BEFORE THE PUBLIC UTILITIES COMMISSION
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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 12-11-005 (November 8, 2012)

COMMENTS OF THE CALIFORNIA SOLAR ENERGY INDUSTRIES ASSOCIATION ON THE PROPOSED DECISION REGARDING NET ENERGY METERING FOR STORAGE DEVICES PAIRED WITH GENERATION FACILITIES

Brad Heavner
Policy Director
California Solar Energy Industries Association
555 5th St. #300-S
Santa Rosa, California 95401
Telephone: (415) 328-2683
Email: brad@calseia.org

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Pursuant to Rule 14.3 of Commission Rules of Practice and Procedure, the California Solar Energy Industries Association (CALSEIA) hereby submits these comments on the Proposed Decision Regarding Net Energy Metering Interconnection Eligibility for Storage Devices Paired with Net Energy Metering Generation Facilities, issued on April 15, 2014.

1. Introduction

Previous to mid-2013, California investor-owned utilities (IOUs) interconnected distributed renewable systems with energy storage under the standard net energy metering (NEM) tariff. After publication of the seventh edition of the RPS Eligibility Guidebook in 2013, the IOUs forced systems with storage onto the NEM-MT tariff, which effectively halted the market. CALSEIA is greatly relieved that the Proposed Decision would reinstate the ability of solar systems with energy storage devices to be interconnected under the standard NEM tariff. The PD marks a major step forward by proposing to formalize this structure. Some sizes and configurations of energy storage

systems paired with renewable generators would be re-enabled without prohibitive fees and uncertainty.

However, CALSEIA maintains that the utilities' hypothesis that customers can use the net metering tariff for load shifting is a "red herring" argument. By erecting excessive barriers to keep this from happening, the Proposed Decision would prevent the installation of some sizes and configurations of energy storage systems that would otherwise be beneficial to individual customers and to the state's energy system as a whole. If customers are willing to invest in energy storage systems as an addition to renewable energy generators, they should be allowed to achieve reasonable value from those systems to meet legitimate energy needs.

All parties appear to agree that the NEM tariff is intended to promote renewable energy and should not be used for load shifting. Load shifting is needed in California, but a separate financial mechanism must be developed to encourage it. The utilities have repeatedly stated their concern that customers would engage in load shifting through the NEM tariff but have not presented any data demonstrating that this has ever happened or that it is economically advantageous for customers to do so.[1]

In contrast, the most common use of energy storage today is to maintain power in a home or business during grid failures. This is particularly important for companies that need constant electronic contact with customers but can also be important for any company that has high lost revenue when employees cannot be productive during a

[1] The key reason why it would be foolish for a customer to engage in load shifting through NEM credits is that a battery system will reach the end of its useful life after a certain number of charges a nd discharges. A 20 kW/40 kWh lithium ion battery system costs approximately $41,000 after the SGIP rebate and can cycle approximately 3,000 times. If it charges 40 kWh at night at 6.3 cents/kWh and discharges the same amount during the daytime at 35.7 cents/kWh (the rates in SCE's TOU-GS-2 - tariff it will have gained $11.76. It would need to do this 3,500 times to break even on the investment– every day for more than nine years. Nobody will invest tens of thousands of dollars when the life of the system will only get you to simple payback.

power outage. For some companies, utility grid failures directly impact normal business operations more than ten times a year.

CALSEIA maintains that the Commission is attempting to solve a problem that does not exist. However, should the Commission continue to assert that sizing and metering barriers are needed, CALSEIA offers the following corrections to the provisions of the Proposed Decision.

2. The Definition of Storage System Size Needs to Be Clarified

Several parts of the Proposed Decision refer to storage system "size" in ways that are ambiguous. For example, Conclusion of Law number 8 refers to "NEM-paired storage systems with storage devices sized larger than 10 kW." This has created confusion among energy solutions providers who are more accustomed to thinking about batteries in terms of kWh of storage capacity or who confuse the kW limit in the Proposed Decision with the 2-hour discharge capability required by the Self Generation Incentive Program. We believe it is the Commission's intention to classify system sizing based on discharge capacity. It would avoid ambiguity and confusion to refer to "maximum output power" rather than "size."

3. The Sizing Limitations Are Excessively Restrictive

There are many good applications of storage-paired systems where the storage output power is larger than the solar system capacity but the storage is still an "addition or enhancement" to the renewable energy generator, and where the paired system should be eligible for the NEM tariff.

Some business locations have limited useable roof space and are therefore unable to install a solar system that is large enough to meet all of their critical load, yet these businesses may still benefit from a battery storage system that can meet all of their

critical load during grid failures. Other businesses have electricity usage profiles with high spikes in demand but low average consumption. Since a solar system is generally sized for average consumption and a backup storage system needs to be sized for peak demand of critical loads, this can make the discharge power of the storage system much larger than the production capacity of the solar system. Some businesses need to store enough electricity to meet critical load for several days.

In each these cases, the storage system is an addition or enhancement to the solar system because, as correctly noted in the ACR, net metering exemptions should apply to "any storage device connected behind the same billing meter as the NEM generating system because this configuration meets the conditions of the 'directly connected energy storage' category as described in the Guidebook."[2] A storage system augments the value of a renewable generator by using the on-site generator to "top off" the batteries every day in preparation for a power outage. The generator does not need to be able to fully charge the storage device in one day for the two devices to serve as a pairing.

It is arbitrary and factually incorrect that storage output power and total storage capacity must be linked to generator production capacity to prove a link between a generator and a storage device, given that: A) the configuration of the system serves to satisfy the "addition or enhancement" condition, and B) the storage system augments the value of a renewable generator by storing the energy produced by the renewable generator. The Commission should:

- ∞ Remove the 12.5 hours per kilowatt capacity limit, or at least make this an alternative to the maximum discharge power limit (i.e. limiting the power *or* capacity of a storage system).

[2] ACR at 5.

- ∞ Remove the limitation on maximum output power output altogether, or at least increase the exemption threshold to 20 kW of maximum output power.

The Proposed Decision rightly follows SolarCity's reasoning that because there are limited battery options and therefore a limited ability to meet customers' needs with available equipment, small systems should be exempt from sizing limitations. However, to be technically accurate in determining where to set the threshold the Commission must look beyond the particular equipment that SolarCity uses in its installations. For example, the standard battery system inverter from SMA is the Sunny Island 6048 paired with the Sunny Boy 6000. Two Sunny Islands and two Sunny Boys are needed in order to install a 120/240 volt system, creating total storage system discharge power of 12 kW.

Solar Forward, one of the leading battery installers in the Los Angeles region, attests that 80% of its installations are 12-18 kW. These are small systems that present negligible risk of using the NEM tariff for load shifting. The Commission should exempt energy storage systems smaller than 20 kW of discharge power from the sizing limitations.

4. Data Acquisition Systems Should Be Allowed in Place of Interval Meters

Ordering paragraph 7 of the Proposed Decision requires systems with storage devices of 10 kW output power or greater to:

> 1) install a non-export relay on the non-NEM generator(s); 2) install an interval meter for the NEM-eligible generation, meter the load, and meter total energy flows at the point of common coupling; or 3) install an interval meter directly to the NEM-eligible generator(s).

In practical terms, this will require most systems to install a second meter to measure the output of the solar array or other generator in order to compare that output to exports to the grid. Many systems already have data acquisition systems that can provide

that data. The decision should allow customers to use data acquisition systems rather than paying for a second meter.

Data acquisition systems are already used to calculate the financial relationship between net metering customers and non-participating ratepayers, as SolarCity pointed out on the record.[3] For performance-based incentives within the California Solar Initiative, performance data providers (PDPs) collect data from solar systems and provide it to the state to calculate incentive amounts. Solar vendors install equipment according to the guidelines of the independent PDPs and an Internet connection allows the PDPs to access the output of a solar system. This has worked well in the CSI context and it would work perfectly well in the context of this decision.

5. The NEM Credit De-Rate Factor Is Not Reasonable

The Proposed Decision makes an earnest attempt to provide a lower cost path to prevent smaller projects from using the NEM tariff for load shifting by including a formula that relies on data from the customer's data acquisition system and a de-rate formula in lieu of the metering requirements for larger systems. This formula reduces the number of NEM credits a customer receives based on a de-rate factor, although the language of the de-rate formula in the discussion section of the Proposed Decision (p. 19) does not match the language in Ordering Paragraph 4, and it is therefore not clear exactly what the Commission intends.

In either case, CALSEIA is concerned that the de-rate methodology could prevent load shifting with storage devices that may be encouraged by financial mechanisms other than the NEM tariff. Load shifting is a positive outcome; customers simply shouldn't be using the NEM tariff to do it. When considerable storage capacity exists throughout the

[3] SolarCity opening comments at 7.

state, it is likely that the Commission will create a financial mechanism to encourage the use of those storage devices to address system peaks. As discussed above, it would likely need to involve greater financial incentives than NEM credits due to the cycling limitations of batteries. But if and when such a mechanism is developed, the proposed de-rate formulas would impair its effectiveness since both formulas in the Proposed Decision penalize customers for charging storage systems from the grid.

The NEM credit methodology currently used in the NEM-MT tariff is sufficient to ensure that customers are not using net metering credits for load shifting. Under that methodology, NEM credits in each 15-minute interval are provided based on the lesser of the exports to the grid and the production of the renewable generation system.

Given that the NEM-MT methodology does not force a tradeoff between use cases that involve grid charges and retaining full net metering credits for legitimate renewable energy production, this methodology is reasonable for all NEM-eligible energy storage systems paired with renewable generation facilities, not just those above a size threshold. Rather than requiring the use of an interval meter to generate the production data, however, the decision should allow this data to be generated via a generator's data acquisition system, as it does for the de-rate methodology for systems below the size threshold. The Commission does not need to create a whole new methodology in order to allow the use of data acquisition systems. It can simply allow data acquisition systems for the same credit methodology that is currently used in the NEM-MT tariff.

6. Currently Installed Systems Should Be Exempt from New Requirements

Many energy storage systems were installed in California prior to the utilities' decision last year to stop interconnecting them under the standard net metering tariff.

Those systems were approved for interconnection without the metering and other requirements in the NEM-MT special conditions and should be allowed to continue to operate under the rules that were in place at the time of interconnection. We believe it is the Commission's intention not to apply new rules to existing systems, but the Proposed Decision does not make this clear enough.

Also, energy solutions providers designed systems last year but did not install them when the utilities changed their interconnection rules. In some cases, systems were installed but have not been interconnected. Rather than forcing a costly redesign of those systems, they should be allowed to interconnect without being subject to the new restrictions. This dispute of the interconnection rules has already cost installers and customers an unreasonable amount of time and money.

Accordingly, the Proposed Decision should state that the new requirements in this decision are applicable to systems that submit completed interconnection application materials after August 15, 2014. This three-month period after the decision is final is enough time to install systems that have already been designed and committed to by customers but not enough time to propose, design, sell and install systems in order to build new systems in deliberate avoidance of new rules.

7. Interconnection Application Fees Should Be Refunded

Prior to publication of the seventh edition of the RPS Eligibility Guidebook, NEM-eligible generating facilities paired with energy storage devices qualified as "renewable electric generation facility" for purposes of the net metering tariff. This included exemption from the $800 interconnection application fee.

The Proposed Decision notes that utilities were "creating barriers" when they "concluded such systems were not NEM eligible"[4] and began charging interconnection application fees. Now that the law has been clarified, the Commission should order the utilities to refund the fees that were collected according to an incorrect interpretation of the law.

8. CONCLUSION

CALSEIA appreciates the opportunity to provide these comments and requests that the Commission accept these recommendations.

DATED at Santa Rosa, California, this 5th day of May, 2014

By: */s/ Brad Heavner*
Brad Heavner

Brad Heavner
Policy Director
California Solar Energy Industries Association
555 5th St. #300-S
Santa Rosa, California 95401
Telephone: (415) 328-2683
Email: brad@calseia.org

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