BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Oversee the Resource Adequacy Program, Consider Program Refinements, and Establish Annual Local and Flexible Procurement Obligations for the 2016 and 2017 Compliance Years.	R.14-10-010 October 16, 2014

COMMENTS OF THE CALIFORNIA ENERGY STORAGE ALLIANCE ON ORDER INSTITUTING RULEMAKING

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The California Energy Storage Alliance ("CESA")[1] hereby submits these comments pursuant to the Rules of Practice and Procedure of the California Public Utilities Commission ("Commission"), and the above referenced *Order Instituting Rulemaking*, filed on October 16, 2014 ("OIR").

[1] The California Energy Storage Alliance consists of 1 Energy Systems Inc., Advanced Microgrid Solutions, AES Energy Storage, Alton Energy, American Vanadium, Amperex Technology Limited, Aquion Energy, ARES North America, Beacon Power, LLC, Bosch Energy Storage Solutions Company LLC, Bright Energy Storage Technologies, Brookfield, CALMAC, Chargepoint, Clean Energy Systems, Coda Energy, Consolidated Edison Development, Inc., Cumulus Energy Storage, Customized Energy Solutions, Demand Energy, DN Tanks, Duke Energy, Eagle Crest Energy Company, EaglePicher Technologies, LLC, East Penn Manufacturing Company, Ecoult, EDF Renewable Energy, Enersys, EnerVault Corporation, EV Grid, FAFCO Thermal Storage Systems, FIAMM Energy Storage Solutions, Flextronics, Foresight Renewable Solutions, GE Energy Storage, Green Charge Networks, Greensmith Energy, Gridscape Solutions, Gridtential Energy, Inc., Halotechnics, Hitachi Chemical Co., Hydrogenics, Ice Energy, Imergy Power Systems, ImMODO Energy Services Corporation, Innovation Core SEI, Inc. (A Sumitomo Electric Company), Invenergy LLC, K&L Gates, KYOCERA Solar, Inc., LG Chem, LightSail Energy, LS Power Development, LLC, Mitsubishi International Corporation, NEC Energy Solutions, Inc., NextEra Energy Resources, NRG Solar LLC, OCI, OutBack Power Technologies, Panasonic, Parker Hannifin Corporation, PDE Total Energy Solutions, Powertree Services Inc., Primus Power Corporation, Recurrent Energy, Renewable Energy Systems Americas Inc., Rosendin Electric, S&C Electric Company, Saft America Inc., Samsung, SEEO, Sharp Electronics Corporation, SolarCity, Sony Corporation of America, Sovereign Energy, STEM, Stoel Rives LLP, SunEdison, SunPower, TAS Energy, Toshiba International Corporation, Trimark Associates, Inc., Tri-Technic, UniEnergy Technologies, LLC, and Wellhead Electric. 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.

I. INTRODUCTION

CESA appreciates the opening of this proceeding, and the Commission's willingness to address Resource Adequacy ("RA") broadly. In these comments CESA briefly discusses the general topic of RA and then addresses the specific issues identified in the OIR's Preliminary Scoping Memo (Section 4). CESA's view is that the OIR should address overarching structural issues going forward, and should be oriented toward supporting a future grid that is low cost, reliable, and consistent with California's AB 32 greenhouse gas ("GHG") reduction policy goals. In considering deliverability for energy storage resources in this context, it is important to consider that there are several approaches for energy storage resources to provide reliability benefits to the grid. These approaches should, and will, have different implications for resource deliverability and the associated topic of transmission upgrades.

II. OVERVIEW OF THE ROLE OF ENERGY STORAGE RESOURCES IN RESOURCE ADEQUACY

A. General Principles

Achievement of the broad policy goals identified above for the RA program will require structural reforms. Specific RA structural issues CESA sees include the following:

1. RA splits resource value between the market and capacity. Because RA compensates resources for what they cannot make in the market, market prices are affected by RA payments.

2. Because RA covers cost that are not captured from energy and ancillary service pricing, the value of a resource can be inversely related to the capability of that resource in capturing value from energy and ancillary services markets. Given two resources with equal cost, the resource that provides greater market revenue will receive a lower RA payment according to the logic of RA. RA value becomes even more challenging when a more expensive resource brings greater capability, and thus greater market value. An RA pricing structure is needed that is more clearly associated with system value.

3. RA values vary between resources and are negotiated bilaterally rather than through a market, so there is no transparency for developers on the value of different capabilities. This complicates project development and procurement.

4. RA has been focused on system peak and local capacity. Flexible capacity, which is increasingly needed in the system, has a very unclear valuation and is still linked to the unrelated and potentially uncorrelated need for standard system and local peak capacity.

5. RA does not currently address over generation, curtailment minimization, renewable energy capture, or other mechanisms that improve overall system efficiency. It also does not necessarily reward resources that provide GHG reduction benefits in future grid operations. These values should be considered when developing the methodology to value Flexible RA.

6. The CAISO's deliverability study assumption set uses transmission contingency analyses and generation dispatch scenarios are not necessarily aligned with the current Commission's RA methodology, nor the Commission's proposed Effective Load Carrying Capacity ("ELCC") methodology. That may result in projects being burdened with unnecessary upgrade costs to become fully deliverable in order to receive full RA credit. The California Independent System Operator's ("CAISOs") deliverability study methodology and RA methodology should be continually aligned as changes are made to the Commission's standard RA methodology, and to the Commission's flexible RA methodology.

7. Unlike the transmission planning process ("TPP") that now looks at non-wires alternatives, the deliverability study process solves all deliverability constraints assuming traditional wires solutions. The deliverability study process should include an evaluation of non-wires alternatives, including energy storage, to solve deliverability constraints and/or allow generators to be fully deliverable earlier than otherwise possible in cases where long-lead transmission investments are necessary but could potentially be deferred.

8. Currently, rules for determining deliverability and the associated study process which must be undertaken to receive RA credit are onerous, particularly for smaller systems. As the California grid evolves to include far greater penetration of distributed energy resources, rules should be reevaluated taking account of the practical implications of those rules on the ability of small and aggregated systems at the distribution level and on the customer side of the meter to provide RA services.

In determining deliverability for energy storage resources, it is important to consider that there are several approaches for energy storage to provide reliability benefits to the grid

(described below). These different options should have different implications for deliverability and any associated transmission upgrades.

B. Deliverability Approaches

Approach 1: Energy Storage as peak capacity

When energy storage is installed for peak capacity, the traditional deliverability assumptions may be applied. These kinds of resources may need to operate at peak output in conjunction with all other grid resources, and as a result, should require full deliverability.

Approach 2: Energy Storage as flexible capacity only

The highest value – and most economically efficient – use case of an energy storage resource might be to provide flexible capacity, rather than standard system or local capacity. In such cases, energy storage should be able to: (a) be studied for just those deliverability upgrades needed to address the resource's ability to meet system flexibility requirements, and (b) receive value just for flexible RA, independent of receiving value for system or local RA. In order to achieve this more economically efficient outcome, however, the system capacity products (system and flexible) must be decoupled.

Approach 3: Energy Storage that does not add to pMax of existing or new generation

Energy storage may also provide benefits when installed to add flexibility and/or predictability to existing or new renewable generation. In this case, the energy storage resource may not add to the overall pMax of the renewable generator. Instead, energy storage might be used to add flexibility and/or add predictability to the renewable generator. It might also shift renewable generation into high value time periods. While this approach may not add to peak capacity during summer, it would add flexibility and dispatchability to California's renewable generation fleet, and should be appropriately valued for both its system and local RA as well as its flexible RA.

Approach 4: Energy Storage that is specifically considered as a non-wires alternative to transmission upgrades.

Energy storage should also be considered as a non-wires alternative to transmission, or wires upgrades required by other resources seeking flexible or system/local deliverability. In order to implement the most cost-effective and flexible electric power system, the "Cluster Study" [2] process should be explicitly designed to consider energy storage and other non-wires alternatives as resources that can reduce the need for expensive, uncertain, and long lead deliverability network upgrades. While the deliverability study process itself is a CAISO issue, CESA highlights the issue in this proceeding due to CAISO's stated view that energy storage resource procurement is likely to require Commission approval, even in the context of a non-wires transmission deferral use case.

III. RESPONSES TO SPECIFIC QUESTIONS

Refinement of RA Program Elements: RA program refinement topics for 2016 and 2017 are preliminarily identified as follows:

a. Is there a continuing need to establish local and flexible procurement obligations on an annual or biennial basis? This includes consideration of determinations as may be made in R.14-02-001, the Joint Reliability Plan proceeding.

CESA's Response: CESA supports annual and biennial targets, and further supports the Commission going ahead with development of a multi-year RA procurement framework as contemplated in the Joint Reliability Plan Proceeding.[3]

[2] This is a detailed resource queue management process administered by the CAISO in accordance with the terms of its FERC-approved Tariff.

[3] *See, Comments of the California Energy Storage Alliance on Assigned Commissioner and Administrative Law Judge's Ruling Issuing Staff Report and Proposal*, filed October 30, 2014.

b. Should refinements be made to the flexible capacity framework, including adopting a cap for the error term and considering a flexible capacity allocation methodology that reflects causation?

CESA's Response: None at this time, although CESA reserves the right to comment on this topic in the future**.**

c. Do the current flexible categories meet the objective of managing use-limited resources and allow participation of preferred resources? This includes consideration of the appropriateness of characteristics for each category.

CESA Response: CESA generally supports the flexible categories proposed by the CAISO.

d. Should flexible resources be exempt from satisfying system RA requirements (i.e., should flexible and system RA resources be unbundled)?

CESA Response*:* CESA strongly supports unbundling flexible and system RA. CESA specifically agrees with the rationale that has been put forward by San Diego Gas & Electric Company ("SDG&E") for unbundling.[4] As noted in the discussion above, system peak capacity and flexible capacity needs may not be correlated, and CESA sees a need for flexible resources that do not necessarily add to peak capacity. Such resources can add flexibility in a more economically efficient manner by not unduly burdening ratepayers with expensive peak deliverability system upgrades. Flexible-only resources can also be an exceptional compliment to variable renewable energy generation resources. Bundling will require overbuilding of transmission capacity and increasing cost of the future grid, without significant reliability impacts.

In its consideration of unbundling, CESA recommends that the Commission consider that future utility procurement authorizations may also be expected to call for flexibility without

[4] *See, e.g., SDG&E's Flexible Resource Adequacy and Must Offer Obligation*, submitted to the CAISO on January 31, 2014

necessarily calling for standard or local capacity. As we move toward a lower carbon grid that includes more variable energy resources, flexibility-only resources could better utilize California's transmission infrastructure, and might afford a lower total cost to ratepayers than bundled capacity.

e. Other issues include the following:

1. Refinements to the Maximum Cumulative Capacity buckets;

CESA's Response: None at this at this time, although CESA reserves the right to comment on this topic in the future**.**

2. Refinements to the counting conventions for Qualifying Capacity (QC) and Effective Flexible Capacity (e.g., storage, variable energy resources, Distributed Generation, and Demand Response);

CESA's Response*:* As noted in the discussion above, CESA supports a RA methodology that values resources based upon their contribution to system reliability. Therefore, CESA supports study of Effective ELCC and Effective Flexible Capacity ("EFC") and alignment of these methodologies with the CAISO's deliverability study methodology. CESA also supports explicit inclusion of emissions, including GHGs in ELCC/EFC modeling and evaluation.

3. Preparation and review of new studies of the Effective Load Carrying Capacity of wind and solar resources in California;

CESA's Response: See answer to the question directly above.

4. Revisions to the QC manual;

CESA Response: See CESA's introductory discussion.

5. Reform of the RA procurement framework, including consideration of how to simplify the compliance process; and

CESA's Response: See CESA's introductory discussion.

6. Any other issues that may be raised by Energy Division in its staff proposals. Issues

CESA's Response: As indicated in CESA's introductory discussion, CESA asks the Commission to consider certain aspects of deliverability that, while perhaps not strictly within the preliminary scope of the OIR, may be impacted by decisions in the proceeding.

The ability for distributed resources, whether on the customer side or utility side of the meter, to provide RA is currently significantly constrained by existing rules used to determine deliverability.

In order for a resource to be eligible to provide RA, it must be found to be fully deliverable. The current deliverability study process requires project developers to pay $50,000 per specific location and additionally may require project developers to have clear visibility into the precise location of a facility that is to be used to provide RA. Both of these requirements preclude developers of aggregated distributed generators from providing RA akin to what has been historically provided by large, central station facilities. For obvious reasons, the $50,000 study fee renders the economics non-viable for small projects that would make up an aggregation. Study fees and site deposits for distributed resources need to be commensurate with their size, and capped at a reasonable amount for aggregated sites to facilitate their appropriate valuation and inclusion in the overall system capacity framework. Additionally, the need for site certainty also presents challenges, and poses something of a Catch-22 for distributed aggregated energy storage project developers. CESA thus recommends that this proceeding should facilitate the long-term procurement planning ("LTPP") process to explicitly address deliverability for distributed energy resources that could then feed into the LTPP portfolio and the CAISO's transmission planning process.

Developers of aggregated resources are seeking a very different approach to the market than the traditional large central station developer model. Instead of identifying a specific

location to develop, aggregators are seeking a way to develop projects across a given electrical area, and would deliver a portfolio of customer host sites to deploy energy storage solutions. However, absent assurance that resources in that area will be deemed deliverable, the appetite of an aggregator to incur the significant host site acquisition costs associated with developing a portfolio is going to be quite limited. Modifying the deliverability process to enable resources located within a given area or region, rather than site-specific determinations, is therefore critical in allowing aggregated solutions to actively participate in the market.

While CESA is aware that the CAISO envisions customer-side energy storage as participating in its markets as a proxy demand resource ("PDR"), limiting the ability of aggregated energy storage to participate only to offset on-site loads is likely to leave significant value on the table. This is of particular concern as energy storage gains traction at residential locations where energy storage systems being deployed are likely to offer capacity well in excess of on-site loads at peak times, especially when these systems are paired with on-site solar generation. CESA encourage the Commission, working with CAISO and the utilities, to modify existing rules to ensure opportunities are realized that leverage distributed energy storage solutions to meaningfully contribute to RA.

Even when viewed exclusively through the lens of PDR, current rules pose significant challenges. For example, the CAISO rules governing the participation of PDR require minimum load curtailment of 100 kW for day-ahead and real-time energy, and 500 kW for day-ahead and real-time energy non-spinning reserves. Additionally, the existing rules require participating resources to be served by a single load serving entity. This creates significant competition issues as it appears to create an incumbent advantage for utilities, since their incumbent load is far bigger and thus they are more likely to have enough customers to meet the capacity constraints.

This makes it very difficult for non-utility retail electricity service providers such as Community Choice Aggregators and Electric Service Providers to provide PDR benefit to their customers.

Another topic that has come up in recent energy storage project development pertains to energy storage resources added to an existing variable energy resource ("VER"), under the VER's original resource identifier, or "ID." Even though the pMax of the existing resource is unchanged, under current rules, the hybrid resource must be re-studied to receive a more favorable deliverability allocation, and may be assigned transmission upgrade costs based on a resulting much later queue position. In other words, a resource must "go to the end of the line" if it wishes to become a more flexible, valuable system resource, even if its pMax is unchanged (or even lower). Adding flexibility to a VER is something that most parties agree is desirable, but it is discouraged in the current delivery study process.

IV. CONCLUSION.

CESA appreciates this opportunity to comment on the OIR, and encourages the Commission to investigate approaches to RA that value resources appropriately and that support a cleaner, more reliable and cost effective-grid. CESA looks forward to working with the Commission and stakeholders in this proceeding.

Respectfully submitted,

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