Decision **PROPOSED DECISION OF COMMISSIONER PEEVEY**
(Mailed 1/11/2010)

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 (Filed March 13, 2008)

DECISION MODIFYING DECISION 08-11-044 REVISING THE TECHNICAL PARAMETERS FOR ADVANCED ENERGY STORAGE SYSTEMS COUPLED WITH FUEL CELLS

1. Summary

On July 30, 2009, the California Center for Sustainable Energy and the California Energy Storage Alliance (Joint Petitioners) filed a petition for modification of Decision (D.) 08-11-044 in Rulemaking 08-03-008. D.08-11-044, among other things, determined that, when coupled with a currently eligible Self-Generation Incentive Program (SGIP) technology, advanced energy storage (AES) technologies, should receive SGIP incentives. D.08-11-044 established the incentive levels, the incentive structures, and several operating parameters for AES systems qualifying to receive SGIP incentives.

Joint Petitioners request modification to one of the operating parameters involving discharge requirements for qualifying AES systems.

This decision grants the requested relief, as adjusted here, and modifies D.08-11-044 with respect to technical parameters for AES that are coupled with eligible fuel cell technologies.

2. Background

Decision (D.) 08-11-044, established the following operating parameters for advanced energy storage (AES) systems, and accordingly, the Program Administrators (PAs) for the Self-Generation Incentive Program (SGIP) revised the SGIP Program handbook on May 8, 2009 as follows:

- Ability to be used daily in concert with an on-site wind resource, and still meet its 5-year lifetime requirement. The qualifying AES system must thus have the ability to handle hundreds of partial discharge cycles each day.
- Ability to be discharged for at least four hours of its rated capacity to fully capture peak load reductions in most utility service territories (required AES duration of discharge will depend on each customer's specific load shape, and the duration of its peak demand during peak utility periods).
- Ability to meet Institute of Electrical and Electronics Engineers, Inc. interconnection standards.
- Ability to operate in distributed, customer sited locations and comply with all local environmental and air quality requirements.

The California Center for Sustainable Energy and the California Energy Storage Alliance (CESA) (Joint Petitioners) seek an order modifying D.08-11-044 to limit the requirement that AES systems must have the ability to handle hundreds of partial discharge cycles each day to AES systems coupled with wind technologies only, and to eliminate this discharge requirement entirely for AES systems coupled with all other eligible SGIP technologies.

On August 31, 2009, Southern California Edison Company, Pacific Gas & Electric Company, San Diego Gas and Electric Company, and Southern California Gas Company (collectively, Joint Respondents), filed a joint response in support of the Petition for Modification (Petition).

Joint Respondents agree with the Joint Petitioners that requiring a qualifying AES system to have the ability to handle hundreds of partial discharge cycles each day is unnecessarily restrictive, particularly for AES systems coupled with fuel cells.[1] In their view, the Petition is consistent with the Commission's intention to eliminate barriers for AES systems to be able to participate in SGIP. In addition, they assert the Petition will contribute to SGIP's goal of peak demand reductions, because with more AES technology options available to customers with fuel cells, more customers will be able to charge their AES systems during off peak hours and discharge them during peak hours to offset their peak load and help reduce peak demand.

Prudent Energy International (Prudent) and Utility Savings & Refund (US&R) filed a joint response opposing the Petition. They argue that the modifications to the technical parameters requested by Joint Petitioners are unsupported. They request that any attempt to modify the technical requirements should be based upon actual experience with the existing parameters and with input from stakeholders. Specifically, they argue that the Joint Petitioners' claim that the current technical parameters unnecessarily restrict application to a small subset of technologies is unfounded. They contend the Petition fails to show how removing the discharge cycling requirement would expand the set of applicable technologies for CESA members.

Prudent and US&R also disagree with the Joint Petitioners' contention that the application of AES to fuel cells and other SGIP-eligible technologies would

[1] *See* Joint Respondents Response to the Petition at 2.

only require one discharge cycle per day.[2] They explain that because fuel cells are unable to turn down or reduce their power output with the demand, they are usually sized below the minimum demand of a facility. However, this requirement will no longer be necessary, if fuel cells can be combined with AES systems that have multiple cycling capabilities, because the AES will be able to absorb power when the fuel cell generates more than is required and then discharge when additional power is needed.[3]

Finally, Prudent and US&R oppose the Joint Petition because they believe the requested modification may cause confusion and increase the administrative burden of the PAs as a lack of a standard may require some requests be determined on a case-by-case basis.

Joint Petitioners disagree with Prudent and US&R. In their reply filed on September 22, 2009, Joint Petitioners argue that eliminating the daily discharge requirement for non-wind applications will not impose unmanageable burdens for the PAs given their stated support for the Petition.[4] Further, Joint Petitioners argue that requiring hundreds of partial daily discharge cycles is an arbitrary, imprecise and restrictive requirement, because "the actual number of daily AES discharge cycles for fuel cell applications will certainly vary by project."[5] Instead, they offer to change the requirement as follows:

> The qualifying AES system must thus have the ability to cycle, or change the flow of energy, multiple times per day. The system must

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[2] *See* Prudent and US&R's Joint Response at 4.

[3] *Id.*

[4] Joint Petitioners' Reply at 2.

[5] *Id.* at 3.

also have the ability to partially or fully discharge at its maximum output capacity (measured in kilowatts) at least 115 times per year.

3. Discussion

Although the record does not provide sufficient evidence for us to determine what specific technologies may be restricted by the multiple daily discharge requirement, we believe the record demonstrates that this requirement is excessive in circumstances where a storage system is paired with a fuel cell, given the generation characteristics of the fuel cell technology and how storage is likely used in this context. As a policy matter, we do not believe it is reasonable to impose more stringent performance requirements unless the imposition of those requirements could result in a superior outcome. Given the objective of SGIP to reduce peak demand, and our understanding that fuel cells are typically designed to operate such that they provide near constant output 24 hours a day, we agree with the Joint Petitioners that AES paired with a fuel call may not need hundreds of partial discharge cycles to effectively achieve that objective. The multiple daily discharge requirement, while appropriate for enabling the smoothing of energy output from an intermittent resource such as a wind facility, may be excessive and unnecessary for achieving peak load reductions when AES is coupled with fuel cells. Therefore, we modify D.08-11-044 as set forth below for AES technology paired with a fuel cell, but not for AES technology paired with an intermittent resource such as wind.

While the Joint Petitioners suggest an alternative requirement of 115 annual discharges for AES systems coupled with a fuel cell, they provide no

evidence on the record to support this specific suggestion.[6] Therefore, we cannot accept this recommendation. Instead, we find it more appropriate that an AES system coupled with a fuel cell be required to meet the site-specific requirements for on-site peak demand reduction and be capable of discharging fully at least once per day and still meets its 5-year lifetime requirement. This requirement will ensure that storage systems are capable of discharging the energy that is produced during off peak hours during times of peak demand. While we recognize that the specific production and load profiles may vary from site to site, we believe that pairing fuel cells with storage would, in most cases, facilitate the peak reduction goal of SGIP, provided this one discharge per day requirement can be met. However, to help us better assess if these projects are facilitating on-site peak load reductions, we require AES participants to provide detailed information regarding system performance to the PAs on an ongoing basis. This information should include output data from the generation component of the overall project, as well as charging and discharging data for the AES technology. To facilitate transmission of this information, we require AES facilities to install metering equipment capable of measuring and recording interval data on generation output and AES charging and discharging.

In their comments, the Joint Petitioners, DRA, and the Joint Respondents support the proposed decision's metering and reporting requirements for AES systems coupled with fuel cell technologies. The Joint Respondents further recommend that the Commission extend the same requirements to AES systems coupled with wind technologies that are participating in the SGIP and to AES

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[6] *See* Joint Petitioners' September 22 reply comments at 3.

systems coupled with any technologies that are determined to be eligible under the SGIP program in the future. The Joint Respondents argue that these requirements will allow better assessment of the AES systems participating in the SGIP.[7] US&R argues that the Joint Respondents' comments should be afforded no weight in this decision as they represent recommendations not covered under Rule 14.3 of the Commission's Rules of Practice and Procedure. US&R suggests the SGIP Working Group is the appropriate venue for considering these changes.

The petition to modify D.08-11-044 specifically requests that cycling requirements established in D.08-11-044 be applicable only to AES systems coupled with wind technologies and eliminated for AES systems coupled with all other SGIP technologies. The proposed decision established metering and reporting requirements as a direct result of addressing the cycling requirements for AES. Data monitoring and reporting is critical for evaluation of the SGIP. The Joint Respondents' argument to expand the metering and reporting requirements for all AES is relevant and is adopted.

DRA expresses its concern that the phrase "site-specific requirements for peak reduction" in Ordering Paragraph 1 is vague and could be susceptible to conflicting interpretations. US&R argues that the proposed changes to AES should be submitted to the SGIP Working Group as a Program Modification Request. We clarify that SGIP-eligible AES should be employed to reduce host-site peak demand, and we have revised the entire proposed decision to reflect that clarification.

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[7] Joint Respondents' Opening Comments at 3.

DRA also recommends that AES participants report host site energy usage in addition to generator output and AES charging/discharging data.[8] We agree with DRA that the information about host-site energy consumption could help assess the ability of AES to reduce on-site peak-demand over time. This information can be obtained from the customer meter by the investor-owned utilities (IOUs). Therefore, we require IOUs to provide this data to PAs.

Finally DRA recommends that we direct the SGIP Working Group to establish protocols for the metering and reporting requirements and further determine how they would be reviewed and enforced."[9]

In reply comments, the Joint Petitioners express their concern that this process could delay review of AES applications. Accordingly, the Joint Petitioners suggest that AES applications continue to be processed while the metering and reporting protocols are being developed. We agree that metering and reporting requirements should be further defined. We direct the Energy Division to work with the SGIP Working Group to establish protocols governing metering, monitoring and data reporting. AES applications that are reviewed during this process should only be approved on the condition that they later comply with the metering and reporting requirements established for advanced energy storage systems. In order to expedite the implementation of the metering and reporting requirements, we direct the Working Group to implement appropriate handbook changes within 60 days of the effective date of this decision.

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[8] DRA Opening Comments at 3.

[9] *Id.* at 1.

We note that the Commission is in the process of implementing Senate Bill (SB) 412 (Stats. 2009, Ch. 182), which amends the Public Utilities Code relating to the SGIP. SB 412 authorizes the California Public Utilities Commission, in consultation with the California Air Resources Board, to determine eligible technologies for the SGIP based on the requirement that they "achieve reductions of greenhouse gas emissions pursuant to the California Global Warming Solutions Act of 2006." On November 13, 2009, an Administrative Law Judge's (ALJ) Ruling in this proceeding requested comments from parties on the implementation of SB 412. The implementation of SB 412 may further impact the performance requirements for SGIP eligible technologies including AES.

4. Comments on Proposed Decision

The proposed decision of the assigned Commissioner in this matter was mailed to the parties in accordance with Section 311 of the Public Utilities Code and comments were allowed under Rule 14.3 of the Commission's Rules of Practice and Procedure. Comments were filed on February 1, 2010, by Joint Petitioners, DRA, and Joint Respondents, and reply comments were filed on February 8, 2010, by Joint Petitioners, US&R, and Joint Respondents.

5. Assignment of Proceeding

President Michael Peevey is the assigned Commissioner and Maryam Ebke is the assigned ALJ in this portion of the proceeding.

Findings of Fact

1. AES system paired with a fuel cell may not need to discharge multiple times daily to achieve the objective of the SGIP to reduce peak demand.

2. The multiple daily discharge requirement in D.08-11-044, while appropriate for enabling the smoothing of energy output from an intermittent

resource such as a wind facility, may be excessive and unnecessary for achieving peak load reductions when AES system is coupled with fuel cells.

3. There is no evidence on the record to determine that the specific proposal of 115 annual discharges for AES systems coupled with a fuel cell is appropriate to resolve the problem identified in Joint Petitioners' petition.

Conclusions of Law

1. It is appropriate to modify D.08-11-044 to require that an AES system coupled with a fuel cell meet the site-specific requirements for on-site peak demand reduction and be capable of discharging fully at least once per day and still meet its 5-year lifetime requirement.

2. AES participants should provide output data from the generation component of the overall project, as well as charging and discharging data for the AES technology to the PAs an ongoing basis.

3. AES systems coupled with any SGIP-eligible technology should install metering equipment capable of measuring and recording interval data on generation output and AES charging and discharging to facilitate gathering data regarding the AES system performance.

4. IOUs should provide host-site energy consumption information to the PAs.

O R D E R

IT IS ORDERED that:

1. Ordering Paragraph 1 of Decision 08-11-044 is modified to revise one of the operating requirements for advanced energy systems coupled with fuel cells. Advanced Energy Storage systems coupled with fuel cells must meet the site-specific requirements for on-site peak demand reduction and be capable of

discharging fully at least once per day in order to be eligible for the $2/watt incentive from the self-generation incentive program.

2. Advanced Energy Storage systems coupled with eligible technologies under the self-generation incentive program must install metering equipment capable of measuring and recording interval data on generation output and advanced energy storage system charging and discharging in order to be eligible for the $2/watt incentive from the self-generation incentive program.

3. The Energy Division is directed to work with the self-generation incentive program Working Group to establish specific protocols to govern the metering and data reporting requirements for advanced energy storage systems participating in the self-generation incentive program.

4. The self-generation incentive program Working Group must implement appropriate handbook changes, including metering and reporting requirements within 60 days of the effective date of this decision.

5. The investor-owned utilities must provide the energy consumption data for host-sites to program administrators.

6. Advanced energy storage applications that are being reviewed during the time the Working Group is establishing metering and reporting requirement, must only be approved on the condition that they later comply with the metering and reporting requirements established for advanced energy storage systems.

7. Rulemaking 08-03-008 remains open.

This order is effective today.

Dated _____, at San Francisco, California.