n/a	1 hr	n/a	3 hr	n/a	6 hr
Daily Availability	7 days / week	7 days / week	7 days / week	7 days / week	Non-Weekend Holidays	7 days / week
Minimum Procurement	Set monthly based on largest secondary net load ramp	Set annually based on largest daily maximum 1-hour net load ramp	n/a	Set annually based on largest daily maximum 3-hour net load ramp	n/a	n/a
Forward Procurement Requirement	90% by October prior to compliance year	1-year ahead; 5-year ahead	90% by October prior to compliance year	1-year ahead; 5-year ahead	90% by October prior to compliance year	1-year ahead; 5-year ahead

The Cogentrix Proposed Category 1 is defined to prioritize the most flexible resources available to the grid that are able to cycle multiple times during the day due to fast start times and short minimum run times. The start time requirement of 15 minutes is aligned with the current FMM. Procurement of capacity that qualifies for proposed Category 1 is important to ensure that the intra-hour and one hour ramp needs can be met without relying on longer start resources that would need to be dispatched out of merit and lead to increased risk of over-generation and excess GHG emissions. The Cogentrix Proposed Category 2 prioritizes resources that are still relatively fast start, and are able to be committed based upon hour-ahead forecasts, but are unable to achieve the shortest start times necessary to meet the intra-hour

ramp needs. The primary role of proposed Category 2 resources is to ensure that that the maximum 3-hour ramp needs can be met without relying on long start resources that may need to be dispatched out of merit and increase the risk of over-generation and excess GHG emissions. The Cogentrix Proposed Category 3 preserves the flex definition for longer start resources that are still dispatchable so that the ISO can optimize dispatch to minimize over-generation and GHG emissions. Importantly, the proposed categories all require that resources be available seven days a week to address the steep net load ramps that have materialized on weekends and non-weekend holidays.

The ISO should be making a determination of each level of product required on both a one-year ahead and a five-year ahead basis. This improves the tools the ISO has at its disposal to manage net load ramping requirements, gives the ISO increased visibility into changing net ramp requirements over time, and would also send signals to generators regarding relative need for different types of technologies. This approach is also consistent with the ISO's historical LCR forecasting methodology.

b. The transition from low net loads to steep ramps

Comments:

Cogentrix has been concerned about the transition out of the “belly of the duck” for some time, and has observed that current ramping requirements have exceeded the ISO's forecasts. In fact, the ISO record for steepest ramp occurred on December 11, 2016, only to have that record broken eight days later by an even steeper ramp on December 19th. The December 19th ramp was almost 1,000 MWs higher than projected. These rapid and severe transitions call not for units that ramp from a relatively low PMin, but units that can start quickly as the ISO highlights in the Supplemental Issue Paper. This is consistent with the flex definitions that Cogentrix recommends, which emphasize fast starts, multiple starts per day and relatively short minimum run times to provide a foundation of fast start resources able to quickly react to net load variability.

As previously mentioned, Cogentrix notes that the PMin burden of assets that can only provide ramping capability if they are already generating contributes to out of merit dispatch, over-generation and excess GHG during periods of low net load. The changes to flex definitions recommended by Cogentrix appropriately prioritize technologies that do not contribute a large PMin burden to the system.

c. Intra-hour variability

Comments:

See general comments on ramping speed and item 1a. The recommendations for flex definitions that emphasize fast starts and short minimum run times provide necessary tools in order to manage intra-hour variability.

2. Cycle time and flexible capacity qualifications

Comments:

See previous comments in 1a. The most flexible resources are able to cycle multiple times per day, which needs to be differentiated more in the flex definitions. Currently, Category 2 peak and Category 3 super-peak are not differentiated at all, while Category 1 base flex only offers 1 additional start per day over peak flex.

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

Comments:

Relying on units for flexibility that have high PMin does not necessarily cause the ISO to dispatch large quantities of inflexible capacity. Certain fast start technologies, for instance, with relatively shorter minimum run times allow the ISO to turn these flexible units off shortly after a peak has occurred. It is important to differentiate units that have such characteristics, but also have a relatively high PMin/PMax ratio, from units that do not have such characteristics but have a relatively lower PMin/PMax ratio. As such, any assessment of the PMin/PMax ratio would also have to include considerations for short start time, number of starts per day and minimum run time.

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

Comments:

Cogentrix notes that units that are able to meet even its Category 3 recommendation will more than likely be units that have 24/7/365 operations, provided that the fixed compensation the units receive is adequate. Further, Cogentrix suggests that any flex definition that only requires non-holiday weekday availability does not meet a reasonable standard of modern grid flexibility. Cogentrix supports changes to Category 3 that would eliminate non-holiday weekday availability as a minimum qualifier.

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

Comments:

Cogentrix shares ISO concerns regarding the fact that excessive long-start generation on flexible RA showings may limit the effectiveness of the flexible RA fleet’s ability to address the ISO’s real-time flexible capacity needs. The flex definition recommendations made by Cogentrix would introduce categorization by start time to specifically manage this risk. There would not be a need to derive a special cap based on start times since the amount of relatively longer start units awarded RA contracts would be set by the amount of Category 2 or Category 3 required.

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

Comments:

Cogentrix supports and agrees with the ISO that there needs to be a means to assess the effectiveness of the Flex RA fleet at meeting the Flex RA requirements. Studies linked to flex category criteria should be performed as part of annual flex requirement processes. In the way Cogentrix has proposed the flex criteria, this would mean determining the risk and extent of supply shortfalls in 15 minute, 1 hour and 3 hour intervals (for Category 1, 2 and 3 start time criteria, respectively) and the risk and extent of over-generation inside of the minimum run time intervals for each flex category. Additionally, the ISO could employ the concept of a contingency adder for expected peak-load in its calculation of the procurement requirement for each category. This is a practice used today in the ISO’s flexible capacity needs assessment and can be used as a calibration tool in future studies on the effectiveness of the proposed flex category criteria. As an important side note, there needs to be an enforcement mechanism for LSEs that are procuring the wrong type of generation to meet ramping requirements once the ISO is able to assess effectiveness of flex capacity.

Other comments

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

Comments:

Cogentrix strongly supports the ISO in its effort to enhance and improve the criteria to qualify for flexible RA. As Cogentrix stated during the December 9th webinar, the biggest issue it sees with this process is the extended time schedule. The current timetable has any changes resulting from this process as being implemented for the 2019 RA season. Cogentrix has stated the need for urgent action on this topic to the ISO, the CEC and the CPUC. Based on the record ramps occurring now, well above the forecasted ramps, the need for action is the most acute seen thus far in the utility scale renewables era.

The webinar on the Supplemental Issue Paper was delayed twice and the deadline for these comments was delayed twice as well. These delays portend more delays in this process which could, in fact, jeopardize the satisfaction of the 2019 RA season target if not implemented until the 2020 RA season.

Due to this process schedule, delays in new flexible capacity coming online, delays in transmission upgrade projects in Southern California, delays in regionalization efforts, and time required for battery storage capacity to reach critical mass, Cogentrix has proposed a Flexible RA Bridge Procurement proposal in the CPUC RA Phase 3 proceeding (R14-10-010).

The Flexible RA Bridge Procurement program would only be eligible to existing merchant peaking plants that meet an eligibility test consistent with Category 1 criteria recommended in this process. This eligibility test would include full ramp startup in 10 minutes or less, short duration minimum run time (2 hours or less), 2 to 4 starts per day, and the ability to ramp up and ramp down. The Flexible RA Bridge Procurement program would make available 3 to 5 year Standard Offer Flex RA contracts that would serve as insurance policy for the delays mentioned above while the ISO's FRACMOO2 process and the CPUC's RA Phase 3 process finds a comprehensive long-term solution. This proposal could be implemented in time for the 2018 RA season and meets the primary goal of the CPUC of ensuring that any revised RA program is cost-effective, based in clear reliability principles, and not more complex than appropriate to meet its goals.

Cogentrix believes the Flexible RA Bridge Procurement proposal is consistent with the ISO's efforts in this process and looks forward to working with the ISO and other stakeholders to expeditiously implement changes to the Flex RA criteria.