

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

Order Instituting Rulemaking on the Commission's  
Own Motion to Improve Distribution Level  
Interconnection Rules and Regulations for Certain  
Classes of Electric Generators and Electric Storage  
Resources.

R.11-09-011  
Filed September 22, 2011

**REPLY COMMENTS OF THE CALIFORNIA ENERGY STORAGE ALLIANCE ON  
ADMINISTRATIVE LAW JUDGE'S RULING TO (1) ISSUE WORKING GROUP  
PAPER ON AUTONOMOUS INVERTER FUNCTIONALITIES (2) SET  
COMMENT DATES AND WORKSHOP (3) ENTER WORKING PAPER INTO  
THE RECORD AND (4) ANNOUNCE NEW RULE 21 WORKING GROUP**

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August 30, 2012

**TABLE OF CONTENTS**

I. INTRODUCTION.....2

II. THE COMMISSION SHOULD BE VERY SKEPTICAL OF  
UNSUBSTANTIATED ASSERTIONS OF PARTIES REGARDING COST.....2

    A. Pacific Gas and Electric Company .....2

    B. San Diego Gas & Electric Company .....3

    C. Clean Coalition .....3

III. THE COMMISSION SHOULD TAKE PAINS TO AVOID INADVERTENT  
INTERFERENCE WITH NATIONAL INVERTER EQUIPMENT STANDARDS.....4

IV. CONCLUSION.....5

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The California Energy Storage Alliance (“CESA”)<sup>1</sup> hereby submits these reply comments on *Administrative Law Judge’s Ruling To (1) Issue Working Group Paper On Autonomous Inverter Functionalities (2) Set Comment Dates And Workshop (3) Enter Working Paper Into The Record And (4) Announce New Rule 21 Working Group*, issued September 26, 2012 (“ALJ’s Ruling”).

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<sup>1</sup> The California Energy Storage Alliance consists of 1 Energy Systems, A123 Systems, AES Energy Storage, Alton Energy, American Vanadium, AU Optronics, Beacon Power, Bright Energy Storage, BrightSource Energy, CALMAC, Chevron Energy Solutions, Christenson Electric Inc., Clean Energy Systems Inc., CODA Energy, Deeya Energy, Demand Energy, DN Tanks, Eagle Crest Energy, East Penn Manufacturing Co., Energy Cache, EnerVault, FAFCO Thermal Storage Systems, FIAMM Group, FIAMM Energy Storage Solutions, Flextronics, Foresight Renewable Systems, GE Energy Storage, Green Charge Networks, Greensmith Energy Management Systems, Growing Energy Labs, Gridtential Energy, Halotechnics, Hecate Energy LLC, Hydrogenics, Ice Energy, Innovation Core SEI, Invenergy, KYOCERA Solar, LightSail Energy, NextEra Energy Resources, OCI Company Ltd., Panasonic, Parker Hannifin, PDE Total Energy Solutions, Powertree Services, Primus Power, RedFlow Technologies, RES Americas, S&C Electric Co., 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>

## I. INTRODUCTION.

As was the case with its Opening Comments, CESA's reply comments focus on the technical and related Commission policy implications of the discussion of the role of energy storage in the working paper entitled, *Candidate DER Capabilities: Recommendations for Updating Technical Requirements in Rule 21* ("Working Paper"). More specifically, CESA's these reply comments are addressed to a few of the points that are raised in the Opening Comments filed by other parties.

## II. THE COMMISSION SHOULD BE VERY SKEPTICAL OF UNSUBSTANTIATED ASSERTIONS OF PARTIES REGARDING COST.

### A. Pacific Gas and Electric Company

In its Opening Comments, PG&E states that:

"The Working Group should also develop clearly defined power output ramping functions so that the operation of one inverter is not likely to interact adversely with adjacent inverters. In addition, setting up requirements for gradual power ramp up and ramp down (where short term storage is available) may minimize voltage fluctuations experienced by other distribution customers. *Ultimately this type of inverter standard may cost a bit more, but may reduce interconnection costs such as the need for system upgrades, e.g. re-conductoring, additional transformers, etc., and allow for higher levels of DG penetration.*" [Emphasis added]. (PG&E Comments p. 3)

PG&E's recommended requirements for gradual power ramp up and ramp down may or may not be desirable depending on the specific applications of energy storage paired with an inverter being considered. Negative impacts may include, for example, curtailment of renewable energy, limitation of the capability of the inverter to provide regulation functionality, and limitation of the capability of the inverter to reduce customer demand.

PG&E's cost-related assertion is unfortunately both vague and speculative. The bare assertion seems to minimize potential cost impacts, yet provides no supportive evidence for, or

numerical ranges, related to the meaning of “a bit”. The lack of specificity in estimated costs makes it difficult to compare policy and infrastructure alternatives to PG&E's recommendations.

## **B. San Diego Gas & Electric Company**

In its Opening Comments, SDG&E states that:

“As a practical matter, therefore, the incremental cost of an inverter with enhanced functionality that would generate or consume reactive power and mitigate voltage swings associated with PV systems, as compared to hardware that does not, *is likely to be modest* [Emphasis added].” (SDG&E Comments, p. 2).

As was the case with PG&E's Comments, SDG&E's claims regarding “modest” cost are both vague and speculative. This is problematic for the same reasons expressed above as to PG&E's assertions concerning costs of implementing a gradual power ramp inverter standard. CESA thus simply repeats its general criticism of both SDG&E's and PG&E's assertions regarding costs associated with inverters with enhanced functionality.

## **C. Clean Coalition**

In its Opening Comments, Clean Coalition states:

“Advanced inverter features should be required for new commercial DG due to the *high value and cost-effectiveness* of such features.” (Clean Coalition Comments, p. 3).

This assertion is comparable in effect as to those made by both PG&E and SDG&E regarding costs, and compound the issue by adding an equally vague and speculative assertion regarding the benefit side of the equation. Whereas PG&E and SDG&E each claim low costs for inverter upgrades, Clean Coalition asserts relatively high cost-effectiveness for such upgrades. However, the definition of, and criteria for determining, “high value and cost-effectiveness” are not stated. Any metrics to substantiate Clean Coalition's perspective are likewise not provided. These unsubstantiated statements should not be taken as evidence to support for the adoption of

technology standards. CESA therefore recommends that the Commission disregard Clean Coalition's statements regarding the value and cost-effectiveness of any particular advanced inverter features, including those discussed in the Working Paper.

**III. THE COMMISSION SHOULD TAKE PAINS TO AVOID INADVERTENT INTERFERENCE WITH NATIONAL INVERTER EQUIPMENT STANDARDS.**

Clean Coalition states in its Comments:

*“While the associated technical standards are further developed nationally through IEEE 1547.8, the interim adoption of 1547a and specific implementation for California can and should proceed.”* (pp. 2-13).

*“Advanced inverter features should be required for new commercial DG due to the high value and cost-effectiveness of such features.”* (p. 3).

*“Application of interim standards can be applied in a tiered approach as the industry and system operators gain experience, focusing initially on commercial scale facilities that export power.”* (p. 6).

In order to implement advanced inverter features in a timely and cost-effective manner, manufacturers require clear and consistent standards. Production line modifications take place over extended time periods with substantial investment, effort, and costs that are best implemented when they are applied to concrete and specific standards with reasonable time frames for adoption. Accordingly, interim standards should *not* be embraced by the Commission, because they cannot provide sufficient certainty or lead-time for effective inverter production changes. Any implemented standards should be appropriately analyzed and codified as official (not interim) standards, so as to provide sufficient lead-time and certainty to manufacturers that are presently and potentially meeting statewide inverter demand.

California standards, if any are helpful, should be completely consistent with national standards for inverters. This will allow manufacturers of inverters, and related energy storage

technology to deploy resources that can meet nationwide demand, and associated manufacturing dynamics that will clearly be beneficial for the California grid.

Assuming that any inverter standards are “official” and not interim, CESA *does* support tiered implementation. Tiered implementation will ensure that smaller inverter and energy storage resources are not suddenly confronted with unattainable or inappropriate standards, and that any such standards for gradually smaller resources are developed in a manner that includes appropriate experience and vetting with marginally larger resources.

It must be made clear, however, that standards themselves are differentiated by resource level, instead of having identical standards gradually implemented by resource class. This is based on the simple premise that smaller distributed resources, including energy storage resources, should not be required to support the same level of functionality as that required for larger resources, because certain requirements will be prohibitively expensive or technologically unattainable for inverters serving smaller resources.

#### **IV. CONCLUSION.**

CESA appreciates this opportunity to comment on the ALJ’s Ruling and looks forward to working with the Commission and parties to this proceeding going forward.

Respectfully submitted,



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August 30, 2013