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 ADMINISTRATIVE LAW JUDGE'S RULING ENTERING DOCUMENTS INTO RECORD AND SEEKING COMMENTS

FARZAD GHAZZAGH
Division of Ratepayer Advocates

California Public Utilities Commission
505 Van Ness Ave.
San Francisco, CA 94102
Phone: (415) 703-1694
Fax: (415) 703- 2262
E-mail: fxg@cpuc.ca.gov

CANDACE MOREY
Attorney
Division of Ratepayer Advocates

California Public Utilities Commission
505 Van Ness Ave.
San Francisco, CA 94102
Phone: (415) 703-3211
Fax: (415) 703- 2262
E-mail: cjm@cpuc.ca.gov

August 29, 2011

460615

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 ADMINISTRATIVE LAW JUDGE'S RULING ENTERING DOCUMENTS INTO RECORD AND SEEKING COMMENTS

The Division of Ratepayer Advocates (DRA) provides the following comments on the Administrative Law Judge (ALJ) Ruling issued on July 2, 2011. DRA supports the following principles regarding energy storage:

- Specific procurement targets should not be set for energy storage at this time. Specific needs, if any, should be identified on an application level with an assessment of cost implications. Any such needs can be addressed through ongoing proceedings such as Long Term Procurement (LTPP) or Resource Adequacy (RA) proceedings.
- Markets should be technology neutral to allow for storage to participate equally with other resources. Any barriers that require or assume certain technologies that prevent storage from competing directly with other resources should be removed. Tariffs and Rules should be revised or clarified to ensure that viable storage applications can compete against other resources.

I. DRA Comments on the Workshop Presentations

Presentation by the California Energy Commission (CEC) - Attachment A

- The CEC notes that market design changes at the California Independent System Operator (CAISO) and Federal Energy Regulatory Commission (FERC) to lower barriers to participation in wholesale markets (for example, relating to frequency regulation applications and through CAISO's renewable integration market

product and review) are "milestones" under a baseline scenario to increase energy storage. (Slides 13 and 15.)

DRA agrees that the CAISO and FERC should reduce barriers to participation by storage resources in wholesale markets and open up potential financial value streams for energy storage from existing markets, but advises the commission that some such stakeholder initiatives and tariff modifications are already underway. The CAISO is developing proposed tariff revisions to make Regulation Energy Management available to non-generator resources (i.e. storage) within the renewable integration initiative (phase 1).[1] The FERC also issued Notice of Proposed Rulemaking (NOPR) on Frequency Regulation Service to provide compensation for faster-ramping resources such as emerging energy storage technologies.[2]

- The CEC suggests that achieving an "accelerated" scenario for storage to provide frequency regulation benefits would require the CPUC to allow for storage to enter into long-term contracts. (Slide 13.) DRA supports this position. Allowing storage to enter into long-term contracts is consistent with DRA's position to remove any barriers that prevent storage from competing directly with other resources.

- The CEC proposes to allow storage to count towards Resource Adequacy (RA) value for regulation services or to support RA values for renewables integration. (Slides 13 and 15.) DRA supports this position. Storage can offer value for RA needs as well as ancillary services, and should be able be given the opportunity to compete against, and /or supplement, other resources for these needs. The amount of RA value that storage can qualify for, or that it could add to a renewable

[1] Information on the CAISO's third proposed revised tariff language is available at http://www.caiso.com/Documents/Regulation%20Energy%20Management%20-%20tariff%20language.

[2] Frequency Regulation Compensation in the Organized Wholesale Power Markets, 76 Fed. Reg. 11177 (proposed March 1, 2011); *see also* FERC Docket Nos. RM11-7-000 and AD10-11-000.

project, should be determined by the CPUC in the RA proceeding (R.09-10-032) or in the LTPP proceeding (R.10-05-006).

Presentation by Southern California Edison (SCE) - Attachment C

- SCE discusses using an application-specific approach consisting of a four-step methodology to evaluating energy storage applications, including identifying barriers to energy storage. (Slides 2-3.) DRA agrees with SCE that opportunities and barriers to energy storage should be evaluated using an application-specific approach, and that this methodology should be a central and common first step for addressing storage related issues. The four step method proposed by SCE is as follows: Step 1 - Identify operational uses; Step 2 - Develop practical applications; Step 3 - Match applications with technologies; Step 4 - Evaluate application-technology pairs.

- SCE notes that time of use (TOU) rate design issues may be a barrier to the adoption of energy storage for end user TOU rate optimization applications. (Slide 11.) DRA agrees that the TOU rates should help encourage load shifting, which could impact the cost effectiveness analysis for energy storage. The Commission should consider TOU rate design issues within the appropriate proceeding to allow for a proper vetting of all issues related to TOU rates and not tackle TOU rate design issues within this proceeding.

- DRA agrees with SCE that "it is difficult to evaluate technologies independent of their matching applications." (Slide 8.) Each application has unique issues based on its location and operational uses.

Presentation by the California Energy Storage Alliance (CESA) – Attachment D

- CESA's support for procurement targets. (Slides 2 and 4.) DRA does not agree with CESA on this issue. Picking arbitrary procurement target levels, such as a MW level or a percentage level would most likely result in a sub-optimal market solutions and increase costs to ratepayers without yielding commensurate benefits.

As DRA had recommended in its earlier comments, any identified storage level should be based on specific application and needs identified in the proceeding addressing those needs.

DRA also disagrees to the extent CESA assumes that Assembly Bill (AB) 2514 requires the Commission to adopt specific storage procurement targets. The statue implemented pursuant to AB 2514 states that:

> (a)(1) On or before March 1, 2012, the commission shall open a proceeding to determine appropriate targets, if any, for each load-serving entity to procure viable and cost-effective energy storage systems. As part of this proceeding, the commission may consider a variety of possible policies to encourage the cost-effective deployment of energy storage systems, including refinement of existing procurement methods to properly value energy storage systems.
> (2) The commission shall adopt the procurement targets, if determined to be appropriate pursuant to paragraph (1), by October 1, 2013.[3]

Accordingly, under the Public Utilities Code, the commission must determine if any procurement targets are appropriate. It is not required to set targets; rather, the commission may adopt targets only if there are "viable and cost-effective energy storage systems." Determining what systems (if any) are "viable and cost-effective" is therefore a required precursor to the adoption of procurement targets, a point that CESA ignores. The statute also recognizes that other policies, rather than procurement mandates, might encourage the cost-effective deployment of energy storage systems. The commission should not jump to a conclusion that procurement targets, as opposed to other possible policies, would yield the most efficient or sustainable market outcomes.

- CESA's recommended public policies. (Slide 5.) DRA agrees that current barriers in tariffs or rules should be removed to allow storage the opportunity to

[3] Cal. Pub. Util. Code § 2836 (2011).

compete against other resources to meet specific needs. If that is what CESA intends by proposing "storage friendly" tariffs, DRA can support the proposal. However, DRA does not agree that storage should be given a preference over other resources if it is less cost-effective for ratepayers.

Further, barriers to participation in markets in which storage can provide viable and costs-effective alternatives to traditional resources should be addressed in the appropriate commission or other agencies proceedings, such as the CPUC's RA, LTPP, and transmission proceedings or through CAISO or FERC stakeholder initiatives.

Finally, regarding CESA's recommendation to add storage to the loading order, DRA believes that this recommendation merits careful consideration. It is not clear, however, where storage should be positioned in the loading order because benefits must be determined for specific application(s), on a case by case basis.

Presentation by AES Energy Storage – Attachment E

- AES recommends that storage should be able to compete with traditional peaking capacity solutions. (Slide 6.) DRA supports this position. Allowing storage to compete with the traditional peaking resources should help reduce costs to the ratepayers as well as increase resources diversity.

- AES states that energy storage applications can meet two pressing goals of electric power policy simultaneously: to reduce emissions and ensure reliability. (Slide 7.) DRA agrees with this statement. Reduction of emissions should be taken into consideration when determining if storage is cost-effective. Specific storage applications may provide an advantage in this area and therefore could lower total costs to ratepayers.

II. DRA comments on the ALJ Ruling's specific questions

1. Which barrier(s), either identified by the presenters or the CPUC, do you believe present the greatest impediment to more widespread usage of energy storage and development of ESS in California?

DRA believes the largest barriers to more widespread usage and development of storage include the lack of a methodology to value cost-effectiveness, including a lack of understanding of how to quantify costs and monetize different value streams for different applications.

Regulatory barriers that are under the control of government agencies include tariffs that pre-suppose participation in markets by conventional generation technologies (some of which are already being addressed at the CAISO), regulatory uncertainty caused by the lack of clear rules, and the failure to address methods to value energy storage as a resource that could potentially meet many needs cost-effectively as a supplement to or substitute for other resources. Again, however, DRA believes that identifying, and thus prioritizing, market and regulatory barriers need to occur on an application-specific level (as proposed by SCE). Therefore, DRA does not believe that there is a single set of "barriers" for storage; impediments to more widespread usage vary based on the specific application.

2. Are there other barriers that were not identified during the workshop? Please explain how these other barriers impede the usage or development of energy storage and whether they need to be resolved at the Commission or other forums. To what extent can the Commission assist in removing these barriers?

The nascent nature of some storage technologies and lack of detailed information about application-specific costs were not discussed at this workshop but present barriers to more widespread understanding of storage systems.

3. In your opinion, are there certain barriers that need to be resolved first, and therefore have higher priority?

(1) Remove market barriers and make tariffs technology-neutral.

DRA believes that barriers that prevent energy storage from competing with (or supplementing) other resources in the markets should be resolved first. Once barriers to

market participation are removed, then market competition can determine if energy storage applications can provide cost-effective solutions to meeting various energy procurement, RA, or grid reliability needs.

(2) Develop cost-effectiveness methodology.

A lack of more complete understanding of the application-specific costs, valuation methodology, and how to monetize of specific value streams is a barrier to widespread implementation of energy storage. The Commission can help reduce barriers to energy storage applications by developing a methodology for determining cost effectiveness—and indeed it is required by statue to determine if storage applications are cost-effective before it may adopt any procurement targets.[4] In order to identify storage applications that can compete with traditional resources it will be helpful to develop a step-by-step approach similar to what SCE proposed in its presentation: 1) identify operational uses, 2) develop practical applications, 3) match applications with technologies, and 4) evaluate technology pairs. It is also essential that this approach also includes developing a valuation methodology for different storage applications.

(3) Assess remaining sources of regulatory or market uncertainty that is specific to storage and which the commission can clarify or define.

Energy storage developers and stakeholders should focus on identifying for the commission existing barriers that are not already being addressed by current stakeholder processes and that are unique to storage. Regulatory uncertainty and market uncertainty (forecasting) both contribute to the difficulty in determining how to monetize and value energy storage applications.

First, to the extent that regulatory uncertainty creates barriers to participation in wholesale markets, the CAISO and FERC appear to be working already to make tariffs technology-neutral and allow participation by storage, at least for some specific applications.[5] Accordingly, when stakeholders identify barriers to storage they should

[4] PUC § 2836(a)(1).

[5] See *supra* p. 2.

clarify if they believe such barriers are already being addressed in active stakeholder processes within or outside of the commission.

Second, while regulatory and market uncertainty make predicting revenues or other value streams more difficult and uncertain, this problem is not unique to storage. Nor is it possible to eliminate all sources of market and regulatory uncertainty. For example, there is currently a great deal of uncertainty regarding how CAISO rules and markets will change as a result of the need to support integration of additional renewable generation. The total cost to support renewables integration, how these costs will be allocated among CAISO's market participants, and the impact of increased renewable generation on energy revenues depends large part on the results of ongoing, active CAISO and FERC stakeholder processes. Another example is estimating value streams that require market price forecasting (e.g., value of shifting renewable generation off-peak to peak depends on on-off peak price spread). Predicting market prices is difficult, and may become more difficult with increased penetration of renewables at utility scale or distribution scale, uncertainty in how GHG emissions rules will impact fossil prices, and how the markets may value the ability to reduce curtailment of renewable resources (i.e. spillage). These examples of regulatory and market uncertainty are not unique to storage.

At the same time, the CAISO and FERC renewable integration initiatives will impact the specific opportunities for storage to monetize value streams for specific applications (as well as possibly removing barriers to market participation), as well as the analysis of appropriate ownership models (IOUs versus private developers). Rules establishing renewable integration cost allocation would clarify the value of storage coupled with renewable generation, for example, based on the ability of storage to reduce expected integration costs borne by each project. This will affect how the Commission and IOUs should to value such applications in such contracts and thus the extent to which renewable generators can or should be given preference for including storage in their bids for renewable PPAs. It will also shed light on whether IOUs are in the best position to

own storage devices in a hybrid market, as optimal ownership will depend on who bears the costs of managing and hedging the risks and costs of deviating from schedules.

Accordingly, in determining a priority for addressing barriers to storage, the commission should focus on and include only sources of regulatory or market uncertainty that are both unique or specific to storage and that are within the commission's jurisdiction to clarify or define. Similarly, stakeholder comments and presentations in this proceeding should state which barriers are perceived as being unique to storage and not simply inherent to the market and equally applicable to all market participants.

Respectfully submitted,

/s/ CANDACE MOREY

CANDACE MOREY

Attorney
Division of Ratepayer Advocates
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102
Email: cjm@cpuc.ca.gov

August 29, 2011