BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Application of Pacific Gas and Electric Company (U 39-E) for Approval of Demand Response Programs, Pilots and Budgets for 2012-2014.	Application 11-03-001 (Filed March 1, 2011)
Application of San Diego Gas & Electric Company (U902M) for Approval of Demand Response Programs and Budgets for Years 2012-2014.	Application 11-03-002 (Filed March 1, 2011)
Application of Southern California Edison Company (U338E) for Approval of Demand Response Programs, Activities and Budgets for 2012-2014.	Application 11-03-003 (Filed March 1, 2011)

RESPONSE OF THE CALIFORNIA ENERGY STORAGE ALLIANCE TO APPLICATIONS FOR APPROVAL OF DEMAND RESPONSE PROGRAMS, PILOTS AND BUDGETS FOR 2012-2014

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In accordance with Rule 2.6 of the California Public Utilities Commission's ("Commission's) Rules of Practice and Procedure and the *Administrative Law Judge's Ruling Consolidating Proceedings and Setting a Prehearing Conference*, issued by Administrative Law Judge Kelly A. Hymes, on March 30, 2011 ("ALJ's Ruling") the California Energy Storage Alliance ("CESA")[1] respectfully submits this response to the Applications of Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric

[1] The California Energy Storage Alliance consists of A123 Systems, Altairnano, Applied Intellectual Capital, Beacon Power Corporation, CALMAC, Chevron Energy Solutions, Debenham Energy, Deeya Energy, East Penn Manufacturing Co., Inc., Enersys, EnerVault, Fluidic Energy, General Compression, Greensmith Energy Management Systems, HDR, Inc., Ice Energy, International Battery, Inc., LightSail Energy, Inc., MEMC/SunEdison, Powergetics, Primus Power, Prudent Energy, RedFlow, RES Americas, ReStore Energy Systems, Saft America, Inc., Samsung SDI, SANYO, Seeo, Sharp Labs of America, Silent Power, Sumitomo Electric, Suntech, SunPower, Sunverge, SustainX, Xtreme Power, and Younicos. 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. For further information, see: http://www.storagealliance.org

Company (collectively, the "Utilities") for Approval of Demand Response Programs, Pilots and Budgets for 2012-2014 (collectively, the "Applications").[2]

I. INTRODUCTION.

CESA's response to the Applications is focused solely on a well established form of energy storage known by the Commission as Permanent Load Shifting ("PLS"). CESA submits this response, recognizing that a Prehearing Conference has been scheduled by the Ruling, and that the substance of this response will be the subject of CESA's detailed intervener testimony to be submitted in due course. To be crystal clear, there can be no doubt whatsoever that the Commission has wished to *expand* deployment of PLS technology since the heat storm of 2006,[3] and appropriately so.

First and foremost, as filed, all of the Utility Applications regarding PLS fall substantially short of the consistently stated intent of the Commission to expand and diversify PLS program offerings, and of the appropriate and cost-effective contribution that PLS can make to the California grid. That unfortunate shortcoming is clearly and forcefully informed by the PLS Study.[4] For the reasons explained below, the Commission should therefore direct the Utilities to submit, by a date certain, revised Applications that approximate $120 million in aggregate.

Second, we note that the Commission has pursued a sound policy of requiring standardization of cost-effectiveness methodologies across various Commission-approved incentive programs. Accordingly, within a single program, such as PLS, as with other forms of energy storage, at a minimum the program scope and substance should strive for consistency across the Utilities. This recommendation specifically holds true for PLS because a thorough

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[2] On March 31, 2011, the ALJ sent an email message to the service list stating: "This is to clarify that per the consolidation of proceedings A.11-03-001, A.11-03-002, and A.11-03-003 by Ruling on March 30, 2011, the deadline for protests and responses in A.11-03-001 et al. will be Monday, April 4, 2011. This response is therefore timely filed.

[3] *See*, D.06-11-049 *Order Adopting Changes to 2007 Utility Demand Response Programs*, issued November 30, 2006: "We are interested in pursuing permanent load shifting opportunities in time for the summer of 2007. These types of programs may reduce energy use during critical periods and in some cases conserve energy overall. While we defer the issue of how this or other permanent load shifting technologies should count toward demand response goals, we do recognize that new installations of permanent load shifting technologies will accomplish our goal of reducing peak demand for summer 2007 and so wish to encourage the IOUs to pursue permanent load shifting by allowing the use of TA/TI funds toward offsetting the initial costs of installation." (p. 46).

[4] *Joint IOU Study of Permanent Load Shifting,* submitted to the Commission on December 1, 2010 ("PLS Study").

analysis has been undertaken by the Utilities, at the Commissions direction, that has resulted in a broad general consensus on cost-effectiveness assumptions and recommendations.[5]

The policy underpinnings provided by the "PLS Study" will be of even greater benefit to the Utilities and the Commission in achieving the level of standardization required for effective PLS program implementation if the Commission expeditiously provides (i) the additional specific guidance regarding cost-effectiveness of PLS that the utilities have requested, and (ii) policy guidance as to the magnitude of the PLS program expansion already directed by the Commission.

In addition to the standard offer approaches of the PLS programs proposed in the Applications, CESA urges the Commission to direct the Utilities to undertake competitive solicitation processes, or market tests, such as Requests for Offers ("RFOs"). If the PLS standard offer programs are standardized on a statewide basis, the additional cost-effectiveness guidance requested by the Utilities is provided, and the combined size of the PLS programs is greatly expanded, the Commission should also direct the Utilities to expand and diversify the potential benefit of PLS to ratepayers by issuing technology neutral, but application-specific RFOs that call for possible deployment of PLS technology (and other forms of energy storage) on both the customer and the utility side of the meter.

II. THE COMMISSION SHOULD DIRECT THE UTILITIES TO SUBMIT REVISED APPLICATIONS BY A DATE CERTAIN THAT INCREASE THE SCOPE AND FUNDING REQUESTED FOR PERMANENT LOAD SHIFTING PROPOSALS TO $120 MILLION.

Since 2006, the Commission has clearly and consistently indicated that it wants to promote PLS in California and understands its value to the electric grid[6], but the PLS program budgets fall substantially short of making the Commission's goal a reality.

> "The utilities' 2012-2014 Applications shall contain proposals to *expand* the use of permanent load shifting that are informed by the December 2010 study, and should include discussion of the most effective ways to encourage an *increase* in cost-effective permanent load shifting, for example through dynamic rates, future RFPs, or standard offer contracts. [Emphasis added]" (p. 17).

[5] See, *e.g*, SCE's Reply Comments: " SCE is generally satisfied with the PLS Report's cost-effectiveness framework methodology, which follows the approach of the California Public Utilities Commission's (Commission's) demand-side management (DSM) "standard practice manual," and is reasonably comparable to the Evaluation Measurement & Verification protocols that the Commission has approved to evaluate other DSM programs." (p.2.).

[6] *See, ALJ's Ruling Providing Guidance for 2012-2014 DR Applications*, issued August 27, 2008.

There can be no doubt that the Commission has viewed PLS as anything *but* a pilot for years:[7]

Yet, the budgets proposed in the three Applications are the *same magnitude as the current PLS program budgets*. Maintaining the status quo will not advance the Commission's goals for PLS, never mind for peak demand management, least-cost resource procurement, taking advantage of all cost-effective demand-side measures, renewable energy integration, or energy storage deployment.

As the PLS Study recommends, the PLS program should be split between two distinct levels - mature and developing technology incentives. The PLS Study indicates that the mature technology incentive would be set at a ratepayer neutral incentive level. Because of ratepayer neutrality, there is no reason to limit the mature technology incentive funding budget to the low levels proposed in the Utilities' Application. The Commission should require budgets of at least $60 million for mature technologies to ensure that there are adequate funds available for all cost-effective mature PLS.

The mature technologies (per kW) incentive level should be set at the ratepayer-neutral incentive level; therefore expanding the program budget will have no negative impact to ratepayers. Unless the incentive budget is sufficiently large, it will be difficult, if not impossible, to attract significant attention of industry – driving PLS technology vendor and developer companies to cease operations in California and move to other markets.

CESA also encourages the Commission to direct the utilities to encourage 'developing technology incentives' for smaller scale thermal and other energy storage technologies such as batteries with an additional budget of $60 million (hence a total PLS budget of at least $120 million). Such investment will not only achieve greater deployment of PLS technology, but also provide a wealth of performance and other field data that will be critical to many California policy objectives. PLS technologies are easily installed, can be distributed throughout California and can be aggregated and controlled to improve the system load factor and help integrate greater penetration of renewables. Although the full benefits of such systems have not been quantified, such a deployment is worthwhile for the learning benefit alone.

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[7] *Op cit,* footnote 13: "In various filings and discussions, the utilities refer to their permanent load shifting programs as pilots. Pilot programs are generally designed to test technologies or answer questions about the uses and applications of those technologies. In the case of the permanent load shifting activities, however, it is not clear what aspects of the technologies are being tested or what questions are being explored. For this reason, we consider the permanent load shifting activities discussed in this section to be programs, not pilots." (p. 149).

Key findings from the PLS Study include:

1. A wide variety of PLS technologies are commercially available today, including many types of advanced energy storage.
2. Based on a cost-effectiveness framework appropriate for load shifting, the lifecycle value of the avoided cost benefits of PLS technologies is in the range of $650/peak kW to $3,250/peak kW depending on the number of hours the PLS system can shift load and what hour the shifting occurs.
3. Based on these cost-effectiveness findings, the PLS Study found that a PLS program could be designed so that it would be 'ratepayer neutral' – in other words, incentives could be paid to a specific ratepayer who invests in PLS technology without a 'cross-subsidy' from other ratepayers.
4. Using a 'generic tariff' to model ratepayer neutral incentive levels, the PLS Study found that ratepayer neutral incentives could be as much as $200-$800/kW, depending on the number of hours shifted. Using actual utility tariffs, the upper end of this range can increase to as much as $2,000/kW.
5. By modeling the economics of commercially available PLS technologies with the ratepayer neutral incentive (~$500/kW), the PLS Study found that this level of incentive will likely be sufficient to commercialize a number of mature, large thermal PLS technologies going forward. However, incentive levels closer to $2,500/kW is needed to encourage smaller, emerging technology adoption.
6. Thus, market transformation for PLS technologies can be achieved by implementing two properly designed incentive programs, each sized at approximately $60 million:
    a. Larger 'mature technology' program providing rate payer neutral incentives to encourage deployment of mature PLS technologies.
    b. Smaller "emerging technology" program to encourage emerging PLS technologies, again, technology neutral

CESA submits that substantially more funding than is proposed in the Applications is needed is needed to encourage deployment of a sufficient quantity and diverse types of distributed PLS technology to fully understand, measure and evaluate the impacts associated with factors such as diversity, location, building types, building size, building age, HVAC equipment type, HVAC vintage, climate zones, operating strategies and tariffs. The PLS Study

identified key considerations that support a higher funding level than what has been proposed for market transformation of PLS which will lead to lower costs and higher performance over time.[8]

A greatly expanded PLS program budget will be an invaluable, timely experience with storage in the marketplace. To encourage these technologies, a 'market transformation' program could be developed, geared toward creating manufacturing scale in the industry, as well as local capability for PLS implementation; including design, construction, and maintenance which will lead to lower costs and higher performance over time. Without a meaningful incentive budget, the program will have insufficient ability to market the program to end users and not attain a critical mass that would lead to widespread adoption of PLS. Moreover, vendor and engineering education programs will not be adequate to empower industry with the necessary tools to design and build out a robust PLS market in California.

III. THE COMMISSION SHOULD DIRECT THE UTILITIES TO STRUCTURE THEIR PERMANENT LOAD SHIFTING STANDARD OFFER PROPOSALS IN A COMMON STATEWIDE FORMAT BASED ON PG&E'S STANDARD OFFER PROPOSAL.

Each Application takes a different approach to PLS. The Commission clearly appreciates the benefits of a statewide approach to incentive programs. This is very recently reflected in its recent cost-effectiveness decision that greatly advanced the goal of using a common cost-effectiveness *methodology* in assessing demand response projects[9]:

> "This approach is consistent with the approach adopted in D.09-08-026 for estimating the cost-effectiveness of distributed generation, which also adopted a consistent cost-effectiveness model for use by different utilities or other Load Serving Entities (LSEs). As provided in Section 1.B of the attached 2010 Protocols, cost-effectiveness calculations shall utilize the Demand Response Reporting Template spreadsheet for the calculation of results for each of the SPM tests. As discussed below, the 2010 Protocols also require the use of specific models or values for the development of many inputs into that overall framework, in order to increase consistency and therefore comparability among the utilities' results." (p. 11).

Uniformity of methodology matched with comparability of *programs* should be high among the Commission's goals. A common application format and process across all of the Utilities will reduce transaction costs for PLS program participants, and thus increase PLS

[8] PLS Study, p 112.

[9] Decision Adopting a Method for Estimating the Cost-Effectiveness of Demand Response Activities, D.10-12-024, issued December 16, 2010.

efficacy and cost-effectiveness. Using a customized approach for each of the Utilities may have had unnecessarily negative impacts on the overall cost-effectiveness of PLS programs as they have been implemented by the Utilities to date. The wide variation in program rules across utility service territories requires market participants to replicate their sales, marketing and business development approach in each utility service territory, driving up the cost to do business. A good example of the benefits that come with a common format-type incentive program is the highly successful California Solar Initiative ("CSI") program.[10] The Commission should require essentially the same type of program uniformity for the PLS program that it has developed using lessons learned over time with the CSI program.

CESA is generally more pleased with the *structure*, although not the proposed *levels*, of PG&E's standard offer proposal[11] than it is with the SCE or SDG&E Applications, both of which are considerably wide of the mark. PG&E proposes a standard offer structure that is a straightforward, one-time incentive payment that will make securing PLS project finance much more attractive for investors and make it easier for end users to understand. In addition, it should lower program administration costs for the Utilities, thus freeing up the maximum amount of available funding for the PLS technology itself. PLS program uniformity should also apply to evaluation, measurement, and validation requirements. This will further lower ongoing maintenance costs for PLS developers, since only one reporting structure will be necessary instead of different reports for each of the Utilities.

IV. THE COMMISSION SHOULD PROVIDE THE GUIDANCE TO THE UTILITIES REGARDING PERMANENT LOAD SHIFTING THAT THEY HAVE REQUESTED IN THEIR COMMENTS ON THE PERMANENT LOAD SHIFTING STUDY AND IN THEIR APPLICATIONS.

In its Decision adopting D.09-08-027,[12] the Commission unambiguously stated: "Further guidance on calculations of cost-effectiveness for Permanent Load Shifting Activities *shall* be issued after the completion of the ongoing Permanent Load Shifting study . . . [Emphasis added]" (p. 39). In its opening comments, PG&E expressly asks the Commission for guidance to clarify the measurement of cost-effectiveness:

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[10] *See*, the Commission's web site: http://www.cpuc.ca.gov/PUC/energy/solar/.

[11] *See,* PG&E's Testimony, pp. 3-2, et seq.

[12] *Decision Adopting Demand Response Activities and Budgets for 2009 through 2011, D.09-08-027,* issued August 20, 2009, in A.08-06-001, *et al.*

> "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." (p. 2)[13]

CESA recommends that the Commission provide further guidance to the Utilities that is specifically focused on the measurement of cost-effectiveness for PLS, using the PLS Study as a template. In its opening comments, SCE welcomes the Commission's guidance regarding how the Utilities can better-utilize the PLS Study to inform a revised SCE proposal:

> "[SCE] recognizes that the Commission may, following the conclusion of this comment period on the Report, potentially direct the Investor-Owned Utilities (IOUs) to '"revise their initial proposals from the March 1, 2011 applications and will set appropriate due dates for the submission of those revised Proposals.' *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." (p. 3-4) [emphasis added][14]

It should be noted that other Comments and Reply Comments of other parties echo the point that the Commission should give the Utilities further guidance on how to best-interpret the findings contained in the PLS Study.

V. THE COMMISSION SHOULD DIRECT THE UTILITIES TO CONDUCT APPLICATION – SPECIFIC PERFORMANCE BASED COMPETITIVE SOLICITATIONS FOR INSTALLATION OF PERMANENT LOAD SHIFTING TECHNOLOGY ON BOTH SIDES OF THE CUSTOMER'S METER.

None of the Applications went beyond standard offer contracts to address the other major subject that the Commission reasonably should have expected, namely RFOs. CESA has been advocating for such an approach for a long time:

> "Accordingly, CESA recommends that the Commission immediately order the utilities to submit applications, outside of this proceeding, to allow them to issue requests for proposals to solicit competitive proposals for all forms of energy storage projects and any ownership model." (p. 2).[15]

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[13] Reply Comments of Pacific Gas and Electric Company, filed March 18, 2011.

[14] Reply Comments of Southern California Edison Company. Filed March 18, 2011

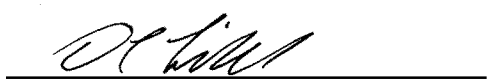
[15] *Opening Comments of the California Energy Storage Alliance on Proposed Decision of ALJ Hecht*, filed July 20, 2009 in A.08-06-001.

The proposed budget is insufficient to achieve economies of scale for emerging PLS Technologies identified in the PLS Study. The PLS Study says that utility-ownership reduces costs through increased purchase volume. It is acknowledged that focused customer targeting, marketing, and capture can be more efficient and cost-effective given a utility's knowledge base of its own customers. In the future, utility-ownership could also eliminate the capital investment hurdle and TOU rate change risks compared with customer-owned business models. While the utilities do not propose utility ownership programs, an expanded emerging technology program that includes a market transformation component would be help achieve economies of scale.[16] Such programs, a customer side of the meter program *and* a PLS owned by utilities on either the customer or the utility side of the meter could co-exist concurrently. The key to building any healthy market is diversity, not only in technologies/solutions but also in approach to market. In the case of PLS, that means diversity in ownership model. A healthy PLS market in California will help to ensure greater system efficiency, reliability and lower rates for consumers.

VI. CONCLUSION.

CESA thanks the Commission for the opportunity to provide this response to the Applications, and looks forward to continued active participation in this proceeding.

Respectfully submitted,



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April 4, 2011

[16] PLS Study, p 112

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of the foregoing ***Response of the California Energy Storage Alliance to Applications for Approval of Demand Response Programs, Pilots and Budgets for 2012-2014*** on all parties of record in ***A.11-03-001, A.11-03-002, A.11-03-003, R.06-04-010, R.07-01-041 and A.08-06-001*** 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 April 4, 2011, at Woodland Hills, California.

Michelle Dangott

SERVICE LISTS A.11-03-001, A.11-03-002, A.11-03-003, R.06-04-010, R.07-01-041 and A.08-06-001

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