

Comments on CAISO's August 7, 2015 Frequency Response Issue Paper

August 27, 2015

On August 7, 2015, the CAISO released the Frequency Response Issue Paper.¹ On August 13, 2015, the CAISO held a workshop² to review and discuss the Issue Paper. California Department of Water Resources State Water Project (CDWR) appreciates the opportunity to submit comments.

Background:

The Federal Energy Regulatory Commission (FERC) is imposing the North American Reliability Corporation's (NERC's) Frequency Response and Frequency Bias Setting standard (BAL-003-1) on the CAISO. Compliance with BAL-003-1 will begin December 1, 2016.

Currently, the CAISO does not explicitly procure frequency response capability. The CAISO depends on the Western Electricity Coordinating Council's (WECC's) droop setting standard (PRC-001-WECC-CRT-1.1) to have enough frequency response capability. However, WECC's standard only applies to "traditional" synchronous generation with governor control. Furthermore, depending on how much a generator is loaded, how its governor control mode is configured, and other generator characteristics, available frequency response capability is reduced or eliminated altogether. Therefore, the CAISO cannot completely rely on the frequency response capability from generators following the WECC standard. Furthermore, resources that have traditionally provided frequency response as part of their design are being displaced by non-traditional resources that do not provide frequency response. WECC's standard does not apply to these non-traditional resources. With the current limit of the WECC standard and changing resource mix trends, the CAISO is on a path to comply with the NERC standard while facing a dwindling supply of capable resources. This path is not sustainable and will create reliability problems in the bulk energy system.

DWR supports the CAISO's efforts in exploring its options to meeting NERC's new reliability standard. Through this Frequency Response initiative, CAISO should review all options available to support this new standard.

¹ http://www.caiso.com/Documents/IssuePaper_FrequencyResponse.pdf

² http://www.caiso.com/Documents/Agenda_Presentation_FrequencyResponse.pdf

Direct comments to the CAISO questions:

1. How should the ISO ensure there is sufficient frequency response capability on the system in all hours to satisfy the new requirement?

DWR believes that the long term solution to complying with the NERC standard is to have a baseline of primary frequency response capability available to the CAISO (through existing WECC and additional CAISO requirements) and any additional frequency response capacity required should be procured by the CAISO. This will ensure that the CAISO has control of acquiring enough frequency response capacity to meet the BAL-003-1 requirement. Additional frequency response capacity can be procured in the form of additional spinning reserve or a dedicated frequency response product. Currently, the CAISO depends on resources supplying primary frequency response capacity through loosely enforced WECC standards.

During this initiative the CAISO should:

- (1) Analyze primary frequency response requirements on non-synchronous generators and determine how much frequency response capability this group of resources can yield.
- (2) Enforce frequency response requirements on non-synchronous generators.
- (3) Determine if the combination of frequency response requirements from synchronous and non-synchronous generators will yield enough capacity to meet BAL-003-1 obligations. Analyze future frequency response capacity deficiencies.
- (4) Analyze how much primary frequency response capacity can and should be procured from spinning reserves to fill frequency response capacity deficiencies. Evaluate whether a new “frequency response certification” process is necessary. Analyze the cost and impact to market performance if additional spinning reserves are procured.
- (5) Analyze the development and cost of a frequency response product and market. The development of this product/market should explain how frequency response capacity will be bid, metered, delivered, and settled. Analyze the cost and impact to market performance if a frequency response product is procured.
- (6) Evaluate the pros and cons of buying additional frequency response from spinning reserves vs developing a frequency response product. The CAISO should recommend one method.

CDWR recommends that the CAISO evaluate whether a “frequency response certification” process should be implemented to assure that resources are providing the primary frequency response they say then can provide. This certification process would be imposed only on resources selling frequency response to the CAISO – either spinning reserve resources or resources providing a frequency

response product. Frequency response certified resources may be considered a sub-set of resources already certified to provide ancillary services. There would be an additional certification process to provide frequency response. Frequency response certified resources will assure to the CAISO that their governors are properly configured to provide frequency response and are willing to do it. For example, generator governors set to outer-loop KWh control will not be certified to provide frequency response, even though they may be certified to provide spinning reserve.

CDWR also recommends that the cost causation principle of CAISO's cost allocation guiding principles³ be followed when additional frequency response capacity is procured by the CAISO – either from spinning reserve resources or resources providing a frequency response product. Much like the flexible ramping product will be allocated to generators, loads, and inerties, based on deviation “movement”, the frequency response product should be allocated in a similar manner. Any additional frequency response capacity that needs to be procured by the CAISO should be allocated to the group of resources that caused a frequency disturbance. CDWR recognizes that allocating these costs based on actual frequency disturbances and identifying the source of the disturbance in real time may be difficult. In this case, allocation can be based on analysis of frequency disturbance events for the past year within the CAISO.

2. Should the ISO develop a market product to procure frequency response?

It depends. If during the CAISO's evaluation of items (1) through (5) above, the CAISO determines that a frequency response product is validated then the CAISO should develop a market product to procure primary frequency response capacity.

3. If the ISO cannot develop a product in time for the fall 2016 release, what interim solution would be appropriate? For example, using existing or modifying spinning reserve procurement?

If a frequency response product is found to be the best long term solution, DWR agrees that development of such a product by fall 2016 is unlikely. An interim solution can be to procure additional spinning reserves from “certified frequency response” resources. However, as recommended above, the cost for this additional spinning reserve should be allocated to generation, load, and intertie resource groups, based on the cost causation principle.

³ <http://www.caiso.com/Documents/DraftFinalProposal-CostAllocationGuidingPrinciples.pdf>

4. WECC standards apply only to synchronous generators. Should the ISO explore a requirement that non-synchronous generators have primary frequency response capability?

Yes. Primary frequency response should be a core responsibility among all generators, regardless of technology. This core obligation is important to maintaining a theoretical minimum frequency response capability within the CAISO.