

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

Order Instituting Rulemaking to consider policy and implementation refinements to the Energy Storage Procurement Framework and Design Program (D.13-10-040, D.14-10-045) and related Action Plan of the California Energy Storage Roadmap.

Rulemaking 15-03-011
(Filed July 14, 2015)

**CLEAN COALITION COMMENTS ON JOINT STAFF PROPOSAL ON MULTIPLE-
USE APPLICATIONS FOR ENERGY STORAGE**

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I. INTRODUCTION

The Clean Coalition appreciates the opportunity to comment on the *Joint Workshop Report and Framework Multiple-Use Applications for Energy Storage* and to offer suggestions for developing flexible rules to allow substantial value stacking while also providing for future regulatory changes to support the deployment of DER.

The Clean Coalition is a nonprofit organization whose mission is to accelerate the transition to renewable energy and a modern grid through technical, policy, and project development expertise. The Clean Coalition drives policy innovation to remove barriers to procurement and interconnection of distributed energy resources (DER)—such as local renewables, advanced inverters, demand response, and energy storage—and we establish market mechanisms that realize the full potential of integrating these solutions. The Clean Coalition also collaborates with utilities and municipalities to create near-term deployment opportunities that prove the technical and financial viability of local renewables and other DER.

II. General Considerations

Energy Storage is fundamentally important for the operation of the grid and must be incentivized to the greatest extent possible enable intermittent renewable resources to be deployed and completely substitute for fossil fuel generation as dispatchable resources. Thus, the rules for meeting various market needs should be flexible to allow storage (and all DER) to stack as much value as possible and to avoid the creation of new barriers.

Second, rules governing DER should be technology neutral. This suggests that rules should be framed in terms of the services and functions provided, rather than as a unique set of rules for each technology. Ultimately, the purpose of such rules is to ensure that the grid is effectively operated and markets are efficiently managed. Thus, it is helpful if the rules are expressed in terms of the activities that affect power, voltage, and frequency regulation as well as capacity availability. Although the energy storage proceeding is one of the first to define such rules for DER, we anticipate that many principles established here will be taken up in other contexts. In that spirit, we refer to DER resources generally, including distributed energy storage resources in our comments.

Third, the rules established here should be forward compatible with the establishment of a variety of distribution level and transmission level markets. Where new regulatory developments are foreseeable, the rules should be drafted with a mind toward being compatible with these developments when they occur. For example, should the legislature or the Public Utilities Commission move to open direct customer-provider sales, these rules should not be structured in such a way that a new proceeding would have to revise these rules to accommodate that change.

In particular, the profusion of DER suggests strongly that California will require a strong coordinating entity to operate distribution grids to present a manageable presentation to the transmission grid to the ISO at the transmission-distribution (T-D)

interface and to facilitate the increasingly complex markets that will be required for DER to successfully stack value by selling a wide range of services in accessible markets. By providing a bright line between transmission operations and distribution grid operations, Distribution System Operators (DSO) would be optimally placed to manage the overwhelming complexity involved in having visibility into and managing every distribution area and to also facilitate markets in the entire suite of DER services so as to incentivize DER deployment. As noted in the Staff Report, in many instances, resources will need to be directly controlled by system operators, but CAISO would face an exceptionally difficult task in trying to coordinate all such facilities statewide to maintain reliability of the transmission grid and every individual distribution area at the same time.

III. Responses to Questions to Parties

The Clean Coalition has perspectives on a subset of the questions presented in the staff paper as discussed below.

1) Comment on the 5 service domains and 20 services identified. Is this list comprehensive? Should more services be added? Should any services be removed? Why or why not?

Generally, this list seems to incorporate most of the services for which storage could provide and be compensated. Although some of the rules regarding distribution level services could use clarification, this is a useful rubric to keep in mind the distinct services that would apply in each grid.

In terms of the actual list, services should include enhanced frequency response capable of providing a frequency response within 1s, as distinct from primary frequency response. For example, the UK transmission operator recently opened procurement for enhanced frequency response as an additional service that almost no other providers but storage operators can fulfill. As needs for higher power quality increase, this may

become a more critical component of frequency management, and may be cheaper than slower frequency regulation providers.

2) We invite parties to consider that, though there are 20 distinct services that a storage device may provide, there are arguably only two service elements – energy and capacity. Fundamentally, each of the above services requires the storage device to provide only one of these two services. Thus, we ask parties to comment on whether it is appropriate to further break down the 20 services into two service elements, and base our rules on those elements. Explain why or why not.

Yes. First, this categorization points toward consideration of the functions served by DER services and frames rules based on those grid functions. Second, since capacity and energy are distinct services, considering these distinctly and expressly may reveal additional opportunities to establish rules for DER to stack value from providing capacity and services independently.

3) Are there additional considerations for prioritization of reliability and resource adequacy services that should be included here? Please be as specific as possible.

4) Offer any other comments on the list of proposed rules. Please be specific and provide supporting rationale.

The Clean Coalition recommends the Commission frame rules in terms of functions rather than technologies. As a general matter, the Clean Coalition agrees with several other parties that the rules should focus on the functions and services provided, rather than the technologies that provide them. First, a technology-neutral approach is critical for not distorting the market against technologies such as storage, but it should help focus rules on the actual issues the rules are intended to solve. Typically, the grid is agnostic regarding what is shaping power, voltage, and frequency and in most cases, it is the performance characteristics of load and supply that determine how capacity affects management. Second, couching rules in terms of functions and services helps focus on

precisely the technical and management issues that drive the rules in the first place and link rules more directly to the problems to be solved.

Using such an approach, all rules apply to all technologies, but some constraints would simply be less relevant for some technologies based on their performance characteristics. For example, rules regarding switching between load (charging) and supply should apply identically to facilities whether they're stand alone storage or a building with solar generation, load and demand response, since as far as the grid is concerned these raise similar issues. Rules about being ready to deliver supply when required should be the same regardless of the source, even though ensuring that requirements are met may involve a different kind of management of storage resources (e.g., making sure batteries are charged) than for generation (e.g., ensuring a solar array is operational). There have been concerns expressed that energy storage may pose unique concerns regarding unavailability for reliability services, but as several commenters have suggested there seems to be no principled reason why a failure to deliver is different when it is storage than when it is generation or transmission that fails.

The Clean Coalition recommends the Commission consider clarifying the distribution grid domain and allowing distribution connected resources to meet local customer domain needs.

First, it should be clarified whether distribution-connected resources provide distribution level services only within distribution area. If DER provide services outside their distribution area, it is not clear why such resources would be treated differently from any other services coming to a remote distribution area through the Transmission-Distribution interface.

Second, it is unclear why a storage operator or other DER provider should be barred from contracting to offset load by customers in the same distribution area. From the standpoint of reliability and grid management, there is no difference between reducing load to reduce peaks and contracting for the dispatch of energy from nearby

storage to offset that load. It is unclear why it should matter that the point of interconnection of that storage is in front of the customer meter within the distribution grid, since in either case the customer avoids using transmission capacity or calls to peaker plants to accommodate load.

This issue comes into focus because the proposed Rule 2 would undermine distribution level wholesale markets, should they be developed. For example, Rule 2 would be a barrier to direct access services as an opportunity for in front of the meter resources. Although currently suspended, such direct access-style markets may well be reopened in the near future as various regulators and the legislators consider reforms in the areas of retail choice, community choice aggregation, or the implementation of Distribution System Operators. Providing opportunities for distribution connected resources to sell directly to local customers could incentivize transmission investment deferral and augment the value stack for DER.

The division between reliability and non-reliability services and the related restrictions may be overly restrictive.

Assuring priority performance of important reliability services can be achieved with less restrictive means than a blanket ban on all other reliability contracts for DER providing reliability services. Rather than an all or nothing approach that is seemingly suggested by Rule 9, the Commission should rely on the principles of Rules 7 and 8 to resolve any conflicts that arise.

Staff should consider an approach of ensuring priority within contract terms for any reliability contract through a seniority system. Under this approach, contracts for all services would specify their seniority and junior contracts would only be fulfilled contingent on release of services under more senior contracts (e.g., if the stored capacity turns out to be unused or unneeded). If other contracts could only be fulfilled where senior contracts, it isn't clear why there would need to be a bar against all junior contracts. This approach would eliminate issues non-performance because of better

market opportunities (any more than there is risk of non-performance for other reasons (e.g., equipment failure). Provided that the services are only delivered and paid for under one contract, there should be no issue of double compensation for those services. Under such a system, resources contracting to provide reliability services could also contract to provide other reliability services, contingent on release from performance on the senior contract. Such a system could benefit transmission and distribution operators and storage owners alike. DER owners could stack modest value as contingent capacity for reliability services, while an ISO or DSO could potentially fulfil needs through a portfolio of reduced cost contingent contracts for a lower overall price than a smaller number of senior contracts at a higher overall price that might not be called. Finally, grid efficiency might be enhanced if reserves can be employed for other services as defined in advance using secondary junior contracts.

The Clean Coalition recommends evaluating whether distribution or transmission deferral requires exclusion of most other services.

Similarly, the rules regarding transmission or distribution deferral may be too restrictive. Generally, such deferral requires the provision of services only at particular times, which should leave the resource free to provide services at non-critical times. Rule 12 seems to preclude nearly any other use which may be overly restrictive to meet the intended functions.

5) Is it necessary to establish any rules with regard to “time” now? If so, what is the specific recommendation?

Yes. Rules 7 and 8 essentially establish the timeframes for contracting as a reliable resource during which activities should be prohibited so as to not interfere with the provision of key services. Key services are time-defined, so rather than prohibiting all other contracts, rules should prohibit activities within a time frame defined by the operational characteristics of the resource with an adequate margin of safety. Where reliability services are provided within a particular window, the resource should be able

to provide reliability services at any other time in which neither use interferes with the performance of the other. Prohibitions outside of this time frame serve no useful function for the grid and merely deprive the DER of stacked value.

6) As an example of a potential “time” concern, suppose the ISO instructs a storage device not to discharge due to excess supply on the grid, and at the same time the customer instructs the device to discharge to reduce the customer’s demand charge, and as a result the ISO must curtail some renewable generation on the grid. How can such situations best be prevented?

Managing conflicts and the “two master problem” will all but certainly require a dedicated entity to integrate and manage signals coming from transmission operators and up from customers within the distribution grid. This issue will require the creation of dedicated Distribution System Operators to manage both the complexity of DER at the distribution edge as well as the markets that allow full value stacking for DER.

IV. Conclusion

The Clean Coalition thanks staff for the exceptional effort and discussion in presenting these issues for consideration and looks forward to fruitful participation going forward.

Sincerely,



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Clean Coalition