

**COMMENTS OF THE CALIFORNIA ENERGY STORAGE ALLIANCE:**

**Frequency Response Issue Paper**

Submitted by	Company	Date Submitted
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The California Energy Storage Alliance (CESA)<sup>1</sup> offers these comments on the Frequency Response Issue Paper and meeting. CESA appreciates the opportunity to comments.

As the challenge of grid operations changes due to either changing generation mixes, usage patterns, or to meet new requirements, the CAISO should generally pursue efficient market solutions, where feasible. Such designs may involve new biddable “products”, in-market constraints, or other designs. In addition to this guiding market design principle, CESA recommends the CAISO continue to promote robust technology-neutral avenues to market participation, prompting richer competition and more efficient market outcomes. Via these approaches, total system cost can be lower while grid requirements are sufficiently met.

**1. Frequency Response appears to be a viable market product.**

As CESA understands it, Frequency Response can be provided by numerous resources, is not geographically constrained, and likely involves some degree of costs to a resource, e.g. capital, marginal, and opportunity). These aspects of providing Frequency Response lead it to be a candidate for a market product. CESA recommends the CAISO consider developing this product. Ultimately, such consideration should be conducted along with a general review of the regulation product designs, including a review of the pay-for-performance design.

CESA believes the eventual Frequency Response product could be procured in both Day-Ahead and Real-Time markets. Since BAL-003-1 measures compliance based on meeting Frequency Response obligations as well, the CAISO should consider whether pay-for-performance structures and payments would be applicable, particularly if faster Frequency

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<sup>1</sup> The views expressed in these Comments are those of CESA, and do not necessarily reflect the views of all of the individual CESA member companies. (<http://storagealliance.org>)

Response can reduce procurement requirements. Details such as market power mitigation, and other routine product ‘controls’ should be considered.

## **2. Given timelines to develop a product, the CAISO should pursue an interim constraint-based approach to procure and compensate for Frequency Response.**

CESA recommends an ‘in-market’ Frequency Response constraint as an interim solution. The CAISO already deploys numerous constraints in both its Day-Ahead and Real-Time optimizations and scheduling runs. Such a constraint would function by selecting resources with designated Frequency Response capability to preserve headroom for Frequency Response. As an interim-constraint, compensation options could be discussed, but compensation should be provided for resources satisfying this constraint. Options to compensate Frequency Response capacity and provisioning could include a (spot market) capacity payments, an opportunity cost payment, combinations thereof, some share of the avoided cost of non-compliance, or other options. Rules should ensure all costs are recovered, e.g. ‘fuel costs’. While non-performance rules can be considered, CESA understands that the CAISO does not currently measure Frequency Response performance today, potentially implying a Frequency Response awardees may not need overly complex settlement and non-performance rules. CESA recommends the CAISO evaluate whether these full product ‘controls’ are necessary. A final idea for this constraint solution would be a master file ‘flag’ by which resources declare a willingness to provide Frequency Response. Naturally, only resources with this capability would be eligible to provide Frequency Response.

If not already included in the systems upgrade planning processes, the CAISO should anticipate that interim solutions may involve software and systems upgrades and add resources if needed. The CAISO should ensure timely and responsible schedules for its designs and should meet requirements with robust market designs. The BAL-003-01 requirements have been known for some time, so CESA believe a timely implementation is reasonable.

## **3. Frequency Response differs from Spinning Reserve**

CESA questions whether ‘layering on’ a Frequency Response requirement onto procured Spinning Reserve capacity makes sense. Will the CAISO plan to require sufficient Frequency Response from it procured Spinning Reserve? How will the CAISO or the market optimization ‘know’ if sufficient Frequency Response is available? How will it measure performance?

These questions reveal two key takeaways to CESA. First, if the CAISO doesn’t explicitly require sufficient Frequency Response through its procurement of Spinning Reserve, it may procure insufficient amounts. The CAISO should avoid this risk, which could create reliability risks not only to the CAISO but to the entire WECC. This eventuality could lead to noncompliance with NERC rules, if CESA understands it correctly. CESA deems such risks or potential outcomes to be unacceptable. Second, to know it has sufficient amounts, the CAISO might require a constraint inside the optimization coupled with master file information regarding willingness and availability to provide Spinning Reserve. To achieve this, the CAISO may as well have already developed an explicit Frequency Response product or constraint.

Alternatively, the use of the Spinning Reserve product could provide an avenue for resources to reflect their costs for Frequency Response as part of their Spinning Reserve Bid. Should the ISO seek to address Frequency Response requirements through Spinning Reserve products, it should update the approach to allow for the inclusion of Frequency Response costs in addition to Spinning Reserve costs. Further discussion by stakeholder on this path would be required.

**4. With compensation available for Frequency Response, the CAISO should not require it of all resources.**

As discussed, the CAISO should seek to meet its BAL-003-01 Frequency Response requirements through in-market solutions, rather than through less efficient approaches that apply a standard to all generators, regardless of capability or desire. In-market solutions and payments will encourage resources to develop functionalities that are needed by the CAISO. Resources for which such capabilities are more expensive might decline to pursue such capabilities. On a longer timeframe, as appropriate, the CAISO could work with the CPUC and other Local Regulatory Authorities to also ensure adequate Frequency Response capability through longer-term planning structures, e.g. Capacity contracting.

In the near-term, CESA doubts that a Frequency Response requirement for asynchronous resource could be implemented in time to meaningfully address the CAISO's BAL-003-01 implementation deadline. Should such an approach be pursued, CESA expects issue may arise with under-development resources for which such costs were not fully anticipated and where the burden of compliance with a supposed Frequency Response requirement may be contractually unclear.

**5. Rules should allow asynchronous resources, if inclined, to provide Frequency Response capabilities.**

Advances in inverter technologies are making it feasible to provide Frequency Response. As discussed, the CAISO should seek to meet its BAL-003-01 Frequency Response requirements through compensation structures, aka 'a carrot'. Such an approach will create incentives for resources to develop this capability and seek compensation for it in the CAISO's market. Should this approach be unsatisfactory, CESA again points to a planning based solution, e.g. including frequency response capability into the portfolio of needs addressed through Resource Adequacy or related efforts.