BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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REPLY COMMENTS OF THE CALIFORNIA ENERGY STORAGE ALLIANCE ON PERMANENT LOAD SHIFTING STUDY

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The California Energy Storage Alliance ("CESA")[1] respectfully submits these Reply Comments on the *Assigned Commissioner and Administrative Law Judge's Ruling Setting Workshop on Cost-Effectiveness Protocols*, filed February 11, 2011 ("ALJ's Ruling").

I. INTRODUCTION.

CESA submits these reply comments on the relevance to and usefulness of the *Statewide Joint IOU Study of Permanent Load Shifting* ("PLS Study") in the Commission's review of the Permanent Load Shifting ("PLS") proposals that the utilities included in their *Applications for Approval of Demand Response Programs, Pilots and Budgets for 2012-2014* that were filed on March 1, 2011 ("DR Applications"). CESA respectfully requests that the Commission provide specific guidance to the utility sponsors of the PLS Study regarding cost-benefit assumptions that should be used to revise their DR Applications *by a date certain* so that they may expeditiously bring them into line with the Commission's policy. Further, CESA also respectfully requests that the Commission provide guidance to the utilities that they should *expand* the use of PLS,

[1] CESA is an unincorporated association, the membership of which consists of A123 Systems, Altairnano, Applied Intellectual Capital/East Penn Manufacturing Co., Beacon Power Corporation, Calmac, Chevron Energy Solutions, Debenham Energy, Deeya Energy, Inc., Enersys, Enervault, Fluidic Energy, General Compression, Greensmith, Energy Management Systems, HDR, Ice Energy, International Battery, Inc., Lightsail Energy, MEMC/SunEdison, Powergetics, Primus Power, Prudent Energy, RedFlow, Restore Energy Systems, Saft, Samsung SDI, SEEO, Silent Power, Suntech, Sumitomo Electric, Sunverge, SustainX Energy Storage Solutions, and Xtreme Power. The views expressed in these comments are those of CESA, and do not necessarily reflect the views of all of the individual CESA member companies.

and in the near term, via establishment of standard offer contracts[2] CESA also urges the Commission to disregard any suggestion made in Opening Comments that its Energy Storage Rulemaking[3] should somehow preempt the extensive work on PLS that has been accomplished to date in this proceeding. Finally, CESA suggest specific direction that should be provided to the utilities that address the areas of concern they have raised in their Opening Comments.

II. THE COMMISSION SHOULD PROVIDE GUIDANCE TO THE UTILITIES TO REVISE THE DR APPLICATIONS TO ADHERE TO ITS POLICY PREFERENCE OF EXPANDING USE OF PERMANENT LOAD SHIFTING BY A DATE CERTAIN.

As noted in CESA's Opening Comments, the Commission has also clearly stated that it *may* provide the guidance that is needed.[4] Both SCE and PG&E have clearly indicated that they welcome guidance from the Commission that will enable them to apply the Commission's preferred cost-effectiveness evaluation methodology to PLS.[5] In its Opening Comments, for example, "PG&E . . . included PLS in its 2012-2014 DR programs funding application and analyzed the cost effectiveness of PLS using the DR Reporting Template. However, because the cost-effectiveness analysis methodology for PLS in the Joint IOU Study is slightly different from that in the 2010 DR Protocols, PG&E requests the CPUC to clarify how the DR Reporting Template is to be used to analyze the cost-effectiveness of PLS. The Joint IOU Study and the 2010 DR Protocols differ in how three categories of avoided costs are handled. These are avoided generation capacity costs, avoided transmission and distribution (T&D) costs and avoided RPS costs." (p. 2).

CESA strongly agrees with Ice Energy[6] that "PLS technologies, and specifically energy storage technologies, provide many benefits to the electric system …[and s]uch broad-ranging benefits require a systematic assessment. Traditional demand-side benefit-cost analyses do not sufficiently capture the full range of benefits provided by energy storage PLS technologies.

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[2] *See, Administrative Law Judge's Ruling Providing Guidance For The 2012-2014 DR Application*, issued August 27, 2010, in which ALJ Hecht required the IOUs' 2012-2014 Applications to "contain proposals to expand the use of permanent load-shifting that are informed by the December 2010 study . . . ," (p. 2).

[3] 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, issued December 16, 2010.

[4] *See* CESA's Opening Comments, p. 5.

[5] *See e.g.*, SCE's Opening Comments, "SCE welcomes the Commission's further guidance on the applicability of the Report's present conclusions to the IOUs' DR applications and does not object to this approach provided that the Commission's guidance is timely and does not hinder timely resolution of the DR Application." (pp. 3-4).

[6] Ice Energy's Opening Comments, pp. 5-6.

Thus, a more comprehensive approach must be used." CESA believes that the analytical framework put forward in the PLS Study plus the list of "key analytic processes" presented in Ice Energy's comments[7] establish a very useful and productive foundation for the Commission to provide in a very timely manner the necessary guidance to utilities regarding cost-effectiveness evaluation methodology to PLS.

While the downturn in the California economy has impacted demand, PLS can still play an important role in capacity utilization before and after economic recovery. PLS, by definition, is deployed on the customer side of the meter, in modular increments and very quickly (as compared to deploying new peaking generation, for example). The flexibility and speed of installation provides a valuable flexible planning tool for California's long term capacity planning. This capability will not be viable unless the Commission and the utilities act now to seed the market with a viable permanent load shifting market, installation/channel capabilities and more demonstrated project installations.

PLS can also be strategically deployed by utilities to address locational transmission and distribution "T&D" constraints. Because the value of PLS in these situations is understandably location-dependent, utilities are in the best position to create PLS programs that are designed to specifically address high value areas that target specific T&D "bottlenecks."

III. EXPANDING USE OF PERMANENT LOAD SHIFTING SHOULD NOT WAIT FOR THE ENERGY STORAGE RULEMAKING.

CESA agrees with the statement in SCE's Testimony supporting its DR Application that: "Eventually, SCE expects that PLS activities will need to be coordinated with broader energy storage policies, which are being developed in R.10-12-007." (Vol. 2, pp. 81-82). CESA similarly applauds PG&E's commitment in its testimony to bear energy storage in mind as part of its DR Application.[8] On the other hand SCE goes a bit far in suggesting that further consideration of PLS applications may be more appropriately subsumed within the larger policy focus of energy storage, rather than treated as a stand-alone peak-load reduction technology." (SCE Opening Comments, p. 9).

[7] Ice Energy's Opening Comments, pp. 7-12.

[8] "This project will investigate energy storage technologies for the residential and C&I market segments. The objective is to qualify these technologies for certain DR programs, such as the PLS Program. Storage technologies will also be evaluated for their suitability for providing response types that can be used for bidding into the CAISO AS markets." (p. 3-15).

Fundamentally, AB 2514 was enacted to accelerate the adoption of cost-effective and commercially viable energy storage – delaying action on a key subset of energy storage (that is, PLS technologies) would run completely counter to the intent of that statute – and lead to an ironic, unnecessary and counterproductive "regulatory freeze" at the Commission and in the electricity marketplace.[9]

Further, the results of this proceeding will provide invaluable contributions to the Commission's adoption of a well-informed storage decision by giving the Commission, utilities and parties the opportunity to further test energy storage's performance in the marketplace on a modest scale and measured pace. It appears that the energy storage deployment that results from this proceeding will likely be an order of magnitude or smaller in scale than the storage deployment that might result from the Energy Storage Rulemaking. That means that not only will there be invaluable, timely experience with storage in the marketplace but the downside of "getting it wrong" on PLS is quite limited if not negligible.

There is more than sufficient experience with regard to PLS to make appropriate and thoughtful decisions at this time; for example the initial Commission Decision initiating a PLS program is nearly four years old[10] and the utilities' PLS programs have already been working for several years.

Finally, delaying implementation of PLS would needlessly harm PLS technology manufacturers, developers who have invested in the California market. Significant time, energy and investment into the California market has already been made by a significant number of market stakeholders. Delaying PLS implementation at this point in time would set back the

[9] The Commission implicitly acknowledged the value of accelerating AB 2514 implementation when it initiated the Storage OIR more than 14 months in advance of the statutory deadline and commented "Although the Legislature has given the Commission until March 1, 2012 to open this proceeding, we see the enactment of AB 2514 as an important opportunity for this Commission to continue its rational implementation of advanced sustainable energy technologies and the integration of intermittent resources in our electricity grid." (Storage OIR, page 1)

[10] Ice Energy's Reply Comments, p. 4.

progress that has been made to date; in particular, such a delay would communicate to the PLS vendor community that California should be deprioritized in their national/global market activities due to the start/stop nature of our policies and ultimate lack of market certainty.

IV. STANDARD OFFER CONTRACTS FOR PERMANENT LOAD SHIFTING CAN BE AN EXCELLENT MEANS OF INCENTIVIZING PERMANENT LOAD SHIFTING AND ARE WITHIN THE SCOPE OF THIS PROCEEDING

SCE correctly points out tariff design as a primary economic driver for PLS customer adoption. Tariff uncertainty or "tariff risk" is a fundamental issue for the end user's PLS value proposition. CESA agrees with SCE that rate design modifications are outside the scope of this proceeding and thus recommends that the commission should require the utilities to develop PLS-friendly tariffs with long-term guarantees that fix on to off-peak rate differentials as part of the General Rate Case proceeding. This will promote financial security for PLS end users/investors thereby stimulating industry growth, and ensure accountability for ratepayers because savings will only accrue when load is actually shifted.

SCE comments erroneously conclude that the example projects modeled in the PLS study produce enough customer electric bill savings to justify PLS adoption. In fact, nearly all of the example projects in the report indicate that electric bill savings alone is not enough to justify the purchase of PLS equipment. This is mostly due to the difficulty of transferring the utility's benefits of a PLS system to the owners of the system – and in particular, lack of clarity and consistency in forecasting project cash flows. PLS project savings are highly dependent on the tariff structure (as well as, of course, any PLS incentive) – the difference between peak and off peak electricity and demand charges, and the inability of PLS buyers/investors to accurately forecast how that tariff structure will change over time. This uncertainty thus prevents PLS system buyers/investors from securing reasonably consistent cash flows from their investment which is a major barrier to project development. Electric tariffs that had a 'guaranteed' differential between peak and off peak rates would help address this issue.

Both SCE and PG&E state that tariff reform is necessary to effectively implement the Commissions policy of encouraging deployment of PLS. The Commission should therefore order them to immediately submit proposed tariffs that they say are required as part of their Dynamic Pricing Applications.

SCE directly states in its comments that consumer tariffs are an issue for PLS adopters:

> "Another issue raised in the Report is the risk that PLS developers face because of rate design uncertainty. Since the customer benefits of PLS system operation are due to the bill savings, from PLS operations, changes in rate design during the life of the PLS system can affect customer cost-effectiveness." (p. 7 SCE commentary)

This is the primary reason for the lack of third party financing. By approving a PLS-specific tariff design, the CPUC can open a gateway for energy storage adoption. The consensus stakeholder adoption hurdle is a payback 3-5 years. A tariff can be designed for PLS to overcome this hurdle. The critical components of such a tariff would be 1. Guaranteed differential between peak and off peak rates over a 10-15 year period. This would provide the necessary clarity and certainty of anticipated cash flows to enable PLS project development. Admittedly, this level of tariff reform will take some time and is outside the scope of this proceeding.

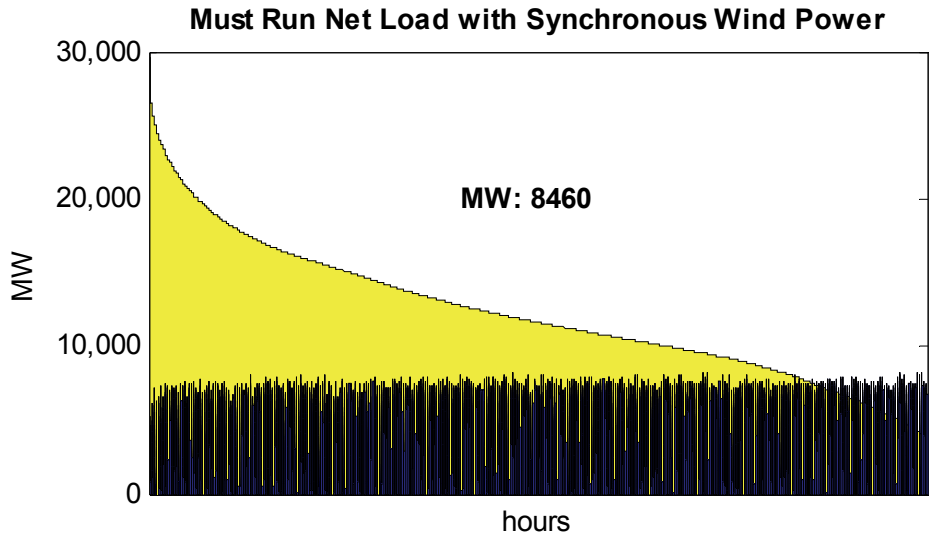
An alternative to tariff reform would be a straightforward standard offer incentive program. By providing a bankable standard offer in terms of $/kWh shifted for a fixed, but sufficiently long time horizon (e.g. 10-15 years), the standard offer would be accomplish the same performance-based incentive objective as tariff reform, and also provide much needed clarity and consistency for project development. Certainly, the success of any standard offer program will be highly dependent on the program specifics. CESA strongly recommends that any such program be coordinated across utility service territories to establish as much similarity as possible across utility service territories to minimize project implementation costs. Other program details should be subject to stakeholder feedback/input. In its reply comments, SCE erroneously states that the PLS study indicates that incentives are not necessary for many of the example projects in the report. CESA disagrees. In fact, most example projects require incentives to transfer utility avoided cost to the end user of the PLS equipment, particularly given the issue with tariff structure uncertainty as noted above.

V. PLS TECHNOLOGIES, AND IN PARTICULAR, ENERGY STORAGE TECHNOLOGIES, ARE IDEALLY SUITED TO MAKE EFFICIENT USE OF RENEWABLE OVERGENERATION

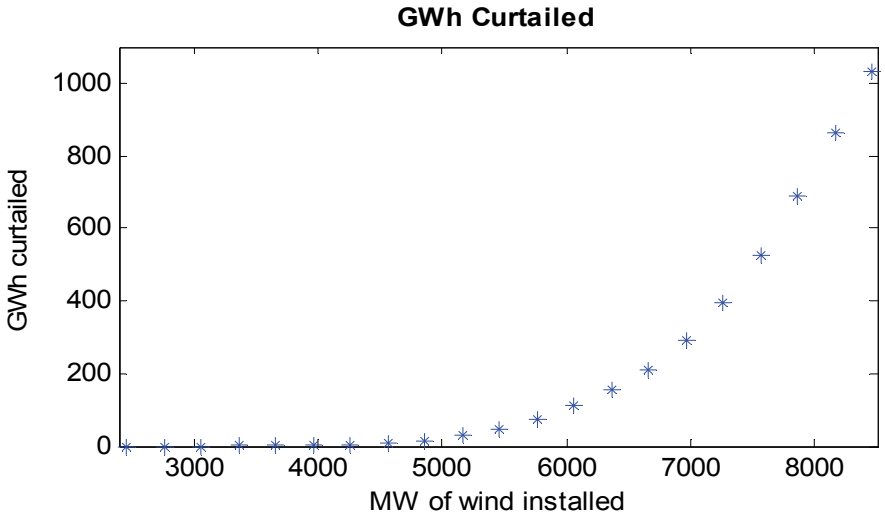
SCE dismisses the issue of wind over-generation. According to Jim McIntosh, Director of Executive Operations, CAISO, 70% of wind generation is at night, and 30% of solar

generation occurs on weekends – and CAISO is already experiencing periods of over generation even at current renewable penetration levels.[11] Regardless of the eventual renewable generation mix to attain a 33% RPS in California, the cost and operational impact for CAISO will be substantial. In its ongoing efforts to quantify these impacts, the CAISO is undergoing a multi-phase study.[12] As a distributed night-time load for over generation, PLS is an asset that can assist with these renewable integration issues.

The PLS study creates a strong case for how PLS can accommodate this over-generation. Anticipated wind over generation can, according to the study, be quite significant. The study estimated that with approximately 8,800 MW of wind in 2020, about 1,700 hours of over generation will occur (predominately in the spring off-peak hours). Storage can absorb this over generation, and receive the avoided cost benefit of the marginal renewable resource. The following charts from the Permanent Load Shifting workshop presentation held on November 10, 2010 depict this predicted over generation, and the potential impact to wind curtailment:



[11] CAISO Presentation and statements made by Jim McIntosh, Director Executive Operations Advisors, "Grid Integration, Enabling a Smooth Transition to High Solar Penetration" February 16, 2011.
[12] CAISO Study of Operational Requirements and Market Impacts at 33% RPS.



What has not been quantified in the PLS study is the option value of implementing PLS capacity in distributed quantities throughout California – this has option value in terms of dealing with over generation, T&D deferral and peaking capacity, among many other benefits. While the value of this flexibility is hard to quantify today, what is clear is that this value, and the value of 'learning by doing', will not be realized at all if California does not act and implement PLS near term.

VI. CONCLUSION.

CESA thanks the Commission for the opportunity to provide these reply comments on the ALJ's Ruling and the PLS Study, and looks forward to continued active participation in this proceeding.

Respectfully submitted,

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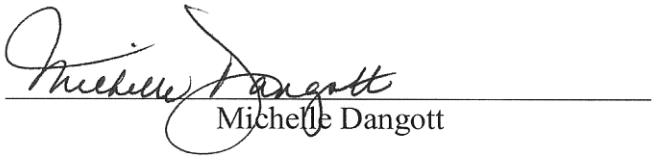
Date: March 18, 2011

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of the foregoing ***Reply Comments of the California Energy Storage Alliance on Permanent Load Shifting Report*** on all parties of record in ***R.07-01-041*** by serving an electronic copy on their email addresses of record and, for those parties without an email address of record, by mailing a properly addressed copy by first-class mail with postage prepaid to each party on the Commission's official service list for this proceeding.

This Certificate of Service is executed on March 18, 2011, at Woodland Hills, California.



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