**Comments of Powerex Corp. on**
**Primary Frequency Response Straw Proposal**

| Submitted by | Company | Date Submitted |
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Powerex appreciates the opportunity to provide written comments on CAISO's October 12, 2015 Frequency Response Straw Proposal. The analysis in the Straw Proposal makes it clear that CAISO will need to take additional measures to ensure it maintains sufficient Primary Frequency Response ("PFR") to satisfy NERC Reliability Standard BAL-003-1. The Straw Proposal also indicates that the need for proactive measures to ensure sufficient PFR are almost certain to grow with the growth of renewable resources in the CAISO BAA, as such resources both increase the frequency drop associated with a contingency event by reducing inertia in the system and are generally more limited in their ability to provide PFR. Given the gap identified in the Straw Proposal between CAISO's recent PFR performance and the performance that will be required under BAL-003-1, and given the critical nature of that standard for ensuring reliability, Powerex supports CAISO taking the steps necessary to ensure its ongoing ability to comply with the new standard.

## Powerex Supports CAISO Developing a Formal Primary Frequency Response Product

Powerex strongly supports the eventual development of a discrete PFR product procured and compensated through CAISO's day-ahead and real-time markets. Frequency Response is an example of an attribute—related to but distinct from the provision of electrical energy—of certain resources participating in CAISO's markets. Resources will vary in their ability to provide PFR based on a number of factors, including operational flexibility, whether control systems (*e.g.*, governors) are in place, and the configuration of those control systems. And here is no reason to believe that resources that can provide *energy* at least cost are necessarily the resources that can provide PFR at least cost. Moreover, providing PFR requires preserving "headroom," which means foregoing alternative uses of that capacity. These complex interactions make it highly likely that the cost of meeting the CAISO BAA's need for energy and associated capacity products, including PFR, can be minimized only through joint optimization. Like the Flexible Ramping Product and FRAC-MOO products currently under development, a Primary Frequency Response product should also be developed to ensure that the CAISO organized markets are able to optimize the procurement of the entire suite of energy, capacity and flexibility products needed to meet its needs at least cost.

Development of a formal PFR product will ensure competitive and efficient prices reflecting the value of providing PFR. This is important for at least two reasons.

- It provides appropriate compensation to resources that provide a necessary service. This is a core objective of efficient pricing in ISOs and RTOs, most recently articulated by FERC in the context of shortage pricing, "…prices in each dispatch interval should reflect the value provided by dispatched resources. In times of shortage, the value of services a resource provides increases because operating needs have increased."[1] Appropriate compensation also provides the incentive for resources to configure their operations in a manner that ensures the provision of PFR.
- Market-based compensation for PFR provides an important price signal for longer-term incremental investments and upgrades in physical resources capable of providing the needed service.

As CAISO considers the development of a PFR product, Powerex recommends that it pursue appropriate ways in which that product can be supplied by physical resources located outside the CAISO BAA. It is axiomatic that CAISO's needs will be met at lowest cost when it is able to draw upon the broadest set of qualifying resources. It would be highly inefficient, for instance, for the CAISO BAA to procure all of its PFR needs solely from in-state thermal generators if resources located outside the BAA were able and willing to provide comparable service at lower cost.

**An Interim "Phase 1" Must Provide Appropriate Compensation and Allocate Costs Consistent with Cost Causation Principles**

Powerex understands that developing and implementing a formal PFR product may not be feasible in time for the start of compliance with NERC Reliability Standard BAL-003-1. It is therefore reasonable for CAISO to develop interim tools and procedures to comply with the reliability standard prior to the availability of a PFR product.

The Straw Proposal identifies many of these elements as part of its "Phase 1" proposal. For example, the Straw Proposal contemplates CAISO developing a "look ahead" evaluation tool, as well as taking steps to obtain resource-specific information to better understand how much PFR is being provided by each participating resource. Powerex believes both of these aspects of Phase 1 are appropriate and necessary.

At this initial stage, three aspects of Phase 1 raise concerns, however.

*First*, the Straw Proposal revising Section 34.10 of the Tariff to give CAISO the authority to treat day-ahead operating reserve resources as "contingency only" even if a resource explicitly elected otherwise. This could result in the CAISO not dispatching a resource in real-time, despite that resource having submitted an energy bid that is otherwise economic and despite that resource having declined to select the "contingency only" option in its bid. The Straw Proposal does not discuss what compensation, if any, would be provided to a resource that is "held back" from making a real-time energy sale in this manner. Powerex requests that CAISO

[1] *Settlement Intervals and Shortage Pricing in Markets Operated by Regional Transmission Organizations and Independent System Operators,* Notice of Proposed Rulemaking, 152 FERC ¶ 61,218 at P 47 (2015) ("Shortage Pricing NOPR").

consider clarifying the Straw Proposal to ensure that, at a minimum, resources receive their opportunity cost if they are held back from economic dispatch as a result of the Straw Proposal's mechanism. Such compensation could be similar to the compensation provided under the current Flexible Ramping Constraint. The Straw Proposal should also clarify that CAISO's use of the proposed authority to treat resources providing spinning reserve as "contingency only" will be applied in a manner that is technology agnostic. In similar fashion, greater clarity is required regarding whether and how resources will be compensated under the proposal to require *all* participating synchronous generators with governors "to set governors to specified droop settings and deadbands, and to not override governor response through outer-loop controls or other mechanisms."[2] The requested clarifications will help ensure that resource owners are not inadvertently and counterproductively disadvantaged as a result of being technically qualified to provide PFR to CAISO.

*Second*, the Straw Proposal explains that CAISO initially expects "to primarily rely on spinning reserves to ensure it has sufficient frequency responsive unloaded capacity."[3] This would be achieved either by (1) changing the *allocation* of total operating reserves between spinning and non-spinning reserves, or (2) procuring *additional* operating reserves as spinning reserve. Both of these approaches could affect market clearing prices for spinning and non-spinning reserves, and hence the costs paid by CAISO demand for operating reserves. Moreover, if CAISO procures additional spinning reserve to provide PFR, it will incur an additional cost that is distinct from the cost of procuring operating reserves. Powerex believes CAISO should provide additional detail and greater clarity regarding how the additional costs for these procurement activities would be allocated and recovered.

*Finally*, Powerex believes it is appropriate to ensure that any interim "Phase 1" approach truly is temporary, and is replaced with an evolved Primary Frequency Response product as soon as possible. The "Phase 1" provisions should thus include a reasonable sunset date to ensure developing a PFR product remains a priority.

## Conclusion

Powerex fully agrees with the CAISO's evaluation of the need for PFR as one of several critical capacity- and flexibility-related resource attributes necessary to support the integration of renewable resources into the CAISO BAA. The ability of California to achieve its renewable resource objectives, and to do so at least cost, depends critically on its ability to develop appropriate tools to efficiently obtain these necessary capacity and flexibility products. As Powerex has stated in the context of CAISO's Flexible Resource Adequacy Capacity (FRACMOO) and Flexible Ramping Product, Powerex supports the evolution of the CAISO organized markets to recognize the multiple discrete products that it must procure, along with energy, to meet its BAA needs.

As a practical matter, Powerex recognizes the immediate need to develop interim tools for CAISO to comply with NERC Reliability Standard BAL-003-1 beginning in 2016, and supports

[2] Straw Proposal at 13.
[3] *Id.* at 14.

CAISO taking interim steps as a “Phase 1” process. The Phase 1 steps in the Straw Proposal contain many, but not all, of the measures necessary for a sound interim proposal. Specifically, Powerex believes that the Straw Proposal should be revised to ensure that Phase 1 includes appropriate compensation for all resources providing PFR. Additionally, Powerex requests that CAISO provide greater detail on how it proposes to allocate the costs of PFR procurement consistent with cost causation principles.