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)

COMMENTS OF THE ELECTRICITY STORAGE ASSOCIATION ON ADMINISTRATIVE LAW JUDGE'S RULING ENTERING INTERIM STAFF REPORT INTO RECORD AND SEEKING COMMENTS

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Dated: February 4, 2013

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Pursuant to the Rules of the California Public Utilities Commission's (the "Commission" or the "PUC") Rules of Practice and Procedure and the *Administrative Law Judge's Ruling Entering Interim Staff Report Into Record and Seeking Comments* as issued by The Honorable Amy C. Yip-Kikugawa on January 18, 2013 ("ALJ's Ruling"), the Energy Storage Association d/b/a Electricity Storage Association ("ESA"), on behalf of its Advocacy Council[1], is pleased to respond to the specific questions raised by the PUC in the above-captioned matter.

ESA appreciates the staff's interim report and the work by staff and stakeholders toward establishing energy storage use cases, cost-effectiveness evaluation of energy storage, and considering procurement policies for energy storage. As detailed below, ESA recommends the Commission proceed with the adoption of procurement targets.

I. COMMENTS

A. ESA supports the adoption of procurement goals as a means to ensure the economic, operational and environmental benefits of energy storage are realized.

[1] On January 30, 2013, the ESA submitted a Motion to Intervene in the above-captioned proceeding. The ESA's Advocacy Council has the following members: A123 Systems, Inc., AES Energy Storage, Altairnano, Aquion Energy, Beacon Power, LLC, FIAMM, NextEra Energy, S&C Electric Company, Saft America Inc., Temporal Power, Xtreme Power.

In order to adequately value the economic, operational and economic benefits of the full range of energy storage resources, the PUC is correct that new procurement mechanisms should be implemented. Because ESA's Advocacy Council members primarily provide transmission-connected energy storage resources in the bulk storage or ancillary services, these Comments are focused on those specific use cases. However, many of the comments apply to the distributed peaker use case as well.

The primary drivers of benefits provided by energy storage resources are their capacity and flexibility characteristics. Not only are these characteristics valuable in and of themselves, they also unlock latent economic value system-wide by relieving constraints that allow further optimization of thermal and renewable energy dispatch. Specifically, energy storage resources avoid thermal unit start/stop costs, avoid costs associated with "must run" minimum generation from thermal units, avoid renewable energy curtailments, and increase utilization of combined cycle gas generation.

To the extent the increased renewable energy or natural gas combined cycle utilization is discharged during time periods when it would offset output from less efficient peaking natural gas generation, energy storage resources can reduce system emissions and dampen exposure to volatility in natural gas prices. The development of energy storage resources generally requires less time to perform siting and permitting, which creates flexibility in the planning process. This planning flexibility reduces the development risk associated with procurement of energy storage resources relative to traditional generation. Energy storage resources that are brought online primarily to meet capacity requirements are able to provide value across all hours of the year, unlike new natural gas-fired peaking generation which is used in relatively few hours.

Many advanced energy storage resources are designed to be modular with many independent units running in parallel, an architecture that improves overall system reliability through its inherent redundancy. By comparison, most conventional generation facilities are comprised of a few large units. The "shaft risk", a capacity resource's contribution to loss of load probability from the failure of a single unit or piece of equipment, is lower under the modular architecture. A modular architecture with many parallel units also allows maintenance of those units to be performed in sequence, reducing outage rates and improving the resource's availability. Modularity allows energy storage resources to deliver a superior reliability benefit.

In addition to its value as a capacity resource, advanced energy storage provides significant economic, reliability enhancement and environmental benefits for providing ancillary services. FERC found in Order No. 755 that the use of fast-ramping storage technologies to provide frequency regulation had the potential to reduce the total amount of regulation that needs to be procured by the ISO to meet its reliability requirements, i.e. 1 MW of storage has the potential to offset 2 – 4 MWs of traditional fossil generation providing frequency regulation. Given that the California Independent System Operator ("CAISO") is forecasting that it will need to more than double the amount of regulation procured[2] by the CAISO to support the 33% RPS, advanced energy storage is an ideal solution for meeting this increased need. Furthermore, unlike generators that experience higher rates of fuel consumption and air pollutant emissions when they provide regulation service, storage resources recycle existing power without burning fossil fuel or producing any direct air emissions, thereby lowering total system operating costs and air pollutant emissions. A study by Carnegie Mellon in October 2008 estimated that 20% of the CO2 emission reduction and up 100% of the NOX emission reduction expected from introducing wind and solar power will be lost because of the extra ramping requirements they impose on traditional generation.[3] Continued reliance on thermal generating units to meet increased regulation requirements could actually increase emissions of CO2, NOX and other pollutants, thereby defeating one of the main benefits of the 33% RPS.

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[2] In CAISO's 33% RPS study, the CAISO found that it needs 754 MW of Regulation Up and 767 MW of Regulation Down on average per hour in 2020 as compared to the 333 MW of Regulation Up and 350 MW of Regulation Down procured on average each hour in 2012. http://www.caiso.com/planning/Pages/ReportsBulletins/Default.aspx

[3] Katzenstein, W., and Jay Apt. Air Emissions Due To Wind And Solar Power. *Environmental Science & Technology*. 2009, 43, 253-258. http://pubs.acs.org/doi/pdf/10.1021/es801437t

ESA believes that appropriate procurement mechanisms and cost-effectiveness methodologies will weigh the benefits described above, and award energy storage resources credit for providing those benefits. ESA supports the California Energy Storage Alliance's ("CESA") call for the creation of win-win procurement goals under this proceeding. ESA agrees with CESA's proposed framework to develop an energy storage portfolio with procurement goals in three main areas: capacity, ancillary services and behind-the-meter.

B. Energy storage resources have an established operating history.

Many energy storage facilities are in operations or under construction, providing a rich operating history across a range of applications and use cases. A few are in California, but ESA agrees with the comments by Jack Ellis at the January 14, 2013 workshop that the ones outside California "provide a wealth of experience and information." The table below lists over 200 MW of advanced energy storage projects in operation or under construction, including projects in California. About 90% of the megawatts listed are projects for which an ESA Advocacy Council member is the developer/owner, storage supplier, inverter supplier or integrator.

Facility (Location)	Developer/Owner	Technology	COD	MW
Notrees (TX)	Duke Energy	Battery – Xtreme*	2012	36
Laurel Mountain (WV)	AES*	Battery – A123*	2011	32
Wind Firming EnergyFarm	*Modesto Irrigation Dist.*	*Battery – Primus*	*2013*	*25*
Fairbanks BESS (AK)	GVEA	Battery – Saft*	2003	27
Stephentown Spindle (NY)	Beacon Power*	Flywheel – Beacon	2011	20
Angamos (Chile)	AES	Battery – A123	2011	20
Hazle Spindle (PA)	*Beacon Power*	*Flywheel - Beacon*	*2013*	*20*
Oahu (HI)	First Wind	Battery – Xtreme	2011	15
Various U.S. Projects	AEP	Battery – NGK	2006-10	13
Maui (HI)	First Wind	Battery - Xtreme Poner	2012	10
Los Andes (Chile)	AES	Battery – A123	2009	12
Auwahi (HI)	Sempra Generation	Battery – A123	2012	11
Johnson City (NY)	AES	Battery – A123	2010	8
San Jose (CA)	*PG&E*	*Battery – NGK*	*2013*	*4*
Vaca Dixon (CA)	PG&E	Battery – NGK	2013	2
Borrego Springs (CA)	SDG&E	Battery – Dow Kokam	2013	1
Catalina Island (CA)	Southern Ca. Edison	Battery – NGK	2011	1
* ESA Advocacy Council member *Under Construction*				

C. Energy storage resources' cost-effectiveness improves with scale.

There are many energy storage technologies that are already cost-effective in many applications. ESA agrees with the interim staff report's recognition that determining cost-effectiveness tests for energy storage resources is "challenging because of the wide variety of storage technologies, applications and location specific, operational specific, factors." In response to staff's question "Is there a simplified approach to cost-effectiveness that would meet the Commission needs?" ESA would advise focusing on the benefits methodologies on the "effectiveness" side of the equation. The marketplace of energy storage solution providers will be able to make binding commercial offers that include pricing once procurement channels are open for energy storage deployment. Energy storage technology costs have been falling, and will continue to drop as the industry achieves economies of scale. Smart procurement policy in California that includes energy storage would benefit by setting targets at a relevant scale, in the hundreds or thousands of megawatts, to drive and benefit from these economies of scale.

D. Energy storage should be considered a "preferred resource."

Energy storage resources are an ideal complement, and in many cases, a component, of preferred resources in the Loading Order. In the transmission connected and distribution-level use cases, energy storage resources support the very benefits contemplated under the Loading Order – specifically energy with reduced dependence on fossil fuels, greenhouse gas reductions and the avoided cost of unneeded generation and delivery infrastructure. The use of such resources would increase the fuel efficiency of the generation system and improve the utilization of renewable energy. Under the customer-sited category of use cases – customer bill management, utility controlled, permanent load shifting – energy storage can serve as a component within demand response and energy efficiency strategies. The designation of energy storage as a preferred resource as suggested in the LTPP Phase 1 Proposed Decision would promote increased investment in achieving these benefits. Another procurement policy option related to considering energy storage a preferred resource and used in the LTPP Phase 1 Proposed Decision is to utilize a "portfolio approach" to procurement to procure preferred resources including energy storage. This policy option will help create diversified portfolios of resources, help ensure optimal procurement from preferred resources like energy storage, and further ensure the economic, operational and environmental benefits of energy storage are realized.

E. Consider contracting incentives to encourage utility procurement.

Section 8.1 of the interim staff report contemplates "utility ownership incentives or regulatory rate recovery options… to encourage utility procurement." ESA encourages the consideration of contracting incentives in addition to ownership incentives, as was contemplated in the July 2010 Commission staff white paper *Electric Energy Storage: An Assessment of Potential Barriers and Opportunities*. Much of the discussion about energy storage has focused on it as a capacity resource in the bulk generation and ancillary services use cases. The dominant mechanism for California investor-owned utilities to procure new long-term capacity resources is by contract – via power purchase and/or tolling agreements. If utilities continue to view energy storage as a risky resource option, an appropriate policy mechanism to compensate for the perceived technology risk would be to allow utilities to earn a return instead of simply passing through purchased power costs of a power purchase or tolling agreement backed by an energy storage resource.

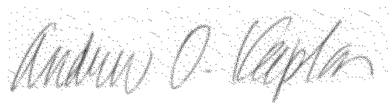
II. CONCLUSION

ESA appreciates this opportunity to submit comments on the interim staff report, and looks forward to working with the Commission and parties throughout the remainder of this proceeding.

Respectfully submitted,

THE ELECTRICITY STORAGE ASSOCIATION

By its attorney,



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S&C Electric Company
Saft America Inc.
Temporal Power
Xtreme Power

Date: February 4, 2013

CERTIFICATE OF SERVICE

I hereby certify that I have on this day served via email, a true copy of the foregoing "**COMMENTS OF THE ELECTRICITY STORAGE ASSOCIATION ON ADMINISTRATIVE LAW JUDGE'S RULING ENTERING INTERIM STAFF REPORT INTO RECORD AND SEEKING COMMENTS**" to all known parties to R1012007 listed on the most recently updated service list available on the California Public Utilities Commission website.

Executed this 4th day of February 2013 in Boston, Massachusetts.

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