

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

Order Instituting Rulemaking Pursuant
To Assembly Bill 2514 to Consider the
Adoption of Procurement Targets for
Viable and Cost-Effective Energy Storage
Systems.

Rulemaking R-10-12-007

**COMMENTS OF THE GREEN POWER INSTITUTE
ON THE PROPOSED DECISION OF COMMISSIONER PETERMAN**

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Introduction

Pursuant to Rules 14.3 and 14.6 of the Commission's Rules of Practice and Procedure, in Proceeding R.10-12-007, the **Order Instituting Rulemaking Pursuant to Assembly Bill 2514 to Consider the Adoption of Procurement targets for Viable and Cost-Effective Energy Storage Systems**, the Green Power Institute (GPI), a program of the Pacific Institute for Studies in Development, Environment, and Security, provides these *Comments of the Green Power Institute on the Proposed Decision of Commissioner Peterman* (PD).

The GPI supports the passage of the PD, but with reservations. We strongly agree with the overall goals of the PD, but we are concerned that some of the vagueness and confusion in the PD could serve to hinder its smooth implementation. Our major areas of concern include the following:

- Although there is clear progress in the progression from the June 10 AC's *Ruling* to the PD, the PD and its underlying framework continue to conflate overall targets for energy storage installations with targets for procurement in particular solicitations.
- The Decision and its underlying framework fail to provide a clear definition of what kinds of systems qualify for which kinds of targets.
- The Decision orders the utilities to hold solicitations for storage systems, but provides little direction as to how to conduct these complex solicitations.

Procurement Targets and Targets for Solicitations

The overarching goal of the PD is to stimulate the energy storage market in California by ensuring that the three large IOUs in California have an aggregate installed capacity of at least 1,325 MW of energy-storage systems by 2020, and that smaller jurisdictional retail

sellers also procure storage at equivalent levels. Our *Comments* address the procurement targets in the PD for the three large IOUs.

The 1,325 MW of energy storage systems targeted for procurement by the IOUs are broken down in the Framework's Table (Energy Storage Procurement Targets (in MW)) by service territory (IOU), by grid domain (interconnection voltage), and by two-year intervals between 2014 and 2020. The utilities are ordered to run solicitations for storage in 2014, 2016, 2018, and 2020, using the capacity numbers in the Table as allocations for each solicitation. Storage installations that come from procurement mechanisms that are outside of the Storage Framework can be used to reduce the Framework's targets for the various solicitations under certain conditions.

In the GPI's *Comments* on the June 10 *Ruling*, we pointed out that the Storage Framework proposed in the *Ruling* confused overall procurement targets with targets for particular solicitations, and in the process did not differentiate between MWs contracted for, and MWs online and in operation. For example, while on the one hand it appears that the Framework is designed to produce 1,325 MW of energy-storage systems operating on the grid as the endpoint in 2020, on the other hand it appears that the solicitations called for in the Framework are expected to result in 1,325 MW of contracts for storage systems, and it is a certainty that not all contracts will successfully result in capacity online and in operation, especially not in this still emerging market. Moreover, there is an inevitable time lag between when a contract is signed, and when a project is operational. Thus, for example, contracts that result from solicitations conducted in 2020 will surely not contribute any online operating capacity in-service by 2020. The PD and the Framework are silent on the issue of time lag between contract award and operational installation.

In response to our July 3, 2013, *Comments* on this topic, as well as the *Comments* of other parties, the PD states:

Section 3.d. of the Storage Framework sets forth the requirements for the solicitation application. The requirements clarify that the procurement targets are based on MW installed [PD, pg. 26].

We interpret this passage to mean that all targets referenced in the Storage Framework refer to installed and operating capacity, not the amount of capacity that is awarded contracts in various solicitations. That being the case, the Framework needs to specify that solicitations need to award contracts for an amount of capacity that is greater than the amount that is indicated in the Table, in order to ensure that a sufficient quantity of capacity makes its way through the developmental process and results in a sufficient amount of operational capacity to fulfill the target.

We note that we are unable to find any language in Section 3.d. of the Storage Framework that clarifies that the procurement targets are based on MW installed, rather than MW of contract awards, as is claimed in the passage quoted above. We request that the Commission edit or amend Section 3.d. of the Storage Framework in order to make this point crystal clear.

We also note that all of the targets in the Storage Framework are denominated in terms of MW of storage capacity. However, in the real world storage installations have a variety of configurations and capabilities, and denominating them in MW alone is limiting. For example, should a 100 MW storage system with 30 minutes of storage be counted the same as a 100 MW storage system with 8 hours of storage? The value to a given installation of attributes like duration and ability to cycle is highly dependent on the application, so incorporating a multi-attribute approach into the Framework at this point in time is probably not practical. The problem with denominating the program only in MW is that short-duration systems and applications may be unintentionally favored over longer-duration systems and applications. We suggest that the PD be amended to include an order or statement that this issue should be included in future efforts to learn lessons from the completed solicitations for storage systems.

Qualifying Storage Systems

The Storage Framework combines overall storage procurement targets with a specific schedule of solicitations (see Table in Framework). The Framework enumerates a number of existing storage projects that it determines to be eligible for fulfilling the targets in the Framework, despite the fact these projects have not and will not participate in the Framework's procurement process. A process is also offered in the Framework for qualifying other (not listed) storage installations for the storage targets that arise outside of the Framework's procurement process, although the Framework is fairly vague about what kinds of systems can qualify. In the opinion of the GPI, the Commission would be wise to incorporate into the Framework a clear and explicit definition or statement about what kinds of storage systems are eligible to fulfill the Framework's procurement targets.

One specific kind of storage system is deemed ineligible for purposes of meeting the Storage Framework targets: pumped hydro systems larger than 50 MW in size. This is due both to the advanced state of commercial development of large pumped-hydro systems, and the probability that these systems would dominate all of the program's targets if it were eligible, thus thwarting the program's goal of stimulating a diversity of storage technologies. We agree with this exclusion, and consider it equivalent to excluding large hydro from eligibility in the RPS program. While agreeing with the exclusion, we also encourage the Commission to ensure that the rules and tariffs needed to allow large pumped storage systems to be developed outside of the Storage Framework are in place, as these systems can provide real value to the grid.

The PD and the Storage Framework are silent on the subject of the energy-storage capacity that is growing in the nascent plug-in vehicle fleet. Much of this storage capacity will be operated (charged and discharged) beyond the control and/or use of the electricity grid, and in our opinion this capacity should not be eligible for the Storage Framework targets. On the other hand, some amount of the storage capacity that is embodied in the vehicle fleet could be put under the control of grid operators for purposes of providing grid-operating services, for example by employing smart meters and

commercial charging operations, and in our opinion the storage capacity in this category ought to be considered for eligibility for the Framework's targets. We recognize that the current record in the Proceeding is insufficient to support making vehicle storage that provides grid-operations services eligible for the Framework at this point in time, but we would like to see an acknowledgement of the potential for this form of storage to contribute to grid operations, and an indication of an intention in the final Decision to develop a future record about this potential option in a future storage or other relevant Proceeding.

Solicitations for Storage Systems

Energy storage systems can be powered by a variety of technologies, and produce a range of different kinds of products. One consequence of this diversity is that procuring energy-storage systems is a more complex matter than, for example, procuring renewable energy. RPS solicitations seek a single product, renewable energy (typically bundled energy and RECs). Because there is some variability among renewable energy products, such as intermittent vs. baseload power, a least-cost / best-fit (LCBF) bid-ranking mechanism has been developed to make adjustments for that slight variability.

By way of contrast, energy-storage systems do not produce a single, basic product; they are capable of producing a diversity of products. As the various use cases developed for this Proceeding demonstrate, the value of the various products that storage can provide is highly dependent on the application to which they are put. Thus, if the goal of the Storage Framework is to stimulate the development of broad range of storage systems, it is difficult to accomplish this goal using broad solicitations that seek a single kind of product. It is also difficult to design a solicitation that seeks systems that produce different kinds of products for a variety of different applications. The Framework directs the IOUs to develop a LCBF type of system for purposes of dealing with the diversity of products and services among storage systems. In our opinion the LCBF system is barely effective when applied to a fairly uniform product like renewable energy in the RPS

program. It would be nearly impossible to use it effectively across a diverse range of products, as is being suggested here.

The Commission wisely withdrew its proposal to specify RAM-type solicitations for the procurement of energy-storage systems. The PD leaves it to the IOUs to propose what kind or kinds of solicitations should be employed. The GPI is concerned that the lack of direction in this part of the PD and the Storage Framework is, to use a football metaphor, a punt, leaving it to the IOUs to have to improvise their way to the goal line against heavy pressure, and without a roadmap. We encourage the Commission to insert language into the final Decision that encourages the utilities to design a series of solicitations to meet the procurement goals in each entry in the Storage Framework Table. For example, the solicitation for a utility-owned and operated installation would be quite different than the solicitation for a third-party-owned and operated installation. In many cases it might be more effective for a utility to use a series of limited solicitations to meet each target in the Framework's Table, rather than a single, broader solicitation.

Dated September 23, 2013, at Berkeley, California.

Respectfully Submitted,

A handwritten signature in cursive script, appearing to read "Gregory Morris", is written over a horizontal line.

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