

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**



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03-18-11
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Policies and Protocols for Demand Response
Load Impact Estimates, Cost-Effectiveness
Methodologies, Megawatt Goals and
Alignment with California Independent
System Operator Market Design Protocols.

Rulemaking 07-01-041
(Filed January 25, 2007)

**REPLY COMMENTS OF ICE ENERGY, INC. ON
PERMANENT LOAD SHIFTING STUDY**

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March 18, 2011

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Ice Energy, Inc. (“Ice Energy”) 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.

Ice Energy 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 *Demand Response Applications for Approval of Demand Response Programs, Pilots and Budgets for 2012-2014* that were filed on March 1, 2011 (“DR Applications”). With respect, Ice Energy reiterates its request that the Commission issue guidance to the utility sponsors of the PLS Study as expeditiously as possible so that they may revise and resubmit their DR Applications *by a date certain* to bring them into line with the Commission’s by now oft-repeated guidance that they should *expand* PLS.¹ Ice Energy also urges the Commission to

¹ 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 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,” (p. 17), and see footnote 21.” For example, if the study determines that there is a large potential for permanent load shifting, the utility proposals should include appropriate efforts to capture that” (p. 17). Responses to PG&E’s DR Application are due April 1, 2011, and responses to the SCE and SDG&E DR Applications are due April 2, 2011.

disregard any suggestion that its Energy Storage Rulemaking² should somehow preempt the extensive work on PLS that has been accomplished to date in this proceeding. Finally, Ice Energy responds to certain points made by parties in their Opening Comments that should be corrected or clarified.

II. THE COMMISSION SHOULD PROVIDE A COST-BENEFIT METHODOLOGY AND OTHER PROTOCOLS NEEDED TO ROBUSTLY ASSESS THE BENEFITS AND COSTS OF PERMANENT LOAD SHIFTING.

The utilities have repeatedly stated that they welcome guidance from the Commission that will enable them to apply the Commission's preferred cost-effectiveness evaluation methodology to PLS.³ As noted in the Opening Comments of Ice Energy and others, the Commission has clearly stated that it may provide the guidance that is needed.⁴ ("In the future the Commission may approve protocols or provide additional guidance for Permanent Load Shifting and Integrated Demand Side Management activities, as necessary and appropriate").⁵

Guidance from the Commission at this time is in fact critically necessary and most appropriate, as was clearly demonstrated by the uncertainty reflected in the various Opening Comments. Ice Energy has noted the important contribution in this area made by the PLS Study and its authors; and in fact made detailed suggestions in its Opening Comments of ten key analytic processes that should be considered to develop a methodology for the utilities to determine the cost-effectiveness of PLS investments.⁶ Ice Energy also appreciates the release this week of the Statewide IDSM Task Force-sponsored White Paper that proposes a methodology for assessing the cost-effectiveness of integrated DSM projects and programs.⁷ Accordingly, while Ice Energy is not suggesting that "approv[ing] protocols or provid[ing] additional guidance" for PLS is easy or obvious, we do believe not only that is this task essential

² *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.

³ 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."

⁴ See e.g., Ice Energy's Opening Comments, March 7, 2011, p. 5.

⁵ Decision Adopting a Method for Estimating the Cost-Effectiveness of Demand Response Activities, p. 24.

⁶ Ice Energy's Opening Comments, March 7, 2011, pp. 5-12.

⁷ "Integrated Demand-Side Management (IDSM) Cost-Effectiveness Framework White Paper: Report Draft", San Diego Gas & Electric On Behalf of the IDSM Task Force, March 8, 2011. To date, Ice Energy has not fully analyzed this draft White Paper and in the interim we reiterate that "Traditional demand-side benefit-cost analyses do not sufficiently capture the full range of benefits provided by energy storage PLS technologies. Thus, a more comprehensive approach must be used."

and timely, but that considerable groundwork has already been laid by various parties. Accordingly we respectfully urge the Commission to immediately provide such specific guidance to the utilities to identify the specific electric system benefits that must be considered and the scope of the analysis that must be used when assessing PLS and provide such guidance in a manner that will permit them, parties, and the Commission and its staff assess the full range of benefits of PLS technologies, and their cost-effectiveness, including those proposed in their respective 2012-2014 Demand Response applications.

III. THE COMMISSION SHOULD REJECT ANY SUGGESTION THAT IMPLEMENTATION OF PERMANENT LOAD SHIFTING SHOULD BE PREEMPTED BY ITS ENERGY STORAGE RULEMAKING.

Ice Energy 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). However, SCE’s suggestion in its Opening Comments that the Commission should take no action to further its policy of encouraging deployment of PLS because it has opened a proceeding to encourage deployment of energy storage technology should be rejected by the Commission. Ice Energy appreciates the logic of waiting for a “unified field theory” but thinks that it is not appropriate in this proceeding for several reasons.

One, 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.⁸

Two, 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

⁸ The Commission implicitly acknowledged the value of accelerating AB 2514 implementation when it initiated the Energy Storage Rulemaking 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.” (Energy Storage Rulemaking, page 1)

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.

Three, there is more than sufficient experience with regard to PLS to make appropriate and thoughtful decisions at this time; for example the original Commission Decision initiating a PLS program is over four years old⁹ and the utilities’ PLS programs have already been working for several years.

Four, non-storage PLS technologies would be needlessly harmed by such a delay.

IV. ICE ENERGY PROVIDES SPECIFIC REPLIES TO CERTAIN STATEMENTS MADE IN PARTIES’ OPENING COMMENTS.

A. The PLS Study provides virtually *no guidance* on the cost-effectiveness of PLS-type products, but only on the PLS value of such products, without regard to their non-PLS attributes and benefits.

Ice Energy concurs that the PLS Study makes an important contribution to understanding and quantifying the numerous, significant benefits of PLS technologies. However, time and other constraints precluded several issues from being fully analyzed and vetted, including assessing the very significant benefits beyond PLS of a given product – such as (in the case for example of Ice Energy’s product) better control of existing HVAC equipment, accelerated replacement to high efficiency air conditioners, etc. – in the determination of the product’s cost-effectiveness. These attributes (which are closely associated with PLS, but are not PLS) are quantitatively quite significant, adding, in the example of Ice Energy’s product, one-third to one-half or more to the benefit-cost ratio. Accordingly the PLS Study must be understood to be a useful but limited assessment that addresses only the PLS component value of a given product. Accordingly, until the PLS, IDSM or storage cost-effectiveness methodologies accommodates the non-PLS attributes in some appropriate manner,¹⁰ the Study does not provide full guidance

⁹ See, *Order Adopting Changes to 2007 Utility Demand Response Programs*, D.06-11-049, issued November 30, 2006, pp. 46-47.

¹⁰ For example, as either by quantifying the benefits of these additional attributes or by netting out an allocated cost of these additional attributes from the total cost of the product so that the cost-effectiveness analysis correctly aligns costs and benefits – and does not assign *total* costs against *partial* benefits.

on a given technology's overall cost-effectiveness, and therefore parties should refrain from using the Study to comment, never mind draw conclusions, on such.¹¹

B. PLS is at least as reliable as traditional technologies and therefore does in fact provide reliable capacity reductions and robust deferral/avoidance of generation and T&D facilities.

Some commenters suggest that PLS technologies may not be reliable and, therefore, may not provide reliable capacity reductions, resulting in a limited avoidance of transmission and distribution facilities. While we agree that a comprehensive assessment of electric system impacts is important to valuing potential PLS implementations and that the reliability of PLS technologies are important to that assessment, we disagree that PLS technologies are not sufficiently reliable to avoid utility facilities comprehensively from the point of the retail customer up through the generating units serving load. When developing policies and rules for PLS programs, we recommend that the Commission consider attributes of PLS technologies that provide for reliable electric system load reductions and virtually always compare favorably to, and in some cases even increase electric system reliability overall to levels above that experienced without the installation of the PLS facilities. PLS technologies generally have the following reliability characteristics and provide the following benefits to the electric system.

- Many PLS technologies have very high reliability, in some cases greater than 99% availability for individual facilities (higher reliability than the conventional generating technologies they replace).
- PLS technologies are generally installed in a distributed manner, located at multiple customer sites across the electric grid. Such installations provide many small resources that collectively produce system-wide capacity reductions with a loss of load probability approaching zero percent (high reliability).
- Individual customers may install multiple PLS facilities at a single site, achieving highly dependable customer demand reductions that avoid facility costs for customer interconnection with the distribution system.
- Distributed PLS installations are expected to provide multiple installations per distribution feeder, achieving dependable capacity reductions across most if not all distribution system facilities.

¹¹ By analogy, if one were comparing the cost-effectiveness of different cell phones and one looked at only their ability to make and receive phone calls, one would conclude that a basic cell phone was much more cost-effective than a Blackberry or an iPhone, since those smart phones' numerous non-telephonic attributes would be ignored in such an analysis.

- Many PLS technologies permit direct utility control of scheduling and dispatch of the PLS facilities, assuring coincidence of PLS load reductions with electric system need.
- Non-PLS attributes that accompany PLS products assist even further with system reliability. An example is Ice Energy’s Ice Bear product, that can assist in sequencing (or delaying) power-up of HVAC and other connected loads, by building, feeder, or region, after a power outage. The point is, that to the degree that PLS products are “Smart Grid” enabled, the non-PLS features can play strongly towards increased system reliability.

C. DRA is not correct in its conclusions regarding the match of PLS systems’ performance and generation and T&D needs.

By definition, PLS represents a permanent shift in peak load that will be consistently applied across each day of the year, as required by the investing utility. Accordingly, DRA’s argument that this “365-days-a-year operational profile” represents a “best case” is incorrect. Rather, it is the expected, and in some cases contracted, operational profile of the technology.

Furthermore, the load shifting associated with PLS is, for many technologies, including Ice Energy’s, specifically designed to ensure high-if-not-complete coincidence with the system’s peak load. And, as stated above, many PLS technologies are directly controlled by the host utility, and thus can – and will – be expected to be controlled to be exactly coincident with such peak load profiles to ensure maximum value to the utility system. As noted in Ice Energy’s Opening Comments, the importance of “properly us[ing] and align[ing] performance data of the units, particularly during high temperature and other periods of high system stress and attendant value creation by the units.”¹² However, as the Study acknowledges, there may potentially be a mismatch between PLS system impacts and generation and T&D capacity values for some technology applications. It is therefore all the more important that cost-benefit models properly align performance data with expected peak system events to accurately represent the peak value of each technology application.

D. DRA is correct with regard to the need for variances within Standard Offers and the great importance of Evaluation, Measurement and Verification

Ice Energy agrees with DRA’s comments that if Standard Offers are offered by utilities, they should be offered in a “variety of flavors” both to adequately accommodate customer needs and to appropriately reflect differences in operational performance of different technologies. We

¹² “Opening Comments of Ice Energy, Inc. on Permanent Load Shifting Study,” page 3.

believe that the variety of offerings will promote the most efficient use of funds and help accommodate the different technological and customer needs.

Ice Energy also agrees with DRA regarding the need for strong Evaluation, Measurement and Verification (EM&V) in all cases. The inclusion of strong EM&V will help to guarantee performance, support optimal utilization of ratepayer-funded incentives, and ensure confidence regarding PLS's performance and value.

E. PLS-type storage provides significant value for the integration of variable renewable resources.

Although PLS products, such as thermal energy storage, are by definition "permanent" they are not static and inflexible in operation and have features that allow them to be controlled to optimize their hourly value as needed. As noted in Section V.C. above, this can (and should) be done by the host utility to ensure coincidence with peak demand, and similarly it can (and should) be done by the host utility to optimize the PLS storage technology's value integrating variable generating resources. Additionally, PLS technologies increase load during nighttime periods when certain renewables produce energy in surplus to electric system needs.

Accordingly, deployment of PLS provides for higher utilization of existing variable renewables, and further enables the use of increased quantities of renewables.

V. CONCLUSION.

Ice Energy 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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March 18, 2011

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of the foregoing ***Reply Comments of Ice Energy, Inc. on Permanent Load Shifting Study*** 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.



Michelle Dangott

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