

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



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Order Instituting Rulemaking Regarding Policies,
Procedures and Rules for the California Solar
Initiative, the Self-Generation Incentive Program
and Other Distributed Generation Issues.

Rulemaking 08-03-008
(Filed March 13, 2008)

**AMENDED JOINT PETITION OF THE CALIFORNIA CENTER FOR
SUSTAINABLE ENERGY AND THE CALIFORNIA ENERGY STORAGE
ALLIANCE FOR MODIFICATION OF D.08-11-044**

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August 7, 2009

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

Order Instituting Rulemaking Regarding Policies,
Procedures and Rules for the California Solar Initiative,
the Self-Generation Incentive Program and Other
Distributed Generation Issues.

Rulemaking 08-03-008
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**AMENDED JOINT PETITION OF THE CALIFORNIA CENTER FOR
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ALLIANCE FOR MODIFICATION OF D.08-11-044**

In accordance with Rule 16.4 of the California Public Utilities Commission (“Commission”) Rules of Practice and Procedure (“Rules”), the California Center for Sustainable Energy (“CCSE”)¹ and the California Energy Storage Alliance (“CESA”)² respectfully request that Decision (“D.”) 08-11-044 be modified to limit application of the overly restrictive requirement, for incentive eligibility under the Self-Generation Incentive Program (SGIP), of “hundreds of partial daily discharge cycles” (“Discharge Requirement”) to advanced energy storage (“AES”)³ systems coupled with wind technologies only; and eliminate the Discharge Requirement entirely for AES systems coupled with all other SGIP-eligible

¹ The California Center for Sustainable Energy (“CCSE”), formerly known as the San Diego Regional Energy Office (“SDREO”), is the Program Administrator, in San Diego Gas and Electric Company (“SDG&E”) service territory, of the Commission’s Self Generation Incentive Program (“SGIP”), and is also a member of the Commission’s SGIP Working Group (“Working Group”). The Working Group consists of CCSE and the other SGIP Program Managers, including Southern California Edison Company, Pacific Gas and Electric Company, and SDG&E.

² The California Energy Storage Alliance came into existence as an *ad hoc* advocacy group made up of renewable energy system integrators, energy industry consultants, and energy storage system manufacturers only after D.08-11-044 was issued, CESA’s membership presently consists of A123 Systems, Inc., Beacon Power Corporation, Chevron Energy Solutions, Debenham Energy, LLC, Fluidic Energy Inc., Ice Energy, Inc., PVT Solar, StrateGen Consulting, Xtreme Power Solutions and ZBB Energy Corporation. The views expressed in this Joint Petition are those of CESA, and they do not necessarily reflect the views of all of the individual CESA member companies on every specific point. Its membership is, and will continue to be, adversely affected by D.08-11-044 because the Discharge Requirement unduly and materially restricts their access to the SGIP. This Petition is therefore in compliance with Section 16.4 (e) of the Rules.

³ In D.08-11-044, the Commission determined that advanced energy storage (“AES”) systems that meet certain technical parameters and are coupled with eligible SGIP technologies, currently wind and fuel cell technologies, will receive an incentive of \$2 per watt of installed capacity.

technologies.⁴ Administrative Law Judge Ebke has authorized CCSE and CESA to submit this Amended Joint Petition of CCSE and CESA for Modification of D.08-11-044, and the Declaration of Janice Linn attached hereto as Attachment “A” (together, “Amended Joint Petition”). As explained in this Petition, the Discharge Requirement unnecessarily restricts AES system eligibility for SGIP incentives to a small subset of commercially available AES technologies and will likely to continue to do so unless it is modified as requested in this Petition. This Petition is filed within one year of the effective date of D.08-11-044, i.e., November 21, 2009, and is therefore timely filed in accordance with Section 16.4(d) of the Rules.⁵

I. INTRODUCTION

The intent of the Working Group in proposing technical parameters as requirements for eligibility, including the Discharge Requirement, was to ensure that AES technologies would be capable of meeting the demands of coupling with SGIP-eligible generation technologies and to ensure that the resulting integrated technology solutions would deliver peak load reduction benefits to California ratepayers. With the formation of CESA and resulting input from many different storage technology stakeholders, we now understand that use of the Discharge Requirement as technical parameter for SGIP eligibility: (i) unnecessarily limits AES system eligibility for incentives under the SGIP to a small subset of eligible technologies; (ii) is unnecessary for AES applications coupled with fuel cells; and (iii) will create unnecessary additional administrative burdens on the Program Administrators.

II. CCSE AND CESA RESPECTFULLY REQUEST THAT THE COMMISSION LIMIT APPLICATION OF THE DISCHARGE REQUIREMENT TO AES SYSTEMS COUPLED WITH WIND TECHNOLOGIES AND ELIMINATE THE DISCHARGE REQUIREMENT ENTIRELY FOR AES SYSTEMS COUPLED WITH OTHER SGIP-ELIGIBLE TECHNOLOGIES.

The number of required daily charge and discharge cycles for an AES system depends on its application. When an AES system is coupled with distributed generation (DG) technologies, the primary driver of required daily cycles is the generation profile of the DG technology. For

⁴ Only wind and fuel cell technologies are currently eligible to participate in the SGIP.

⁵ CESA has authorized the undersigned to sign this Petition on its behalf.

instance, wind generation resources require hundreds of daily cycles to firm generation, but fuel cells only require *one* daily charge/discharge cycle.

Many daily charge and discharge cycles are required for firming output from wind resources. For example, the following figure provides an overview of a typical day's wind generation smoothing at Tomamae Wind Farm in Japan.⁶ The blue line shows the continuous charge and discharge of the connected AES system as it smoothes the wind production (green line), while the red line indicates the net production of the wind generator paired with the operation of the AES system:

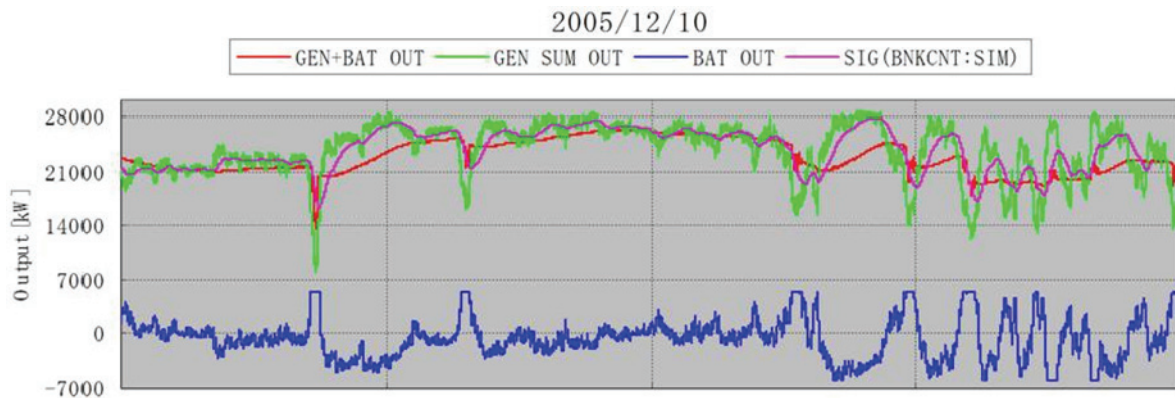


Figure 1: Daily Wind Output Smoothing at Tomamae with Energy Storage

The following figure indicates that for a typical day at another 6MW wind resource, approximately 600 charge and discharge cycles are required to firm the generation from the turbines:

⁶ This, and other wind related charts depicted in this Petition are from “*Shaping and Firming Wind Energy Using Vanadium Redox Flow Batteries*”, Prepared for the California Wind Energy Collaborative Forum 2006, December 13, 2006.

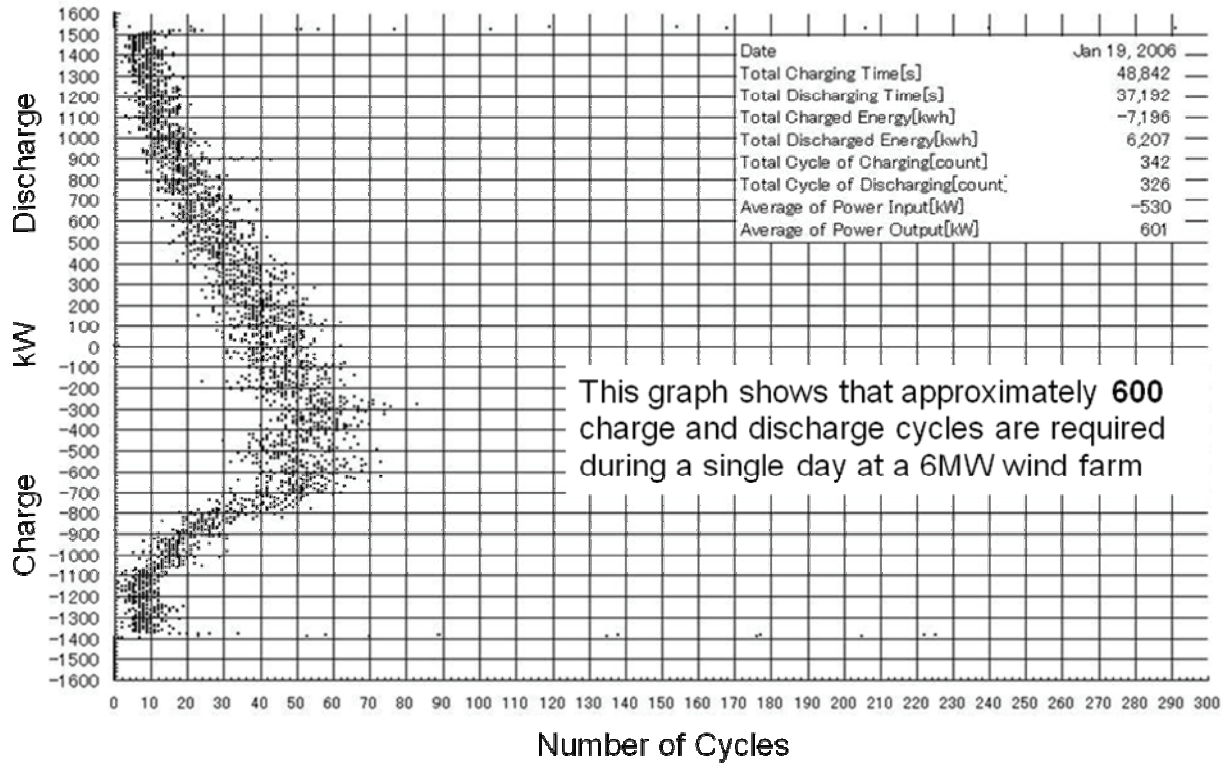


Figure 2: Hundreds of Charge/Discharge Cycles per Day at 6MW Wind Farm⁷

In contrast, when coupled with fuel cells, AES systems do not need the ability to perform “hundreds of partial daily charge and discharge cycles”. Below is a graph of a fuel cell coupled with an AES system for an industrial facility in Pacific Gas & Electric’s (“PG&E’s”) service territory. This figure shows the interaction of site load, 1MW of steady base-load fuel cell generation, and a 1MW 8-hour electrical AES system for a typical summer day:

⁷ *Shaping and Firming Wind Energy Using Vanadium Redox Flow Batteries*, Prepared for the California Wind Energy Collaborative Forum 2006, December 13, 2006.

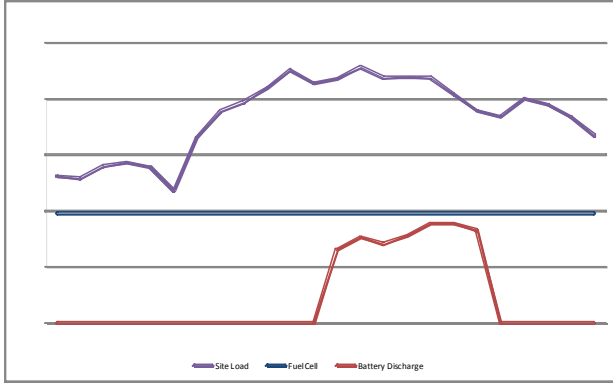


Figure 3: Industrial Site Load with Fuel Cell and AES System⁸

The following figure shows the net load to the interconnected local utility after the fuel cell and AES system cycles are subtracted. The AES system has a single charge/discharge cycle in this 24-hour period and, coupled with the onsite fuel cell, is effectively able to reduce the combined facility’s peak demand and energy use to zero.

⁸ Load, fuel cell, and AES system data derived from an industrial facility within PG&E’s service territory.

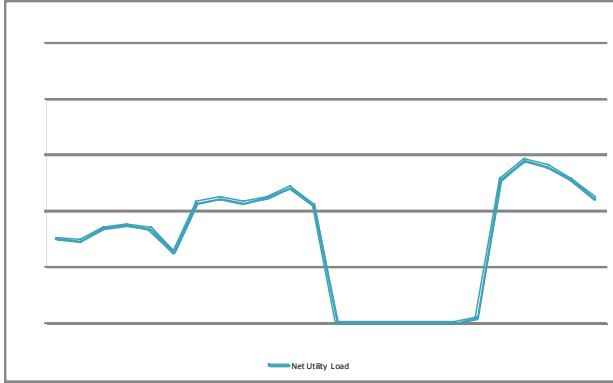


Figure 4: Net Load After Fuel Cell & AES System Cycle⁹

The AES system accomplishes this by charging throughout the night during off-peak hours, using grid-supplied electricity and any excess power output from the fuel cell. During on-peak periods, the combined output of the fuel cell and AES system are used to bring the net load down to zero. This process requires only one charge/discharge cycle per day because the fuel cell generation is at a constant output, and there is no need for smoothing.

III. CCSE AND CESA RECOMMEND MODIFICATIONS TO D.08-11-044, AS SET FORTH BELOW.

A. Amendment to the Text of the Decision:

“Ability to be used daily in concert with an on-site wind resource, and still meet its 20-year lifetime requirement. The qualifying AES system must thus have the ability to handle hundreds of partial discharge cycles each day when used in concert with an on-site wind resource.” (D.08-11-044, page 11).

⁹ Load, fuel cell, and AES system data derived from an industrial facility within PG&E’s service territory.

B. Amendment to Finding of Fact Number 9:

“Except for the 20-year minimum warranty requirement, the technical parameters proposed by VRB are broad enough to allow all qualified AES to participate in SGIP, provided that the ability to handle hundreds of partial discharge cycles per day shall only apply to on-site wind resources.” (D.08-11-044, page 15).

C. Amendment to Conclusion of Law Number 10:

“With the exception of the 20-year warranty term, the technical parameters to define AES in the context of SGIP proposed by VRB should be adopted, except that the ability to handle hundreds of partial discharge cycles per day shall only apply to on-site wind resources.” (D.08-11-044, page 16).

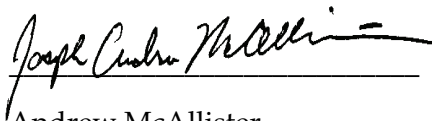
IV. REQUEST FOR EXPEDITED TREATMENT

CCSE and CESA respectfully request expedited treatment of this Amended Joint Petition. It is in the public interest to open the way as soon as possible for submittal of new SGIP applications by proponents of AES system projects. Accordingly, CCSE and CESA respectfully request a shortened response period of fifteen (15) days for filing of responses to this Amended Joint Petition.

V. CONCLUSION

For the reasons stated herein, CCSE and CESA urge the Commission to grant this Amended Joint Petition as expeditiously as possible and limit application of the Discharge Requirement to AES systems coupled with wind technologies and eliminate the Discharge Requirement entirely for AES systems coupled with other SGIP-eligible technologies.

Respectfully submitted,



Andrew McAllister
Director of Programs
California Center for Sustainable Energy

Date: August 7, 2009

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of this *Amended Joint Petition of the California Center for Sustainable Energy and the California Energy Storage Alliance for Modification of D.08-11-044* on all known parties of record in proceeding R.08-03-008 by delivering a copy via email to the current service list or by delivering a copy via U.S. First Class mail to those members of the current service list with no or undeliverable email addresses.

Executed on August 7, 2009, in San Diego, CA.



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