

**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 12-11-005  
(Filed November 8, 2012)

**COMMENTS OF THE CALIFORNIA ENERGY STORAGE ALLIANCE ON  
ASSIGNED COMMISSION'S RULING REGARDING THE INTERCONNECTION OF  
ENERGY STORAGE SYSTEMS PAIRED WITH RENEWABLE GENERATORS  
ELIGIBLE FOR NET ENERGY METERING**

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Pursuant to the *Assigned Commission’s Ruling Regarding the Interconnection of Energy Storage Systems Paired with Renewable Generators Eligible for Net Energy Metering*, issued on October 17 2013 (“ACR”), the California Energy Storage Alliance (“CESA”)<sup>1</sup> hereby submits these Opening Comments.

**I. INTRODUCTION.**

CESA greatly appreciates the purpose and intent of the ACR in issuing a specific well-focused proposal to provide renewable electrical generating facilities meeting the California Energy Commission (“CEC’s”) Renewables Portfolio Standard (“RPS”) eligibility requirements

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<sup>1</sup> The California Energy Storage Alliance consists of A123 Systems, Alton Energy, AU Optronics, Beacon Power, CALMAC, Chevron Energy Solutions, Christenson Electric Inc., Clean Energy Systems Inc., CODA Energy, Deeya Energy, DN Tanks, Energy Cache, EnerVault, FAFCO Thermal Storage Systems, Flextronics, Foresight Renewable Systems, Greensmith Energy Management Systems, Growing Energy Labs, Gridtential Energy, Halotechnics, Hecate Energy LLC, Ice Energy, Innovation Core SEI, LG Chem, LightSail Energy, NextEra Energy Resources, Panasonic, Powertree, Primus Power, RedFlow Technologies, RES Americas, Saft America, Samsung SDI, Sharp Labs of America, Silent Power, SolarCity, Stem, Sovereign Energy Storage LLC, Sumitomo Corporation of America, TAS Energy, UniEnergy Technologies, and Xtreme Power. 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>

("RPS-Eligible Facilities") paired with energy storage devices the same benefits available to RPS-Eligible Facilities without energy storage capability under net energy metering ("NEM") tariffs, referred to as "NEM-Eligible Generators", until at least December 31, 2015. A clear determination by the Commission that NEM-Eligible Generators paired with energy storage devices are exempt from (i) standby charges, (ii) interconnection application and supplemental review fees and studies, and (iii) payment obligations for any distribution system modifications triggered by addition of energy storage devices is fair and consistent California's policy of encouraging rapid and widespread deployment of both NEM-Eligible Generators and energy storage resources. Given the relatively straightforward nature of the policy proposed in the ACR to exempt storage systems from these costs provided they meet the CEC requirements to be deemed an addition or enhancement, CESA asks that the Commission issue a final decision on this proposal as quickly as possible (before the end of 2013). The other issues related to NEM accounting should also be addressed expeditiously, but given that those issues involve questions of policy and are more technically complex, the Commission should not wait to resolve the cost exemption issues under the NEM statute while it deliberates on the other issues identified in the ACR.<sup>2</sup>

The proposal that utilities must extend Self Generation Incentive Program ("SGIP") application termination deadlines for affected SGIP project applications until after the issuance of the Commission's final decision on the ACR would be just and reasonable support for applicants that are presently at risk of losing the current queue position benefit of their existing

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<sup>2</sup> The Assigned Commissioner and Administrative Law Judge may wish to consider issuing a separate Scoping Memo that includes certain topics mentioned in the ACR that may warrant further examination by the Commission, and some or all of the other policy issues outlined in the Order Instituting Rulemaking, filed on November 8, 2012, as well as other energy storage-related issues regarding NEM and Distributed Generation interconnection for customer-side of the meter that have arisen before the ACR was issued.

SGIP applications. However, the proposed 14-day grace period between the final decision and the date for “re-setting the clock” on existing applications is insufficient to allow SGIP applicants adequate time to comply with the Commission’s guidance, particularly to the degree that specific guidance has project design implications. To that end, CESA recommends increasing the deadline extension period to a minimum of 120 days after issuance of the final decision.

## **II. CESA PROVIDES THE FOLLOWING RESPONSES TO THE SPECIFIC QUESTIONS POSED IN THE ACR.**

CESA appreciates the clarity proposed for NEM-Eligible interconnection metering configurations where it is feasible for the customer-generator to: (1) install a non-export relay on the non-NEM-Eligible generators, (2) install Net Generation Output Metering (“NGOM”) for the NEM-Eligible generation, meter the load, and meter total energy flows at the point of common coupling, or (3) install interval NGOM directly to the NEM-Eligible generators.<sup>3</sup> Each of these solutions would involve significant expense. However, a non-export relay is not physically possible. A grid-tie with an energy storage backup system is *designed* to export renewable energy, and both the storage and the NEM-Eligible Generator therefore must be located behind a single inverter.

As the ACR points out, this common commercially available NEM-compliant backup-metering configuration is in wide use by customer-generators today in California. The NEM-Eligible Generator and a storage device share a common direct current bus along with the input of the inverter, making it physically impossible for any type of relay or other equipment to

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<sup>3</sup> CESA notes that the concerns expressed by utilities thus far regarding metering requirements, including those articulated at a Commission’s interconnection workshop held on July 15, 2013, have been raised in the context of the Commission’s separate *Rulemaking Regarding Policies, Procedures and Rules for the California Solar Initiative, the Self-Generation Incentive Program and Other Distributed Generation Issues*, filed November 8, 2012.

differentiate between electrons excited by a photon striking a photovoltaic generation module versus electrons from any other source. For this reason, CESA even more greatly appreciates the recognition in the ACR that some exceptions to general utility preferences in metering configuration, such as the three listed as in the ACR, offer pragmatic solutions that are entirely consistent with both NEM policies embodied in state law and existing utility practice.

CESA's view is that the Commission should take a close look at the practical likelihood of gaming given the current context and tariff rate environment within which energy storage is being deployed. The opportunity for customer-generators to buy power from the utility grid at a low price and sell it to obtain NEM credit at a comparatively higher price for monetary gain actually does not exist at this time. There is not a sufficient price differential under current time of use tariff rates for this scenario to be financially beneficial to the customer-generator, especially when efficiency losses are factored in. The bottom line is that it is neither economic nor rational to draw grid power and export it for NEM credit. While SGIP stakeholders are willing and able to deploy some metering to address any gaming concerns in instances where those solutions are technically feasible or not cost-prohibitive, it appears to an objective observer that applicants are being required to incur significant equipment costs to prevent something that is highly unlikely to occur.

**QUESTION NUMBER ONE:** For single inverter systems, or other system configurations that do not allow NGOM, should the Commission consider estimated NEM generation as a means to limit NEM export credits during peak periods?

**CESA's Response:** The Commission should consider estimation methodologies in lieu of metering solutions, not only for single inverter systems but ultimately for all NEM-Eligible

Generators paired with energy storage that are below a specific size threshold. The costs of metering solutions in all contexts must be weighed against the benefits those metering solutions provide in terms of safeguarding NEM program integrity. This is an issue not only for single inverter systems, but also for other configurations that do allow for the deployment of an NGOM meter, because the cost impacts, particularly on very small customer-side systems, can be substantial in relation to the overall system installation cost. CESA does not recommend a specific size threshold at this time, but encourages the Commission to consider estimation approaches with an eye toward more expansive application beyond just single inverter systems.

**QUESTION NUMBER TWO:** Storage devices sized below a certain limit could pose a *de minimis* risk of harming NEM integrity. Should the Commission consider a threshold storage capacity below which NGOM is not required for the NEM generator? If so, what is an appropriate threshold and should the threshold be based on absolute capacity or in relation to customer load and the NEM generator capacity?

**CESA's Response:** As the question suggests, some energy storage systems are simply too small to pose a significant risk to proper NEM accounting. There is no real financial incentive for customer-generators to engage in the type of arbitrage and/or “gaming” behavior that the NGOM metering solution is intended to safeguard against. As discussed briefly above, the costs of deploying additional metering or applying other solutions will most likely exceed any hypothetical benefits in terms of ensuring NEM integrity. CESA recommends that if an energy storage system is sized at less than 50% of the serving distribution transformer, an estimation method should be employed in lieu of additional metering requirements.<sup>4</sup>

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<sup>4</sup> This would be consistent, for example, with the approach adopted for the Technical Interconnection rules for the Fast Track in both Rule 21 and WDAT.

**QUESTION NUMBER THREE:** Because storage devices increase total consumption, Customers on non-time-varying rates have no financial incentive to export energy for NEM credit, should NGOM be required for customers who are not on time varying rates?

**CESA's Response:** In general, a key question for the Commission in considering metering requirements to prevent gaming of NEM is whether the technical capability of an energy storage device that can be charged from both the grid and from a NEM-Eligible generator to discharge energy onto the grid justifies the imposition of costly metering solutions, or if there instead needs to be both the means and the motive to engage in the gaming behavior those metering solutions are intended to address. CESA's view that absent any financial incentive to engage in gaming the need to impose metering barriers to prevent gaming from happening is highly questionable.

As noted by the question, using an energy storage device to export energy for NEM credit under a non-time variant rate would be a losing proposition for the customer-generator given efficiency losses and the fact that, even assuming 100% round-trip efficiency, there must be a sufficient differential between the cost of charging and the price received for energy discharged in order for there to be an incentive to engage in gaming. There is no credible case to be made today that the differentials in existing tariff rate structures provide an incentive to engage in this type of improbable behavior. Since there is no incentive to export grid energy in these circumstances, there is no need for an NGOM meter.

Should customer-generators decide in the future to take electricity service under a tariff schedule where the rate difference is sufficient to motivate a customer to attempt to "launder" grid power through an energy storage device in order to obtain NEM credits, then additional metering or other approaches could be considered. However, given the current state of the

energy storage technology market and the tariff rate context within which energy storage paired with NEM-Eligible generation is being deployed, NGOM metering requirements are excessive and unduly burdensome.

**III. THE COMMISSION SHOULD CLARIFY THE DETAILS OF THE PROPOSED EXEMPTIONS FROM INTERCONNECTION APPLICATION FEES, SUPPLEMENTAL REVIEW AND DISTRIBUTION UPGRADE COSTS.**

The language of the ACR, while proposing to exempt energy storage devices paired with NEM-Eligible Generators from certain categories of costs, is somewhat unclear in terms of which specific costs or fees NEM-Eligible Generators paired with energy storage would be exempt from. It appears, based on other language in the ACR, that the intent is to provide an exemption from interconnection application fees, supplemental review fees, and distribution system upgrade costs. This should be clarified to be completely consistent with the exemptions provided under Public Resources Code Section 2827. That statute is clear that NEM-Eligible Generators, including “additions or enhancements” as defined by the CEC, are exempt from various fees and charges to which the customer would not otherwise be subject.

Applicable exemptions include “any new or additional demand charge, standby charge, customer charge, minimum monthly charge, interconnection charge, or any other charge that would increase an eligible customer-generator's costs beyond those of other customers who are not eligible customer-generators in the rate class to which the eligible customer-generator would otherwise be assigned if the customer did not own, lease, rent, or otherwise operate a renewable electrical generation facility...”<sup>5</sup>

CESA respectfully notes that the exemptions proposed in the ACR are statutory requirements and therefore not discretionary, provided that a storage device is an “addition or

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<sup>5</sup> Public Resources Code Section 2827.



enhancement” to a renewable electrical generation facility within the meaning of Public Resources Code Section 25741. Provided that an energy storage device meets the requirements the CEC has established in order to be deemed an addition or enhancement, it must be considered part of the renewable electrical generation facility used by a NEM-Eligible customer-generator and is therefore subject to the protections enumerated in Public Resources Code section 2827. In CESA’s view, the only relevant question is whether a storage device meets the CEC’s criteria for being deemed an addition or enhancement to a NEM-Eligible generator. Provided that the CEC’s criteria are met, in the context of NEM-Eligible generators, all of the exemptions provided by Public Resources Code Section 2827, as it exists today, must apply. To that end, and with all due respect, the Commission does not have the authority to selectively apply these protections and exemptions or to sunset the application of these exemptions, as the ACR proposes, as long as Public Resources Code Section 2827 is in force.

#### **IV. THE PROPOSED SYSTEM SIZING REQUIREMENT IS INAPPROPRIATE.**

The ACR proposes to establish a rule by which the size of energy storage devices that are additions or enhancements to a NEM-Eligible Generator is capped consistent with the requirements of the SGIP Handbook. However, CESA respectfully disagrees with the proposed cap, as it exists today. Currently there are very few standard energy storage device sizes that are commercially available, with 5kW generally being the smallest size for lithium ion-based systems. Because of this and other practical factors such as roof size, it may well be that a customer-generator is unable to install a storage device that is smaller than or equal to a NEM-Eligible Generator. SGIP customers should not be limited in their ability to adopt energy storage technology and/or subject to additional costs because their roof is too small to fit more than 5kW of generation, or otherwise limited because of other similarly foreseeable factors.

Further, it is most efficient in many applications to "trickle charge" an energy storage system (*i.e.*, charge at a low percentage of the system's maximum power) as it is much better for the lifespan of the system and more efficient in the delivery of usable energy into the system itself. The energy storage resource can be then discharged at a higher rate than it was charged to serve the benefit of load reduction (as called for in the SGIP, for example). This inherently means that the sizing restriction on energy storage to match the maximum power of the renewable generator is contrary to both good engineering design practice and the desired benefits of using energy storage.

CESA therefore recommends that the sizing any cap should be a ratio of not more than 12:1 in terms of maximum discharge power to maximum renewable generator power. This ratio is sufficient to allow the renewable generator to produce enough energy in a single day to match typical needs for energy and round trip efficiency losses while also meeting the instantaneous power needs of the customer-generator's on-site load that is being leveled or reduced.

**V. EXTENSION OF SELF GENERATION INCENTIVE PROGRAM DEADLINES IS REASONABLE, BUT THE EXTENSION SHOULD BE CLARIFIED AND LENGTHENED.**

The language of the ACR should be modified such that the extension would apply to all SGIP applicants that *apply* for interconnection prior to December 31, 2015, rather than projects that have been physically connected by that date. Applying the extension to projects that have actually connected by that date would create significant uncertainty for applications that are in process between now and that time, since when a project will actually be interconnected is subject to significant uncertainty. If, instead, the extension applies to all SGIP projects so long as they have submitted an application before that date, prospective system customer-generators

and installers developing projects prior to December 31, 2015 will have much more reasonable certainty regarding the costs to which they will or will not be subject.

CESA strongly supports extending SGIP deadlines for projects that have SGIP applications that would otherwise expire before the final decision based on the ACR is issued. CESA supports this because additional time will be required to reconfigure projects based on any new requirements or guidance provided by the Commission. However, the proposed length of the extension is far too short, particularly given some of the issues raised in the ACR and any potential modifications the Commission may require. Given the magnitude of these potential changes, some of which may require project design modifications, providing an extension of a minimum of 120 days from the issuance date of the final decision would appear reasonable.

**VI. CONCLUSION.**

CESA thanks the Commission for the opportunity to submit these Opening Comments, and urges the Commission to expeditiously issue a final decision based on the proposal set forth in the ACR.

Respectfully submitted,



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