

Stakeholder Comments

SDG&E comments on the CAISO’s Frequency Response Phase 2 Issue Paper

Submitted by	Company	Date Submitted
Joe M ^c Cawley (858) 503-5302	San Diego Gas & Electric	January 11, 2017

San Diego Gas & Electric (SDG&E) appreciates the opportunity to provide these comments on the California Independent System Operator’s (CAISO) December 15, 2016 “Frequency Response Phase 2 Issue Paper”. We look forward to continued coordination to address this important issue.

The CAISO’s December 15, 2016 “*Frequency Response Phase 2 Issue Paper*” concludes that given the frequency response performance trend from 2012 through 2016 (Table 4 and Figure 3), the “ISO expects its rate of performance will likely fall short of the FRO [Frequency Response Obligation]” and that the existing CAISO market design “is not sufficient to ensure [the CAISO] has positioned the system in a manner that meets its frequency response obligation.” (Section 4.1.2)

As an interim measure, the CAISO has initiated efforts to bilaterally procure frequency response from external BAAs. The CAISO is now exploring more permanent options for meeting its anticipated FRO over time.

In Phase 2 of the CAISO’s frequency response initiative, the CAISO is proposing that a primary frequency response procurement mechanism:

- Produce market outcomes that enable the ISO to position its fleet to respond sufficiently to frequency disturbances in the post-event measurement period;
- Allow all technology types to participate in the procurement mechanism through ensuring there are no barriers to entry;

- Produce price signals that [create an incentive for] capital investments on resources to be capable of primary frequency response; and
- Ensure compensation of capital investments made to meet the required capability if frequency response capabilities become an interconnection requirement. (Section 2)

A Centralized Clearing Market for Primary Frequency Response Should be Developed

Given the information provided by the CAISO in the issue paper, SDG&E believes that, over the long-term, a centralized clearing market operated by the CAISO will be the most efficient means of obtaining the necessary quantities of primary frequency response. A centralized clearing market will establish prices that suppliers can use to determine (i) when it is commercially advantageous to incur the opportunity costs associated with the headroom that primary frequency response requires, and (ii) when it is financially attractive to invest in new technology to provide frequency response capability.

With respect to technology investments, SDG&E does not believe it is necessary that generators be mandated to provide frequency response *capability*. It is far more efficient to allow market clearing prices for primary frequency response, and suppliers' projections of such prices, to provide the signal as to when such technology investments make sense. If a centralized clearing market for primary frequency response is implemented, the CAISO's fourth bullet (above) becomes moot.

SDG&E does not believe the CAISO's existing ancillary service products are well-suited for procuring the necessary amounts of primary frequency response. While there are a number of reasons, the most significant is that the existing ancillary service products are based on ten minute delivery deadlines. Primary frequency response, on the other hand, needs to be provided automatically upon detection of a triggering frequency change (a change in frequency of 36 mHz). It would be necessary for the CAISO to procure very large amounts of regulation capacity and/or spinning reserves in order to ensure there was enough primary frequency response capability available at any instant in time. Most of this capacity would sit idle and never be used.

Instead, the CAISO should create a new ancillary service product: primary frequency response. The CAISO would procure this product on the same market timelines as the existing ancillary service products, and primary frequency response offers would be co-optimized along with the other ancillary service and energy offers. SDG&E envisions that any supplier whose technology has primary frequency response capability,¹ could submit price/quantity offers for primary frequency response. The price would reflect the supplier's expectation of opportunity costs (e.g., headroom) and any anticipated variable operating costs associated with the provision of the service during each relevant market/settlement interval.

The CAISO market mechanism would produce a clearing price for each market/settlement interval and this price would be paid to all suppliers whose offers cleared the market. SDG&E does not believe it makes sense to include a separate energy settlement for primary frequency response. The increase in power production as a result of a triggering decline in frequency (or the decrease in power production as a result of a triggering increase in frequency) will be very small on the time-scales of primary frequency response.

SDG&E expects implementation of a centralized clearing market for primary frequency response will require only modest augmentation of existing CAISO systems. A primary frequency response market will operate very similarly to the existing regulation capacity market so the design and software requirements would seem manageable.

Implementation of a primary frequency response market does raise the issue of performance. The CAISO will need to develop a process to verify that suppliers whose primary frequency offers clear the market, are actually (i) *capable* of providing the quantity of primary frequency response that clears the market, and (ii) providing such primary frequency response when a triggering change in frequency does occur. There will need to be consequences for failure to perform.

¹ The issue paper suggests that only run-of-river hydro and tidal technologies would not have the technical ability to provide primary frequency response.

Finally, the CAISO needs to develop a mechanism for allocating the costs of primary frequency response among market participants. SDG&E expects that the mechanism would be similar to that used to allocate the costs of regulation capacity. The CAISO should include a description of this cost recovery mechanism in the next version of the issue paper.

Parties to Existing Purchase Power Agreements (PPAs) Will Need to Reach Agreement on Which Party is Entitled to Primary Frequency Response Market Revenues

Some stakeholders are asserting that existing PPAs with generators already provide the generator owners compensation for primary frequency response. These stakeholders believe that subject generators' participation in a centralized clearing market for primary frequency response results in double payment for the service. To avoid the possibility double payment, these stakeholders are arguing against the creation of centralized clearing market for primary frequency response. This is the same basis upon which the CAISO elected not to compensate generators for reactive power capability.²

SDG&E questions whether existing PPAs do, in fact, contemplate the contractually-enforceable provision of primary frequency response. In any event, it appears from the CAISO's issue paper that the amounts of primary frequency response capability generators currently provide, is falling short of what is needed; i.e., the provision of primary frequency response through bilateral contracts does not appear to be an effective way of creating the incentives necessary to provide the required amounts of primary frequency response. SDG&E believes that if a party to an existing PPA believes the contractual terms entitles the buyer of the generator's output to any revenues that would be earned through the generator's participation in a centralized clearing market for primary frequency response, then that party should pursue recovery of those revenues through the applicable terms and conditions of the PPA.

² From a market perspective, SDG&E believes primary frequency response is distinguishable from reactive power. Unlike reactive power capability, there is no current federal requirement that all generators must have primary frequency response capability and SDG&E does not believe imposing such a requirement would be a cost-effective way to secure the necessary amounts of primary frequency response. Additionally, SDG&E believes that for most generators, the opportunity costs associated with the provision of reactive power capability are small compared to the opportunity costs of providing primary frequency response capability.