

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

Order Instituting Rulemaking to Consider
Streamlining Interconnection of Distributed
Energy Resources and Improvements to
Rule 21.

Rulemaking 17-07-007
(Filed July 13, 2017)

**COMMENTS OF THE CALIFORNIA ENERGY STORAGE ALLIANCE
TO THE PROPOSED DECISION ADOPTING PROPOSALS FROM MARCH 15, 2018
WORKING GROUP ONE REPORT**

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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 these comments to the *Proposed Decision Adopting Proposals from March 15, 2018 Working Group One Report* (“PD”), issued by Commissioner Michael Picker on February 22, 2019.

¹ 174 Power Global, 8minutenergy Renewables, Able Grid Energy Solutions, Advanced Microgrid Solutions, Alligant Scientific, LLC, AltaGas Services, Amber Kinetics, Ameresco, American Honda Motor Company, Inc., Avangrid Renewables, Axiom Exergy, Better Energies, Boston Energy Trading & Marketing, Brenmiller Energy, Bright Energy Storage Technologies, Brookfield Renewables, Carbon Solutions Group, Clean Energy Associates, ConEd Battery Development, Customized Energy Solutions, Dimension Renewable Energy, Doosan GridTech, Eagle Crest Energy Company, East Penn Manufacturing Company, EDF Renewable Energy, ElectriQ Power, eMotorWerks, Inc., Enel X North America, Energport, Engie Storage, E.ON Climate & Renewables North America, esVolta, Fluence, Form Energy, GAF, General Electric Company, Greensmith Energy, Gridwiz Inc., Hecate Grid LLC, Ingersoll Rand, Innovation Core SEI, Inc. (A Sumitomo Electric Company), Johnson Controls, Lendlease Energy Development, LG Chem Power, Inc., Lockheed Martin Advanced Energy Storage LLC, LS Energy Solutions, LS Power Development, LLC, Magnum CAES, Mercedes-Benz Energy, NantEnergy, National Grid, NEC Energy Solutions, Inc., NextEra Energy Resources, NEXTracker, NGK Insulators, Ltd., Nuvve, Pattern Energy, Pintail Power, Primus Power, Polyjoule, Quidnet Energy, Range Energy Storage Systems, Recurrent Energy, Renewable Energy Systems (RES), SNC-Lavalin, Southwest Generation, Sovereign Energy, Stem, STOREME, Inc., Sunrun, Swell Energy, Tenaska, Inc., Tesla, True North Venture Partners, Viridity Energy, VRB Energy, WattTime, 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 PD for approving (or not approving) a number of proposals that support the streamlining of distributed energy resource (“DER”) interconnection under Rule 21 and reduce the costs and barriers to their deployment. As the Commission moves to advance its customer choice and clean energy goals, the reforms approved in the Rule 21 interconnection process help to scale deployment of DERs while ensuring grid reliability and safety. While broadly supportive of the PD, CESA has several areas of comment and recommendation on how the PD can be modified, as summarized below:

- A process should be outlined and directed to modify the existing Screen Q exemption threshold based on net export upon approval of the certification standard.
- The certification standard for actively limiting export should not also have to limit fault current contribution.
- The proposals to clarify costs, configurations, and requirements for Net Energy Metering (“NEM”) paired storage interconnections will increase transparency but urgency is needed in developing direct current (“DC”) metering standards.
- The material modification process proposals require several key modifications and clarifications.
- Further stakeholder review for the proposal to lower the telemetry threshold is prudent but this evaluation should also broadly assess all potential cost-effective options.

For any of the adopted proposals, CESA recommends that the Commission also direct the investor-owned utilities (“IOUs”) to engage stakeholders from the developer and equipment provider community to the degree reasonable, perhaps through the Interconnection Discussion Forum, to vet specific implementation details prior to submitting advice letters. In this way, CESA believes that disputes on implementation details can be avoided. Not all proposals may be

appropriate for this stakeholder engagement process, but there may be certain specific proposals (e.g., Issue 1-3) that may warrant this best-practice approach.

II. A PROCESS SHOULD BE OUTLINED AND DIRECTED TO MODIFY THE EXISTING SCREEN Q EXEMPTION THRESHOLD BASED ON NET EXPORT UPON APPROVAL OF THE CERTIFICATION STANDARD.

CESA supports the PD’s determination to expand the existing Screen Q exemption for NEM facilities as well as for non-NEM, inverter-based generation with net export less than or equal to 500 kW by increasing the exemption size threshold to 1 MVA nameplate capacity. This proposal reasonably streamlines interconnection processes while maintaining grid reliability and safety, as the PD reasons.²

Importantly, the PD acknowledges that the Screen Q exemption threshold could be later modified upon approval of certification of firmware and software inverter power controls, which the PD recognizes as being imminent.³ However, given the imminence of the certification standard as outlined in Decision (“D.”) 19-01-030,⁴ CESA recommends modification of the PD to direct immediate and specific action upon the adoption and publication of the certification standard as opposed to revisiting this issue at a later time. Specifically, the investor-owned utilities (“IOUs”) should be directed to file advice letters or supplemental advice letters within 30 days of the issuance of a Certification Requirements Decision (“CRD”) for power control systems in the 2020 National Electric Code Section 705.13 that modifies the Screen Q exemption threshold to be based on net export capacity if certified to the CRD. This CRD was already recognized in D.19-01-030 as well as in this PD to be sufficient to limit exports to ensure NEM integrity and grid reliability

² PD, pp. 12, 15-16.

³ *Ibid*, pp. 13-14.

⁴ *Decision Granting Petition for Modification of Decision 14-05-033 Regarding Storage Devices Paired with Net Energy Metering Generating Facilities*, D.19-01-030, issued on February 5, 2019.

and safety, so CESA sees no reason to have to administratively delay the process by revisiting this issue at a later time, and instead finds it reasonable to put forth an automatic process to implement the modifications to the threshold based on net export.

III. THE CERTIFICATION STANDARD FOR ACTIVELY LIMITING EXPORT SHOULD NOT ALSO HAVE TO LIMIT FAULT CURRENT CONTRIBUTION.

While generally supportive of the PD's approval of the Screen Q exemption threshold (Issue 1) and material modification processes (Issue 3), CESA does not support requiring certification schemes to limit short circuit duty contribution to the export limit level.⁵ First, CESA is unaware of a certification standard that limits short circuit duty contribution and is not clear on whether there is a technical path forward for how inverters can limit this. As a result, requiring fault current contribution in any certification scheme would in effect not make it possible for any non-exporting systems to allow the use of inverter power controls to be exempt from Screen Q or take advantage of material modification process improvements. Second, CESA believes that this condition for inverter-based DERs would also be discriminatory as compared to other DERs such as air conditioners, even as inverter-based DERs contribute less in short circuit duty issues.

IV. THE PROPOSALS TO CLARIFY COSTS, CONFIGURATIONS, AND REQUIREMENTS FOR NEM-PAIRED STORAGE INTERCONNECTIONS WILL INCREASE TRANSPARENCY BUT URGENCY IS NEEDED IN DEVELOPING DIRECT CURRENT METERING STANDARDS.

CESA strongly supports the Commission's approval of the proposals for Issue 2 to create illustrative cost tables and examples of common configurations, and to clarify requirements for non-export relays and controls for NEM-paired storage systems. Together, these proposals should increase transparency, including for DC-coupled NEM-paired storage systems. The development

⁵ PD, pp. 14-15, 29.

of controls-based, non-metering options for NEM-paired storage systems represent an important streamlined and cost-effective pathway for interconnection. The imminent CRD as approved in D.19-01-030 represents one key non-relay alternative to ensure NEM integrity. However, the Commission should also work with the IOUs to ensure steady progress toward the development of revenue-grade DC metering standards. A potential path forward may be to have the IOUs use their internal testing procedures and labs to ‘certify’ interim DC metering solutions to enable the deployment of DC-coupled NEM-paired storage systems that also ensures NEM integrity.

V. THE MATERIAL MODIFICATION PROCESS PROPOSALS REQUIRE SEVERAL KEY MODIFICATIONS AND CLARIFICATIONS.

CESA supports the Commission’s approval of streamlined process options for various existing facility modification use cases that fit with the commensurate impact or non-impact of the modifications to grid reliability and safety. In particular, CESA supports the PD’s approval of Process Option 1 (no notification) and Process Option 2 (notification but customer can proceed without utility approval) for Use Cases 1 and 2, respectively, given that these modifications do not affect the grid and represent typical operations and maintenance (“O&M”) activities. However, across the many definitional and process improvements approved in the PD, CESA offers several areas of modification and clarification in the PD that would reasonably align with the goal of streamlining interconnection processes without jeopardizing grid reliability and safety and while reflecting real-world development cycles.

First, CESA finds the limitation of the material modification process to just one modification request to be unreasonable, since there could change across the project development cycle. Larger projects in particular face longer project development cycles that can be subject to changes or uncertainties in the supply chain (*e.g.*, availability of certain modules) and in the customer acquisition process (*e.g.*, changes in customer preferences for sizing and intended

operations). CESA understands the need to limit the number of modification requests, but it may be too limiting to only allow for one modification request at a single point in time for a project in the interconnection queue. CESA recommends that the PD be modified to allow for up to two modification requests for projects in the queue.

Second, CESA recommends a few changes to the process options for Use Case 3, where the PD adopted Process Option 2, pending creation and implementation of certification schemes, for projects at or below 100 kW and Process Option 4 for projects above 100 kW. This threshold was set based on the need to conduct engineering evaluation for systems with larger inverters that may or may not be able to withstand the increased level of short circuit current.⁶ However, CESA proposes that a reasonable threshold could be set at 30 kW, which is the cut-off level for Fast Track processes and in line with a threshold generally set across Rule 21 interconnection processes to exempt projects from various technical review screens. Importantly, CESA believes that a relative threshold should be set for whether a project qualifies for Process Option 2 or 4, instead of basing this threshold at an absolute capacity level (*e.g.*, whether a project is above or below 100 kW). Given that the material modification definition for size reduction was set at 20% of nameplate capacity of the system, CESA wonders whether it may be reasonable to similarly adopt a material modification process for size increase threshold of 20% of nameplate capacity for systems above 30 kW.

Finally, CESA agrees with the PD's determination that Process Option 4 should apply to Use Case 7 where systems change their inverter's operating characteristics. However, CESA requests that the PD provide definitional clarifications as to what would constitute "material modifications" to the operating characteristics that would trigger a new interconnection

⁶ PD, pp. 28-29.

application. For example, CESA believes that a customer's operation of their inverter-based system to change between self-consumption and bill saving mode should not trigger a new interconnection application, so long as it adheres to the operating parameters of its interconnection agreement. Similarly, CESA has concerns that the lack of definitional clarity may risk the rollout or implementation of new smart inverter functionality in the future triggering new interconnection applications. Subjecting such existing systems to additional processes put a burden on the customer and may not be worthwhile from a cost-benefit perspective, as highlighted in the PD's discussions around Issue 5. Clarifications are thus needed in the PD as it applies to Use Case 7 that changes in operations within the confines of the interconnection agreement and that new smart inverter functionality will not trigger new interconnection applications.

VI. FURTHER STAKEHOLDER REVIEW FOR THE PROPOSAL TO LOWER THE TELEMETRY THRESHOLD IS PRUDENT BUT THIS EVALUATION SHOULD ALSO BROADLY ASSESS ALL POTENTIAL COST-EFFECTIVE OPTIONS.

CESA supports the PD's determination to defer approval of any proposals related to lowering the telemetry threshold, which requires greater information through a workshop and advice letter process on the benefits, costs, specific telemetry requirements, and alternatives of the proposals. CESA agrees that more information is needed from the IOUs on the merits of the modified telemetry requirements before subjecting developers to potentially expensive project telemetry requirements – *i.e.*, ranging from \$20,000 to \$190,000 according to the March Report.

For the upcoming workshop, CESA recommends that the Commission not only consider the costs and benefits of the proposed telemetry requirements, but also to conduct a comprehensive cost-effectiveness test and technical feasibility of other alternatives, such as the use of SCADA and smart inverter data, to gain greater operational visibility into the IOUs' distribution grids. In effect, the Commission should not only seek to address whether the proposed telemetry

requirements are cost-effective, but also seek to understand whether the proposed telemetry requirements are the *most* cost-effective solution. Furthermore, CESA recommends that the Commission and the IOUs evaluate whether the \$20,000 cost cap is appropriate for all projects greater than 250 kW. For 250 kW projects, the \$20,000 cost cap would constitute a large portion of project development costs, potentially between 4% to 6% of total installed costs.⁷ Such costs can be significant and may limit DER deployment for medium and certain large commercial and industrial customers. A scale or a lower cost cap should be evaluated and considered for appropriateness and proportionality. Finally, CESA requests that the workshop seek to establish consistency on how each IOU bases and assesses the telemetry issue. As CESA understands it, Pacific Gas and Electric Company (“PG&E”) assesses telemetry needs based on their evaluation of gross load, whereas Southern California Edison Company (“SCE”) and San Diego Gas and Electric Company (“SDG&E”) do this based on net load. A consistent basis for assessing the telemetry issue will be informative in understanding the need for new telemetry requirements.

⁷ Using Lazard’s *Levelized Cost of Storage v4.0* report, capital costs for lithium-ion batteries for commercial and industrial standalone applications can range between \$1,263/kW to \$1,849/kW.

VII. CONCLUSION.

CESA appreciates the opportunity to submit these reply comments to the Ruling. CESA looks forward to working with the Commission and stakeholders in this proceeding.

Respectfully submitted,



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