

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to Integrate and Refine Procurement Policies and Consider Long-Term Procurement Plans.

Rulemaking 12-03-014  
Filed March 12, 2012

**REPLY COMMENTS OF THE CALIFORNIA ENERGY STORAGE ALLIANCE  
ON ADMINISTRATIVE LAW JUDGE'S RULING SEEKING COMMENT  
ON WORKSHOP TOPICS**

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**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to Integrate and Refine Procurement Policies and Consider Long-Term Procurement Plans.

Rulemaking 12-03-014  
Filed March 22, 2012

**REPLY COMMENTS OF THE CALIFORNIA ENERGY STORAGE ALLIANCE  
ON ADMINISTRATIVE LAW JUDGE’S RULING SEEKING COMMENT  
ON WORKSHOP TOPICS**

The California Energy Storage Alliance (“CESA”)<sup>1</sup> hereby submits these comments pursuant to the *Administrative Law Judge’s Ruling Seeking Comment on Workshop Topics*, issued September 14, 2012 (“ALJ’s Ruling”)<sup>2</sup>.

**I. INTRODUCTION.**

As part of its Comments filed on October 9, 2012, CESA attached a composite critique of the most recent long-term requests for offers (“RFOs”) for system resources issued by the investor owned utilities (“IOUs”) for consideration by the Commission as a “Model All-Source RFO.” CESA’s Comments urged the Commission to direct the IOUs to use its Model All-Source RFOs as guidance to the IOUs and potential bidders that energy storage resources should

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<sup>1</sup> The California Energy Storage Alliance consists of A123 Systems, Beacon Power LLC, Bright Energy Storage Technologies, CALMAC, Chevron Energy Solutions, Deeya Energy, East Penn Manufacturing Co., Energy Cache, EnerVault, Fluidic Energy, GE Energy Storage, Green Charge Networks, Greensmith Energy Management Systems, Growing Energy Labs, HDR Engineering, Ice Energy, Kelvin Storage Technologies, LG Chem, LightSail Energy, Panasonic, Primus Power, Prudent Energy, RedFlow Technologies, RES Americas, Saft America, Samsung SDI, Seo, Sharp Labs of America, Silent Power, Stem, Sumitomo Electric, Sumitomo Corporation of America, SunEdison, SunVerge, TAS Energy, and Xtreme Power. 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> The date for filing these reply comments was changed from October 19, 2012 to this date by a ruling that Administrative Law Judge Gamson issued by email to the service list on October 4, 2012.

be encouraged to compete on a basis comparable to other resources to meet the Local Capacity Requirement (“LCR”) that will be determined in Phase 1 of this proceeding (as well as statewide system need to be determined in Phase 2). CESA’s Comments emphasized the need to clearly signal that energy storage resources will be not only be seriously considered, but that they also will be fairly evaluated by the IOUs in light of their unique attributes and advantages.<sup>3</sup> The IOUs should be authorized by the Commission to use every reasonable, fair, and expeditious procurement method available to them to meet the LCR as soon as practicable, including the Model All-Source RFO.

As discussed below, cost-effective and viable energy storage resources should be the most favored resource available to meet the LCR and system need. The Commission should order the IOUs to issue RFOs open to all resources, including energy storage, and also allow other flexible approaches to procure energy storage resources. CESA also asks the Commission to support the distinction CESA draws between “preferred resources” listed in the Loading Order and a most favored general policy preference for the flexible operating characteristics of resources available to meet the LCR, specifically including energy storage.

## **II. PROCEDURAL BACKGROUND AND RELATIONSHIP OF THIS PROCEEDING TO THE ENERGY STORAGE RULEMAKING.**

CESA Commends the laudable purpose of the Workshop to “explore the definition and valuation of energy products and resources that can meet LCR and system need, including resources such as storage, demand response, and distributed generation alongside conventional generation.” (CPUC Workshop Presentation, p. 4). The importance of scheduling the Workshop was amply demonstrated by the many thoughtful comments that were filed in response to The

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<sup>3</sup> CESA clarifies the opinion expressed in its Opening Brief and re-emphasizes here that all resources should be preferred in relation to other options based on the degree to which they most perfectly address the need for flexibility discussed in this proceeding.

*Assigned Commissioner's Ruling* issued in this proceeding on July 13, 2012 ("ACR") seeking testimony from parties explaining, among other things, how to best enable non-traditional resources such as energy storage to help IOU's cost-effectively meet LCR.<sup>4</sup>

The closely related subject matter of the two rulemaking proceedings - LTPP (long term procurement) and Energy Storage (possible procurement targets, if commercially available and cost effective) - was readily acknowledged by issuance of the ACR, and in resulting reply testimony served by parties, and clearly reinforced by the ALJ's Ruling in this proceeding seeking comments and reply comments to flesh out the procurement methodology aspects of the subject matter convergence. Absent unforeseen circumstances, it appears that reply comments filed by parties today should close the administrative record in Phase 1 of this proceeding.

Since the Energy Storage Rulemaking is quasi-legislative and thus focused entirely on policy, not ratemaking. The Commission may wish, by the same token, to take official notice of the entire record in this proceeding (including the Workshop presentations) to inform and make the record in the Energy Storage Rulemaking as robust as practicable. By the same token the Commission should take official notice of its publicly issued decisions in the Energy Storage Rulemaking in this proceeding to help explain the linkage between the ACR and the ALJ's Ruling.<sup>5</sup>

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<sup>4</sup> The ACR stated that: "In the past, the Commission has allowed all source Request for Offers (RFOs) for incremental resources in which any type of resource could compete to fill an identified need. What barriers may currently exist to ensuring effective all source RFOs? What specific performance characteristics should be accounted for in this RFO to effectively enable the participation of non-traditional resources like energy storage, demand response and distributed generation? Would the Commission need to be specific about the characteristics of the resources needed to meet the need (e.g., minimum hours of availability required to meet local reliability needs)? If so, what characteristics should the Commission require? (ACR, p. 2).

<sup>5</sup> The CAISO noted in its testimony that "It goes without saying that the LCR procurement process must take into account GHG and AB 32 requirements, and these policies and statutory requirements have been addressed to a certain extent in SCE's testimony and during cross-examination. The Commission also is considering issues related to non-generation resources in other dockets; for example, demand response and energy storage. To the extent that characteristics needed for participation as demand reduction or supply resources in capacity procurement processes are being considered in those dockets, they should be folded into this one." (Transcript, p. 46).

**III. COST-EFFECTIVE AND VIABLE ENERGY STORAGE RESOURCES SHOULD BE CONSIDERED THE MOST FAVORED RESOURCE AVAILABLE TO MEET THE LOCAL CAPACITY REQUIREMENT.**

Along with numerous parties, CESA has previously identified and discussed the most favorable attributes and benefits of energy storage to meet the LCR in its Opening Testimony, Reply Testimony Opening Brief and Comments, and does not repeat them here.<sup>6</sup>

CESA agrees with the statement in the CAISO's Comments (consistent with those of most parties) that "dispatchable resources, like demand response and storage, must help balance supply and demand, and non-dispatchable resources, like energy efficiency or behind the meter generation, must eliminate demand that would otherwise have to be balanced with supply. In the end, all resources, regardless of size, configuration, or type must fundamentally deliver the operating characteristics that can measurably support grid reliability by helping to balance supply and demand or by eliminating the need to do so." (CAISO Comments, p. 2). Secondly CESA also agrees with the CAISO's statement that: "At minimum, dispatchable resources must provide energy when and where needed, and for how much is needed to balance the grid and maintain system stability based on ISO instructions and or submitted schedules." (*Id.* p. 4). Finally, CESA agrees with the CAISO's statement that: "Procuring more flexible rather than less flexible resources is especially critical in local capacity areas where predictable, guaranteed, and fast resource response is essential to mitigate a local transmission contingency in a local area in accordance with NERC and WECC operating reliability standards." (*Id.* p. 5).

The *sine qua non* of energy storage that should be considered when procuring all new dispatchable resources is its defining operating characteristic: that energy storage capacity can be available to the grid at an operationally ideal zero PMin (minimum load).<sup>7</sup> Here again CESA

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<sup>6</sup> See also, *Comments of Beacon Power LLC*, filed October 9, 2012.

<sup>7</sup> PMin is the minimum normal energy producing capability of a resource, *i.e.* the lowest operating level a resource can sustain and still be dispatchable.

agrees with the CAISO that: “The ability to minimize PMin is highly beneficial for reliability and minimizing cost as the ISO anticipates periods of significant over-generation with increasing amounts of energy served by intermittent resources. Lower PMin will help minimize over generation and the potential for high negative prices where market participants (and ultimately consumers) pay to have excess energy consumed or exported. Minimizing minimum load as an operating characteristic is an important consideration in future procurement solicitations for dispatchable generation resources.” (*Id.* p. 8).<sup>8</sup> All other benefits of energy storage aside, no other resource can cost-effectively and reliably deliver a PMin of zero.

**IV. THE COMMISSION SHOULD ORDER THE INVESTOR OWNED UTILITIES TO ISSUE REQUESTS FOR OFFERS OPEN TO ALL RESOURCES, INCLUDING ENERGY STORAGE, AND ALSO ALLOW OTHER FLEXIBLE APPROACHES TO PROCUREMENT OF ENERGY STORAGE RESOURCES.**

CESA clearly must concur completely with the opinion of the Independent Energy Producers stated in its Opening Brief:

“IEP agrees with CESA that “RFOs need to fully and fairly value the attributes needed by the system and that can be provided by the widest variety of potential bidding resources,” including storage. The broad designation of “energy storage” includes a number of different technologies with different characteristics that can provide a variety of services that can promote a more stable and reliable grid. For example, storage can shift supply from off-peak to on-peak hours, earning the differential between off-peak and on-peak energy prices. Storage can smooth out production from variable renewable energy sources, helping the facility avoid imbalance charges. Storage could even be used to increase demand through charging during times when over generation stresses the grid, which could help associated baseload generating facilities avoid negative market prices. Storage can be dispatchable and fast-ramping and thus may qualify to provide additional attributes identified in the CAISO’s ongoing renewable integration studies.” (IEP Opening Brief, p. 18).

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<sup>8</sup> CESA agrees with the statement in SCE’s Opening Brief that: “Certain energy storage devices perform functions that we associate as “generation” functions, (such as providing services to the CAISO markets), and may be classified as “generation” resources. However, energy storage resources are not net producers of energy. Rather, storage devices may be enablers that support the integration of certain types of resources, and/or support the reliable operation as the grid as a whole.” (SCE Opening Brief, p. 50).

CESA also believes, however, that energy storage readily lends itself to all of the various flexible procurement methods that have been identified by parties, including RFOs and bilateral negotiations. CESA also applauds PG&E's recent announcement of its intent to issue a Request for Information from potential bidders in a follow-on RFO in 2103.

CESA agrees with SDG&E's Comments with respect to the challenges inherent in California's existing IOU procurement process, In particular, CESA agrees that all source RFOs may be a useful procurement option when they are "structured around a well-defined description of the need, a clear description of the requirements that each resource must meet and a clearly-agreed up on evaluation process." (SDG&E Comments, p. 5). CESA also agrees with SDG&E that it would be unwise to identify specific characteristics or attributes that *all* resources must have, given the need for portfolio diversity in California. IOUs must be provided the flexibility to determine the right mix of operating attributes in their respective portfolios. To the extent that fast, flexible resources are required as a key part of operating portfolios going forward and included in an all-source RFO, energy storage resources should be allowed to participate.

**V. THE COMMISSION SHOULD CLARIFY THE DISTINCTION BETWEEN PREFERRED RESOURCES IN THE LOADING ORDER AND PREFERENCE FOR FLEXIBLE OPERATING CHARACTERISTICS OF RESOURCES AVAILABLE TO MEET THE LOCAL CAPACITY REQUIREMENT.**

CESA agrees in principle with the Comments filed by the Clean Coalition stating that "energy storage should be included in the loading order as a preferred resource, as it provides multiple benefits to the grid beyond peaking capacity, including providing zero emission support to higher use of preferred energy sources and demand flexibility." (Clean Coalition Comments, p. 3). CESA also agrees with the statement: "The Clean Coalition recognizes the benefits that ES [energy storage] provides in conjunction with the other named preferred resources and recommends that ES [energy storage] be considered a "preferred resource" alongside Demand

Response and distributed generation. The full range of DG + IG options, which includes energy storage, represents highly responsive marginal demand and supply; this is a cost-effective solution that should be fully considered in the long-term procurement planning process.” (Clean Coalition Reply Brief, p. 7).

However, CESA takes this opportunity to correct an entirely understandable misreading of CESA’s position by some parties that this proceeding is not the place to reconsider the Loading Order. Rather, recognizing the significance of the term “preferred resource” as used in the Energy Action Plan, energy storage should be the resource considered most perfectly suited from the standpoint of its operating characteristics and attributes to meet LCR. In its Opening Brief, CESA stated:

“CESA considers energy storage to be a “preferred resource” within the meaning of the term as it is used in this proceeding and asks that the Commission support this intuitively obvious proposition as a policy determination.<sup>9</sup> In fact, because of its dispatchability and fast-flexible ramping capabilities, CESA proposes that energy storage should be at the *top of the list* of preferred resources.” (CESA Opening Brief, p. 2)

CESA qualified the phrasing of its statement (that is certainly inelegant in hindsight) in a footnote that reads as follows:

“CESA advocates elsewhere at the Commission and at the California Energy Commission for including energy storage at or near the top of the loading order, which is a different but closely related policy statement that was designed to accommodate advances in clean technologies such as energy storage.” (*id.*)

In its Reply Brief, SCE states that: “CESA’s Opening Brief asserts that energy storage should be at the top of the Preferred Loading Order. This is not an appropriate policy proposal given the purpose of the loading order and the diverse operational functions of energy storage resources.” (SCE Reply Brief, p. 50). SCE does not go on to mention the related footnote that

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<sup>9</sup> Footnote 2: “CESA advocates elsewhere at the Commission and at the California Energy Commission for including energy storage at or near the top of the loading order, which is a different but closely related policy statement that was designed to accommodate advances in clean technologies such as energy storage.”



CESA intended to clarify the phrase “within the meaning of the term as it is used in this proceeding.” Similarly, IEP states in its Opening Brief that: “CESA argues that storage should be not merely a preferred resource, but “at the top of the list of preferred resources.” While IEP recognizes the potential value of storage, the extent to which storage can actually provide these products at the lowest cost to ratepayers is best determined in an all-source solicitation and not outside of any such solicitation. Accordingly, [IEP states] the Commission should resist CESA’s assertion that storage should be at the top of the list of preferred resources. (IEP Reply Brief, p. 18). CESA does not disagree with either SCE or IEP, because this proceeding is *not* the correct forum to make adjustments to the Loading Order. On the other hand, given the importance of flexibility for LCR and energy storage’s unique attributes in this regard, energy storage should indeed be considered a preferred and highly flexible resource for LCR.

**VI. THE COMMISSION SHOULD PROVIDE GUIDANCE TO STAKEHOLDERS FOR DETERMINING THE NET QUALIFYING CAPACITY OF ENERGY STORAGE RESOURCES.**

In its Comments, SCE puts forward a worthwhile first step on the way to beginning a dialogue on including energy storage in LCR. SCE “proposes the use of an interim Net Qualifying Capacity (“NQC”) counting mechanism (described in the response to Question 3). This would include a determination of “highest and best use” to establish NQC values for LCR procurement analysis of energy storage devices.” (SCE Comments, p. 3). “Certain storage technologies may also be effective in meeting the operating attributes required to satisfy the LCR need, and SCE will fully consider any proposals from storage providers to do so.” (*Id.* p. 9).

CESA disagrees with SCE’s statement that “energy storage devices with less than one hour of capacity should not have an NQC, since their primary value is in ancillary service markets and/or as frequency response resources.” (*Id.* p. 16). As stated by the CAISO in its Comments, there is a clear need for flexible capacity “which the ISO has defined as the ability of

the fleet to provide regulation, load following, and maximum continuous ramping.” (CAISO Comments, p. 8). A more appropriate NQC value for energy storage with less than one hour capacity would be to use the capacity formula that the CAISO applies under its Regulation Energy Management (“REM”) market for frequency regulation, in which energy storage resources with less than one hour of capacity are allocated MWs of capacity corresponding to their sustained output over 15 minutes.<sup>10</sup>

As Beacon Power LLC states in its Comments, existing fossil fuel-powered plants displaced by energy storage providing frequency regulation can be shifted to provide a corresponding amount of added peak generation capacity and energy (Beacon LLC Comments, p. 8). A MW of regulation and other ancillary service capacity can free a traditional capacity to respond to load requirements, so a MW from ancillary service-only should be allocated a NQC. NERC requires each balancing authority to maintain frequency within defined limits (BAL-001). Absent an ancillary service-only resource, generation capacity must be allocated to provide frequency regulation in order to maintain frequency. Generation resource capacity allocated to frequency regulation cannot also be counted to provide operating reserves. For each MW that an “ancillary service-only” energy storage resource replaces a generation resource, the generation resource gains two MWs that can now be counted to provide operating reserves or energy. Since an ancillary-service-only energy storage resource frees up generation capacity for operating reserves, the ancillary service capacity should receive credit as a capacity resource.

Due to its benefits, any energy storage capacity that counts as NQC should also count towards LCR. The same “displacement” argument applies to LCR where the operational flexibility of energy storage means that it frees up less flexible, traditional plant that can dedicate their longer duration capability to meeting LCR. In the absence of energy storage as a local

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<sup>10</sup> See, CAISO Tariff (Fifth Replacement), Section 8.

resource, the amount of capacity available from the traditional resource to meet LCR can be compromised. Failure to recognize the locational benefit of energy storage greater than one hour also fails to recognize the greater modularity and ease of siting associated with energy storage resources, as alternatives to conventional resources. The proposed three-hour cut-off for LCR appears unnecessarily arbitrary – if energy storage were to be treated as a direct equivalent of a peaking generation resource, then this would make sense. However, an energy storage resource is not a direct equivalent of a peaking generation resource, so applying a peaking generation resource LCR value methodology seems inappropriate.

SCE’s screening criterion of “highest and best use” seems inapposite flawed because, while a an energy storage resource may be limited to providing one set of products and services at a certain point in time, the same energy storage resource may provide additional products and services at other times, depending on market signals and grid needs. Limiting the valuation of an energy storage resource to a single use based on a single expected mode of operating can significantly undervalue the flexibility and optionality of energy storage.

**VII. CONCLUSION.**

CESA appreciates this opportunity to provide these reply comments.

Respectfully submitted,



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