

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 ENERGY STORAGE PHASE 2 INTERIM STAFF REPORT**

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February 4, 2013

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Energy Division (ED) Staff issued a Report on Energy Storage in this proceeding, on January 4, 2013. The Assigned Administrative Law Judge (ALJ) thereafter issued a Ruling asking parties to respond to the questions posed by Staff in Section 9.2 of the Report. In addition, Staff gave parties the option to comment on three specific recommendations involving storage made during the joint Energy Storage/Long Term Procurement Planning (LTPP) workshop held on September 7, 2012.<sup>1</sup>

The Division of Ratepayer Advocates (DRA) commends ED for the thoroughness of its Report. DRA offers the following comments, which: 1) oppose minimum energy storage megawatt (MW) targets but support, in some cases, storage pilots of limited size; 2) defer comment on cost-effectiveness until ED issues its report on the issue; and 3) support removing barriers to energy storage.

**ED Report Section 9.2 Questions**

**1. Use Cases**

- **Do the Use Cases provide an adequate representation of the range of valuable applications that energy storage currently provides to the electric grid?**

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<sup>1</sup> The three proposals are related to flexible procurement (Southern California Edison [SCE]), an all-source energy solicitation that would include storage (California Energy Storage Alliance [CESA]), and removal of barriers to energy storage (CESA and storage providers).

The use cases appended to the Report represent a good range of applications at this time. As the market gains experience with energy storage needs and applications as well as storage technologies, it may be appropriate for stakeholders to develop other use cases. However, actual experience from pilot energy storage projects may be more valuable to a realistic determination of viability, applicability, and cost-effectiveness of various energy storage technologies.

The Report also requested parties' input on how to prioritize the use cases so that in developing a proposal for assessing the cost-effectiveness of storage, ED runs the highest priority use cases first. Generally, DRA recommends that smaller, short duration applications, such as frequency control, voltage support, and ramping capability be given higher priority when conducting use case model runs. The presentation on "Storage in Action" made by Jack Ellis during the January 14, 2013 energy storage workshop<sup>2</sup> showed that successful, commercially viable, utility scale storage installations have focused on short-duration applications such as spinning reserve, frequency regulation, and ramp control, where alternatives are very costly and/or storage costs are relatively modest.

Other applications, such as larger load shifting, would generally be projects needing longer lead times. The use case for Electric Vehicles (EV), while helpful, should be a lower priority. Currently the number of EVs sold is very small<sup>3</sup>; the available EVs would probably not provide any measurable or feasible storage support, with a possible exception of vehicle-to-home storage.

DRA supports reliance on use cases for conducting preliminary cost-effectiveness analysis, and believes the use cases should provide useful preliminary information for

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<sup>2</sup> [http://www.cpuc.ca.gov/NR/rdonlyres/30168CC9-B58E-4FB8-B0A9-DE51E75557B6/0/StorageinAction\\_Ellis.pdf](http://www.cpuc.ca.gov/NR/rdonlyres/30168CC9-B58E-4FB8-B0A9-DE51E75557B6/0/StorageinAction_Ellis.pdf).

<sup>3</sup> "California sales of electric vehicles were approximately 42 vehicles in 2010 and 4,377 in 2011. Plug-in hybrid electrics sales were estimated at 93 for 2010 and 2,200 for 2011. Sources of information include the California Department of Motor Vehicles data base (2009 data), California Clean Vehicle Rebate Program (2010-2011 data), and extrapolation of national data and discussions with Chevrolet representatives in California." The Division of Ratepayer Advocates' Proposal for Using Low Carbon Fuel Standard Credits, filed March 30, 2012, fn. 10, p. 3.

various storage technologies and applications. However, performing a cost-effectiveness determination for each use case may prove to be very complex, time-consuming and controversial. Instead, DRA recommends that ED assess cost-effectiveness for short-term applications first, and defer analysis of storage intended for longer term use until the market matures.

- **Besides the section on cost-benefit analysis, which is still a work-in-progress, is there some critical element missing from the Use Cases?**

It would improve the analysis of each use case to address applicability, viability and reliability of each technology in more detail; some of the use cases appear to be works-in-progress. Actual pilot projects conducted after the Commission and stakeholders conclude the use cases may yield real-life (and hence more accurate) information on the appropriateness, reliability, and cost-effectiveness of various storage technologies and applications. Indeed, the Commission has already approved several pilots or other preliminary investigations of storage, and the Commission should incorporate reporting on the results of those programs into its assessment of the appropriateness of storage technology.<sup>4</sup> In this regard, DRA agrees with the ED's statement below:

[While] each Use Case has attempted to identify a “real world” example of existing energy storage projects that most closely relate to that Use Case, the documents themselves do not offer detailed analysis of those projects. In part, this is due to a lack of operational data from relatively new projects or projects still to be put into commercial operation. It is anticipated that the Use Cases will continue as “living documents” that are updated as new information becomes available. Report at 14.

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<sup>4</sup> See, e.g., Decision (D.)10-01-025 (authorizing Pacific Gas & Electric Company to recover up to \$24.9 million in ratepayer funding as matching funds for Phase 1 of its proposed Smart Grid Compressed Air Energy Storage demonstration project, with matching funding from the U.S. Department of Energy issued as part of the American Reinvestment and Recovery Act (ARRA) stimulus funding); Resolution E-4355 (granting Southern California Edison's application to recover \$26 million toward the Tehachapi Wind Energy Storage Project, with matching ARRA funding).

## 2. Preferred Resources

- **Should Energy Storage be considered a “preferred resource”?**

At this time, DRA does not believe that energy storage should be considered a “preferred resource” in the state’s Energy Action Plan, or otherwise receive priority treatment in the loading order. DRA agrees that storage devices have the potential to support integration of other resources and believes that energy storage can be selected over other resources if all its attributes are considered in the procurement process, based on the specific needs and applications sought.

There may not be a need for inclusion of storage in the loading order unless it is impossible to account for energy storage attributes (including shorter lead time, modularity, and fast ramping capabilities) under the current procurement process. DRA supports an evaluation process that would compare all of energy storage’s attributes, as well as costs and viability, with other supply-side resources without designating it a preferred resource or otherwise mandating a set capacity or megawatt (MW) target.

- **Does the Commission need to work with Joint Agencies to modify the loading order or will a Commission policy statement suffice?**

It is not necessary to include energy storage in the loading order at this time. The CPUC and California Energy Commission developed California’s Energy Action Plan following the energy crisis of 2000 and 2001. Last revised in 2008, the Energy Action Plan: “adopts a ‘loading order’ of preferred ways to meet the energy needs of California’s growing population. Energy efficiency and demand response are first, followed by renewable energy on the supply side.”<sup>5</sup> Nevertheless, as the Report correctly recognizes, the loading order and Energy Action Plan are documents that the Commission works on jointly with other state agencies.<sup>6</sup> Even if the Commission decides storage should be a preferred resource, it must nonetheless work with these other

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<sup>5</sup> *California’s Energy Leadership*, CPUC January 2010, p. 6. The various iterations of the Energy Action Plan appear on the CPUC’s website at <http://www.cpuc.ca.gov/PUC/energy/resources/Energy+Action+Plan/>.

<sup>6</sup> Report at 18.

agencies to determine whether and how to modify the loading order.<sup>7</sup> There has been no showing that the Energy Action Plan merits such modification at this time.

- **What are the implications of designating Energy Storage as a “preferred resource” in this Proceeding for other procurement proceedings?**

Designating energy storage as a preferred resource could lead to huge ratepayer subsidies and incentives for storage which may not be warranted. It could lead to a determination that the IOUs must procure a minimum MW amount of storage before other more cost-effective resources. DRA recommends instead that cost-effective energy storage be a resource available to meet specified procurement needs or applications. Energy storage should only be used for a specific application if it is viable, reliable, and cost-effective for that purpose.

### **3. Cost-Effectiveness Methodologies**

- **What models should be pursued for running the cost-effectiveness test?**

DRA does not have a preference for a specific model at this time, and prefers to comment once ED issues its cost-effectiveness analysis. DRA may be able to opine more specifically as we learn more about the details of capabilities of the models available. DRA does not oppose the use of more than one model for comparison purposes, at least initially, to determine the differences in model outputs and nuances between their capabilities. DRA urges complete transparency in model results, so that parties may run the models themselves and replicate the model outputs. The model vendors should have the incentive to provide as much detail as possible to support their own model in order to be selected for the longer term analysis.

- **Is there a simplified approach to cost-effectiveness that would meet the Commission needs?**

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<sup>7</sup> DRA likewise does not support, at this time, expansion of ratepayer-funded incentives for Permanent Load Shifting (PLS), approved in D.12-04-045 (authorizing submission of IOU PLS plans totalling \$120 million), which ED calls a “preferred resource” on page 17 of its Report. DRA interprets ED’s question to pertain to the loading order, rather than to D.12-04-045.

DRA will comment on this issue after ED issues its cost-effectiveness report. As noted above, DRA supports running cost-effectiveness models on short-term uses first. DRA has other views on cost-effectiveness that it may share before such issuance, but they need further evaluation within DRA. DRA will contact ED in this regard.

- **To address Staff’s concern that it may not be the best use of resources to run all of the use cases through cost-effectiveness models, is there a priority criteria or prioritized list of use cases that can be utilized?**

Based on the history of energy storage utilization (with the exception of pumped hydro) it appears that majority of energy storage applications have been utilized for specific applications such as frequency control, load following and voltage regulation. DRA recommends that higher priority be given these types of use cases where a specified need or application can be met with energy storage more efficiently than other resources. Use cases such as large load shifting and use of storage in conjunction with electric vehicles should be lower on the priority list.

- **If not, how can we ensure that the analysis gets done for all the use cases in a timely manner?**

DRA recommends prioritizing the use cases as described above.

#### **4. Policy Options**

- **Does Staff’s priority listing of policy options accurately represent the most important issues facing storage in the identified proceedings?**

The policy options identified by the ED Report to be addressed in this proceeding can be summarized as:

- a. Energy storage minimum MW targets (or pilots or other approaches).
- b. Energy storage as a “preferred resource.”
- c. Energy storage allowed if cost effective.

##### **a. Targets**

DRA opposes setting targets because there is no basis for the appropriate level of targets, and setting a larger target than what is actually needed will prove unnecessarily costly for ratepayers. Energy storage should simply be utilized as one resource available to meet a specific need.

Instead, DRA supports energy storage pilots, in certain cases. For example, DRA did not oppose the proposal in a Proposed Decision in the LTPP proceeding, Rulemaking 12-03-014,<sup>8</sup> to fund 50MW of storage so long as the funding was for a pilot that provided for detailed reporting so stakeholders might learn what worked and what did not. DRA might support additional pilots of limited MW size to explore the feasibility of a new energy storage technology, advancement or attribute, or pilots focused on demonstrated need in a specific location. If pursued, such pilots must be the subject of separate, detailed applications that allow stakeholders to evaluate the specific need and proposed use of storage, and provide for detailed reporting and milestones so stakeholders learn how storage technology performs in given settings.

DRA also supports opening procurement options to energy storage to allow it to compete head-to-head with other resources (in an all-source RFO), with no limitations. The bid evaluation process, among other things, should carefully review the storage proposal's applicability, viability, reliability and cost-effectiveness, while considering all known values of energy storage in comparison to other resources. If the energy storage bid offered into the RFO meets all the requirements, and can compete with other resources, there should not be any limits set on procurement of storage to meet specified needs identified in a formal proceeding such as the LTPP proceeding.

**b. Energy storage as a “preferred resource”**

As explained in the response in Section 2, DRA does not support treating energy storage as a preferred resource at this time.

**c. Cost-effectiveness evaluation**

See DRA's Response in Section 3 above.

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<sup>8</sup> The Proposed Decision appears at <http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M039/K597/39597025.PDF>. DRA's comments appear at <http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M042/K160/42160000.PDF>. DRA advocated for “clearly specified deliverables designed to test the longer term ability of storage to compete cost effectively with other resources,” and urged that the procuring IOU “attempt to procure a diverse set of technologies to experiment and collect data that can be made public.” DRA's Opening Comments, linked above, at 2, 8.



- **Are suggested actions for resolution of barriers the best approach to advancing energy storage deployment?**

DRA generally agrees with ED's list of barriers as listed below (Report at 14):

1. Lack of definitive operational needs
2. Lack of cohesive regulatory framework
3. Evolving markets and market product definition
4. Resource Adequacy accounting
5. Lack of cost-effectiveness evaluation methods
6. Lack of cost recovery policy
7. Lack of cost transparency and price signals (wholesale and retail)
8. Lack of commercial operating experience
9. Lack of well-defined interconnection process

DRA also generally agrees with ED's proposals to remove those barriers in Table 1 of its Report. Report at 15-16.

## **5. Related Proceedings**

- **Does the list of issues in related proceedings capture the work being done in the other proceedings described?**

The list included in the ED report captures the related proceedings at this time; DRA commends ED for such a comprehensive summary. To the extent other proceedings come to light or are opened, ED should ensure there are no duplicate or inconsistent Commission decisions regarding the rules for storage.

- **Is there more that should be done in the identified proceedings to advance energy storage deployment, aside from establishing procurement targets?**

As stated before, DRA continues to oppose setting arbitrary targets for energy storage. However, in the LTPP proceeding, DRA did not oppose authorization of a 50MW storage pilot program, as long as it included detailed reporting that would enable all stakeholders to learn which technologies perform best and worst and avoid large expenditures on unproven technologies. DRA also supports removing all the barriers identified in the ED Report to allow energy storage to compete head-to-head with other

resources in response to RFOs for specified needs authorized by the Commission in the relevant procurement proceedings, such as the LTPP.

### **Additional Questions Posed on page 23 of ED Report**

There were three specific recommendations involving storage made as part of the LTPP/Storage workshop that may bear further examination in this proceeding as listed below:

1. SCE proposed a novel method for assigning a “net qualifying capacity” value to storage.
2. CESA proposed a “Model All-Source” procurement structure focused on evaluation of benefits attributable to storage and other types of non-traditional resources.
3. CESA and storage developers raised the issue of whether there are barriers that inhibit RFO respondents, including storage developers, from offering retrofit/incremental offers, despite the benefits of lower cost and flexibility they might provide.

DRA recommends that these proposals, such as determination of net qualifying capacity (NQC), as well as the specifics of all-source RFO design, be addressed in the applicable proceedings, such as Resource Adequacy (RA) and LTPP. These other proceedings are better equipped to determine energy storage NQC and RFO designs that encourage energy storage participation. However, if the Commission or ED decides to address these questions in this proceeding, the proponents should provide written details of each proposal, the RA and LTPP service lists should be notified and invited to comment, and the Assigned Commissioner should schedule workshops, hearings or comment opportunities to assess the proposals.

Respectfully submitted,

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