Stakeholder Comments Template

FRACMOO 2 Stakeholder Working Group

This template has been created for submission of stakeholder comments on the FRACMOO 2 Working Group Call that was held on August 2, 2017. The working group presentations and other information related to this initiative may be found at: http://www.caiso.com/informed/Pages/StakeholderProcesses/FlexibleResourceAdequacyCriteria-MustOfferObligations.aspx

Submitted by	Company	Date Submitted
Greg Blue Cogentrix Energy Power Management LLC (925) 323-3612 gregblue@cogentrix.com	Cogentrix Energy Power Management LLC	August 18, 2017

Upon completion of this template, please submit it to initiativecomments@caiso.com. Submissions are requested by close of business on **August 18, 2017.**

Please provide your organization's comments on the following items:

1. **Operational issues discussed during the working group related to flexible capacity needs**.

   Cogentrix Energy Power Management LLC (Cogentrix) agrees with the CAISO on the **operational issues** noted in the presentation and discussed on the conference call including the following;

   - **Implications of not having sufficient flexibility is leading to operational challenges.** Cogentrix concurs that lack of sufficient flexible and quick start generation is leading to operational challenges such as the Stage One Emergency issued on May 3, 2017. With sufficient generation capable of quick response, the time and magnitude of nodal pricing caused by the emergency would have been greatly decreased.

   - **3-hour ramps increase over time with build out of renewables and addition of behind-the-meter resources.** Cogentrix has consistently been warning about this issue at the California Public Utilities Commission (CPUC), the California Energy Commission (CEC), and at CAISO in a variety of forms of communication since last year. We have noted the ever increasing duck curve, with records for low net loads ramps and size of three hour ramps, being set on a monthly sometimes weekly basis.

- **3-hour flex capacity is relevant but is insufficient to meet all flexible ramping needs going forward; additional speed is needed.** The CAISO Supplemental Issues Paper dated November 8, 2016 noted 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." In Cogentrix comments on the Supplemental Issues Paper submitted January 6, 2017 we stated, "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."

- **Controlling CPS1 scores has been a recurring operational challenge.** Cogentrix agrees with this concern. In a February 7, 2017 CPUC Resource Adequacy Workshop, Cogentrix Consultant Jim McIntosh, former head of grid operations at CAISO, gave a warning that, based on his experience and based on facts regarding grid volatility, there was a high likelihood that the CAISO's CPS scores were decreasing. From the Aug 2nd presentation - "CPS1 is evaluated on a rolling 12-month average. Over the past few years, the rolling average has been declining as a result of some poor daily performances. Thus, the CAISO needs to take measures to improve daily performance on days with higher variability." A decreasing CPS1 score indicates that the grid is not being balanced with the right set of resources.

- **The three hour ramp is still relevant but it is not capable of serving full operational needs.** As the CAISO points out in the presentation one of the growing issues is dealing with the hourly and intra-hourly ramp. These are growing larger and larger similar to the three hour ramp as more and more renewable penetration occurs. The generation best suited to respond and help balance the grid on these ramps are battery storage, which remains expensive, and fast starting peaker plants that offer the lowest cost of mitigating ramping requirements and grid instability. While battery storage will increase in scope, for the next 3-4 years the peaker plants are the one of the only tools that CAISO has to deal with the situation.

2. Proposed flexible capacity procurement framework presented by The Brattle Group.

Cogentrix supports the concept of the capacity framework in the Brattle Group presentation. Cogentrix's hope is that the Brattle study will identify the attributes required by the CAISO to reliably operate the grid and a coherent methodology for procurement of those attributes in a manner that sends an appropriate economic signal. Cogentrix is concerned, however, about how long the Operational Assessment take. A secondary concern is alignment of the

CAISO's process with the CPUC's desire to see procurement of flexible resources addressed. It is vitally important to have the CPUC involved in the development of this version of FRACMOO2 and to be aligned with the timing of their Resource Adequacy proceedings. Cogentrix continues to advocate for a flexible RA framework to be implemented for the 2019 RA compliance year.

3. Proposed flexibility metrics and any additional metrics that you believe the CAISO should consider.

Cogentrix has consistently proposed the following flexibility metrics to better meet the needs of a rapidly changing and challenged grid:

- Can meet forecasted operating levels;
- Up to 15 minutes start time;
- Ability to start and stop multiple times per day;
- Minimum run time of no more than 2 hours;
- Sustain upward or downward ramp; and
- Change ramp directions quickly

These metrics are aligned with the current market structure, particularly the Fifteen Minute Market. Any attribute based program developed must include these types of metrics or will risk continuing to incentivize long start generation as "Flexible Capacity," leaving the CAISO with insufficient fast start resources and ramping capabilities to deal with the hourly and intra-hour ramps. Cogentrix shares the CAISO's concern regarding the variability of the ramps as more renewable generation comes online. From large, intra-hour net load ramps up to the daily multi-hour duck curve ramp, including the record-setting ramps that have occurred during the spring, the concern is increasingly urgent. Cogentrix believes 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. One of CAISO's core goals should be to mitigate the curtailment of renewable resources; otherwise its rules will be out of alignment with the clear policy objectives of the State.

In Cogentrix comments on the Supplemental Issues paper we stated that measuring ramp rate on a MW per minute metric 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 hourly and intra-hour 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.

4. Plan to move the flexible capacity initiative forward.

Cogentrix Energy agrees with the path forward presented on the call which is to refocus the FRACMOO2 efforts on developing flexible capacity requirements aligned with operational needs and developing an analytical basis that supports any proposed solutions. We are concerned with the revised plan timing, which calls for a 2020 RA season implementation of new program.

Cogentrix has been very vocal on the urgency of this process both at CAISO and the CPUC including correspondence and public comments to CAISO Board and in numerous filings in the CPUC RA Phase 3 Proceeding. On July 25th Cogentrix sent a letter to CAISO Board which included the following statement;

"Cogentrix looks forward to participating in the FRACMOO2 working group meeting on August 2. Cogentrix trusts that CAISO will continue to emphasize the urgency around FRACMOO2 and work with stakeholders to conclude the process in time for the 2019 RA season. The CPUC appears ready for significant changes in the next RA proceeding, which presents a strong opportunity for the CAISO and the CPUC to align their views on this important initiative. Proper alignment and coordination between the CAISO and the CPUC will help integrate results from FRACMOO2 into the CPUC's next RA Decision regarding the 2019 RA Season."

Cogentrix continues to believe that this process needs to conclude in time for the 2019 RA season and that a delay until 2020 or 2021 will lead to a greater reliance on long start generation for flexibility, which will contribute to the over generation problem, exasperate renewable curtailment and result in unnecessary greenhouse gas emission. Both those outcomes are in conflict with California's energy and environmental goals.

5. Any other comments.

As Cogentrix stated at the July 26th CAISO Board meeting regarding the urgency of this process, the CAISO needs to get something in place soon or the CPUC will start implementing on their own and will not wait for the CAISO. An example of that situation just occurred at the Aug 10th CPUC meeting when the Commission denied three year RA contracts with AES at their coastal OTC plants due to their desire to change procurement requirements for RA. The CPUC wants "clean resources" to be able to compete with conventional generation to provide this reliability service. This is just the first change from the CPUC with many more coming and either the CAISO can be involved in developing these new criteria or they can just keep on their own timeline and read about the changes as the CPUC implements them.