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Comments of the California Energy Storage Alliance (CESA)
on
CAISO FRACMOO Second Revised Framework Proposal

Submitted by	Company	Date Submitted
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CESA appreciates the opportunity to comment on the CAISO's Flexible Capacity and Must Offer Obligations Phase 2 (FRACMOO2) Draft Second Revised Flex Capacity Framework Proposal.[1] CESA offers both general comments and responses to the CAISO's Comments-Response Template.

CESA Comments:

FRACMOO 2 remains an important stakeholder initiative that should promote proper fleet planning and contracting in order to ensure reliability across the year. CESA supports the basic premise of the Draft Framework to assess and plan for fleet-wide ramping capabilities based on predictable ramping and also based on uncertainty needs.

A. **The full flexible range of energy storage should be valued, meaning the full-charge to full discharge range of storage should 'count' towards its flexible capacity, if deliverable.**

The FRACMOO exercise is about lining up a sufficiently flexible *fleet* in a month (or more) ahead timeframe to compete in the CAISO's market with relevant must-offer obligations. This exercise is not about micro-determining where units are positioned in their rampable

[1]http://www.caiso.com/Documents/SecondRevisedFlexibleCapacityFrameworkProposal-FlexibleResourceAdequacyCriteriaMustOfferObligationPhase2.pdf

range – the CAISO's sophisticated multi-interval market optimization handles this challenge. FRACMOO should ensure the fleet handed to the CAISO can be used by the optimization to feasibly solve with high regularity. Knowing the needs of the CAISO's market is key, but presuming that a resource could be limited by its energy schedule conflates energy and operational capacity needs (the energy market) with *planning* capacity needs (FRACMOO).

The CAISO's straw proposal is incorrect to limit deliverable 'counting' for energy storage to only part of its rampable range. So long as the resource can turn-on and ramp within a sufficient applicable time, then the *full* range should be considered as part of the fleet and available 'planning capacity'. Rules for both the Day-Ahead Load Shaping (DALS) product and Real-Time Flex Capacity products should reflect this logic.

The CAISO already addressed this matter years ago in FRACMOO 1. In that stakeholder initiative, the effective flex capacity range, where deliverable, ranged fully from full charge to full discharge, albeit with some consideration of the available energy, e.g. the EFC was counted as the full rampable range from max-charge to max discharge so long as the resource could ramp evenly from trough to peak across three hours. The CPUC's Resource Adequacy ("RA") methodology tackles this with slightly more emphasis on the energy duration performance of energy storage. As the CAISO's FRACMOO methodologies further differentiate the delivery of flexibility from sustained peaking needs, i.e. differentiate and unbundle flexible from system capacities, the CAISO's focus more on rampable range and less on energy duration is reasonable.

The CAISO should fully value the flexible range of energy storage.

B. **A separate EFC-only deliverability study is a worthwhile policy advancement.**

CESA supports the second revised straw proposal's establishment of a separate EFC only study. This makes sense for several reasons. First, it may add efficiency to the system by allowing developers to tailor their projects optimally, e.g. to have EFC and no NQC, or both, etc. Second, the cost-savings routed to ratepayers through avoided deliverability upgrades could be material. Finally, the development speed may be improved by providing pathways to interconnect that may bypass upgrade requirements.

C. **Hybrid and 'plus-storage' resources should be appropriately and fully valued for EFC.**

The CAISO proposal sets limits on some technology categories. The CAISO should distinguish traditional technology groups from 'plus-storage' resources, such as solar plus storage. Solar plus storage resources, can have higher Effective Load Carrying Capabilities (ELCC) and a larger ramping range due to the ability to charge and 'go negative'. Hybrid storage plus gas resources may have larger rampable ranges, faster start-times, etc. As such, 'plus-storage' resources should be distinguished and appropriately valued.

Storage counting provisions should focus on providing a fleet that can work for running the grid in most cases. As such, resources that may be guaranteed to be unavailable for key periods of flexible needs should not be overvalued. Energy-storage resources, or energy-storage-coupled resources can provide unique and valuable 'fast' flexibility and should be fully counted.

D. *Real-Time* Flex Product EFC 'counting' should include start-up and transition times.

The CAISO proposed to not factor in start-times in determining EFCs for real-time flex capacity products. "Additionally, while the ISO will not prohibit long- and medium-start resources from providing flexible capacity, the ISO proposes to limit the EFC value to the ramping capability above Pmin for these resources."[2] This seems problematic in so far as the it may lead to conditions where the day-ahead market solution is sub-optimal.

Recall that the purpose of FRACMOO is to ensure a fleet shows up and competes in the CAISO's markets such that a feasible and competitive market solution can occur in nearly all circumstances. In cases where the amount of products brought to the market for real-time flexibility are too inflexible and require long-start times, the overall market solution could be less efficient through a need to commit and p-min schedule high volumes of long-start resources. As CESA member LS Power notes, "…if an 8-hour startup time resource is needed to be on at 6pm to handle the ramping needs during solar offline hours, then CAISO will need to start this resource by 10 am, which would mean this resource will contribute towards any oversupply issues during the day time which would in turn lead to CAISO needing more flexible capacity during daytime hours. Instead if CAISO imposes a start-up time criterion then resources that are already committed and online should be able to meet the Real Time flexibility needs. Also, resources short start resources may be committed as needed much closer to the actual need thereby solving the flexibility issues more efficiently and cost effectively. We recommend CAISO reconsider start-up time as a qualification criterion."[3]

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[2] CAISO Proposal, p. 30.
[3] Comments of LS Power.

Further, CESA anticipates that the Day-Ahead market solutions may seek large amounts of fast-ramping imbalance reserves in a short period, e.g. in a single 15-minute interval. If the only available 'real-time' flexible capacity resources are inordinately slow, a solution may be unachievable. Additionally, real-time commitments still may occur, even if their frequency will be reduced by the development of the Imbalance Reserve Product in the DA market.

The CAISO should revisit its eligibility counting criteria to include start-up and transition times for the applicable intervals. This rule will signal that fast starting and shorter-transitioning units are preferred for the elite fast ramping capacity services.

E. **The CAISO should continue to explore the right approach to real-time flexibility must offer obligations.**

The CAISO proposal suggests a standard 24x7 must-offer obligation for real-time flex capacity providers. While CESA understands the need to ensure the fleet has sufficient flexibility, the proposal may strand some capacity, e.g. demand response or multiple-use energy storage solutions. CESA suggests further exploration on how and if data could support any differentiation between part-time versus full-time resource availability. CESA understands that some band uncertainty need can persist throughout the day but also observes that key ramp periods and their associated upticks in uncertainty between DA and real-time market solutions, are often predictable.