

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

Order Instituting Rulemaking to Oversee
the Resource Adequacy Program, Consider
Program Refinements, and Establish
Annual Local and Flexible Procurement
Obligations for the 2019 and 2020
Compliance Years.

Rulemaking 17-09-020
(Filed September 28, 2017)

**COMMENTS OF THE CALIFORNIA ENERGY STORAGE ALLIANCE
ON THE PROPOSED DECISION ADOPTING LOCAL CAPACITY OBLIGATIONS
FOR 2020-2022, ADOPTING FLEXIBLE CAPACITY OBLIGATIONS FOR 2020, AND
REFINING THE RESOURCE ADEQUACY PROGRAM**

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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 Local Capacity Obligations for 2020-2022, Adopting Flexible Capacity Obligations for 2020, and Refining the Resource Adequacy Program* (“PD”), filed by Administrative Law Judges (“ALJ”) Debbie Chiv on May 24, 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, 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.

Energy storage is a flexible resource that can support grid operations on a standalone basis but can also offer additional flexibility in dispatch and operations when paired with generating resources. The PD recognizes that combined resources are becoming more prevalent and found it important to clarify counting methodologies for “plus-storage” resources.² CESA appreciates this recognition and continues to urge the Commission to focus on developing capacity counting methodologies for plus-storage resources to support the state’s environmental and clean energy goals. The Resource Adequacy (“RA”) Program plays a significant role in ensuring that the fleet shown to the California Independent System Operator (“CAISO”) by load-serving entities (“LSEs”) is viable for operating the grid in the applicable time periods while facilitating the development of new generating capacity and retention of existing generating capacity. As such, the RA Program should establish the appropriate RA capacity counting methodologies to incentivize the market to build the kinds of resources that the grid needs to maintain reliability, such as energy storage resources paired with solar, wind, and thermal generators. In essence, the RA market should signal, value, and ultimately contract for services that support the grid’s needs while managing costs and allowing for choice by LSEs and customers. Likewise, the RA Program should avoid capacity counting methodologies that allocate capacity benefits inappropriately, such as in allocating the capacity benefits of a storage system that is paired with solar to all solar projects, including those that did not invest in the firming and shaping benefits of co-located energy storage systems.

Unfortunately, the PD errs in finding it unnecessary or premature to establish new methodologies for various plus-storage resources. CESA is particularly concerned about the PD

² PD at p. 40.

punting on the development of an effective load carrying capacity (“ELCC”) methodology for dispatchable or non-dispatchable energy storage resource paired with a non-dispatchable generating facility and failing to acknowledge that such a methodology is necessary. This outcome inappropriately blocks economic signals to encourage new and existing generating facilities – particularly renewable energy facilities to create ‘better behaving’ variable energy resources (“VERs”) – to pair with energy storage resources to improve their capacity contribution to grid reliability. The Commission should also note that many solar resources in the CAISO interconnection queue have both solar-plus-storage, and the Commission may very well forego an opportunity to direct resources to develop in ways that behave better, leverage an investment tax credit (“ITC”) benefit, and can reduce costs through the use of single site, development, and equipment costs.³

In advance of the PD’s proposed workshop process, and as already expressed in various comments to the Commission, CESA recommends the Commission convene a technical working group focused on developing an appropriate ELCC methodology for generation resources paired with energy storage. This technical working group should focus on at least the following: (1) in the near-term, developing ‘representative profiles’ of generation plus storage resources and ELCC counts for renewable-plus-storage resources that the Commission can adopt as expeditiously as possible; and (2) in the long-term, developing a public calculator for determining ELCC values for solar-plus-storage and wind-plus-storage resources in a transparent manner so that project developers have certainty about how the capacity of their resources will be valued. Regulatory

³ The CAISO interconnection queue, C10, shows thousands of megawatts of plus-storage projects. <http://www.caiso.com/PublishedDocuments/PublicQueueReport.xlsx>

uncertainty in the Commission’s capacity counting methodology threatens the economic viability of existing resources and is something the Commission should strive to minimize.

Separately, in its comments herein, CESA recommends a minor modification to the qualifying capacity (“QC”) methodology for behind-the-meter (“BTM”) energy storage resources combined with demand response (“DR”) resources that reflect procurement mechanisms and contracting in place for third-party demand response providers (“DRPs”).

Finally, CESA reiterates our comments on the need and urgency to address unbundling of system and flexible attributes of RA resources as well as to develop fast-flexibility RA counts.

II. THE COMMISSION SHOULD ONLY APPLY ENERGY DIVISION’S REVISED ELCC METHODOLOGY ON AN INTERIM BASIS AND SEEK TO DEVELOP AND ADOPT AN ELCC METHODOLOGY THAT APPROPRIATELY VALUES RENEWABLE-PLUS-STORAGE RESOURCES.

The PD agrees with the revised ELCC proposal on the interaction effect between solar and storage and determines to allocate the diversity benefit of resources with greater than 100% standalone ELCC value (*i.e.*, storage) to resources that are not at 100% standalone ELCC value.⁴ In our previous comments, CESA could support this ELCC calculation for VERs as an interim, one-time proposal to allocate the ELCC benefits of existing standalone storage.⁵ However, there are some errors in the PD that should be modified to reflect how the PD’s allocation of storage’s diversity benefit is inconsistent with the PD’s reasoning for determining that no new qualifying capacity (“QC”) methodology is needed for certain combined resources.

⁴ PD at 50.

⁵ *Comments of the California Energy Storage Alliance on Track 3 Proposals Workshop and Energy Division Proposal on Effective Load Carrying Capacity in Response to the Amended Scoping Memo and Ruling of Assigned Commissioner and Administrative Law Judge’s Ruling on Effective Load Carrying Capacity* filed on March 22, 2019 in R.17-09-020 at pp. 8-9.

For example, the PD errs in finding that “a combined QC value is unnecessary [for plus storage resources] since the battery and generating resource can acquire separate CAISO IDs and bid into the market separately even if on the same interconnect.”⁶ This finding is based on flawed reasoning: the Commission asserts that, for a dispatchable generator combined with storage, “the combined QC value will effectively reflect SCE’s proposal because the battery will have the battery QC value and the resource it is paired with will have...the ELCC value for a renewable resource.” This reasoning only holds true if the Commission’s ELCC methodology apportions the diversity benefit of storage *only to the specific, co-located renewable resource combined with storage*. If the ELCC methodology apportions the diversity benefit of storage to *all* renewable resources, even those not combined with storage, there would be no difference in the QC value of standalone renewables and the QC value of renewables combined with storage resources. Further, many plus-storage resources will be operated under a single Resource ID. The CAISO has recognized this fact and is actively developing an initiative to address and support market participation, forecasting, and scheduling practices for such solar-plus-storage resources.⁷ Similarly, the Commission should address the need for an outsized ELCC increase that may be available from small amounts of storage when added to a renewable resources.

Unfortunately, the PD proposes to apportion the diversity benefit of storage to all solar resources, regardless whether they are combined with storage.⁸ This outcome inappropriately gives standalone solar resources the same capacity credit as solar resources combined with storage and so unjustly gives windfall credit to standalone solar resources and unreasonably erode economic

⁶ PD at 40.

⁷ See CAISO Updated Annual Plan on May 23, 2019.

<http://www.caiso.com/Documents/Updated2019PolicyInitiativesAnnualPlan.pdf#search=Updated%20Annual%20Plan>

⁸ PD at 50.

incentives for solar resources to be combined with storage resources. CESA thus proposes modifications to the Findings and Conclusions of Law in the attached Appendix to clarify that a combined QC value is necessary, and that the Commission should direct staff to expeditiously convene a technical working group, followed by a workshop, to develop appropriate QC and ELCC methodologies.

III. NEAR-TERM AND LONG-TERM ACTIONS ARE NEEDED ON DEVELOPING AN ELCC METHODOLOGY FOR PLUS-STORAGE RESOURCES.

The PD determines that the development of an ELCC value for a non-dispatchable energy storage resource combined with a renewable generator is not feasible at this time due to the lack of such online resources and the infinite number of configurations that such resources can take on.⁹ The PD fails to acknowledge, however, that transparency and stability in the capacity accounting treatment of plus-storage resources is necessary for new projects to secure financing and model their project economics. Reasonable and durable capacity counting rules for plus-storage resources are the necessary foundation to enable more widespread deployment of such resources on California's grid.

While their variations of operations and configurations may add complexity to the determinations of an appropriate ELCC for solar resources coupled with storage, CESA believes that a simplified approach could be taken in the near-term by developing representative configurations that highlight key trends and correlations between sizing and duration of paired-storage resources with sizing and output profiles of standalone solar and wind resources, as has CESA suggested for several years. Additional variations of on-site generation charging only or combinations of on-site generation and grid charging could also be explored. In conducting such

⁹ PD at p. 40.

studies in a technical working group process, the Commission may be able to determine an approximate ‘formula’ for how to estimate ELCC values without having to conduct intensive project-specific modeling. While the PD recommends a workshop to be convened on various ELCC issues,¹⁰ CESA believes a technical working group may be better suited to iterate and focus on complex ELCC issues. CESA recommends that the Commission adopt the scope and actions from our Track 3 proposal comments¹¹ and that the Commission modify the Findings of Fact, Conclusions of Law, and Orders as proposed in our attached Appendix.

Finally, in some cases, CESA agrees with the PD’s determination that a new methodology is not needed for combined resources where the QC value can be calculated separately for a dispatchable energy storage resource from the paired generator (*i.e.*, at maximum power output (“PMax”) for a dispatchable generator and the ELCC value for a variable energy resource).¹² However, CESA notes that this determination is premised on the combined resources having separate CAISO Resource IDs. This is not always be the case as generating resources could be paired with a storage resource under a single Resource ID, subject to either economic bidding or self-scheduling, and operate as a hybrid non-generating resource (“NGR”). For example, DC-coupled solar-plus-storage systems operate as one system with a common interconnection point and makes sense to operate under a single Resource ID as a ‘better behaving’ solar resource. Additionally, the normal configuration today for gas-plus-storage systems is under a single Resource ID where the hybrid system is effectively treated as a gas resource with a Pmin of zero,

¹⁰ PD at p. 52.

¹¹ *Comments of the California Energy Storage Alliance on Track 3 Proposals Workshop and Energy Division Proposal on Effective Load Carrying Capacity in Response to the Amended Scoping Memo and Ruling of Assigned Commissioner and Administrative Law Judge’s Ruling on Effective Load Carrying Capacity* filed on March 22, 2019 in R.17-09-020 at pp. 6-7.

but it does not count the full charge range of the storage separate from the paired generator. As these examples demonstrate, not all combined resources operate under two separate Resource IDs, and as such, new QC and ELCC methodologies for combined resources are needed. The Commission should test this separate Resource ID assumption and may wish to explore whether QC and ELCC methodologies need to be developed and/or adjusted to accommodate hybrid resource configurations that operate under a single Resource ID.

IV. THE COMMISSION SHOULD RECOGNIZE THAT THIRD-PARTY DEMAND RESPONSE CAPACITY RESOURCES MAY NOT BE SUBJECT TO LOAD IMPACT PROTOCOLS TO DETERMINE QUALIFYING CAPACITY.

The PD determined that a new methodology for combinations of BTM energy storage and traditional DR is not needed at this time, as load impact protocols (“LIPs”) can continue to be used to determine the QC value of storage and DR resources.¹³ CESA agrees that no new methodology may be needed at this time but notes that LIPs may not be well-suited for storage resources and may not be used to determine the QC value of third-party DR resources, such as through the Demand Response Auction Mechanism (“DRAM”), where tests and dispatches are used in lieu of LIPs. The DRAM faces some uncertainty and may face some changes going forward, but the Commission should be aware that LIPs may not be applicable to mechanisms such as the DRAM, which has established a separate QC methodology for the purposes of the pilot and may or may not adopt LIPs for future iterations of the DRAM.

¹³ PD at p. 41.

V. UNBUNDLING OF SYSTEM AND FLEXIBLE ATTRIBUTES AND RECOUNTING OF EFFECTIVE FLEXIBLE CAPACITY NEEDS SHOULD BE IMPLEMENTED FOR THE 2020 RA YEAR.

Despite many proposals and recommendations from parties on the role and benefits of unbundling system and flexible attributes and fast-flexible resources, the PD does not address these important matters, which have been raised in Tracks 1, 2, and 3 of this proceeding. In our Track 3 proposals,¹⁴ CESA discussed how unbundling the flexible attributes of RA from their system attributes would lead to more efficient RA market outcomes that support the development of resources that provide flexibility only. Unbundling these attributes have support from many stakeholders, including the CAISO who, as part of the Flexible Resource Adequacy and Must Offer Obligation (“FRACMOO”) Phase 2 Initiative, has indicated that they are willing to undertake Flexibility Only Deliverability Studies. In addition, CESA recommended a reasonable and implementable near-term solution to redefine how Effective Flexible Capacity (“EFC”) is calculated across 15-minute intervals to support and incentivize fast-ramping resources to support the CAISO’s operational needs, which were identified in the FRACMOO Phase 2 Initiative as well as the RA Enhancements Initiative. Progress on these two matters have been lacking from the Commission in this proceeding. CESA thus urges the Commission to immediately focus on these two issues to ensure timely implementation for the 2020 RA year.

¹⁴ *Comments of the California Energy Storage Alliance on Track 3 Proposals Workshop and Energy Division Proposal on Effective Load Carrying Capacity in Response to the Amended Scoping Memo and Ruling of Assigned Commissioner and Administrative Law Judge’s Ruling on Effective Load Carrying Capacity* filed on March 22, 2019 in R.17-09-020 at pp. 9-10.

VI. CONCLUSION.

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

Respectfully submitted,

A handwritten signature in blue ink, appearing to read "Alex J. Morris".

Alex J. Morris
Vice President, Policy & Operations
CALIFORNIA ENERGY STORAGE ALLIANCE

Date: June 13, 2019

Appendix A:
Proposed Revisions to Dicta, Findings, Conclusions, and Orders

I. REVISIONS TO DICTA.

Proposed Revision to PD Section 3.6.1 at 40:

“As combined resources become more prevalent, the Commission is persuaded that it is important to clarify counting methodologies for “plus storage” resources. However, we find that SCE’s proposal is not immediately implementable. For a dispatchable battery combined with a dispatchable generating resource, or a dispatchable battery combined with a renewable resource, we find that a combined QC value is ~~unnecessary~~ necessary, and we direct staff to convene a technical working group and workshop to expeditiously develop combined QC value methodologies for “plus storage” resources. ~~since the battery and generating resource can acquire separate CAISO IDs and bid into the market separately even if on the same interconnect. In that case, the combined QC value will effectively reflect SCE’s proposal because the battery will have the battery QC value and the resource it is paired with will have either maximum power plant output (PMax) for a dispatchable generator or the ELCC value for a renewable resource. Thus, no new methodology is needed.”~~

Proposed Revision to PD Section 3.7.2 at 50:

Weighing parties’ comments and concerns, the Commission ultimately finds that the revised ELCC proposal is appropriate only on an interim basis, because it improves how the capacity ~~appropriately identifies the~~ contribution of in-front-of-the-meter solar resources to grid reliability is assessed, relative to the current ELCC methodology. However, the revised ELCC proposal does not fully capture and reasonably captures the interaction effect between solar and storage, and the Commission finds that further ELCC improvements are necessary to ensure that the ELCC methodology does not unreasonably lower the economic incentives for generation resources to pair with energy storage, and that it does not inappropriately give windfall capacity diversity benefits to renewable resources that have not made investments to pair with energy storage.

Proposed Revision to PD Section 3.7.2 at 51:

Accordingly, we adopt Energy Division’s revised ELCC proposal, and the numbers resulting from the proposal, as the approved ELCC factors to use for establishing the QC values for wind and solar supply-side resources in the RA proceeding on an interim basis only, until the Commission adopts an ELCC methodology that appropriately values renewable plus storage resources. These factors are set forth in Appendix A. We adopt these factors for use for the 2020 RA compliance year.

II. REVISIONS TO FINDINGS OF FACT.

Proposed Revision Finding of Fact 13:

13. It is appropriate to revisit the counting methodology for hydro and use-limited fossil resources and to develop a counting methodology for energy storage resources paired with non-dispatchable generating resources through a working group.

Proposed New to PD Finding of Fact 16, 17, and 18:

16. Few renewable-plus-storage resources exist in the CAISO grid today.

17. The Commission does not currently have QC rules clarifying the capacity contribution of “plus storage” resources to RA requirements, especially where the storage components are designed and operated to increase solar performance and the solar system’s ELCC while capturing the solar investment tax credit, in contrast to a storage system operating in a stand-alone configuration.

18. Without QC rules for “plus storage” resources, there is ambiguity and uncertainty regarding how such resources should be appropriately valued in the RA Program.

III. REVISIONS TO CONCLUSIONS OF LAW.

Proposed Revision to Conclusion of Law 16

16. Energy Division should convene a working group on counting methodologies for hydro, ~~and~~ use-limited fossil resources, and energy storage resources paired with non-dispatchable generating resources.

Proposed Revision to Conclusion of Law 17

17. Energy Division’s revised ELCC proposal ~~appropriately identifies the~~ improves how the capacity contribution of in-front-of-the-meter solar resources to grid reliability is assessed; however, it does not fully capture and reasonably captures the interaction effect between combined solar and storage. Energy Division’s proposed ELCC values should be adopted on an interim basis only until the Commission develops an ELCC methodology that appropriately values renewable plus storage resources.

New COLs 18, 19 and 20 (between current COLs 17 and 18)

18. In developing an ELCC methodology, the Commission should avoid eroding economic incentives for generation resources to pair with energy storage.

19. The Commission should establish QC accounting rules for renewable plus storage resources to facilitate the adoption of “plus storage” resources in the future by providing

transparency and regulatory stability regarding how such resources will contribute toward meeting RA requirements.

20. Energy Division should convene a technical working group and hold a workshop to develop appropriate QC and ELCC methodologies for stand-alone renewable resources and renewable plus storage resources. These methodologies should preserve economic incentives for renewable resources to pair with storage and avoid giving windfall capacity diversity benefits to renewable resources that are not paired with storage.”

IV. REVISIONS TO ORDERING PARAGRAPHS (OPS).

Proposed Revision to OP 17

17. Energy Division shall convene a working group on counting methodologies for hydro, ~~and~~ use-limited fossil resources, and energy storage resources paired with non-dispatchable generating resources.

Proposed Revision to OP 18

18. Energy Division’s revised Effective Load Carrying Capacity (ELCC) proposal, as discussed in Section 3.7, and the resulting ELCC values shall be the approved ELCC factors in the Resource Adequacy program, as set forth in Appendix A, on an interim basis only, until the Commission adopts an ELCC methodology that appropriately values renewable plus storage resources. The adopted values shall be effective beginning with 2020 Resource Adequacy compliance year.