

October 22, 2013

Joanna Gubman
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California Public Utilities Commission
505 Van Ness Avenue
San Francisco, California 94102

Subject: Informal Comments of the California Energy Storage Alliance on Draft Staff Proposal for Qualifying Capacity and Effective Flexible Capacity Calculation Methodologies for Energy Storage and Supply-Side Demand Response Resources

Dear Ms. Gubman:

This responds to your request for informal comments on the Draft Staff Proposal for Qualifying Capacity and Effective Flexible Capacity Calculation Methodologies for Energy Storage and Supply-Side Demand Response Resources (“Flexible Capacity Proposal”). CESA appreciates and supports the Staff’s efforts to explore the capabilities of energy storage resources and include them in a framework for qualifying capacity and effective flexible capacity (“EFC”). However, as detailed below, CESA has concerns over some calculation methodologies and some suggestions for modifying the resource adequacy and flexible resource adequacy requirements for energy storage resources to better align them with the CAISO system needs.

Modeling ELCC and EFS Ratings

CESA applauds the Commission’s proposed intention to stochastically model different ratings for resource effective load carrying capability (“ELCC”) and EFC. Correctly implemented, this kind of modeling would allow systems to be compensated according to their ability to deliver grid benefits, supporting the most cost-effective procurement of grid resources.

However, ELCCs and EFC ratings that vary annually and by resource have the potential to create confusion in procurement of resource adequacy (“RA”). During procurement, load serving entities (“LSEs”) will be evaluating a wide variety of resources to determine which resources can provide the most cost-effective option for supporting grid needs. The scenario presented by the Commission makes it likely that each individual procurement would require modeling every resource, with an *ad-hoc* projection for future ELCC and EFC values. Such a methodology would be prohibitively difficult for accurate evaluation and contracting for new resources. Because such an evaluation would be confidential, it would also make it impossible for resource developers to understand which systems will provide the greatest cost/benefit for the grid.

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As an alternative, CESA advocates that the Commission should use the following process:

1. Model ELCC and EFC values for different resource types using the stochastic methodology proposed by the Commission's Energy Division staff.
2. Using projections publically agreed upon, the CPUC should provide its best possible projection of ELCC and EFC values for a full variety of resource types over the next 10 years.
3. Release projected values as public projections to be used for procurement of new resources.

This methodology would provide transparent and consistent projections for developers and LSEs to use during procurement and contracting for resources. If this process is not followed, there will be tremendous uncertainty concerning RA value for all resources, leading to an order of magnitude increase in procurement effort as well as suboptimal procurement of new resources.

CESA's proposed alternative methodology for RA counting is based upon the cost-effectiveness modeling performed by EPRI and DNV/KEMA as part of the Energy Storage Rulemaking (R.10-12-007). Allowing resources to be eligible for RA according to their ability to support grid needs will provide for the most cost-effective and flexible resource mix on the grid. It should be noted that resources which provide the greatest benefit in terms of standard and/or flexible capacity would still be compensated according to the Commission's proposed ELCC and EFC modeling methodology. Adding flexibility to the qualifying requirements will simply qualify resources that are most beneficial to grid operational needs.

Standard RA requirements should not apply to flexible RA.

The PUC Staff should not take as a given the existing four-hour RA eligibility requirement and the three hour flexible RA eligibility requirement.¹ These eligibility requirements were not written for new technologies like energy storage, and should not be automatically applied to energy storage. The CAISO, in its proposed Flexible Resource Adequacy Criteria and Must Offer

¹ See page 5 of the Draft Staff Proposal, which says "Currently, System and Local RA rules require that facilities be capable of operating for four hours at a time and for three consecutive days in order to be eligible to receive a QC. To receive an EFC and be eligible to count as Flexible RA, facilities must be capable of ramping up or sustaining output for three hours. These rules already apply to ES and DR resources." See also slide 45 of the October 15, 2013 RA Workshop, which says "ES and DR should meet existing and planned RA & CAISO eligibility criteria"

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Obligations (“FRAC-MOO”) initiative, has defined eligibility criteria for each resource class, including energy storage. This should be the basis for the PUC Staff’s methodology. CESA supports the CAISO’s position on REM, but disagrees with the currently proposed four-hour requirement for the reasons set forth in these comments.

The four-hour RA requirement was designed to address providing peak capacity to the grid. The flexible requirement is designed around supporting flexibility for the system in four ways, as enumerated by the CAISO:

1. Regulation
2. Load following in the five minute time scale
3. Reserves
4. Supporting the three hour ramp

It is arbitrary to conflate the system need for peak capacity with the need for flexible capacity. Energy storage and other supply-side demand response may be able to provide highly cost- effective flexibility to the grid, without supplying similar quantities of peaking capacity. The very value of flexible resources is that, by supporting any or all of the above four CAISO products, they could free up traditional and/or renewable generators to provide additional energy to the grid.

Therefore, CESA urges the Commission to treat flexible RA as separate from standard RA, and to allow resources to be rated according to their capabilities in each category. This methodology is supported by the CAISO’s proposed “adder” method in the FRAC-MOO initiative, which allows resources to be rated separately for flexibility and standard capacity.

Flexible RA requirements should be adjusted to meet defined needs.

As noted above, the flexible RA product is being used to support four grid needs: regulation, reserves, load following, and ramping. In serving these needs, energy storage offers a number of benefits relative to other resource types:

- Potential for fast response relative to other resources. Many energy storage systems can ramp to full capacity in milliseconds. Resources that provide this capability should be allowed to participate where they provide the greatest benefit, in regulation, spinning reserve, and load following.

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- Most forms of energy storage are highly dispatchable relative to traditional demand-side DR. Energy storage dispatch additionally does not affect customer loads.
- Most forms of energy storage do not have daily, monthly, or yearly use limitations that limit their ability to support grid needs.
- Most forms of energy storage are able to provide downward flexibility in the form of charging. This allows energy storage to make better use of renewable generation, and provide for a more dispatchable renewable grid of the future.

Energy storage does have a primary use limitation, in the form of its ability to store large amounts of energy. For most forms of energy storage, adding energy to the resource means adding cost. In order to provide the greatest grid benefit at the lowest cost, it does not make sense to require high-energy outputs for resources that are best suited for providing grid flexibility. CESA urges the Commission, in collaboration with the CAISO, to recognize that resources may be optimized to support one or more of grid needs, without requiring that it support a need requiring maximum energy dispatch.

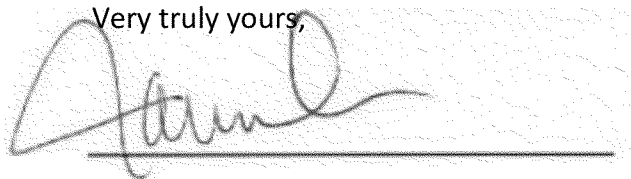
Therefore, CESA proposes that the qualifying requirements for flexible RA be modified so that a resource should qualify for flexible RA based upon its ability to provide one or more of the following flexible benefits to the grid:

1. Capability to provide Regulation as part of the CAISO Regulation Energy Management (“REM”) for three hours. Because regulation is a bi-directional service, the resource should be rated by its ability to provide Regulation in both the Up and Down directions.
2. Capability to provide operational reserves and five-minute to five-minute load following to the grid for three hours. This capability would be demonstrated by a resource that could provide five-minute to five-minute load following and/or spinning reserve for the duration of the three hour ramp. Because load following is a bi-directional service, the resource should be rated according to its ability to provide load following in both the charge and discharge direction.
3. Capability to provide three-hour ramping to the grid. This capability would be demonstrated by a resource that could ramp from zero energy output to its pMax over the duration of the three-hour ramp.

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Additionally, a resource which can provide downward regulation during times of peak renewable generation should qualify as additional flexible capacity according to its capability to provide that downward ramping. This capability fits with CAISO's FRAC-MOO proposal, which allows flexible VERs to be rated according to their ability to curtail output during specified hours.

Very truly yours,

A handwritten signature in black ink, appearing to read "Janice Lin", is written over a horizontal line. The signature is fluid and cursive.

Janice Lin, Executive Director
California Energy Storage Alliance