

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.

R.10-12-007  
(Filed December 16, 2010)

**COMMENTS OF DIVISION OF RATEPAYER ADVOCATES  
ON THE ASSIGNED COMMISSIONER RULING  
ON STORAGE TARGETS**

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**I. INTRODUCTION**

The Division of Ratepayer Advocates (DRA) responds to the Assigned Commissioner's Ruling (ACR) issued on June 10, 2013, which suggests procurement targets for energy storage. DRA supports cost-effective energy storage, but believes storage should compete on an equal footing with other options to ensure that storage is procured in areas where it is the least-cost option and will provide needed benefits to the grid. Any target program should have 100 percent flexibility so that the Investor Owned Utilities (IOUs) are not required to procure energy storage that is unnecessary. DRA provides more details on its position in the following answers to the ACR's questions.

**II. ACR QUESTIONS**

**Question a. Please comment on this [ACR] proposal overall, with emphasis on the proposed procurement targets and design.**

Assembly Bill (AB) 2514 requires the Commission to determine "appropriate targets" and by October 1, 2013 to "adopt the procurement targets, if determined to be appropriate...."<sup>1</sup> Because the law only requires targets if they are "appropriate," the Commission is not obligated to adopt targets in order to comply with the law. The

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<sup>1</sup> Pub. Util. Code §§2835(a)(2), 2835(b)(1), 2835(b)(2).

Commission should not adopt targets without further analysis of whether storage is the only option that can serve certain identified grid functions, as the ACR appears to assume. Certainly, there is no determination that the ACR’s targets are “appropriate.” Further, it is unclear why the ACR finds that storage should be involved in an auction that does not include other options, rather than in an all-source Request for Offers (RFO) that allows storage to compete on an equal footing with other energy sources and grid support. The RFOs would be based on need, location and purpose as determined in the Long Term Procurement (LTPP) and Resource Adequacy (RA) proceedings. There appears to be no provision in the ACR that will ensure that the right types of storage are procured in areas where they are necessary or needed. In short, DRA believes the targets the ACR proposes are unjustified.

With the foregoing objection as a premise that DRA will not repeat in each response, DRA makes five basic points in these comments. First, DRA supports the ACR goals for energy storage procurement of grid optimization, renewable energy integration and greenhouse gas (GHG) emission reduction. Second, DRA agrees that any storage the IOUs procure must be cost-effective. Third, DRA supports targets if they afford 100 percent flexibility across the three use categories and in the overall targets. Fourth, DRA supports adjustments to the targets based on needs identified in other venues and proceedings.<sup>2</sup> Finally, DRA supports counting various types of storage projects toward the targets that the ACR currently excludes or does not identify.

DRA supports the ACR’s requirement that energy storage optimize the grid, integrate renewable energy, and reduce GHG emissions.<sup>3</sup> The ACR’s requirement is consistent with the statutory definition of “energy storage system,” which “shall be cost effective and either reduce emissions of greenhouse gases, reduce demand for peak electrical generation, defer or substitute for an investment in generation, transmission or distribution assets, or improve the reliable operation of the electrical transmission or

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<sup>2</sup> The ACR appears to agree that the targets may be adjusted by findings in other proceedings regarding overall system need: “Reference to the most recent need determination by the Commission or needs study by the CAISO for the IOU’s system, local, and flexible needs, if available....” ACR, p. 18.

<sup>3</sup> ACR, p. 6.

distribution grid.”<sup>4</sup> DRA supports using cost-effective storage to meet policy goals such as reducing peak demand, deferring construction of new resources, and decreasing GHG emissions.<sup>5</sup>

Further, DRA supports the cost-effectiveness protocols proposed by the ACR. The ACR states the least-cost, best-fit analysis would draw on “[a] proposed methodology for evaluating cost-effectiveness for energy storage bids that may be offered at the transmission, distribution, and customer levels, based on an articulated method of comparing energy storage to other resources.”<sup>6</sup> However, DRA is concerned that if storage competes only against other storage proposals in an auction it will be difficult to truly “compar[e] energy storage to other resources,” and the overall cost of serving the goals the ACR identifies may be higher than if storage competes against a broader category of grid options.

DRA recommends complete flexibility in both the procurement categories and the overall targets because it will encourage storage procurement only in situations where it is cost-effective and useful to the goal at hand. DRA agrees with the ACR that the IOUs should use the models by Electric Power Research Institute (EPRI) and DNV KEMA (KEMA) as a guide only and not for final cost-effectiveness determination.<sup>7</sup> The models are new, based on never-before used assumptions, and untested by validation studies of other parties.

Furthermore, storage procurement should be based on an identified need for megawatts in the system or local area. The IOUs should not be required to meet the proposed targets if the grid does not need more energy or capacity. If the system does not need the extra megawatts in the storage target, a requirement that the IOUs procure even

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<sup>4</sup> Pub. Util. Code §2835(a)(3).

<sup>5</sup> While DRA appreciates the ACR’s policy goal of using storage to reduce GHGs, lower GHGs are not an inherent characteristic of storage. To meet the identified goal, therefore, the source of the energy in a storage system should not be carbon-based. Further, the cost of GHGs may already be reflected in energy costs due to the existence of the state’s cap-and-trade program, which essentially puts a price on GHG emissions.

<sup>6</sup> ACR, p. 18.

<sup>7</sup> See ACR, p. 19.

60 percent of the target amounts will simply add cost to ratepayers without any corresponding benefit. Therefore, the identification of specific need should determine the amount and location of storage the IOUs procure, rather than a target not tied to a specific need. For the same reasons, the IOUs should also have flexibility in the amount they procure for the ACR's three categories of uses: transmission, distribution, and customer-side storage.

The procurement targets should consider need determinations from other proceedings, such as LTPP and RA and information from the California Independent System Operator (CAISO). The key to achieving the benefits available in storage is getting the right types of storage in the right areas. For example, if the grid requires a fast-ramping resource, the foregoing proceedings may identify the amount of capacity needed for fast ramping (in MW, MWh, or ramping capability), and then choose the best-suited resource to meet that need. Storage may well be the best option, but it should compete against other equally suitable options.

The current LTPP proceeding, in Track 2, is evaluating system capacity and flexibility needs. This includes overall long-term needs in capacity (specified amount of MW) and flexibility (for specific uses such as ramping).<sup>8</sup> In Track 3, the proceeding is examining needs in local areas of Southern California, and in Track 4 is considering the impact of the San Onofre Nuclear Power Station (SONGS) retirement on local reliability in the Los Angeles Basin and San Diego area.<sup>9</sup> The Commission should use the needs determinations from each of these tracks of the LTPP proceeding to adjust the storage targets.

Finally, if there are to be targets, DRA believes the Commission should include most existing and proposed storage in calculating whether the targets are met. DRA details the storage projects it believes the Commission should include below.

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<sup>8</sup> *Revised Scoping Ruling and Memo of the Assigned Commissioner and Administrative Law Judge*, (R.) 12-03-0124, issued May 21, 2013.

<sup>9</sup> *Id.* at 4-5.

**Question b. Comment on whether any of the projects proposed to count toward the procurement targets be excluded, or any additional projects included, and on what basis.**

The Commission should clarify how it will determine which projects count towards the proposed targets, including how to treat energy storage projects in the planned, authorized, or developed phases. The list of projects should be updated annually. Clearly, projects already in operation and those with Commission approval to operate should count once approved, but the Commission should consider counting other projects, such as pilot projects, while they are operating and contributing to the grid, even if the Commission does not ultimately approve them for full commercial rollout. Of course, such projects should only count during their pilot stages if they are actually serving needs of the electrical system, and not if they are simply being tested to see if their technology is viable.

By way of example, projects such as Southern California Edison's (SCE) Tehachapi 8 MW lithium Ion battery project, which SCE will dismantle after the completion of the pilot program, may not count when it is no longer connected to the grid, but perhaps should count before that time. Some projects that will store a substantial amount of energy if implemented should, in DRA's view, count toward any targets the Commission adopts. For example, Pacific Gas and Electric Company's (PG&E's) 300 MW Compressed Air Energy Storage (CAES) project, the first phase of which the Commission authorized in D10-01-025, should count toward the target if and when the Commission approves the construction and operation of the project. Likewise, projects funded by the Electric Program Investment Charge (EPIC) and the Public Interest Energy Research (PIER) programs should also be counted, both now and in the future, to the extent these projects actually serve the grid.

DRA suggests that the IOUs identify all storage activities on the grid, whether they are in the pilot phase or operational. DRA also suggests the Commission issue an order requiring identification of customer-sited storage. California Energy Storage Alliance (CESA) may be in the best position to identify these projects, but DRA suggests

the order extend to all parties to ensure identification of all projects. The information should include characteristic of the storage project such as size (MW and MWh), location, and application(s).

**Question c. Comment on how actual operational deployment should be defined for PIER- and EPIC-funded projects potentially eligible to count toward a utility’s procurement target.**

Consistent with the response above, projects funded under EPIC and PIER should be counted for the duration of their operation and contribution to grid needs.

**Question d. Comment on how any utility’s procurement that exceeds a target in one year should be addressed and considered for future procurement targets.**

If each IOU’s energy storage procurement exceeds the total target or the targets of the three categories set for that year, then the excess should count toward the following year’s requirements, with a corresponding reduction in the target for the following year. Consistent with DRA’s general view that hard targets are not “appropriate” under AB 2514, failure to meet a target in a given year or compliance period should not result in carry-over of the target requirement into the next year/period. The utilities should also have flexibility as to when to procure storage. The IOUs should only procure storage that is the least-cost, best-fit resource for an identified system or local area need in any given year. If the grid does not require the targeted amount of storage in a given year/period, then consistent with the 100 percent flexibility rule DRA recommends, the Commission should excuse compliance going forward. Such relief will prevent additional costly and unnecessary obligations by the ratepayers.

**Question e. Comment on whether and to what extent utilities should be permitted flexibility in procuring among the use-case “buckets” (transmission, distribution, and customer-sited) of energy storage within one auction, and whether a minimum amount in each “bucket” must be targeted.**

The ACR proposes different specific targets for transmission, distribution, and customer-owned storage “buckets.” Since the targets associated with the categories were

not developed based on any estimated specific needs, the utilities should have 100 percent flexibility in procuring among the categories depending on the need identified going forward. Such flexibility will allow the IOUs to procure resources according to what they need, rather than trying to fulfill arbitrary buckets, and will help limit ratepayer costs and suboptimum procurement in each category.

Furthermore, it is not clear how the customer-sited storage will count, since the end-use customers will likely choose and pay for the energy storage sited on their property. The IOUs, therefore, may not know of all the existing customer-sited storage that can count towards the targets. DRA therefore requests that the Commission order CESA and the other parties submit information about the amounts of customer-sited storage on an annual basis.

**Question f. Comment on the appropriate “off ramps” for relief from procuring up to each target and what metrics should be used to evaluate the appropriateness of the off ramps.**

The ACR proposes that the Commission can lower the procurement targets with an “off ramp” to the targets, based on factors such as cost-effectiveness or a lack of competitive bids.<sup>10</sup> As an example, the ACR describes reductions up to 40 percent from the 2014 target, up to 30 percent reduction from the 2016 target, and up to 20 percent from the 2018 to 2020 target.<sup>11</sup> Because the appropriateness of storage depends on specific applications and associated uses,<sup>12</sup> and because procuring large amounts of storage is such a new process, the off-ramp mechanisms should allow the IOUs a 100 percent procurement reduction from the total target amount. The IOUs should be relieved from procurement when they can show that storage was not cost-effective, viable, or useful to meet an identified need.

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<sup>10</sup> ACR, p. 19.

<sup>11</sup> *Id.*

<sup>12</sup> For example, energy storage may or may not be the best option to meet fast-ramping needs in renewable integration.



**Question g. Comment on how this proposal may be coordinated with Renewable Portfolio Standard procurement plans, as set out in Public Utilities Code section 2837.**

Public Utilities Code Section 2837 does not require storage targets to be a part of the Renewable Portfolio Standard (RPS) program. Instead, it simply requires IOUs to procure storage if it is appropriate to address specified policy goals such as reducing GHG emissions or reducing peak demand.<sup>13</sup>

However, any storage the IOUs procure along with renewables in their RPS programs should count toward the targets the ACR proposes here. Additionally, any previously-approved RPS projects that have storage associated with them should count toward the targets.

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<sup>13</sup> Pub. Util. Code §2837 states:

Each electrical corporation's renewable energy procurement plan, prepared and approved pursuant to Article 16 (commencing with Section 399.11) of Chapter 2.3 of Part 1, shall require the utility to procure new energy storage systems that are appropriate to allow the electrical corporation to comply with the energy storage system procurement targets and policies adopted pursuant to Section 2836. The plan shall address the acquisition and use of energy storage systems in order to achieve the following purposes:

- (a) Integrate intermittent generation from eligible renewable energy resources into the reliable operation of the transmission and distribution grid.
- (b) Allow intermittent generation from eligible renewable energy resources to operate at or near full capacity.
- (c) Reduce the need for new fossil-fuel powered peaking generation facilities by using stored electricity to meet peak demand.
- (d) Reduce purchases of electricity generation sources with higher emissions of greenhouse gases.
- (e) Eliminate or reduce transmission and distribution losses, including increased losses during periods of congestion on the grid.
- (f) Reduce the demand for electricity during peak periods and achieve permanent load-shifting by using thermal storage to meet air-conditioning needs.
- (g) Avoid or delay investments in transmission and distribution system upgrades.
- (h) Use energy storage systems to provide the ancillary services otherwise provided by fossil-fueled generating facilities.

**Question h. Comment on the options presented for ESPs and CCAs to either a) be required to procure an equivalent amount of storage projects commensurate with the load they serve or b) have their customers assessed the costs of the IOU procurement of energy storage projects through a cost allocation mechanism.**

DRA has no comments at this time.

**Question i. Comment on how the preliminary results of the cost-effectiveness models should be applied to the question of setting procurement targets.**

DRA agrees with Commissioner Peterman's statement at the June 25, 2013 All-Party Meeting that the Commission does not sanction either the EPRI or the KEMA model. The cost-effectiveness models are the first of their kind for storage. Their results are preliminary, and contain inputs and assumptions untested by cross-examination, discovery, or other models. Indeed, the ACR suggests that the IOUs include model results in their comments and propose their own methods to evaluate cost-effectiveness, making clear the models have yet to be properly validated and tested.<sup>14</sup>

Thus, the EPRI and KEMA models are not mature enough, and have not been scrutinized sufficiently, to be used for setting targets or to serve as the only tool the IOUs rely upon to decide whether to procure cost-effective storage. While the models may be valuable for informational purposes and useful as general guides, they should be only one of many considerations in determining if a particular storage application or technology is cost-effective. Instead of only relying solely on the models, the IOUs should use a storage option based on comparison with other resources. As DRA notes previously, the best way to ensure that the least-cost, best-fit technology is used is through an all-source RFO that seeks bids by need, location and purpose as determined in the LTPP and RA proceedings.

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<sup>14</sup> ACR, p. 19.

**Question j. Based on the preliminary results, should the utilities set a cost cap for offers to be submitted in the 2014 auction? If yes, what should the cap be and how should the auction be structured to incorporate the cap?**

At this time DRA has no comments regarding cost caps for offers in the 2014 auction. However, DRA recommends that the Commission set a cost cap for the entire program based on each IOU's size. A programmatic cost cap would encourage the IOUs to procure the most cost-effective storage type where it is needed, and limit costs to the ratepayers. It would also discipline the market against gaming and bidding whatever the market will bear.

**III. CONCLUSION**

DRA urges the Commission to adopt a 100 percent flexible energy storage target program for the reasons stated above.

Respectfully submitted,

/s/ SARAH R. THOMAS

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