

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

Order Instituting Rulemaking to Continue
Implementation and Administration, and
Consider Further Development, of California
Renewables Portfolio Standard Program.

Rulemaking 18-07-003
(Filed July 12, 2018)

**REPLY COMMENTS OF THE CALIFORNIA ENERGY STORAGE ALLIANCE
ON THE ASSIGNED COMMISSIONER AND ASSIGNED ADMINISTRATIVE LAW
JUDGE'S RULING IDENTIFYING ISSUES AND SCHEDULE OF REVIEW FOR 2018
RENEWABLES PORTFOLIO STANDARD PROCUREMENT PLANS**

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

Order Instituting Rulemaking to Continue Implementation and Administration, and Consider Further Development, of California Renewables Portfolio Standard Program.

Rulemaking 15-02-020
(Filed February 26, 2015)

**REPLY COMMENTS OF THE CALIFORNIA ENERGY STORAGE ALLIANCE
ON THE PROPOSED 2018 RENEWABLES PORTFOLIO STANDARD
PROCUREMENT PLANS**

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 reply comments to the proposed 2018 Renewables Portfolio Standard Procurement Plans, pursuant to the *E-Mail Ruling Granting, in Part, Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas and electric Company Request for Extension to*

¹ 8minutenergy Renewables, Able Grid Energy Solutions, Advanced Microgrid Solutions, AltaGas Services, Amber Kinetics, American Honda Motor Company, Inc., Axiom Exergy, Brenmiller Energy, Bright Energy Storage Technologies, Brookfield Renewables, Carbon Solutions Group, Centrica Business Solutions, Consolidated Edison Development, Inc., Customized Energy Solutions, Dimension Renewable Energy, Doosan GridTech, Eagle Crest Energy Company, East Penn Manufacturing Company, Ecoult, EDF Renewable Energy, ElectrIQ Power, eMotorWerks, Inc., Enel, Energport, ENGIE, E.ON Climate & Renewables North America, esVolta, Fluence Energy, GAF, General Electric Company, Greensmith Energy, Ingersoll Rand, Innovation Core SEI, Inc. (A Sumitomo Electric Company), Iteros, Johnson Controls, Lendlease Energy Development, LG Chem Power, Inc., Lockheed Martin Advanced Energy Storage LLC, LS Power Development, LLC, Magnum CAES, Mercedes-Benz Energy, NantEnergy, National Grid, NEC Energy Solutions, Inc., NextEra Energy Resources, NEXTracker, NGK Insulators, Ltd., NRG Energy, Inc., Parker Hannifin Corporation, Pintail Power, Primus Power, Range Energy Storage Systems, Recurrent Energy, Renewable Energy Systems (RES), Sempra Renewables, Sharp Electronics Corporation, SNC Lavalin, Southwest Generation, Sovereign Energy, Stem, STOREME, Inc., Sunrun, Swell Energy, True North Venture Partners, Viridity Energy, VRB Energy, 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>).

the 2018 Renewables Portfolio Standard Plan Schedule (“E-Mail Ruling”) issued by Administrative Law Judge Robert M. Mason III on July 9, 2018.

I. INTRODUCTION.

CESA highlighted the cost advantages and benefits of making renewable resources dispatchable with the pairing with energy storage in our comments² while also identifying some of the barriers and challenges for the procurement of renewable resources paired with energy storage in the current Renewable Portfolio Standard (“RPS”) Program. To achieve the interconnection, integration and firming, and cost-savings benefits of RPS-eligible paired energy storage resources, CESA recommended several changes in the least-cost, best-fit (“LCBF”) protocols for RPS-related solicitations as well as modifications to how the Effective Load Carrying Capability (“ELCC”) methodology can value the capacity contributions of RPS-eligible resources paired with energy storage. These changes are in the best interests of ratepayers. On the ELCC matter, CESA appreciates that the Commission recently issued a Ruling in Rulemaking (“R.”) 18-07-003 that attached a Staff Proposal that proposed adjustments to the ELCC methodology to consider the capacity value of renewables paired with energy storage, among other changes.³ CESA will provide its comments separately on the aforementioned Staff Proposal, which represents an important step in the right direction to allow potential pairing of renewables and energy storage resources.

However, despite some of the aforementioned advantages, the investor-owned utilities (“IOUs”) expressed views that procurement of renewables and energy storage resources should

² *Comments of the California Energy Storage Alliance on the Assigned Commissioner and Assigned Administrative Law Judge’s Ruling Identifying Issues and Schedule of Review for 2018 Renewables Portfolio Standard Procurement Plans*, filed on August 17, 2018.

³ *Administrative Law Judge’s Ruling Requesting Comments on Staff Proposal on Effective Load Carrying Capability, Time of Delivery Factors, and Project Viability*, filed on September 12, 2018.

remain separate and siloed due to the ability to “optimize” energy storage for grid needs. CESA disagrees that energy storage procurement must categorically be separately procured to optimize the use of energy storage for grid needs, as procuring renewables paired with energy storage resources may be able to avoid some of many grid challenges presented by variable, non-dispatchable standalone renewables while potentially lowering the costs of storage additions to the grid.

CESA also responds to the comments by the Public Advocates Office (“PAO”), who recommends that procurement of such paired resources should only occur upon a grid need as identified in the Integrated Resources Plan (“IRP”) proceeding.⁴ CESA disagrees on this categorical deference to the IRP and provides helpful context for where and how the RPS procurement can still inform planning processes like the IRP.

II. ARGUMENTS THAT SEPARATE PROCUREMENT OF ENERGY STORAGE REPRESENTS A MORE OPTIMAL USE OF ENERGY STORAGE ARE PREMATURE.

There are merits to use cases for standalone energy storage systems as well as energy storage systems paired with renewables. There are opportunities and advantages, including cost-savings, to energy storage resources used in either configuration. The IOUs appear to view energy storage resources paired with RPS-eligible projects as categorically sub-optimal because ‘must-take’ RPS contracts do not allow for the maximization of value of energy storage resources and do not align rights and obligations as would separate RPS and energy storage agreements.⁵ CESA respectfully disagrees because paired energy storage resources provide an opportunity for California to maximize the value of renewables by firming its generation and/or shifting its

⁴ CESA observes that the PAO does not oppose procurement of renewables paired with energy storage resources and recognizes that there may be value in the applicable attributes.

⁵ Joint IOU Parties’ comments at pp. 4-5.

generation to periods of greater value to the grid while leveraging single interconnection points and potential cost-savings tax credits, such as the Federal solar investment tax credits. Depending on the configuration, a paired system may be a better least-cost, best-fit deal than a standalone system, especially as small additions of energy storage may yield an outsized Resource Adequacy (“RA”) value through improved ELCC performance. CESA thus contends that it is premature to conclude that standalone configurations represent the optimal use of energy storage resources, as each has its advantages for different applications and as there is currently no evidence presented by the IOUs that one is more “optimal” than the other.

III. THE NEED TO MODIFY RPS AND OTHER PPA CONTRACTS SHOULD NOT BE USED AS AN OBSTACLE FOR CONSIDERING PAIRED ENERGY STORAGE SYSTEMS IN RPS AND OTHER RENEWABLE PROGRAMS.

The IOUs argue against including paired energy storage resources in the RPS Program and other renewable programs such as the Renewable Auction Mechanism (“RAM”) and the Renewable Market Adjustment Tariff (“Re-MAT”) because of the major revisions required for the standardized power purchase agreements (“PPAs”) related to each program.⁶ They argue that standardized contracts in general do not apply well for non-standard products such as resources that are paired with energy storage and point to the controllability and the flexibility to shift operations under RA agreements as superior.⁷ However, CESA again disagrees based on the following points.

First, the need to make major revisions to PPA contracts should not serve as an impediment to considering how energy storage resources can be eligible and be able to compete in these renewables solicitations. There was a time where curtailment provisions were not in contracts yet

⁶ *Ibid*, pp. 7-9.

⁷ *Ibid*, p. 4.

now these provisions have been added due to the benefit of such contract reforms. If there is significant ratepayer value to be had and the paired projects are the most cost-effective, then it is worthwhile for the Commission, IOUs, and ratepayers to figure out what contractual revisions are needed. The IOUs highlighted some contractual areas that would need to be addressed, including dispatchability, TOD factors, must-take requirements, market revenues, construction characteristics, differences in product degradation characteristics, and how the energy storage is attached to the RPS resource and metered. CESA believes this list represents a good and ready-made starting point for updating contract provisions.⁸

Second, given that these solicitations focus on standardized PPA agreements, the stakeholders in this proceeding should work to identify several standardized products of RPS-eligible projects paired with energy storage. The aforementioned September 12, 2018 Ruling strives to do so by creating a new sub-class of solar and wind technologies that include solar and wind resources paired with four-hour duration energy storage for the purposes of the ELCC methodology. PPAs could be modified to reflect the capabilities and standard-offer services of these new categories of paired resources.

Third, major changes are likely not needed to PPA agreements for RPS-eligible projects paired with short-duration (*e.g.*, 1-hour) energy storage that primarily serve to firm the solar or wind generation and even modestly extend production at the end of the day without otherwise materially changing the generation profile of the resource across a day. Such paired configurations of short-duration energy storage systems represent an immediate-term opportunity to include energy storage in these renewables solicitations without requiring major revisions to the PPA,

⁸ *Ibid*, p. 7.

though changes would be needed to the LCBF methodology to reflect the added values in energy, ELCC capacity, and ancillary services.

Finally, the current moment appears timely for considering modifications to RPS contracts because the IOUs appear to plan no or very little near-term incremental RPS resource procurements, based on the 2018 RPS Procurement Plans. The IOUs expressed that they would rather tailor provisions to RPS paired with energy storage when they plan to conduct a solicitation based on a demonstrated need, but it may be prudent to use this “down time” to discuss and approve revisions that the IOUs and stakeholders see as being needed to accommodate paired configurations.

IV. THE RULES AND REGULATIONS AT OTHER CALIFORNIA AGENCIES DO NOT PRESENT SIGNIFICANT ENOUGH BARRIERS TO IMPEDE COMMISSION EFFORTS TO CONSIDER PAIRED STORAGE PROCUREMENT.

The IOUs suggest that rules and regulations at the California Independent System Operator (“CAISO”) and the California Energy Commission (“CEC”) need to be worked out first before considering paired energy storage procurement in RPS programs.⁹ While rules and regulations at these other agencies could require some additional improvements and changes, this should not serve as an impediment to allowing paired energy storage resources to be considered in RPS-related solicitations, particularly if small additions of storage to a RPS resource simply firm the self-scheduled energy amounts of the resource. Further, the CAISO already has rules to support hybrid resources, including clarifications on market participation pathways and interconnection processes for hybrid energy storage generating facilities.¹⁰ CESA notes that the CAISO

⁹ *Ibid*, p. 7.

¹⁰ “Implementation of Hybrid Energy Storage Generating Facilities.” CAISO Technical Bulletin issued on October 19, 2016.

interconnection queue is increasingly filled by paired storage configurations, indicating that CAISO-related barriers do not pose significant barriers. The CEC, meanwhile, has already provided an important determination in the RPS Eligibility Guidebook that energy storage resources paired with RPS-eligible resources are eligible. Notwithstanding CESA's opening comments on an important but complex issue around renewable energy credit ("REC") accounting for RPS-eligible facilities paired with energy storage resources,¹¹ CESA believes the rules and regulations at the CAISO and CEC effectively allow the Commission to work with stakeholders in this proceeding to address any remaining key issues tied to RPS-related procurement of paired energy storage resources. CESA stands ready to support cross-agency collaboration on these issues where appropriate.

V. PAIRED ENERGY STORAGE PROVIDES RENEWABLES WITH THE FLEXIBILITY TO ADDRESS EVOLVING GRID NEEDS IN THE FUTURE.

The IOUs argue against time-of-delivery ("TOD") factors and paired configurations because grid needs will evolve in the long run, thus potentially leading to RPS-eligible projects paired with energy storage delivering production that may not also adjust to meet those changing needs.¹² The TOD payments, however, are intended to incentivize dispatch of the RPS facility using paired energy storage to deliver generation at higher-value hours. Without TOD factors, the IOUs may effectively and unreasonably end up ignoring the realities that there are many predictably higher or lower value periods of energy generation. This seems like an ineffective solution to the "problem", as CESA understands it, that a fixed generation profile will not

<https://www.caiso.com/Documents/TechnicalBulletin-ImplementationofHybridEnergyStorageGeneratingFacilities.pdf>

¹¹ CESA's comments at pp. 11-12.

¹² Joint IOU Parties' comments at pp. 4

necessarily adjust with evolving grid needs. As renewables will already be procured to meet “policy needs,” it is prudent to attempt to address grid needs with TOD factors and energy storage pairings rather than only addressing the policy need. Furthermore, with RPS-eligible facilities paired with energy storage, there is the potential for these combined facilities to adjust their production at the end of their long-term PPA. At the end of the 10- or 20-year contract, buyers have an opportunity to re-contract for the same resources with new adjusted TOD factors or other different terms and conditions that could meet the changed grid need, providing flexibility and optionality in the long run that may not always exist with standalone fixed RPS resources. Finally, the IOUs point to the structure of standalone energy storage RA agreements as providing greater flexibility to dispatch the resource,¹³ but many paired systems will provide benefit by boosting the RA value of an RPS resources and firming deliveries, in turn reducing procurement needs for balancing services, Flex RA, etc. Additionally, any long-term contracts carry some degree of becoming stale in light of evolving grid needs, though long-term contracts are still needed for greater bankability and improved cost-effectiveness of resource procurement. In this RPS case, it is no different.

VI. PATHWAYS FOR RE-CONTRACTING RPS RESOURCES SHOULD AT LEAST BE DISCUSSED AND EXPLORED.

CESA acknowledges the IOUs’ comments on the complexities of re-contracting RPS resources to add paired energy storage, especially in light of load migration where it may sometimes be unclear who the buyer is or will be for an executed RPS contract.¹⁴ In light of our comments in Section V about the potential to adjust and optimize the RPS resource’s generation

¹³ *Ibid*, p. 4.

¹⁴ *Ibid*, p. 8.

with evolving grid needs, it may still be worthwhile to explore in this proceeding pathways for re-contracting standalone RPS resources to improve the value of their generation.

VII. A STRICT INTERPRETATION OR RELIANCE ON THE IRP TO INFORM RPS PROCUREMENT MAY BE OVERLY LIMITING AND OVERLOOK THE POTENTIAL FOR PROCUREMENT OF RENEWABLES PAIRED WITH ENERGY STORAGE.

The Public Advocates Office (“PAO”) commented that the Commission must consider the cost-effectiveness of RPS-eligible projects paired with energy storage, that no specific targets for energy storage should be considered in the RPS Program, and that the new LCBF methodology should reflect the applicable attributes in evaluating bids for paired-storage resources in the RPS Program.¹⁵ CESA agrees with these points that RPS-eligible projects paired with energy storage should not be advantaged for the sake of administrative targets but rather should be given the opportunity to compete and be fairly evaluated in the RPS Program through new LCBF and ELCC methodologies that more appropriately account for the attributes and the value provided by these paired resources. However, CESA disagrees with PAO’s point that energy storage resources should only be procured in the RPS Program if specific needs are identified in the IRP proceeding.¹⁶ CESA has concerns that a strict interpretation and adherence of procurement authorizations and directives to the Preferred System Plan being developed in the IRP proceeding may limit the ability of procurement of energy storage resources that are paired with renewables.

There are several reasons for CESA’s views. First, the RESOLVE model being used to identify the optimal resource mix to achieve policy goals and grid reliability needs is limited by not currently being capable to model the investment costs, attributes, and capabilities of paired

¹⁵ PAO comments at pp. 4-5.

¹⁶ *Ibid*, p. 5.

resources, making it currently impossible to derive a specific “need determination” for renewables paired with energy storage to inform procurement authorizations or directives from the IRP proceeding to the RPS Program. CESA understands that the Commission and the E3 modeling team are actively considering how such paired resources could be represented as candidate resources in the 2019-2020 IRP cycle, and CESA has offered our suggestions and recommendations for incorporating these features in the next iteration of modeling,¹⁷ but at this time and possibly even into the next IRP cycle, the IRP may be limited in modeling the investment costs, attributes, and capabilities of paired resources. Depending on the capabilities of the model, there may not be specific needs for paired resources identified in the IRP. Alternatively, even if capable of modeling paired resources, the specific needs for paired resources may be knowingly inaccurate or limited.¹⁸ Thus, strict reliance on the IRP may be overly limiting and overlook the opportunities to take advantage of paired resources.

Flexibility should be given to the RPS Program to procure for potential RPS-eligible projects paired with renewables to address both policy and grid reliability needs. For example,

¹⁷ *Informal Comments of the California Energy Storage Alliance on the Draft Sources for 2019-2020 IRP Supply-Side Resources Document*, submitted on April 23, 2018, p. 7.

<http://www.storagealliance.org/sites/default/files/Filings/2018-04-23%20CESA%27s%20Informal%20Comments%20on%20IRP%202019%20Draft%20Sources%20Document%20-%20FINAL.pdf>

Informal Comments of the California Energy Storage Alliance on the Draft Sources for 2019-2020 IRP Demand-Side Resources Document, submitted on July 31, 2018, pp. 7-8.

<http://www.storagealliance.org/sites/default/files/Filings/2018-07-31%20CESA%27s%20Informal%20Comments%20on%20IRP%202019%20Draft%20Demand-Side%20Sources%20Document%20-%20FINAL.pdf>

¹⁸ For example, throughout the IRP process, many stakeholders have identified that the RESOLVE model, while informative and directionally accurate, may have certain limitations in strictly adhering to the IRP results given that existing thermal generators are assumed to remain in the baseline of resources through 2030, despite economic drivers indicating that may not be the case – *i.e.*, the state may see economic retirements of many of these resources. Similarly, in the first round of modeling paired resources, there may be ‘kinks’ that need to be worked out, so strict adherence to “need” identified in the IRP may be imprudent. This is not an indictment on IRP modeling but something expected from the complexities and novelty of conducting such capacity expansion modeling.

much of the 2,000 MW of incremental battery storage selected in the 2018 Reference System Plan is intended to support the integration of approximately 9,000 MW of incremental utility-scale solar. Even as the IRP identified the procurement of renewables and energy storage separately to meet different needs, the RPS Program should apply LCBF methodologies to see if RPS procurement of paired resources could address both needs with combined resource projects. When accounting for all applicable attributes as well as cost benefits from taking advantage of Federal tax credits, the LCBF evaluation may bear out that paired resources represent a cost-effective and prudent investment.

VIII. CONCLUSION.

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

Respectfully submitted,



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