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January 17, 2017

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CPUC Energy Division
ED Tariff Unit
505 Van Ness Avenue
San Francisco, California 94102

**Re: Protest of the California Energy Storage Alliance to
Advice Letter 3490-E of Southern California Edison Company**

Dear Sir or Madam:

Pursuant to the provisions of General Order 96-B, the California Energy Storage Alliance (“CESA”)¹ hereby submits this protest to the above-referenced *Supplement to Advice 3490-E Modifications to Southern California Edison Company’s Net Energy Metering (“NEM”) Tariffs to Implement the Requirements Applicable to NEM-Paired Storage Systems Pursuant to Decision*

¹ 8minutenergy Renewables, Adara Power, Advanced Microgrid Solutions, AES Energy Storage, Amber Kinetics, Aquion Energy, Bright Energy Storage Technologies, Brookfield, California Environmental Associates, Consolidated Edison Development, Inc., Cumulus Energy Storage, Customized Energy Solutions, Demand Energy, Doosan GridTech, Eagle Crest Energy Company, East Penn Manufacturing Company, Ecoult, Electric Motor Werks, Inc., ElectrIQ Power, ELSYS Inc., Energy Storage Systems Inc., Enphase Energy, GE Energy Storage, Geli, Gordon & Rees, Green Charge Networks, Greensmith Energy, Gridscape Solutions, Gridtential Energy, Inc., Hitachi Chemical Co., Ice Energy, IE Softworks, Innovation Core SEI, Inc. (A Sumitomo Electric Company), Invenergy LLC, Johnson Controls, K&L Gates, LG Chem Power, Inc., Lockheed Martin Advanced Energy Storage LLC, LS Power Development, LLC, Mercedes-Benz Research & Development North America, National Grid, Nature & PeopleFirst, NEC Energy Solutions, Inc., NextEra Energy Resources, NEXTracker, NGK Insulators, Ltd., NRG Energy LLC, OutBack Power Technologies, Parker Hannifin Corporation, Powertree Services Inc., Qnovo, Recurrent Energy, RES Americas Inc., Saft America Inc., Samsung SDI, Sharp Electronics Corporation, Skylar Capital Management, SolarCity, Southwest Generation, Sovereign Energy, Stem, Sunrun, Swell Energy, Trina Energy Storage, Tri-Technic, UniEnergy Technologies, Wellhead Electric, 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>).

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(D.) 14-05-033 and D. 16-04-020, submitted on December 29, 2016 (“Supplemental Advice Letter”).²

I. BACKGROUND AND INTRODUCTION.

Southern California Edison Company (“SCE”) submitted their Supplemental Advice Letter to further modify their NEM tariff pursuant to D.14-05-033 and D.16-04-020. Specifically, at the request of the Commission’s Energy Division, SCE clarified that all three metering options under the NEM multiple tariff (“NEM-MT”) are permissible for NEM paired storage systems except for those using certain single-inverter systems because “there is no way under the NEM-MT metering options to both allow export and meter the renewable generation export separate from the storage device’s output.”

While CESA agrees that it is important to protect NEM integrity to ensure that NEM credits can only be generated by eligible customer-sited generating facilities and not from energy taken from the utility grid, we do not see single-inverter systems as being incapable of making this distinction between energy stored from a NEM-eligible generator versus energy stored from grid energy. CESA therefore finds that SCE’s position that certain single-inverter systems be precluded from the NEM-MT metering options to be overly restrictive and an unnecessary barrier particularly for cost-effective DC-coupled NEM paired storage systems.

II. DISCUSSION.

D.14-05-033 determined that NEM paired storage systems larger than 10 kW are required to meter their systems using one of the three options:

1. Install a non-export relay on the storage device(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
3. Install an interval meter directly to the NEM-eligible generator(s)

However, SCE’s Supplemental Advice Letter would essentially preclude DC-coupled systems from Schedule NEM-MT by preventing DC-coupled systems from being credited for energy that is stored and exported at a later time, even though it is possible to meter the renewable generation export as well as the storage device’s output. DC-coupled systems use a

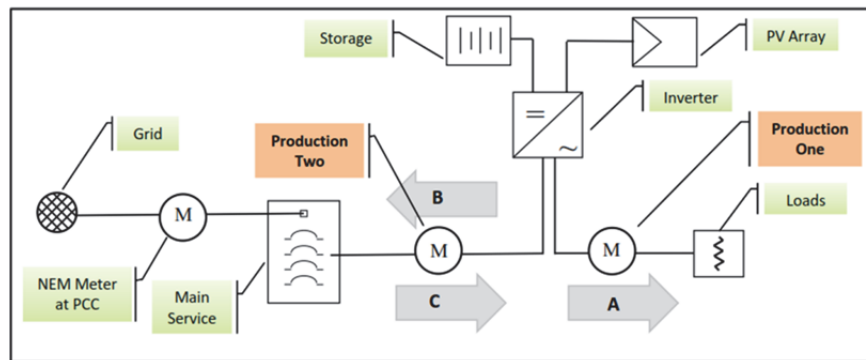
² SCE asks that the Commission, pursuant to GO 96-B, General Rules 7.5.1, maintain the original protest and comment period designated in Advice 3490-E and not reopen the protest period. CESA respectfully disagrees with SCE’s assertion that the clarifications included in the supplemental advice filing do not make substantive changes that would affect the overall evaluation of the filing.

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single inverter that manages both the NEM generation and energy storage with a primary output to protected loads and a secondary output to the grid. Most DC-coupled systems should be able to provide SDG&E with full visibility of the NEM generation and the load served by the NEM generation with a meter on its two AC outputs (Option 2 above), similar to the diagram below. In this configuration, the total NEM-eligible generation would be determined by calculating $A + B - C$, where A is the output to loads, B is the output to the grid, and C is the loads. The B and C register would be read by the meter measuring net output to the grid (i.e., NEM-eligible generation). See the diagram below:



To illustrate, imagine a NEM paired storage system under an Option 2 metering configuration that serves a 10-kW load and has a 10-kW PV system and 5-kW battery storage system installed with a single DC inverter. In the example below, across five hypothetical hours of the day, the NEM paired storage system only charges the storage system from the NEM generator, which will be evident in the B and C registers on the meter. The $A + B - C$ value would read 20 kWh for the day.

	Hour 1	Hour 2	Hour 3	Hour 4	Hour 5	Register	
Load	10 kW	10 kW	10 kW	10 kW	10 kW	A	50 kWh
PV (10 kW)	0 kW	5 kW	10 kW	5 kW	0 kW		
Battery (5 kW)	0 kW	5 kW charge	10 kW charge	5 kW charge	20 kW discharge		
Grid Export	0 kW	0 kW	0 kW	0 kW	10 kW export	B	10 kWh
Grid Import	10 kW import	10 kW import	10 kW import	10 kW import	0 kW	C	40 kWh

Now imagine the same NEM paired storage system charges from the paired storage system from the grid. In the first hour, the storage system charges from the grid to serve the load, which is later exported in the fifth hour. While the $A + B - C$ value would read the same 20 kWh for the day, the Option 2 metering configuration provides 15-minute interval data of all contributions of the system under all contributions to identify when the NEM paired storage system is charging from the grid, contrary to the NEM integrity issues raise in D.16-04-020. Such operations would be prevented under the Option 2 metering configuration, which probably accounts for SCE asking that the Commission, pursuant to GO 96-B, General Rules 7.5.1,

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maintain the original protest and comment period designated in Advice 3490-E and not reopen the protest period.

	Hour 1	Hour 2	Hour 3	Hour 4	Hour 5	Register	
Load	10 kW	10 kW	10 kW	10 kW	10 kW	A	50 kWh
PV (10 kW)	0 kW	5 kW	10 kW	5 kW	0 kW		
Battery (5 kW)	5 kW charge	5 kW charge	10 kW charge	0 kW	20 kW discharge		
Grid Export	0 kW	0 kW	0 kW	0 kW	10 kW export	B	10 kWh
Grid Import	15 kW import	10 kW import	10 kW import	5 kW import	0 kW	C	40 kWh

CESA recommends that SCE's Supplemental Advice Letter be revised to consider maintain eligibility of all three metering options under D.14-05-033 for single-inverter storage systems. DC-coupled storage systems, which provide significant customer and grid benefits, should not be prevented from participating in the NEM tariff as proposed by SCE in its Supplemental Advice Letter.

III. CONCLUSION.

In D.14-05-033, the Commission recognized the benefits of NEM paired storage systems to provide a number of benefits, including but not limited to providing backup power during grid outages, reducing or shifting a customer's load, and supplying grid reliability services.³ CESA believes that DC-coupled NEM paired storage systems have certain advantages that provides benefits to the customer and the grid to help California achieve its energy and environmental goals. CESA finds no grounds for preventing DC-coupled systems from interconnecting under the NEM tariff due to concerns about NEM integrity. These concerns can be sufficiently addressed under the Option 2 metering configuration pursuant to D.14-05-033. CESA therefore recommends that the Commission reject SCE's Advice Letter to modify the NEM tariff to consider all NEM paired storage systems that utilize a single inverter to be ineligible for the NEM tariff.

Very truly yours,



Donald C. Liddell

DCL/md

cc: Russell G. Worden, SCE (AdviceTariffManager@sce.com)

Laura Genao, SCE, (Karyn.Gansecki@sce.com)

Service Lists R.14-07-002, R.12-11-005 and R.11-09-011

³ D.14-05-033, p. 5.