

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

Application of Pacific Gas and Electric  
Company (U39E) for Approval of Demand  
Response Programs, Pilots and Budgets  
for 2012-2014.

And Related Matters.

Application 11-03-001  
(Filed March 1, 2011)

Application 11-03-002  
Application 11-03-003

**NOTICE OF EX PARTE COMMUNICATION OF THE  
CALIFORNIA ENERGY STORAGE ALLIANCE**

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Counsel for the  
**CALIFORNIA ENERGY STORAGE ALLIANCE**

April 14, 2014

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Pursuant to Rule 8.3 of the California Public Utilities Commission (“Commission”) Rules of Practice and Procedure, the California Energy Storage Alliance (“CESA”)<sup>1</sup> hereby gives notice of the following verbal and written *ex parte* communications initiated by CESA in the above-referenced proceeding.

On April 11, 2014, from approximately 11:30 a.m. to approximately 11:45 a.m., Janice Lin, Executive Director of the CESA, and Don Liddell, of Douglass & Liddell, counsel for

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<sup>1</sup> The California Energy Storage Alliance consists of 1 Energy Systems, A123 Energy Solutions, Advanced Rail Energy Storage, AES Energy Storage, American Vanadium, Aquion Energy, Beacon Power, Bosch Energy Storage Solutions, Bright Energy Storage, Brookfield Renewable Energy Group, CALMAC, ChargePoint, Clean Energy Systems Inc., CODA Energy, Consolidated Edison Development Inc., Customized Energy Solutions, DN Tanks, Duke Energy, Eagle Crest Energy, EaglePicher, East Penn Manufacturing Co., Ecoult, EDF Renewable Energy, EnerSys, EnerVault, EVGrid, FAFCO Thermal Storage Systems, FIAMM Group, FIAMM Energy Storage Solutions, Flextronics, Foresight Renewable Systems, GE Energy Storage, Green Charge Networks, Greensmith Energy Management Systems, Gridscape Solutions, Gridtential Energy, Halotechnics, Hitachi Chemical Co. America, Hydrogenics, Ice Energy, Imergy Power Systems, ImMODO Energy Services, Innovation Core SEI, Invenergy, K&L Gates LLP, KYOCERA Solar, LG Chem Ltd., LightSail Energy, LS Power Development, NextEra Energy Resources, NRG Energy, OCI Company Ltd., OutBack Power Technologies, Panasonic, Parker Hannifin, PDE Total Energy Solutions, Powertree Services, Primus Power, RES Americas, Rosendin Electric, S&C Electric Co., Saft America, Samsung SDI, SeaWave Battery Inc., Seo Inc., Sharp Labs of America, Silent Power, SolarCity, Sovereign Energy Storage LLC, Stem, Stoel Rives LLP, TAS Energy, Tri-Technic, UniEnergy Technologies, and Wellhead Electric Co. 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. <http://storagealliance.org>

CESA, discussed the status of the Petition for Modification that was filed by CESA in August 2013, in a telephone call with Scott Murtishaw, Energy Advisor to Commission President, Michael Peevey. The telephone discussion was followed at approximately 4:50 p.m. by the attached self-explanatory email message and attachment sent from Ms. Lin, to Mr. Murtishaw, with copies to Mr. Liddell and Greg Miller, Executive Vice President, Market Development, of Ice Energy, Inc.

To receive a copy of the *ex parte* notice please contact Michelle Dangott at 818.961.3003 or [mdangott@energyattorney.com](mailto:mdangott@energyattorney.com).

Respectfully submitted,



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Counsel for the  
**CALIFORNIA ENERGY STORAGE ALLIANCE**

April 14, 2014

Sunday, April 13, 2014 6:27:27 PM Pacific Daylight Time

**Subject:** Fwd: Market penetration report for Small TES  
**Date:** Friday, April 11, 2014 3:48:56 PM Pacific Daylight Time  
**From:** Janice Lin  
**To:** Scott Murtishaw  
**CC:** liddell@energyattorney.com, Greg Miller

Hi Scott

Thanks again for your time on the phone this morning. The market penetration statistics for small thermal storage are as we expected:

**The current market adoption rate for small TES equates to a 0.0221% level, and 0.0065% for**

**behind the meter end customer projects. See Chart 3 in the attached document for more background.**

Given this clear statement of market immaturity, we would very much appreciate President Peevey's assistance in issuing an Alternate PD. If you have any questions about the attached market research regarding thermal storage for refrigerant based air conditioning units equal to or less than 20 tons, please don't hesitate to contact Greg Miller directly (contact info can be found below)

Please also of course feel free to call me/Don if you'd like to discuss further. Also, FYI Don will be issuing an ex parte on Monday on this topic

Kind regards

Janice



GREG MILLER

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## California Market Report on Thermal Energy Storage in Relationship to Refrigerant Based Direct Expansion Air Conditioning Equipment ≤ 20 tons

Report Created by Greg Miller, Ice Energy EVP, Market Development, April 11, 2014

### Market Opportunity for Small TES:

The purpose of this report is to document the current market installed capacity of small Thermal Energy Storage (TES) in relationship to market installed capacity of Direct Expansion Refrigerant Based Air Conditioning equipment ≤ 20 tons in order to determine market penetration level of Small TES.

Ice Energy in cooperation with three Municipal Owned Utilities conducted city wide HVAC load surveys canvassing 98% of all commercial and industrial businesses in the following three utility service territories: Burbank Water and Power, Glendale Water and Power, and Redding Electric Utility. HVAC survey data was then compared with utility summer peak capacities in order to evaluate the market potential for small TES in the State of California. *See Chart 1 below.*

HVAC Market Assessments	MOU City Wide Surveys		
	BWP	GWP	REU
Utility Peak Load (MW)	300	328	246
C&I Utility End Customers Surveyed	6,536	5,625	4,560
Total # of HVAC units identified during survey	16,340	15,120	8257
Total HVAC Peak Load Surveyed (MW)	90	105.8	69
HVAC Load as a % of Utility Peak (MW)	30%	32%	28%
TES (Ice Bears) Systems Per Customer	3.6	2.9	2.4
TES Market Opportunity @ 10% Penetration (MW)	9.0	10.6	6.9

**Chart 1: HVAC Load Survey Results**

Based on the applicability of small TES in the three utility service territories, it was confirmed small TES can significantly contribute to the States' energy storage and peak reduction objectives permanently eliminating an average 30% of all commercial and industrial on---peak air conditioning load.

Following completion of this three surveys, Ice Energy then applied the 30% market opportunity average across all Municipal Owned Utilities, Investor Owned Utilities, and Water Irrigation Districts using published 2009 utility integrated resource planning on---peak requirements to calculate the total state---wide opportunity for small TES. *See Chart 2 below.*



SCPPA's Small Thermal Energy Storage (TES) Market Overview			
		30%	TES Price = \$2000/kW
Members	Peak Load (MW)	Addressable AC Peak Load (MW)	Economic Development Opportunity for the State
Anaheim	525	157.5	\$ 315,000,000
Azusa	64	19.2	\$ 38,400,000
Banning	43	12.9	\$ 25,800,000
Burbank	300	90	\$ 180,000,000
Cerritos	88	26.4	\$ 52,800,000
Colton	90	27	\$ 54,000,000
Glendale	328	98.4	\$ 196,800,000
IID	925	277.5	\$ 555,000,000
LADWP	5600	1680	\$ 3,360,000,000
Pasadena	310	93	\$ 186,000,000
Riverside	586	175.8	\$ 351,600,000
Vernon	190	57	\$ 114,000,000
Moreno Valley	20	6	\$ 12,000,000
<b>Totals =</b>	<b>9069</b>	<b>2721</b>	<b>\$ 5,441,400,000</b>

NCPA's Small TES Market Overview			
		30%	TES Price = \$2000/kW
Members	Peak Load (MW)	Addressable AC Peak Load (MW)	Economic Development Opportunity for the State
Alameda Municipal Power	70	21	\$ 42,000,000
City of Biggs	5	1.5	\$ 3,000,000
Healdsburg Electric Utility	21	6.3	\$ 12,600,000
City of Palo Alto Utilities	185	55.5	\$ 111,000,000
Lodi Electric Utility	132	39.6	\$ 79,200,000
Lompoc	26	7.8	\$ 15,600,000
Redding Electric Utility	246	73.8	\$ 147,600,000
Roseville Electric	338	101.4	\$ 202,800,000
Silicon Valley Power	452	135.6	\$ 271,200,000
Turlock Irrigation District	600	180	\$ 360,000,000
Ukiah Public Utilities	600	180	\$ 360,000,000
<b>Totals =</b>	<b>2,675</b>	<b>803</b>	<b>\$ 1,605,000,000</b>

Independent or Irrigation District Small TES Market Overview			
		30%	TES Price = \$2000/kW
Members	Peak Load (MW)	Addressable AC Peak Load (MW)	Economic Development Opportunity for the State
SMUD	3958	1187.4	\$ 2,374,800,000
Merced Irrigation District	91	27.3	\$ 54,600,000
Modesto Irrigation District	685	205.5	\$ 411,000,000
<b>Totals =</b>	<b>4,734</b>	<b>1420</b>	<b>\$ 2,840,400,000</b>

Investor Owned Utilities Small TES Market Overview			
		30%	TES Price = \$2000/kW
Investor Owned Markets	Peak Load (MW)	Addressable AC Peak Load (MW)	Economic Development Opportunity for the State
San Diego Gas & Electric	4,621	1386.3	\$ 2,772,600,000
Southern California Edison	21,118	6335.4	\$ 12,670,800,000
Pacific Gas & Electric	19,761	5928.3	\$ 11,856,600,000
<b>Totals =</b>	<b>45,500</b>	<b>13,650</b>	<b>\$ 27,300,000,000</b>

**Chart 2: HVAC Load per Utility Service Territory**

The report concludes the target HVAC market for small TES is 18,593 GW. As of April 2014, Ice Energy has installed a total of 4.1 MW under utility funded projects and has completed 1.2 MW of end customer funded projects. The current market adoption rate for small TES equates to a 0.0221% level, and 0.0065% for behind the meter end customer projects. See Chart 3 Below.

Total California Market for Small TES (includes all IOU's, Electric Utility Water Districts, and Municipal Owned Utilities)	Peak Load (MW)	Addressable AC Peak Load (MW)	Economic Development Opportunity for the State
Complete Totals =	61,978	18,593	\$ 37,186,800,000
Current Small TES Market Penetration Level on installed Peak Capacity			
Ice Energy TES system applied to ≤20 tons HVAC equipment			
Small TES installed base with CA Utility as of April 2014 (MW)	4.1		
Current Market Adoption % for CA Market as of April 2014	0.0221%		
Small TES installed base with CA end Users April 2014 (MW)	1.2		
Current Market Adoption % for CA Market as of April 2014	0.0065%		

**Chart 3: HVAC Market Opportunity and Small TES Penetration**

