Frequency Response Comments

Submitted by		Company	Date Submitted
Deane Burk Rodrigo Avalos	916-574-0669 916-574-1364	California Department of Water Resources (CDWR)	November 2, 2105

Please use this template to provide your comments on the presentation and discussion from the stakeholder web conference held on October 19, 2015.

Submit comments to InitiativeComments@caiso.com

Comments are due November 2, 2015 by 5:00pm

The presentation discussed during the October 19, 2015 stakeholder web conference may be found on the Frequency Response Initiative webpage.

Please provide your comments on the ISO's straw proposal for each of the eight issues listed below along with the ISO's straw proposal. The ISO welcomes comments in addition to these issues as well.

Frequency Response Standard

The ISO believes the straw proposal and its accompanying technical appendix covers the standard's requirements for compliance purposes. The ISO is endeavoring to provide sufficient information to stakeholders for effective evaluation of the ISO's proposal. The ISO seeks comments on whether any unresolved questions on the standard and the ISO's obligation still exist.

Comments:

CDWR has the following questions:

1. How are the "estimated… actual frequency response (FR)" values in Figure 2 of the straw proposal estimated? Can the CAISO provide an example how FR was

estimated and how frequency response obligation (FRO) was determined for one to two specific frequency disturbance in Figure 2?

2. How accurate are these estimated FR values?
3. It was CDWR's understanding that the FRO is a number that changes annually. Why in Figure 2 do the FRO numbers have so much variation?

Frequency Response Drivers

Several factors contribute to the primary frequency response performance of participating generators having governors. The ISO discusses some of the main drivers of PFR performance in Section 4.2 of its straw proposal. These factors include (1) magnitude of frequency deviation, (2) amount of synchronous on-line capacity providing sustained PFR, and (3) headroom available from that connected on-line capacity.

The ISO is evaluating what additional data points would need to be included in its Masterfile or through other mechanisms to facilitate a market tool or product to be designed. The ISO seeks comments on what factors influence a generators ability to provide PFR in the event of a frequency disturbance and the pieces of information necessary to estimate expected PFR.

Comments:

CDWR has no comments at this time.

Phase 1, addressing real-time deficiencies

Section 6.2 of the straw proposal discusses Phase 1 of the initiative which will enact the five steps to ensure it is capable of meeting the requirement at that time. The first step discussed in section 6.2.1 is to develop "look-ahead" tools to assess the PFR capability of the system at various time horizons in the future based on current system conditions. If the look ahead indicates an anticipated deficiency of PFR the ISO can take actions to address the deficiency.

The ISO seeks comments on its proposal for addressing real-time PFR deficiencies for 2017 compliance period.

Comments:

CDWR supports the development of a "look-ahead" tool to assess the PFR capability of the system and assist the CAISO in anticipating deficiencies.

CDWR cautiously supports the CAISO's proposal to "primarily rely on spinning reserves to ensure it has sufficient frequency response unloaded capacity" (PFR headroom) to meet the new frequency response requirements. Through this methodology, the CAISO would not be directly procuring PFR. PFR would be a byproduct of procuring additional spinning reserves. CDWR sees two problems with this. First, spinning reserve prices will most likely get distorted. CDWR believes that procuring additional spinning reserve to acquire PFR headroom will likely raise spinning reserve prices. Using spinning reserve as a dual use product (an on-line, synchronized, unloaded, dispatchable 10-minute energy product and an on-line, synchronized, unloaded, autonomous 52-second[1] frequency response product) will link the demand of PFR with the price of the 10-minute product. This link will unjustifiably inflate the 10-minute product price when the 52-second product is in high demand. CDWR would prefer to see these two types of spinning reserve products separated if spinning reserve prices start to rise. Secondly, the additional cost of procuring spinning reserve to have PFR headroom will subsequently result in higher ancillary services allocation to measured demand. Therefore, measured demand will end up paying for the CAISO to meet the new PFR standard. Measured demand will pay the price so generators won't get fined.

Allocating the additional cost to comply with the PFR standard only to measured demand is not fair. CDWR believes the cost of procuring additional spinning reserve for the purpose of creating PFR headroom should be allocated to all market participants because everyone benefits, especially generators.

Phase 1, tariff and interconnection revisions

Section 6.2 of the straw proposal discusses Phase 1 of the initiative which will enact five steps to ensure it is capable of meeting the requirement at that time. The first step discussed in section 6.2.2 is to revise the tariff to include requirements for all participating synchronous generators with governors, not just those providing spinning reserves, to set governors to specified droop settings and deadbands, and to not override governor response through outer-loop controls or other mechanisms.

The ISO seeks comments on the tariff revisions it is proposing to help the ISO ensure sufficient frequency responsive headroom and whether other revisions should be considered.

Comments:

[1] http://www.caiso.com/Documents/DraftTechnicalAppendixFrequencyResponse.pdf, at P3

CDWR in general supports section 4.0 of the tariff being revised to clarify minimum synchronous generator governor performance. However, the CAISO must be sensitive to the limitations of governor technologies that are already installed. The CAISO should not require synchronous generators to upgrade their governors without also requiring the same from installed asynchronous generators. CDWR recognizes that PFR for asynchronous generators is still at its infancy, technology is still being developed, and may be expensive to add to an asynchronous generator design. Similar to reactive power capabilities for asynchronous generators, CDWR believes that PFR will also become a standard option at an incrementally minimal price for asynchronous generators. The CAISO's long term goal for complying with the new PFR standard is that all generators, both synchronous and asynchronous, should provide some minimal amount of PFR at no charge. If additional PFR headroom is required, then the CAISO can procure additional PFR capability from PFR certified resources. CDWR also believes penalties should apply to generators that do not meet their minimum PFR performance.

Phase 1, ISO's practice of preserving operating reserve headroom

Section 6.2 of the straw proposal discusses Phase 1 of the initiative which will enact five steps to ensure it is capable of meeting the requirement at that time. The first step discussed in section 6.2.3 is to revise the tariff to clarify the authority of the ISO to designate any reserve not previously identified as Contingency Only by a Scheduling Coordinator (SC) as Contingency Only reserves.

Comments:

CDWR understands that designating all spinning reserve as Contingency Only will help preserve the PFR capability of a generator by not dispatching unused spinning reserve as energy. CDWR cautiously supports this proposed tariff change because automatically designating all spinning reserves as Contingency Only may have unintended effects on spinning reserve and non-spinning reserve prices. As explained earlier, inflated reserve prices will have a negative financial consequence on measured demand. If the CAISO decides to make this tariff change CDWR recommends that the CAISO's DMM monitor spinning/non-spinning reserve prices and activities for anomalies or inefficiencies.

Phase 1, performance requirements

Section 6.2 of the straw proposal discusses Phase 1 of the initiative which will enact five steps to ensure it is capable of meeting the requirement at that time. The first step discussed in section 6.2.4 is to include frequency response performance requirements for resources with governor control and frequency responsive capacity available.

The ISO will continue to develop the details of a proposed performance requirement and seeks comments from stakeholders on an appropriate performance requirement.

Comments:

CDWR understands that all synchronous generators must comply with WECC's existing Governor Droop Regional Criterion. Is the CAISO proposing in this section of the proposal to apply "minimum FR performance requirements" different than or exceeding WECC's?

Phase 1, allocation of BAL-003-1 non-compliance penalties

Section 6.2 of the straw proposal discusses Phase 1 of the initiative which will enact five steps to ensure it is capable of meeting the requirement at that time. The first step discussed in section 6.2.5 is considering provisions for allocating any non-compliance penalties associated with BAL-003-1, should they be imposed on the ISO, to resources that should have provided more PFR than they actually delivered during frequency events.

The process discussed in ISO tariff section 14.7 applies to an allocation of any reliability-based penalty. The ISO seeks comment on how it could apply these tariff provisions to BAL-003-1 compliance and whether it should explore additional tariff provisions beyond those set forth in section 14.7 to impose responsibility for penalties on any resource that fails to provide primary frequency response for which it has an obligation to provide.

Comments:

CDWR supports in general that penalties imposed on the CAISO due to failure to comply with the new frequency response standard (BAL-003-1) should be subsequently imposed on the resources responsible. However, due to the lack of information on how the CAISO will measure resource PFR performance, CDWR cannot provide detailed recommendation on how to allocate this fine to generators. Nevertheless, CDWR supports the following principles:

- The resource that caused the frequency excursion event to occur should not be fined. The frequency event itself (caused by a generator failure, transmission failure,

or load trip) may reveal that the system does not have enough PFR. This is like blaming and fining a patient for poor ambulance response time.

- Generators that have shown "sufficient" PFR performance should not be fined.
- Generators that have shown "insufficient" PFR performance should be fined.
- "Sufficient" and "insufficient" performance should be measurable and within the frequency events used to evaluate BAL-003-01 compliance.

Can the CAISO please answer the following questions?

1. Can the CAISO measure "sufficient" and "insufficient" PFR performance from specific generators?
2. Can the PFR performance of a generator, or lack of performance, be tied back to a specific frequency event? In other words, for a specific frequency event that was used in the BAL-003-1 evaluation, can the CAISO determine which generator(s) under performed and by how much?
3. Can the CAISO calculate a "weighted under-performance value" for each generator that is tied to a frequency event that caused the CAISO to fail the BAL-003-1 evaluation?
4. Can BAL-003-1 fines be allocated to generators based on the above "weighted under-performance values"?
5. Has the CAISO allocated similar penalties in the past? How was it done?
6. How have other ISOs handled similar fines imposed on them?

Phase 2, long-term approaches

Phase 2 of the initiative will evaluate if a market constraint or product is better suited to competition for frequency response capability (Section 6.3 of straw proposal). Such market-based mechanisms could not be designed, approved and implemented by December 1, 2016, and therefore the ISO will need to consider them in a second phase of this initiative.

Comments:

CDWR has no preferential treatment for a market constraint or PFR product at this time. The CAISO's long term goal for complying with the new PFR standard is that all generators, both synchronous and asynchronous, should provide some minimal amount of PFR at no charge to the CAISO. The CAISO can procure additional PFR capability from specified resources (through market constraints or a PFR product) based on the anticipated deficiencies determined by the CAISO's new PFR "look-ahead" tool. This long-term goal is parallel with the CAISO's current plan to make sure there is enough

reactive power and voltage control in the system[2]. In this initiative, both asynchronous and synchronous generators must meet minimum reactive power requirements (a baseline); anything required above the baseline will be procured by the CAISO.

[2] http://www.caiso.com/informed/Pages/StakeholderProcesses/ReactivePowerRequirements-FinancialCompensation.aspx