

**FLEXIBLE RESOURCE ADEQUACY CRITERIA AND MUST-OFFER OBLIGATION**

**DRAFT FINAL PROPOSAL, POSTED FEBRUARY 7, 2014**

Submitted by	Company	Date Submitted
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CESA<sup>1</sup> continues to applaud the CAISO’s collaborative work with the California Public Utilities Commission (“CPUC”) and stakeholders reflected in the Draft Final Proposal (“Proposal”) to ensure that flexible capacity energy storage resources are available in the very near future to reliably operate the grid while fulfilling state energy and environmental goals. CESA appreciates the work done to accommodate the unique features of energy storage in the Proposal and will continue to work closely with the staffs of the CAISO and the CPUC in developing the tariff changes necessary for the CAISO to adopt flexible resource adequacy (“RA”) capacity requirements that specifically include energy storage for regulation, load following, and ramping system needs.

CESA still sees a critical topic that is missing from the Proposal, in the area of dispatchable charging. The CPUC’s staff has recently acknowledged that, “EFC should incorporate dispatchable load/ES charging because these operational modes can address ramping needs.”<sup>2</sup> Yet the Proposal still does not yet include a clear counting methodology for this acknowledged ramp reduction. In fairness, it should be recognized that the CAISO appreciates the importance of this issue:

The CAISO staff has stated, “The ISO has spent significant time considering the proper methodology for counting the charge and discharge capabilities of storage resources for flexible capacity purposes and believes that there is additional work that needs to be done to consider additional flexible capacity potential of energy storage resources in subsequent stakeholder initiatives. However, at this time, it is prudent to account for full flexible capacity storage resources based on the three-hour discharge. Some will assert that this is a conservative approach. The ISO agrees. However, at this time, as we continue to

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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>

<sup>2</sup> *Qualifying Capacity and Effective Flexible Capacity Calculation Methodologies for Energy Storage and Supply-Side Demand Response, Stagg Proposal Outline, January 16, 2014, p. 2.*

learn more about the capabilities, potential, and operational characteristics of energy storage resources, it is reasonable to take a somewhat conservative approach. The ISO will continue to review the prudence of this approach in the recently opened Reliability Services initiative as well as in coordination with the CPUC in the RA proceeding (R.11-10-023).”<sup>3</sup>

In order to account for the value of dispatchable charging in a just and reasonable manner, CESA suggests that the CAISO take one of the following two approaches in its Final Proposal:

1. Allow dispatchable charging to count as a Category 1 flexibility measure. Resources that can charge dispatchably fulfill the same need as other Category 1 resources used to deal with the lowest secondary ramp. They should be counted as such. Thus, a single long duration energy storage resource might count toward two categories. For instance, it could count toward Category 2 for its discharge characteristics, and Category 1 for its charge characteristics. This approach begins to dovetail with the CPUC’s proposed EFC metrics for RA, which consider bi-directional flexibility.
2. The CAISO could explicitly account for dispatchable charging that contributes to ramp reduction in its flexible capacity need determination. This approach could be somewhat confusing for two reasons. The first is that the CPUC’s proposed EFC metric considers dispatchable charging as part of the EFC of a resource. The second reason for possible confusion is that this approach separates the flexibility benefit of energy storage into two very different capabilities: need fulfillment and need reduction.

Either of these different approaches could be made to work, but CESA definitely favors the first alternative. Regardless of how dispatchable charging is accounted for, it is important that Load Serving Entities are able to specifically count the dispatchable charging of energy storage resources toward their flexibility obligations, and that the CAISO’s evaluation of the EFC of a resource match the counting criteria adopted by the CPUC.

CESA supports the inclusion of Regulation Energy Management (“REM”) resources in the Proposal. CESA recommends that the CAISO clarify that the EFC of a REM resource should be its up and down / bi-directional regulation capacity<sup>4</sup> and should not be arbitrarily limited to the Net Qualifying Capacity (“NQC”). Setting the EFC for a REM resource at the lesser of a resource’s flexible capability or the resource’s NQC, which is 0 under current RA rules, would always yield 0, and would thus negate the point of the REM resource option. Thus, CESA recommends that the CAISO clarify that the EFC of a REM resource should be simply its bi-directional regulation capacity.

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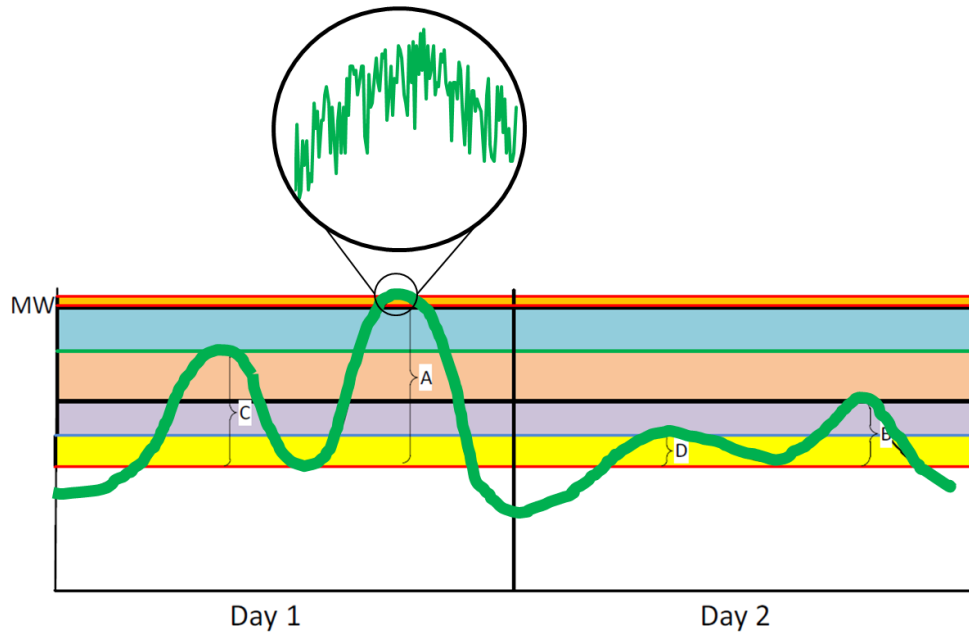
<sup>3</sup> Proposal, p. 38.

<sup>4</sup> A REM resource regulation capacity would be based on its 15 minute energy output capability.

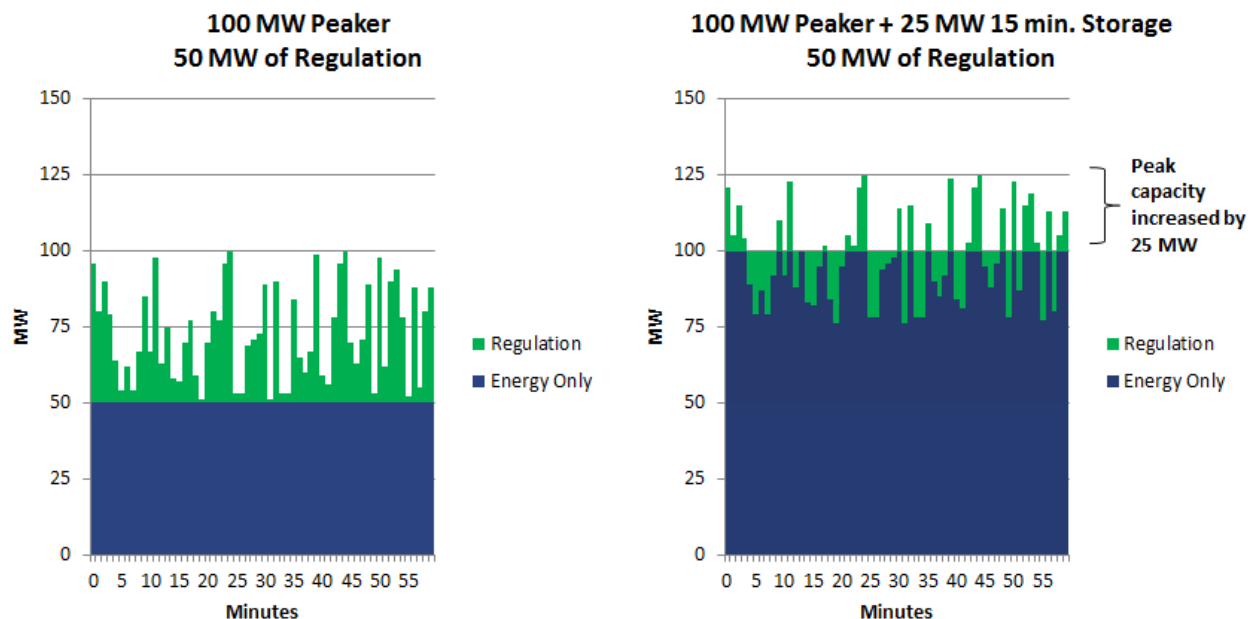
CESA recommends that the CAISO should include its EFC in Flexible Capacity Category 1 (“Category 1”). REM resources can provide regulation continuously, including during the smallest secondary ramp, the largest secondary ramp, and the smallest primary ramp, which are the ramps addressed by Category 1. Because REM resources can operate during the same periods and contribute to system flexibility in a manner comparable to other Category 1 resources, they should be counted as such.

Under the CAISO’s current market rules, a REM resource can provide regulation continuously for the entire Must Offer Obligation window from 5:00 pm to 10:00 pm. Such a resource could not only provide regulation over the entire duration, but it also contributes directly to the 3-hour maximum ramp, as is shown below in Figures 1 and 2.

**Figure 1: Regulation as Component of Flexibility**



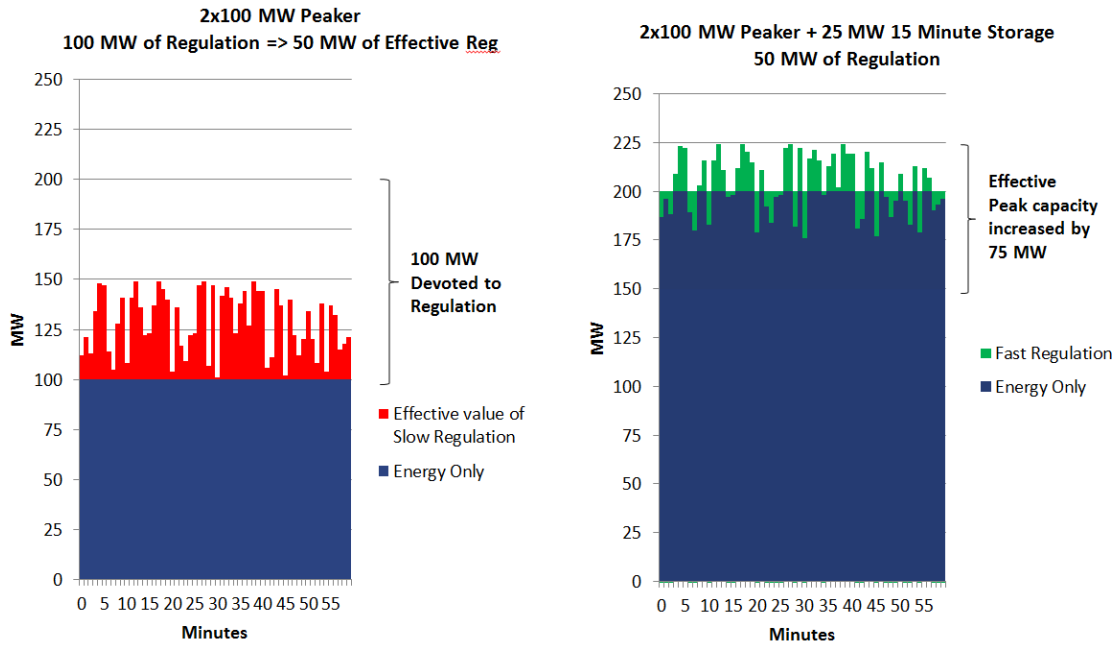
**Figure 2: 100 MW Peaker vs. 100 MW Peaker + 25 MW 15-Minute Energy Storage**



As is shown above in Figure 2, the REM resource demonstrably contributes to peak capacity at its full regulation capacity.

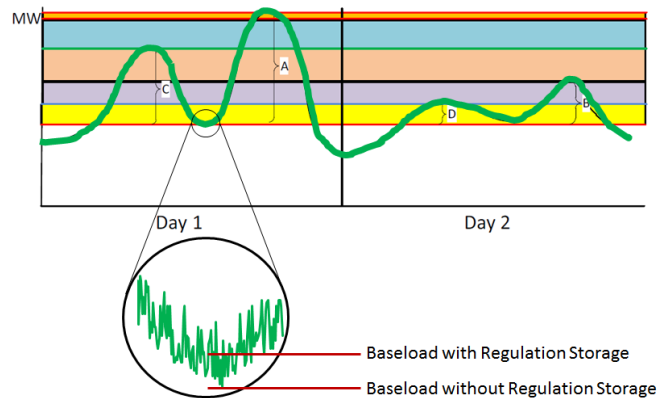
Additionally, because energy storage resources have been found to compare to the regulation capacity of at least two slower regulating generators, the EFC of a fast responding storage resource is in fact more than double its regulation capacity, in comparison with traditional resources. The effect of this fast response is shown below in Figure 3.

**Figure 3: 2x100 MW Peaker vs. 2x100 MW Peaker + 25 MW of 15 Minute Storage**



Bi-directional regulating storage resources decrease the need for flexibility at the low points in the net load curve shown below in Figure 4:

**Figure 4: Regulation Energy Storage Reduction in Flexible Need**



Thus CESA requests that the CAISO specify that the EFC of a REM resource should be calculated according to its actual contribution to system flexibility, at its bi-directional regulation capability, that EFC should not be arbitrarily limited to the NQC, and that REM resources be included in Category 1, because these resources offer flexibility in all ramps.