

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

Order Instituting Rulemaking to Develop a
Successor to Existing Net Energy Metering
Tariffs Pursuant to Public Utilities Code
Section 2827.1, and to Address Other Issues
Related to Net Energy Metering.

Rulemaking 14-07-002
(Filed July 10, 2014)

**RESPONSE OF THE CALIFORNIA ENERGY STORAGE ALLIANCE
TO RULING REGARDING SOFTWARE OPTION FOR ALLOWING DC-COUPLED
SOLAR PLUS STORAGE SYSTEMS**

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In accordance with the Rules of Practice and Procedure of the California Public Utilities Commission (“Commission”), the California Energy Storage Alliance (“CESA”)¹ hereby submits this response on the *Administrative Law Judge’s Ruling Requiring Supplemental Information Regarding Petition of California Solar and Storage Association to Modify Decision 14-05-033* (“Ruling”), issued by Administrative Law Judge (“ALJ”) Valerie U. Kao on July 19, 2018.

¹ 8minutenergy Renewables, Able Grid Energy Solutions, Advanced Microgrid Solutions, AltaGas Services, Amber Kinetics, American Honda Motor Company, Inc., Axiom Exergy, Brenmiller Energy, Bright Energy Storage Technologies, Brookfield Renewables, Carbon Solutions Group, Centrica Business Solutions, Consolidated Edison Development, Inc., Customized Energy Solutions, Dimension Renewable Energy, Doosan GridTech, Eagle Crest Energy Company, East Penn Manufacturing Company, Ecoult, EDF Renewable Energy, ElectrIQ Power, eMotorWerks, Inc., Enel, Energport, ENGIE, E.ON Climate & Renewables North America, esVolta, Fluence Energy, GAF, General Electric Company, Greensmith Energy, Ingersoll Rand, Innovation Core SEI, Inc. (A Sumitomo Electric Company), Iteros, Johnson Controls, Lendlease Energy Development, LG Chem Power, Inc., Lockheed Martin Advanced Energy Storage LLC, LS Power Development, LLC, Magnum CAES, Mercedes-Benz Energy, NantEnergy, National Grid, NEC Energy Solutions, Inc., NextEra Energy Resources, NEXTracker, NGK Insulators, Ltd., NRG Energy, Inc., Parker Hannifin Corporation, Pintail Power, Primus Power, Range Energy Storage Systems, Recurrent Energy, Renewable Energy Systems (RES), Sempra Renewables, Sharp Electronics Corporation, SNC Lavalin, Southwest Generation, Sovereign Energy, Stem, STOREME, Inc., Sunrun, Swell Energy, True North Venture Partners, Viridity Energy, VRB Energy, Wellhead Electric, and Younicos. 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>).

I. INTRODUCTION.

CESA generally supports the proposed range of solutions in the *Petition of the California Solar Energy Industries Association for Modification of D.14-05-033 to Allow DC-Coupled Solar Plus Storage Systems* (“Petition”) filed by the California Solar and Storage Association (“CALSSA”) on September 1, 2017. Decision (“D.”) 14-05-033 approved several metering configurations for AC-coupled energy storage systems to be paired with Net Energy Metering (“NEM”) eligible generators and to interconnect under the NEM Multiple Tariff (“NEM-MT”), but it deferred adoption of any DC-coupled NEM-paired storage configurations. CESA finds this to be a critical gap in the NEM framework as DC-coupled systems have certain economic benefits by sharing an inverter with the NEM-eligible generator and by having increased efficiencies. CESA thus supports the Petition for seeking software and control alternatives to ensure ‘NEM integrity’ of an emerging and growing DC-coupled configuration of NEM-paired storage systems, as opposed to just looking for firmware solutions, especially as DC metering standards are being developed.² NEM integrity is critically important and software configurations offer a potential pathway to ensure that.

II. RESPONSE.

CESA appreciates the Commission’s exploration of CALSSA’s proposed software approach and offers its general response here in support of software rather than firmware settings that limit grid charging for DC-coupled NEM-paired storage systems, which can be set remotely and can be securely changed (via password protection) remotely over time as NEM policy and time-of-use (“TOU”) rates evolve. With device software settings pre-approved by the utilities,

² EMerge Alliance is currently working on developing revenue-grade DC meters to potentially create an additional option for ensuring NEM integrity of DC-coupled systems.

future interconnections will be streamlined as well. More importantly, software settings present a lower-cost alternative to physical metering to ensure NEM integrity, though CESA acknowledges that greater clarity is needed not only to mitigate any NEM integrity or safety concerns but also to prevent battery storage failure upon grid charging.

CESA understands there may be challenges to utility interconnection engineers who are trained in electrical engineering to review and verify software settings. According to some of our members, the utilities currently approve software controls on a case-by-case basis, which CESA understands has been done on a limited scale. CESA thus recommends that the Commission and the utilities work to develop and/or identify standards for software settings to overcome these challenges and achieve the intended operations of DC-coupled NEM-paired storage systems. Standardized software settings combined with strong cybersecurity protections should mitigate any safety risks. CESA observes that a number of inverter manufacturers have guidelines in place for secure communications, password standards and configurations, and two-factor authentication, among other measures, that provide enhanced cybersecurity for inverters. One manufacturer (Enphase), for example, is in the process of developing a secure Electronic Current Limit setting that set energy storage at either “grid charge” and “grid export” modes to ensure NEM integrity. Audits can be conducted by the utilities on a sample of select systems based on data provided by the manufacturer or installer on NEM production and paired energy storage charge/discharge operations to verify performance.

In sum, CESA supports the Commission’s consideration of CALSSA’s Petition and believes that the development of standards and processes on this matter will enable an important and growing configuration of NEM-paired storage systems. CESA believes in maintaining and ensuring NEM integrity and thus hopes to work closely with the Commission, CALSSA, the

utilities, and other stakeholders to address some of the specific standards development and implementation issues for software-controlled DC-coupled NEM-paired storage systems.

III. CONCLUSION.

CESA appreciates the opportunity to submit these comments on the Ruling.

Respectfully submitted,



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