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

OPENING COMMENTS OF THE CONSUMER FEDERATION OF CALIFORNIA ON THE ADMINISTRATIVE LAW JUDGE'S RULING ENTERING DOCUMENTS INTO RECORD AND SEEKING COMMENTS.

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I. INTRODUCTION

The Consumer Federation of California ("CFC") respectfully submits these opening comments to the California Public Utilities Commission ("Commission") as directed in Administrative Law Judge's ("ALJ") Ruling Entering Documents into the Record and Seeking Comments.

II. PROCEDURAL BACKGROUND

On December 16, 2010, the Commission filed the instant OIR in response to AB2514 directing the Commission to open a proceeding to 1) determine appropriate targets, if any, for each load serving entity (LSE) ; and 2) to adopt an energy storage system procurement target to be achieved by each LSE by December 31, 2015.[1] In addition, the Commission commenced this proceeding to initiate policy for California utilities to consider the procurement of viable and cost effective energy storage systems.[2]

On May 31, 2011 Amy Yip-Kikugawa issued a Scoping Memo and Ruling ("Scoping Memo") dividing the proceeding into two phases, with the first phase considering the overall policies and guidelines for ESS. There was a subsequent workshop on June 28, 2011 to consider ESS currently in use and barriers and impediments to further widespread use of storage. The workshops contained formal workshops from various parties. On July 21, 2011 the ALJ issued a second ruling ("Ruling") instructing parties to comment on the formal and party presentations. Additionally, the Ruling sought comments from parties to the following 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?

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[1] OIR at 1

[2] Id.

2. Are there other barriers that were not identified during the workshop? Please explain how these 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
3. In your opinion, are there certain barriers that need to be resolved first, and therefore have priority?

III. GENERAL COMMENTS

CFC commends the Commission for initiating a proceeding to help integrate energy storage as part of California's overall goal of increasing energy management and improving the environment in the process. CFC believes energy storage can play an important role in integrating renewables. Although CFC believes that energy storage can potentially improve grid reliability and efficiency cost-effectively, the critical step in energy storage being cost-effective is thoughtful planning in advance of adoption, particularly taking into consideration current programs that can accomplish the same goals as energy storage at a lower cost. As a result, CFC cautions against a complete 'learn by doing' approach without prior gap filling and reducing overlap and favors conducting a full economic analysis that compares other potentially lower cost programs that may achieve the same general outcome as energy storage.

Today, California is involved in energy management programs such as Demand Response and Energy Efficiency that potentially serve the same purpose as certain energy storage services. For example, one of the uses for energy storage is to reduce the use of electricity generated from fossil fuels to meet peak load requirements on days with high electricity demand. This can also be accomplished with Demand Response and Energy Efficiency programs. Another potential energy storage service is to defer the need for new fossil fuel-powered peaking power plants and avoid or defer distribution and transmission system upgrades and expansion of the grid. This can also be accomplished with Demand Response and Energy Efficiency already in place. Current energy management programs are expensive,

already costing ratepayers millions per year to operate. Because of potential overlap between existing energy management programs and energy storage, CFC recommends a vigilant approach to adopting energy storage by taking into consideration existing programs that successfully accomplish the same goals as energy storage.

CFC is most concerned about energy storage investments getting passed down to utility customers. Private investors are hesitant to invest in energy storage technologies because of the degree of uncertainties and high cost of bringing energy storage technologies to commercial viability. One solution would be to see how to increase the potential for capital investors to invest in these products so that utility ratepayers do not end up paying for the bulk of these investments. In short, one of stakeholders' and Commission's first priorities should be to find a way how energy storage technologies are attractive to funding sources outside ratepayer funds.

IV. COMMENTS ON PRESENTATIONS A-G

A. PRESENTATION A: CALIFORNIA ENERGY COMMISSION

Presentation A was submitted by the California Energy Commission ("CEC") concerning the PIER funded project "2020 Energy Storage Vision for California: Strategic Analysis of Energy Storage Technologies."

CFC generally agreed with the presentation including how energy storage will be an important role in meeting future state energy goals. CFC particularly agreed with the presentations statement that valuation of energy storage applications should begin early on. CFC believes that resolving uncertainties regarding particular value with respect to energy storage applications will be a important step in controlling cost and avoiding wasteful spending.

B. PRESENTATION B: CALIFORNIA ISO

CFC does not have any comments for Presentation B at this time.

C. PRESENTATION C: SOUTHERN CALIFORNIA EDISION

Presentation C centers on an application specific approach to energy storage. CFC advocated for a application specific approach in their opening comments to the OIR and generally agrees with SCE that an "application specific approach is an effective framework for identifying and addressing energy storage issues." CFC believes that this is the best way to ensure adopting cost –effective technologies. CFC cautions however that because energy storage systems have multi-functional characteristics coupled with the fact that no single storage system can meet all of the application needs of the power grid, in order to ensure that using an application specific approach is cost-effective there will need to be careful planning before widespread adoption to best match technologies with applications. If done correctly, an application specific approach can be an important step to avoid unnecessary spending.

D. PRESENTATION D: CALIFORNIA ENERGY STORAGE ALLIANCE

Presentation D focuses from an industry standpoint on how to facilitate widespread adoption of energy storage. Presentation D favors:

- Establishing procurement targets
- A "learn by doing" approach
- Quick field deployments
- A regulatory framework that supports an infusion of capital to California
- Diversity of technology options
- Adding storage to the loading order, on a par with Demand Response

CFC agrees with California Energy Storage Alliance ("CESA") that energy storage systems can provide benefits to the grid. CFC disagrees with CESA when it comes to establishing procurement targets, a "learn by doing" approach, quick field deployments, and

adding storage to the loading order that's on a par with existing energy management programs such as Demand Response.

As mentioned earlier, utility customers have already invested millions in existing energy management programs. Some of these activities may serve the same purpose and perform the same function as certain energy storage technology. The Commission should refrain from spending more money on technologies if there is such an overlap. As a result, a procurement target would not be in the best interest of consumers, especially if a portion of ratepayer dollars is going toward energy storage technology investment.

CFC's reasons for opposing making energy storage part of the loading order on a par with Demand Response are the same for opposing procurement targets. Demand Response can be considered an alternative to energy storage for certain services.

CFC also disagrees with a "learn-by-doing" approach. This seems counterintuitive to implementing energy storage cost-effectively. There is research done by EPRI and other research think tanks that have analyzed the costs and benefits of certain energy storage technologies according to certain applications and have come up with the "top candidates" for energy storage technologies, in other words those technologies that can serve a range of applications at the lowest cost.[3]

E. PRESENATION E: AES ENERGY STORAGE

a. CFC does not have any comments for Presentation E at this moment.

F. PRESENTATION F: BEACON POWER

a. CFC does not have any comments for Presentation F at this moment.

G. PRESENTATION G: KS ENGINEERS

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[3] *Electricity Energy Storage Technology Options*, A white paper Primer on Applications, Costs & Benefits at 5-7

Presentation G focuses on an overall change in rate design for residential customers. Presentation G argues that a change in residential rate structure to real time pricing will resolve all challenges with the power grid, including integrating ESS into the grid. Although, a discussion on rate design may be outside the immediate scope of this proceeding, CFC feels that this issue should be addressed in these comments since rate design was the main focus of this presentation.

CFC disagrees with parts of this presentation CFC feels that parts of this presentation ignores potentially negative impacts certain customers will face if there is a mandatory shift to real time pricing for residential customers. Real time pricing solves all problems in the abstract but there may be some potential hindrances when put into practice. For example, the statement " If we were charged according to what an actual KWH costs in real time consumers would respond immediately. The load and shape of the grid would flatten out immediately." Theoretically, this is the perfect solution. Practically, however, the problem is a lot of people do not have the flexibility to shift their load at specific times. As a result, certain customers may get charged more simply because they have no choice but to use electricity during that time.

V. HIGH COST AND UNCERTAIN VALUE PRESENT THE GREATEST IMPEDIMENT TO WIDESPREAD USAGE OF ENERGY STORAGE AND DEVELOPMET OF ESS IN CALIFORNIA.

As mentioned earlier, cost and the potential for wasteful spending present the greatest impediment to more widespread usage of energy storage and development of energy storage technologies in California. CFC recommends the Commission initiate a thoughtful, measured approach that fills in certain gaps and reduces overlap between existing energy management programs and energy storage technologies before commencing widespread adoption of energy

storage technologies. In addition, stakeholders should concentrate on ways to make energy storage attractive to external funding sources, and avoid relying on ratepayer money to fund investments.

CFC believes that the uncertain value of energy storage applications goes hand in hand with the potential for wasteful spending and should be resolved first before widespread adoption of energy storage. This is discussed further below.

VI. OTHER BARRIERS, NOT PRESENTED IN THE WORKSHOP THAT IMPEDE THE USAGE OR DEVELOPMENT OF ENERGY STORAGE.

A. THERE SHOULD BE A STANDARD DEFINITION FOR ENERGY STORAGE SYSTEMS.

As mentioned in CFC's opening comments, there should be a consistent definition for energy storage. The Commission's Policy and Planning Division's white paper entitled, *Electric Energy Storage: An Assessment of Potential Barriers and Opportunities*, states[4]:

> One of the major conundrums facing policymakers and industry is the lack of a single, authoritative definition of electric storage. This lack of definition hampers efforts to overcome barriers to the widespread development and deployment of storage on the grid.

CFC believes that creating a single definition is of paramount importance because it will influence how other decisions are made such as cost allocation and cost methodologies.

In short, energy storage means different things to different stakeholders. Coming up with a standard definition will eliminate confusion and will be a critical component in solving other uncertainties.

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[4] Electric Energy Storage: An Assessment of Potential Barriers and Opportunities at 2, found at http://www.cpuc.ca.gov/NR/rdonlyres/71859AF5-2D26-4262-BF52-62DE85C0E942/0/CPUCStorageWhitePaper7910.pdf

B. THE COMMISSION SHOULD AIM FOR CLEARLY DEFINED OWNERSHIP STRUCTURES.

Energy storage technologies have multi-functional characteristics that, though may prove to be beneficial, could complicate issues such as ownership and cost allocation. The Commission should aim for clearly defined ownership structures which could then, in turn, make it easier to allocate costs.

C. QUANTIFYING THE VALUE OF ENERGY STORAGE SERVICES CONTINUES TO BE A BARRIER.

The National Renewable Energy Laboratory ("NREL") white paper entitled, *The Role of Energy Storage with Renewable Electricity Generation*, listed one of the challenges to energy storage adoption is quantifying the value of the service provided by energy storage technologies. The paper states[5]:

> Historically, storage has been difficult to sell into the market, not only due to high costs but also because of the array of services it provides and the challenges it has in quantifying the value of these services- particularly the operational benefits such as ancillary services. The challenge of simulating energy storage in the grid, estimating its total value, and actually recovering those value streams continues to be a major barrier.

Monetizing benefits is a necessary to ensuring cost-effectiveness and avoiding wasteful spending. Consequently, this should be one of the first challenges addressed before widespread adoption.

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[5] The Role of Energy Storage with Renewable Electricity Generation, by NREL at 46 , found at http://www.nrel.gov/docs/fy10osti/47187.pdf

VII. THE UNCERTAINTY OF OVERALL ECONOMIC NET BENEFITS COMPARED TO OTHER ENERGY MANAGEMENT ALTERNATIVES NEED TO BE RESOLVED FIRST BEFORE WIDESPREAD USAGE OF ENERGY STORAGE.

Although cost-benefit analysis will be addressed in phase 2, CFC believes it is important to address the numerous uncertainties, in particular the uncertainty of net benefits. These uncertainties present an obstacle to widespread adoption and should be resolved first before spending large amounts of money in energy storage technologies.

VIII. THE COMMISSION SHOULD ASSESS AND RECONCILE THE POTENTIAL DISCONNECT BETWEEN WHO PAYS AND WHO BENEFITS FIRST BEFORE WIDESPREAD ADOPTION OF ENERGY STORAGE.

In addition to figuring out what the net benefits are compared to alternative options, the Commission should assess whether there is a disconnect between who pays and who benefits. Essentially those who benefit may beyond utilities customer base or in locations beyond the local utility service area. If this is the case the Commission should first identify the total beneficiaries of energy storage in order to pursue cost recovery beyond ratepayer money.

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Respectfully Submitted,

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