

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

Order Instituting Rulemaking Regarding
Microgrids Pursuant to Senate Bill 1339.

Rulemaking 19-09-009
(Filed September 12, 2018)

**REPLY COMMENTS OF THE CALIFORNIA ENERGY STORAGE ALLIANCE ON
THE ORDER INSTITUTING RULEMAKING REGARDING MICROGRIDS
PURSUANT TO SENATE BILL 1339**

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In accordance with Rules of Practice and Procedure of the California Public Utilities Commission (“Commission”), the California Energy Storage Alliance (“CESA”)¹ hereby submits our reply comments on the *Order Instituting Rulemaking Regarding Microgrids Pursuant to Senate Bill 1339* (“OIR”), issued on September 19, 2019.

¹ 174 Power Global, 8minutenergy Renewables, Able Grid Energy Solutions, Advanced Microgrid Solutions, Aggreko, 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, eMotorWerks, Inc., Enel X North America, Energport, Energy Vault, Engie Storage, E.ON Climate & Renewables North America, esVolta, Fluence, Form Energy, General Electric Company, Greensmith Energy, Gridwiz Inc., Hecate Grid LLC, Highview Power, Ingersoll Rand, Innovation Core SEI, Inc. (A Sumitomo Electric Company), Lendlease Energy Development, LG Chem Power, Inc., Lockheed Martin Advanced Energy Storage LLC, LS Energy Solutions, LS Power Development, LLC, Magnum CAES, Malta Inc, NantEnergy, National Grid, NEC Energy Solutions, Inc., NextEra Energy Resources, NEXTracker, NGK Insulators, Ltd., Nuvve, Pattern Energy, Pintail Power, Plus Power, Primus Power, PolyJoule, Quidnet Energy, PXiSE Energy, Range Energy Storage Systems, Recurrent Energy, RES Americas, SNC-Lavalin, Soltage, Southwest Generation, Stem, STOREME, Inc., Sunrun, Swell Energy, Tenaska, Inc., Tesla, True North Venture Partners, Viridity Energy, VRB Energy, WattTime, and Wellhead Electric. 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.

In light of the state's growing challenges with wildfires and de-energization events, CESA looks forward to working with the Commission and other stakeholders in this important proceeding to develop a viable and scalable framework for microgrid development and commercialization. Microgrids are and will be an important part of the toolkit to address customer and grid resiliency needs. In reviewing parties' opening comments, CESA focuses on the following key recommendations and responses:

- The proceeding should be technology neutral and focus on identifying performance attributes for resiliency.
- Establishing a value of resiliency supports tariff development and cost-effectiveness assessments.
- A streamlined interconnection and permitting process for third-party developed, owned, and operated microgrids will support near-term resiliency needs.
- Opening up opportunities for microgrids to provide grid services should be pursued.
- The benefits of resiliency to customers beyond those that are part of a microgrid need to be recognized.
- Assertions questioning the lack of safety of energy storage systems are unfounded and should be dismissed.
- Coordination with the Self-Generation Incentive Program ("SGIP") would prudently leverage ratepayer funds and align storage-supported microgrids with the state's policy goals.
- The Commission should establish a pathway for third-party operated and controlled microgrids.
- The Commission should avoid imposing prescriptive operational requirements and standards.
- Further action may be needed to develop a standard for direct current ("DC") metering.

II. THIS PROCEEDING SHOULD BE TECHNOLOGY NEUTRAL AND FOCUS ON IDENTIFYING PERFORMANCE ATTRIBUTES FOR RESILIENCY.

Several parties have commented on the role that battery storage and renewables can play in microgrids but cast some doubt on their reliability over extended periods of time.² Whether renewables paired with storage can address resiliency needs is a complex and case-by-case situation that requires a deeper understanding of the underlying resiliency need, the customer(s) load profiles, specific loads being “backed up” (*e.g.*, critical versus whole load), and different storage technologies (*i.e.*, not just lithium-ion batteries but also longer-duration storage technologies such as flow batteries). CESA agrees with several parties that technology neutrality should be pursued throughout this proceeding.³ Depending on the resiliency need, a number of different technologies will likely be needed.

III. ESTABLISHING A VALUE OF RESILIENCY SUPPORTS TARIFF DEVELOPMENT AND COST-EFFECTIVENESS ASSESSMENTS.

CESA agrees with a number of parties on the need to identify and establish a value of resiliency,⁴ which would support cost-effectiveness assessments for microgrid investments and support the development of rates or tariffs that compensate microgrid development for providing resiliency. Importantly, the resiliency value is one of the key variables that will help unlock microgrid commercialization and deployment at scale. The challenge will be in assessing the level of resiliency that is appropriate to be compensated or to be eligible for cost recovery. The value of resiliency will likely vary based on multiple variables, including the nature of the host customer or customers that are supported by a microgrid, the extent and duration of the resiliency service

² Bioenergy Association of California (“BAC”) comments at 4.

³ Bloom Energy comments at 2; National Fuel Cell Research Center (“NFCRC”) comments at 4.

⁴ California Solar and Storage Association (“CALSSA”) comments at 3; Climate Center at 7; CSE at 5; Enel X comments at 6-7; Tesla comments at 6.

being provided, and the likelihood of outage or other events that serves as a key motivation for deploying a microgrid.

IV. A STREAMLINED AND PERMITTING PROCESS FOR THIRD-PARTY DEVELOPED, OWNED, AND OPERATED MICROGRIDS WILL SUPPORT NEAR-TERM RESILIENCY NEEDS.

CESA agrees with several parties' recommendations to prioritize the development of a streamlined Rule 21 interconnection process and permitting pathway for microgrids, potentially encompassed through a standardized tariff that enables and empowers microgrid providers to "self-develop" microgrids.⁵ Given the urgency to begin microgrid development ahead of the next wildfire season, the Commission can effectively support near-term microgrid deployment through a streamlined interconnection process for third-party developed, owned, and operated microgrids. With a streamlined interconnection pathway in place, microgrid developers will at least have a technical pathway to bringing microgrids online that provide immediate resiliency to customer(s) who are able to invest in these solutions. Similarly, as the Center for Sustainable Energy ("CSE") has raised, there are other codes and standards barriers that may need to be addressed to support near-term microgrid deployment.⁶

CESA recognizes that there are economic and other barriers that will need to be addressed to facilitate microgrid deployment at scale. Additionally, CESA also recognizes the potential value of utility-owned microgrids but finds that such microgrids may face additional regulatory review processes (*e.g.*, applications, testimony) and thus be less able to respond to very near-term needs. Considering the complexities and wide-ranging scope of issues in this OIR, CESA therefore

⁵ Bloom Energy comments at 2 and 7; CALSSA comments at 3 and 8-9; California Hydrogen Business Council ("CHBC") comments at 6-7; Clean Coalition comments at 7; Climate Center comments at 10; Green Power Institute ("GPI") comments at 1; Microgrid Resources Coalition ("MRC") comments at 7-8; Schneider Electric comments at 2-3; Scale Microgrid Solutions comments at 4.

⁶ CSE comments at 6.

recommends prioritizing an interim deliverable in this proceeding by mid-2020, perhaps in a separate, parallel track, to address the technical interconnection and permitting barriers that can at the very least support some near-term, private-sector-driven microgrid development. In this parallel track, however, the Commission should balance the interest of streamlining and standardizing against the flexibility needed to account for different customer needs and requirements.

V. OPENING UP OPPORTUNITIES FOR MICROGRIDS TO PROVIDE GRID SERVICES SHOULD BE PURSUED.

Recognizing that resources deployed as part of a microgrid will not always be needed for resiliency or have to operate in islanding mode, microgrids offer significant potential to be utilized as grid assets, delivering additional economic value to the microgrid customer(s) and broader ratepayer base by, for example, providing energy, Resource Adequacy (“RA”) capacity, ancillary services, etc. Clean Coalition proposes that this proceeding consider feed-in tariffs for microgrids that includes market-responsive pricing and a dispatchability adder⁷ – an idea that more specifically points to how microgrid resources can be operationalized for broader grid benefits. In addition to recognizing the value of resiliency and compensating for that value, the Commission should also consider ways to unlock the ability of microgrids to provide a broader set of services. To this extent, CESA supports the comments by Enel X and others that the scope of this OIR also consider how microgrids can provide RA capacity and/or access multiple revenue streams.⁸

⁷ Clean Coalition comments at 6.

⁸ Enel X comments at 6-7; GPI comments at 2-3; MRC comments at 10 and 12; Nuvve comments at 4-5.

VI. THE BENEFITS OF RESILIENCY TO CUSTOMERS BEYOND THOSE THAT ARE PART OF A MICROGRID NEED TO BE RECOGNIZED.

Notwithstanding the potential for broader grid-service benefits that could be provided from microgrid resources, resiliency investments for certain customer classes, such as critical facilities and public agencies that serve an important public and societal function, should be viewed as not unreasonably shifting costs among customer groups. Resiliency for these customer(s) ensure that certain public and societal functions are delivered, and these societal benefits should be accounted for as part of any assessment of whether microgrids are shifting costs. A similar approach was taken for the proposed Assembly Bill (“AB”) 2868 storage investments (see A.18-02-016, *et al.*). Targeting customers and locations in this way, along with “stacking” value through grid services in non-resiliency periods, supports maximizing the benefit of microgrid investments to customer(s) and the grid. As such, overly narrow or categorical approaches to determining whether any costs are being shifted should be avoided. For example, the Coalition of Utility Employees (“CUE”) and Public Advocates Office (“PAO”) assert that only customers that directly participate in a microgrid receive benefits.⁹ Such views are completely unreasonable and fail to recognize the broader benefits that microgrids can provide. Consistent with this, CESA agrees with the comments by Tesla that microgrids for resiliency and associated cost recovery mechanisms should be treated comparably to more conventional grid-hardening investments.¹⁰

VII. ASSERTIONS QUESTIONING THE LACK OF SAFETY OF ENERGY STORAGE SYSTEMS ARE UNFOUNDED AND SHOULD BE DISMISSED.

CUE asks the Commission to require that all microgrid construction be performed by the International Brotherhood of Electric Workers (“IBEW”) signatory contractors who hold a valid

⁹ CUE comments at 7 and PAO comments at 1.

¹⁰ Tesla comments at 5.

C-10 license and have all specialized electric work on batteries be performed by contractors who have Energy Storage and Microgrid Training and Certification (“ESAMTAC”),¹¹ pointing to the recent lithium-ion battery storage fire incidents in Arizona with an Arizona Public Service (“APS”) storage facility and the evolving development of the National Fire Protection Association (“NFPA”) 855 standard as gaps in the safety of lithium-ion battery storage systems. CESA strongly disagrees with CUE’s assertions that energy storage cannot be safely installed without workers licensed and trained under their prescribed certifications.

A number of safety standards have been developed by standards development organizations (“SDOs”) to mitigate and guard against fire and other safety-related risks of storage devices. UL, IEEE, and NFPA have developed relevant national standards, while the California Building Standards Commission and authorities having jurisdiction (“AHJs”) have developed location-specific and state-specific codes and permitting requirements to enhance safety of energy storage systems. Both preventative (*e.g.*, to control thermal runaway risks in the first place) and response-related (*e.g.*, fire suppression, notification, fire responder processes) standards have been developed by these bodies.¹² As evidenced here, concerns with energy storage safety are being carefully considered and addressed through the various standards and codes. CESA does not believe the highly restrictive requirements CUE seeks to impose are needed. Many energy storage systems have been deployed in California with non-IBEW and non-ESAMTAC contractors to

¹¹ CUE comments at 4-6.

¹² Lithium batteries are governed by UL 1642, where requirements are established to reduce the risk of fire or explosion. Inverters, converters, controllers and interconnection system equipment for use with distributed energy resources (“DERs”) are governed by UL 1741, IEEE 1547, and NFPA 70 where these requirements cover among other things rapid shutdown requirements. Energy storage systems or battery systems that are paired with PV or wind turbines are governed by UL 1973 to evaluate that the asset can safely withstand simulated abuse conditions. The broader category for stand-alone energy storage, including electrochemical, chemical, mechanical, and thermal devices, are governed by UL 9540, which covers fire detection and suppression, among other things.

date, and CUE presents no evidence to suggest there have been any safety issues associated with these deployments. Importantly, energy storage is an asset class of different types of technologies, not just lithium-ion batteries, such that questioning the safety of all energy storage technologies are inaccurate.

Furthermore, the APS investigation is ongoing and only some initial findings have been revealed publicly around how the fire incident was caused by a build-up of gases in a battery rack as opposed to an explosion of the battery module itself.¹³ However, it would be premature to draw any conclusions from an ongoing investigation. Importantly, in the context of the frequency of these events, battery safety concerns are relatively infrequent such that single reported incidents should not be used in the broad brush manner reflected in CUE’s comments to cast doubt on battery storage technology safety and viability. Safety issues should not be taken lightly, but substantial expert stakeholder processes have been undertaken to develop the standards needed to ensure the safe installation and operation of battery storage systems, including the recently approved NFPA 855, which was a culmination of technical discussions since 2016.¹⁴ These standards are further undergirded by local permitting authorities and the utility interconnection process, both of which are specifically intended to ensure safe deployment of these systems.

The Commission should thus continue to seek safe and reliable installation and operations of microgrids, including those with energy storage systems, in this proceeding but should

¹³ Spector, Julian. “The Arizona Battery Explosion Is Changing Conventional Wisdom on Safety.” Greentech Media. October 10, 2019. <https://www.greentechmedia.com/articles/read/arizona-battery-explosion-conventional-wisdom-safety>

¹⁴ “NFPA releases a new energy storage system standard to inform designers, builders, facility managers, manufacturers, responders and others about potential fire hazards.” NFPA News Release. September 11, 2019. <https://www.nfpa.org/News-and-Research/Publications-and-media/Press-Room/News-releases/2019/NFPA-releases-a-new-energy-storage-system-standard#targetText=September%2011%2C%202019%20-%20To%20help,fire%20protection%20of%20ESS%20installations>

understand that there are well-vetted and tested standards in place to ensure energy storage safety, with or without CUE's recommended contractor certifications. Not only is CUE's proposal rooted in a grossly negative and exaggerated portrayal of the safety of storage technologies, it also appears at cross purposes with the intent of this proceeding, which is to facilitate the deployment of microgrids. Unduly narrowing the workforce that can be employed, despite the fact that thousands of systems have been safely installed and operated without such requirements in place, seems likely to impair rather than facilitate deployment in the future.

VIII. COORDINATION WITH THE SELF-GENERATION INCENTIVE PROGRAM WOULD PRUDENTLY LEVERAGE RATEPAYER FUNDS AND ALIGN STORAGE-SUPPORTED MICROGRIDS WITH THE STATE'S POLICY GOALS.

Several parties recommended that this OIR be coordinated with the SGIP given that the Commission recently adopted a new Equity Resiliency Budget via D.19-09-027 and due to the potential roles that energy storage resources can play in microgrids.¹⁵ CESA supports this coordination with SGIP and consideration of how SGIP funds could be purposed toward resiliency needs. Such coordination with SGIP would also help address some of the concerns expressed by CESA and others around how microgrid development would align with the state's policy goals. For example, in issuing D.19-08-001, the Commission adopted greenhouse gas ("GHG") emission requirements for SGIP-funded energy storage systems and maintained these requirements for projects in the Equity Resiliency Budget as well, thereby providing reasonable assurances that SGIP-funded storage projects in prospective microgrids will advance the state's GHG emission reduction goals. Similarly, such coordination would address the comments raised by the Center

¹⁵ Climate Center comments at 9 and Vote Solar at 8.

for Sustainable Energy (“CSE”) around having microgrids also support equity and low-income goals¹⁶ since the Equity Resiliency Budget is geared toward that very population segment.

Granted, CESA recognizes that these broader policy goals will need to be defined for the purposes of this broader proceeding considering the scope of projects expand beyond energy storage resources and/or may involve a different approach to microgrid commercialization and investment. However, coordination with SGIP is prudent to the degree that it leverages an existing program in place that can leverage approved public funds while already having requirements in place that align well with the state’s policy goals. Generally, CESA supports the comments from Southern California Edison Company (“SCE”) and San Diego Gas and Electric Company (“SDG&E”) that this proceeding can begin with exploring existing rules, programs, and tariffs to support the near-term development of microgrids,¹⁷ even as the proceeding seeks to develop new rules, programs, and tariffs that help scale microgrid commercialization. .

IX. THE COMMISSION SHOULD ESTABLISH A PATHWAY FOR THIRD-PARTY OPERATED AND CONTROLLED COMMUNITY MICROGRIDS.

SDG&E asks the Commission to affirm that any microgrid that utilizes utility-owned infrastructure must be operated and controlled by the utility. CESA is concerned that this will stifle innovation as well as limit the extent and pace of microgrid deployment by communities that are subject to Public Safety Power Shutoff (“PSPS”) events. While there will need to be consideration for the “rules of the road” in instances where a planned community microgrid would leverage utility infrastructure, there should not be a categorical exclusion on the pursuit of such microgrids. Further, the Commission should expressly establish within scope consideration of the

¹⁶ CSE comments at 2-3.

¹⁷ SCE comments at 3 and SDG&E comments at 8.

terms and conditions that would govern the use of utility-owned infrastructure to support community microgrids and ensure that such use would not conflict with or undermine efforts to reduce fire risk, among other potential issues.

X. THE COMMISSION SHOULD AVOID IMPOSING PRESCRIPTIVE OPERATIONAL REQUIREMENTS AND STANDARDS.

In its comments, PAO asks the Commission to establish operational requirements and standards for microgrids. PAO specifically suggests that things like battery state of charge, as well as the minimum durations that microgrids can operated in backup mode should be regulated. CESA is concerned that PAO's proposal could very well prevent commercialization of microgrids by limiting market flexibility to offer solutions that address the various objectives motivating end customer interest in microgrids. PAO's approach appears overly paternalistic insofar as it inherently presumes that customers will be unable to work with developers to tailor a microgrid to their needs. In its efforts to support the commercialization of microgrids, which is the central intent of SB 1339, the Commission should seek to preserve flexibility rather than limit the types of microgrids and microgrid capabilities that can be offered.

XI. FURTHER ACTION MAY BE NEEDED TO DEVELOP A STANDARD FOR DIRECT-CURRENT METERING.

Pacific Gas and Electric Company ("PG&E") and SCE request that the OIR be modified to allow DC metering issues be resolved through the working group process pursuant to D.19-09-013 in R.17-07-007,¹⁸ where the utilities are required to participate in EMerge Alliance efforts to support the development of DC metering standards. However, CESA understands that D.19-09-013 only required the utilities to support development of DC metering standards by participating

¹⁸ PG&E comments at 10 and SCE comments at 3.

in the EMerge Alliance Initiative as their resources allow,¹⁹ making it a largely voluntary requirement. Given that DC microgrids have a role to play in providing resiliency, some follow-up action may be needed in this proceeding if there are no material results or progress from these initiative efforts, so CESA recommends that this scoping item not be removed from the OIR at this time but be de-prioritized for later re-visiting upon developments in R.17-07-007.

XII. CONCLUSION.

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

Respectfully submitted,



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¹⁹ D.19-09-013 Order 4.