BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

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COMMENTS OF THE CALIFORNIA ENERGY STORAGE ALLIANCE ON PROPOSED POLICIES AND FINDINGS PERTAINING TO THE SMART GRID

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Pursuant to Ordering Paragraph Number 3 of the *Assigned Commissioner and Administrative Law Judge's Joint Ruling Amending Scoping Memo and Inviting Comments on Proposed Policies and Findings Pertaining to the Smart Grid*, issued February 8, 2010 ("OIR"), and 6.2 of the California Public Utilities Commission ("Commission") Rules of Practice and Procedure, the California Energy Storage Alliance ("CESA")[1] hereby submits these comments.

I. INTRODUCTION.

First and foremost CESA takes this opportunity to relate SB 17 directly to the need for a new Commission proceeding devoted entirely to energy storage.[2] In these comments, CESA also addresses the first and third broad areas identified by the Commission as within the amended scope of this proceeding. The second area, pertaining to rules to provide customers and third parties with access to usage and price data consistent with the Energy Independence and Security Act of 2007 is very important; and CESA is confident that it will be capably addressed by others. CESA's essential interests in this proceeding are encompassed within the first and

[1] The California Energy Storage Alliance consists of A123 Systems, Altairnano, Beacon Power, Chevron Energy Solutions, Debenham Energy, Deeya, Energy, Enersys, Enervault, Fluidic Energy, Ice Energy, Powergetis, Prudent Energy, PVT Solar, Suntech, Xtreme Power and ZBB Energy Corporation. The views expressed in these Opening Comments are those of CESA, and do not necessarily reflect the views of all of the individual CESA member companies.

[2] Implicit in this policy statement, of course, is that there is no reason for the Commission to eliminate any storage options for consideration, in Smart Grid proposal or otherwise, as could be inferred from the Commission's question posed at Section 5.4 of the Amended Scoping Memo regarding the best place for consideration of storage options, (p. 29).

third broad areas enumerated by the Commission, namely: (a) the policy matters assigned to the Commission by passage of SB 17, including providing guidance to the electric utilities so that they may develop deployment plans by July 1, 2010, and (b) development of policies to prepare California's electric infrastructure for the growing challenges posed by greater reliance on demand reduction, load management, renewable resources and electric vehicles, facilitating the advancement of the policy goals that initiated this proceeding.

II. THE COMMISSION SHOULD OPEN A NEW PROCEEDING TO ADDRESS ISSUES SPECIFIC TO ENERGY STORAGE IN A COMPREHENSIVE WAY IN ADDITION TO INCLUDING ENERGY STORAGE IN SMART GRID DEPLOYMENT PLANS.

CESA's primary goal as a party in this proceeding is to strongly advocate that energy storage be a central part of Commission's policy as a *discrete topic*.[3] One of its consistent objectives is to assure that the broad policy implications of energy storage do not become "lost in the shuffle" as the Commission addresses national-level issues as *in itself*, energy storage does address many of these national-level issues.[4] A new Commission proceeding focused on energy storage is needed, recognizing that it is *sui generis,* as was done with the Commission's recently initiated Alternative-fueled Vehicle Rulemaking.[5] As discussed below, in addition to the Commission, the Federal Energy Regulatory Commission ("FERC"), the California Independent System Operator ("CAISO"), the California Legislature, the California Attorney General, the U.S. Congress and the Obama Administration are all pushing hard to promote greater use of energy storage.[6]

At the CAISO, today, energy storage technology is categorized as a subset of the CAISO's Integration of Renewable Resources Program ("IRRP"), but it is also the subject of numerous other CAISO program that deal with wholesale energy markets, including:

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[3] CESA has also made this point in its *Opening Comments on Direct Participation of Retail Demand Response in CAISO Electric Markets*, filed December 4, 2009, in R.07-01-041.

[4] A prominent example is the California Independent System Operator's ("CAISO's") efforts to comply with the Federal Energy Regulatory Commission's ("FERC's") Order Numbers 890 and 719.

[5] *Order Instituting Rulemaking to consider Alternative Fueled Vehicle Tariffs, Infrastructure, and policies to Support California's Greenhouse Gas Emissions Reduction Goals,* R.09-08-009, issued August 20, 2009.

[6] The California Energy Commission ("CEC") also has very broad statutory authority to adopt load management standards to advance the use of energy storage under Public Resources Code §25403.5, *See, e.g., CEC Draft Energy Efficiency Committee Report*, November 2008, at p. 8., and see Load Management Informational and Rulemaking Proceeding, Docket #-08-DR-1.

- Achieving 33%
- 2020 Transmission Planning Process ("RETPP")
- Non Generator Resources Participation in Ancillary Services Markets
- Limited Energy Storage Resource ("LESR") Program
- Proxy Demand Resource ("PDR")

Meanwhile, energy storage is being addressed simultaneously in a plethora of Commission proceedings, which relate to the CAISO stakeholder initiative processes. For example:

- Demand Response Rulemaking (R.07-01-041)
  - Permanent Load Shifting
  - Direct participation of retail load in ancillary services markets
- Distributed Generation Rulemaking (R.08-03-008)
- Smart Grid Rulemaking (R.08-12-009)
- Resource Adequacy (R.09-10-032)
- Alternative-Fueled Vehicles (R.09-08-009)
- Renewable Portfolio Standard (R.08-08-009)
- Long Term Procurement Plans (R.08-02-007)

The Commission's involvement in energy storage policy issues at the CAISO could be much more transparent and thus more effective.[7]

CESA believes that this is the appropriate time and place to take a holistic view of energy storage and define Commission-directed Smart Grid Deployments plans that will both complement the interests of the CAISO's stakeholders, and come to grips with state-level issues and opportunities outside of the ambit of the CAISO's and the FERC's jurisdiction.[8] The CAISO's Stakeholder Initiative process and the multiple related CPUC proceedings demonstrate that it is presently impossible to identify one place at the Commission to deal with the broad

[7] An exception may prove to be the interaction between the Commission's demand response proceeding (R.07-01-041), and the CAISO Participating Load Pilot Project undertaken as part of its compliance with the FERC's Order 890, and Order 719. See, CAISO 2009 Report on Participating Load Pilot Project, February 18, 2010, p. 5.

[8] The FERC very recently issued an order on Petition for Declaratory Order stating that: "We note that electricity storage devices. . . do not readily fit into only one of the traditional asset functions of generation, transmission or distribution. Under certain circumstances, storage devices can resemble any of these functions or even load. For this reason, the Commission has addressed the classification of energy storage devices on a case-by-case basis. Western Grid Development, LLC 130 FERC ¶61,056, issued January 21, 2010.

range of policy and technical issues that relate to energy storage, and at times even difficult to navigate among the various proceedings in an efficient manner.

CESA believes it is critically important to draw clear lines of demarcation as to federal wholesale and state retail regulatory jurisdiction as a necessary, but not sufficient, part of a holistic market-based approach to take full advantage of all of the benefits energy storage offers, in its many forms. The subject of energy storage in California is clearly much broader than FERC-jurisdictional transactions. Indeed, it also extends well beyond into unregulated markets that are beyond the Commission's jurisdiction as well such as off-grid energy storage used for emergency backup and remote loads, or energy storage used solely for transportation purposes.

The California Legislature is also beginning to weigh in on energy storage with AB 2514 (Skinner), introduced on February 19, 2010, which would create a state-wide "Energy Storage Portfolio Standard" to supplement the existing Renewables Portfolio Standard and help California achieve its renewable energy, peak load reduction and greenhouse gas emission reduction goals. The Commission is, of course, presently moving forward with implementation of SB 412 (Kehoe)[9], which provides incentives under the Commission's Self Generation Incentive Program ("SGIP") for certain distributed resources coupled with energy storage technology, and may indeed extend to energy storage technology in stand-alone mode and energy storage technology coupled with solar resources.[10] The U.S. Congress is also continuing to weigh in on energy storage including legislation introduced by California's U.S. Representative Mike Thompson as H.R. 3918 "Thermal Energy Cooling and Heating Act of 2009", and by U.S. Senator Ron Wyden as S. 1019 ''Storage Technology of Renewable and Green Energy Act of 2009''

Given the belated, but very real, recognition of the importance of energy storage in essentially all venues that deal with energy policy and the rapidly dawning public awareness of the subject, the Commission should open a rulemaking proceeding devoted to energy storage

[9] *See, Order Instituting Rulemaking Regarding Policies, Procedures, and Rules for the California Solar Initiative, the Self Generation Incentive Program and Other Distributed Generation Issues*, issued March 13, 2008.

[10] Additionally, in the context of *Order Instituting Rulemaking Regarding Policies and Protocols for Demand Response Load Impact Estimates, Cost-Effectiveness Methodologies, Megawatt Goals and Alignment with California Independent System Operator Market Design Protocols*, R07-01-041, filed January 25, 2007, the Commission directed the California utilities to conduct a study and deliver a report on the best way to promote permanent load shifting, one form of thermal energy storage, that is due by the end of 2010 (D.09-08-027, issued August 20, 2009).

now so that it can help lead the rapidly evolving regulatory landscape so that it can provide intellectual and policy leadership for this rapidly evolving regulatory landscape.

III. SMART GRID DEPLOYMENT PLANS SHOULD INCLUDE INTEGRATION OF ADVANCED ENERGY STORAGE AND PEAK SHAVING TECHNOLOGIES, INCLUDING PLUG-IN ELECTRIC AND HYBRID ELECTRIC VEHICLES, THERMAL STORAGE AIR CONDITIONING AND OTHER ADVANCED ENERGY STORAGE TECHNOLOGIES.

At pages 8-10, of the Amended Scoping memo, the Commission summarizes the requirements of SB 17 and the Energy Independence and Security Act of 2007, and requirements for immediate action, specifically focusing, in part, on the subject of energy storage.

> "SB 17 establishes a policy that: By July 1, 2010, the commission, in consultation with the Energy Commission, the ISO, and other key stakeholders shall determine the requirements for a smart grid deployment plan consistent with Section 8360 and federal law, including the provisions of Title XIII (commencing with Section 1301) of the Energy Independence and Security Act of 2007 (Public Law 110-140). (Footnote omitted)
>
> Section 8360 sets out California policies pertaining to the Smart Grid. It states: § 8360 It is the policy of the state to modernize the state's electrical transmission and distribution system to maintain safe, reliable, efficient, and secure electrical service, with infrastructure that can meet future growth in demand and achieve all of the following, which together characterize a smart grid:
>
> . . .
>
> (g) Deployment and integration of cost-effective advanced electricity storage and peak-shaving technologies, including plug-in electric and hybrid electric vehicles, and thermal-storage air-conditioning."

Further, energy storage can directly support the three key principles and legislative goals that drive Smart Grid Deployment, as articulated in the Amended Scoping Memo:

1. "Increasing reliability, efficiency and safety of the power grid
2. "Enabling decentralized power generation so homes can be both an energy consumer and supplier (provide consumers with interactive tools to manage energy usage)
3. "Flexibility of power consumption at the consumer side to allow supplier selection (enables distributed generation, solar, wind, biomass etc.)." (p. 10).

CESA strongly agrees with the statement in the Amended Scoping Memo that "a Smart Grid must … accommodate all generation and storage options– A smart grid system should

continue to support traditional power loads, and also seamlessly interconnect with renewable energy, micro-turbines, and other distributed generation technologies at local and regional levels." (p.12).

IV. THE BEST WAY THAT THE COMMISSION CAN INCORPORATE THE POLICIES ADOPTED IN §8360 IS TO REQUIRE THE UTILITIES TO DEMONSTRATE HOW THEIR SMART GRID DEPLOYMENT PLANS ADDRESS EACH ELEMENT OF THE POLICIES EMBODIED IN §8360 AND §8366.

A. Smart Grid Deployment Plans Should Establish A Baseline For The Commission To Monitor Smart Grid Deployment And Be Included As An Important Factor In Evaluation Of The Reasonableness Of Electric Utility Smart Grid Investments.

At pages 6-8 of the Amended Scoping Memo, the Commission considers several ways that the Deployment Plan could be used. CESA agrees with the conclusion reached by the Commission as summarized above.

B. Smart Grid Deployment Plans Should Be Considered In A Single Proceeding Generally Approving Electric Utility Deployment Plans At The Same Time, And Determining Implementation Processes In Subsequent Proceedings That Authorize Implementation Of Each Electric Utility's Deployment Plans.

CESA agrees with (i) the Division of Ratepayer Advocates ("DRA") "that filings in multiple venues create confusion for the regulators, the utilities, and intervenors," and (ii) the California Large Energy Consumers Association ("CLECA") that cautioned against the inclusion of Smart Grid investments in GRCs because that will raise hurdles for intervenors wishing to participate. CLECA argued, rightly, that participation in a multi-issue proceeding is extremely expensive for a group that has an interest in only a few special issues. The most certain way for the Deployment Plans to lose focus and become "lost in background noise" is to drop them into the GRC process.

V. THE COMMISSION SHOULD MEASURE THE SUCCESS OF ENERGY STORAGE WITHIN UTILITY SMART GRID DEPLOYMENT PLANS BY TRACKING ALL STORAGE-RELATED BENEFIT STREAMS INCLUDING THOSE RELATED TO COST, DEMAND REDUCTION, ENERGY USAGE, AND OVERALL SYSTEM EFFICIENCY ENHANCEMENT.

CESA supports using both "input" and "output"-related quantitative metrics for tracking Smart Grid Deployment success. These metrics will not only be useful to ascertaining program

success, but also to providing feedback on an ongoing basis so that program/policy adjustments may be made over time. Most importantly is that the metrics tracked capture *all* of the many benefit streams delivered by energy storage.

It should be underscored, however, that even the most sophisticated metrics of the energy storage systems themselves (e.g. cost per MW installed) do not capture the great value of energy storage in improving the grid, such as by deferring/avoiding capital expenditures, reduced fuel consumption and emissions from now less-used peaking plants, reduction in overall system T&D congestion, more efficient and cost-effective integration of carbon-free intermittent renewable resources, etc. Metrics, both quantitative and qualitative, need to measure both the energy storage systems themselves and their grid-wide impacts.

In addition to the metrics recommended by the Commission's Energy Division staff in Attachment C of the Amended Scoping Memo, CESA recommends metrics such as the following specifically for load and or generation that is supported by energy storage "Deployment and Integration of Energy Storage and Peak Shaving" (Appendix C page 5[11]) and is ready to work with the Commission and parties to further refine these and other relevant metrics:

- $/MWh delivered for the storage technology, based upon total lifecycle cost
- MW and MWh of capacity of peak load-reducing storage installed
- MW and MWh of capacity installed to directly facilitate integration of renewable energy
- Total $ saved resulting from the storage technology, factoring in all system benefits including but not limited to enhanced generation, transmission and distribution efficiencies
- Distribution feeder load factor with and without storage
- Increased substation capacity resulting from energy storage
- Aggregate MWh discharged or displaced from energy storage (including separate statistics for renewable-only)
- Reliability improvement resulting from energy storage
- Energy efficiency enhancements to the electric utility system itself (including

[11] Many of the metrics can be monitored by metering inputs and outputs of the energy storage system

generation, transmission, distribution, end use device) due to the energy storage system.

Because energy storage is also a key distributed energy resource, CESA recommends additions such as the following to the staff-proposed metrics for "Deployment and Integration of Distributed Resources, Including Renewable Resources" (Appendix C, p. 3).

- $/MWh delivered for the storage technology, based upon total lifecycle cost
- Average number of days between interconnection request for distribution-level distributed energy storage and activation of this resource, including separate averages for consumer-owned and non consumer-owned energy storage.
- Number and percentage of installation and total load covered by microgrids utilizing energy storage, including separate identification of microgrids that are "islandable" from the main grid due to energy storage
- $/MWh saved resulting from the energy storage technology – factoring in all system benefits
- Frequency and duration of interruptions of customers who utilize customer-sited energy storage
- Aggregate MWh charged

VI. THE COMMISSION CAN AND SHOULD PROVIDE INCENTIVES TO ENCOURAGE DEPLOYMENT OF DEVICES IN HOMES AND BUSINESSES THAT INTERACT WITH THE SMART GRID IN WAYS THAT FACILITATE THE MANAGEMENT OF ELECTRIC LOAD. STORAGE IS AN EXAMPLE OF SUCH A DEVICE.

As mentioned above, passage of SB 412 created the potential for direct incentives to end users and third party owners who invest in customer-sited energy storage through the SGIP. The SGIP currently provides incentives for energy storage technology coupled with distributed wind and fuel cell renewable resources, and should also provide incentives for energy storage coupled with distributed solar resources and for stand-alone energy storage technology.

Incentives to encourage the deployment of consumer-sited and consumer-owned storage as a key smart grid device are also appropriate to encourage technology adoption and compensate consumers for the system benefits provided by their investment in customer-side-of-the-meter energy storage devices. Such incentives should not preclude utility ownership of

storage assets, and should encourage customer-owned as well as third party-owned models. Incentives may also be helpful for utility-owned models of customer-sited storage. For example, comparable to how utility-owned distributed solar assets are being deployed today, utilities should be able to enter into a site lease with end use customers for the siting of utility-owned energy storage systems.

VII. CONCLUSION.

CESA appreciates this opportunity to comment, and looks forward to working with the Commission and the parties to this proceeding.

Respectfully submitted,

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Date: March 9, 2010

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of ***Comments of the California Energy Storage Alliance on Proposed Policies and Findings Pertaining to the Smart Grid*** on all parties of record in proceeding ***R.08-12-009*** by serving an electronic copy on their email addresses of record and by mailing a properly addressed copy by first-class mail with postage prepaid to each party for whom an email address is not available.

Executed on March 9, 2010, at Woodland Hills, California.

Michelle Dangott

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