

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

Order Instituting Rulemaking to Develop an
Electricity Integrated Resource Planning
Framework and to Coordinate and Refine
Long-Term Procurement Planning
Requirements.

Rulemaking 16-02-007
(Filed February 11, 2016)

**COMMENTS OF THE CALIFORNIA ENERGY STORAGE ALLIANCE
ON THE PROPOSED DECISION SETTING REQUIREMENTS FOR LOAD SERVING
ENTITIES FILING INTEGRATED RESOURCE PLANS**

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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 on *Proposed Decision Setting Requirements for Load Serving Entities Filing Integrated Resource Plans* (“Proposed Decision”), issued by Commissioner Liane M. Randolph on December 28, 2017.

¹ 8minutenergy Renewables, Able Grid Energy Solutions, Adara Power, Advanced Microgrid Solutions, AES Energy Storage, AltaGas Services, Amber Kinetics, American Honda Motor Company, Inc., Brenmiller Energy, Bright Energy Storage Technologies, BrightSource Energy, Brookfield, California Environmental Associates, Consolidated Edison Development, Inc., Customized Energy Solutions, Demand Energy, Doosan GridTech, Eagle Crest Energy Company, East Penn Manufacturing Company, Ecoult, EDF Renewable Energy, ElectriQ Power, eMotorWerks, Inc., Energport, Energy Storage Systems Inc., Engie, GAF, Geli, Greensmith Energy, Gridscape Solutions, Gridtential Energy, Inc., IE Softworks, Innovation Core SEI, Inc. (A Sumitomo Electric Company), Johnson Controls, LG Chem Power, Inc., Lockheed Martin Advanced Energy Storage LLC, LS Power Development, LLC, Magnum CAES, Mercedes-Benz Energy, National Grid, NEC Energy Solutions, Inc., NextEra Energy Resources, NEXTracker, NGK Insulators, Ltd., NICE America Research, NRG Energy, Inc., Ormat Technologies, Parker Hannifin Corporation, Qnovo, Recurrent Energy, RES Americas Inc., Sempra Renewables, Sharp Electronics Corporation, SNC Lavalin, Southwest Generation, Sovereign Energy, STOREME, Inc., Sunrun, Swell Energy, Viridity Energy, Wellhead Electric, and Yunicos. 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.

With the issuance of this Proposed Decision, the Commission culminates the extensive informal and formal efforts by the Commission, the E3 modeling team, and parties in this proceeding to establish the requirements of the two-year Integrated Resource Plan (“IRP”) process and to align planning processes across other planning agencies, such as the California Independent System Operator (“CAISO”) and the California Energy Commission (“CEC”). The Proposed Decision also sets filing requirements for load-serving entities (“LSEs”), including community choice aggregators (“CCAs”) and energy service providers (“ESPs”), and directs a few policy actions as a result of E3’s RESOLVE modeling results and stakeholder comments. Generally, CESA commends the Commission and the E3 team for its efforts in conducting a complex modeling exercise to optimize resource additions for multiple LSEs that meet Renewable Portfolio Standard (“RPS”), greenhouse gas (“GHG”) emission, and grid reliability objectives, in addition to accounting for other miscellaneous requirements provided in Senate Bill (“SB”) 350, such as energy efficiency, transportation electrification, and disadvantaged communities (“DACs”). More collaborative work will be needed from the Commission and stakeholders in future IRP cycles to continue to enhance the model, as many parties highlighted several limitations and improvement areas of the model, even though CESA understands that no model will perfectly inform decision-making on policy directives and procurement authorizations.

CESA supports two key decisions and outcomes from the Proposed Decision. First, CESA supports the decision to adopt the 42 million metric ton (“MMT”) target as the statewide GHG target for the electric sector, in addition to the associated resource portfolio, because it increases momentum relative to current policies and activities without overly burdensome costs. Despite issues with the baseline resource assumption that the existing natural gas fleet will remain online through 2030 and with the results on the costs of renewable curtailment and integration needs,

CESA agrees that this 42 MMT GHG target is appropriate and better advances California toward its SB 350 goals. Second, CESA strongly supports the decision to direct a study on natural gas fleet impacts given the current risk of uneconomic retirements of natural gas plants. As evidenced by the approval of Draft Resolution E-4909 on January 11, 2018, the natural gas fleet has had to rely on potentially costly backstop procurement mechanisms such as Reliability Must-Run (“RMR”) agreements to remain online for grid need. In a future with significant zero or negative pricing driven by the continued addition of renewables, these market conditions are expected to continue and grow, thereby requiring an assessment on how the state can replace or selectively enhance these plants with preferred resources and/or energy storage.

However, the Proposed Decision could be improved in three critical ways. First, one of the key takeaways from the 42 MMT scenario is that there are significant ratepayer benefits to early renewable procurement to take advantage of the expiring Federal tax credits. Even with some uncertainties around expedited procurement of solar and wind resources, there is enough evidence from the RESOLVE results and supplemental analysis by other parties to support the authorization of a ‘least-regrets’ amount of tax-eligible renewable and energy storage procurement. Not directing any procurement in light of these results is a significant shortcoming of the Proposed Decision.

Second, the Proposed Decision does not direct any policy action toward bulk storage resources, which includes long-lead-time, large-scale pumped hydro storage (“PHS”), compressed air energy storage (“CAES”), and liquid air energy storage (“LAES”). While bulk storage resources were not selected in the 42 MMT scenario, the results from the other scenarios and sensitivities are sufficient evidence that policy action should be taken to, at minimum, direct further study of bulk storage resources and open a track to discuss long-lead-time procurement and

cost-allocation pathways involving multiple off-takers. In these two respects, the Proposed Decision should be modified to direct actions around least-regrets procurement of tax-eligible renewable resources and to direct actions around bulk storage studies and procurement pathways.

Finally, the Proposed Decision's utilization of different GHG abatement prices between LSE IRP filings and the Integrated Distributed Energy Resources ("IDER") cost-effectiveness analysis for distributed energy resources ("DERs") appears discriminatory and should be changed to just a single GHG price for all resources. CESA believes that the marginal GHG abatement costs should factor equally to DERs and utility-scale resources in cost-effectiveness evaluations to ensure a level playing field. Of the two, CESA recommends using the Staff Proposal's straight-line approach consistently for both the LSE IRP filings and the IDER cost-effectiveness analysis.

II. A 'LEAST-REGRETS' AMOUNT OF EARLY TAX-ELIGIBLE RENEWABLE PROCUREMENT WOULD DELIVER ON SOME OF THE DEMONSTRATED RATEPAYER SAVINGS WHILE HEDGING AGAINST UNCERTAINTY.

Despite the demonstrated cost savings from the RESOLVE modeling results and the supplemental analysis conducted by multiple parties in this proceeding, the Proposed Decision declines to order near-term procurement of additional renewables. The Proposed Decision cites the uncertainty and complexity of being able to claim the tax credits, the potential for solar tariff actions, the forecasted decline in capital prices, the lack of tax credit savings passed onto the ratepayers, the unresolved cost-allocation issues, and the lack of near-term need for renewables at this time from a RPS and GHG compliance perspective. Instead, the Proposed Decision seeks to pursue these potential opportunities through the usual RPS compliance market.²

CESA believes that a critical ratepayer benefit is missed by not directing some least-regrets amount of early renewables procurement. As the wind parties mentioned, the safe harbor and

² Proposed Decision, pp. 82-83.

construction provisions required the Commission to act now for prospective utility-scale wind projects to take advantage of the Federal production tax credit (“PTC”), which will be critically missed without any procurement in 2018. Utility-scale solar resources have relatively more time but need action in this IRP cycle to qualify for the full Federal investment tax credit (“ITC”), with construction beginning in 2019. The consideration of solar resources in the 2019-2020 IRP cycle will critically miss this opportunity as the ITC drops to 22% in 2021 and 10% in 2022. Multiple parties commented to this effect, with some like The Utility Reform Network (“TURN”) suggesting that there is some flexibility to procure and contract in 2018 while specifying initial delivery at a later time after achieving initial commercial operations.³

The benefits of a small least-regrets approach would reduce any market power concerns and mitigate some of the issues around developers and investors not passing more of the tax credit savings to ratepayers, as a smaller procurement need drives more competitive behavior. Unlike the 9,000 MW of utility-scale solar and 1,100 MW of utility-scale wind selected in the RESOLVE model in 2018 and 2022, the Commission could authorize a portion of that selected by RESOLVE to address the real concerns cited in the Proposed Decision. CESA agrees that such a large procurement over such a short timeframe may not produce the most cost-effective or competitive results in practice and would unreasonably ‘bet’ too much on tax credits available today over potential cost declines in solar and wind in the future. However, the least-regrets approach allows the Commission to hedge between two futures and not risk losing out on potential significant cost savings to ratepayers with a more limited near-term procurement authorization for not just solar and wind resources, but also paired energy storage resources, which can help with renewable

³ *Comments of The Utility Reform Network on the Proposed Reference System Plan and Other Related Commission Policy Actions*, filed on October 26, 2017, p. 8.

integration concerns. The cost-allocation issues are also a legitimate concern for the Commission and the affected LSEs, but with a limited procurement of 1,000 MW or 2,000 MW of tax-eligible renewable and hybrid resources, the risks of stranded assets is significantly reduced.

In summary, while the RESOLVE model may not have included practical procurement and market power considerations, and may be biased toward a future that relies on taking advantage of expiring tax credits, CESA believes that the Proposed Decision is swinging too much the other way in betting on a future where the state's GHG targets are met without significantly leveraging Federal tax credits. CESA thus recommends an approach where the Commission hedges between these two futures.

III. POLICY ACTIONS FOR BULK STORAGE SHOULD BE INFORMED BY OTHER SCENARIOS AND SENSITIVITIES.

Although the RESOLVE model did not select PHS in the 42 MMT scenario, PHS was selected in a number of alternative scenarios and sensitivities, which demonstrate the potential need for PHS and other bulk storage resources should California's electricity future deviate from the 42 MMT scenario. As in any modeling exercise, the results rely on key assumptions that are likely to have forecast and uncertainty errors. It confounds CESA to see that the Proposed Decision is not informed by the many different scenarios and sensitivities that identify the need for PHS in order to recommend policy actions for bulk storage resources. Despite various modeling limitations, the RESOLVE model economically selected approximately 1,200 MW of PHS as being optimal in the 30 MMT scenario and economically selected significant levels of PHS in 2034 to achieve the 2038 GHG emissions target in the limited post-2030 sensitivity for the 42 MMT scenario.

As CESA and other parties highlighted in previous comments, multiple potential sources of forecast or uncertainty error likely require the Commission to further consider the different

scenario and sensitivity runs. For example, multiple parties, such as Southern California Edison Company (“SCE”), highlighted their concerns about how the RESOLVE model determines curtailment decisions and how it calculates the cost of renewable curtailment, since the modeled level of curtailment does not align with observed CAISO curtailment in 2017.⁴ In turn, if the cost of renewable curtailment (or other assumptions) were vetted further and modeled more accurately, it may change the decision about whether to invest in bulk storage resources.

Moreover, other parties conducted important analysis showing how PHS and other bulk storage resources are important to California’s energy future, depending on small changes to the GHG target or adjustments to certain assumptions. The Union of Concerned Scientists (“UCS”) ran additional GHG scenarios in increments of two between 30 MMT and 42 MMT by 2030, and found that 572 MW of PHS was selected in the 32 MMT scenario.⁵ Eagle Crest Energy, meanwhile, hired a consultant to similarly run additional GHG scenarios at more granular increments and found that PHS is included in the resource portfolio starting in the 37 MMT scenario.⁶ This is important in light of the September 19, 2017 Ruling that noted differences in California Air Resources Board (“CARB”) and Commission assumptions for behind-the-meter combined heat and power (“CHP”) facility emissions, which results in approximately 4 MMT difference in comparing CARB and Commission scenarios,⁷ but more importantly points to how

⁴ *Comments of Southern California Edison Company on Administrative Law Judge’s Ruling Seeking Comment on Proposed Reference System Plan and Related Commission Policy Action*, filed on October 26, 2017, p. 18.

⁵ *Opening Comments of the Union of Concerned Scientists on the Administrative Law Judge’s Ruling Seeking Comment on Proposed Reference System Plan and Related Policy Actions*, filed on October 26, 2017, pp. 14-15.

⁶ *Comments of Eagle Crest Energy in Response to Administrative Law Judge’s Ruling on Proposed Reference System Plan and Related Commission Policy Actions*, Attachment A: Role of Pumped Storage in CPUC’s Reference System Plan, p. 7.

⁷ *Administrative Law Judge’s Ruling Seeking Comment on Proposed Reference System Plan and Related Policy Actions*, filed on September 19, 2017, pp. 5.

the Commission may be better prepared for different futures by positioning potentially critical grid assets like bulk storage for a viable pathway to procurement, if needed.

Policy action for bulk storage resources does not necessarily entail actual procurement at this time but it does require policy and regulatory work in advance to more closely study bulk storage resources and establish an actual solicitation and cost-allocation framework. Further study efforts are particularly needed (*e.g.*, as an updated special study in the Transmission Planning Process) using IRP Reference System Plan assumptions and scenarios as well as for different types of bulk storage (*e.g.*, CAES, LAES), operating characteristics (*e.g.*, 4-hour minimum duration as opposed to RESOLVE's assumed 12-hour minimum duration), and asset lives (*e.g.*, 50 years instead of 25 years). A framework for procurement and cost allocation is also needed and can be discussed in a separate track in this proceeding. Each of these policy actions do not require procurement at this time, but policy actions are needed as a hedge against modeling, forecast, and uncertainty errors, which may lead to a different future where bulk storage resources are critically needed but not readily available for deployment and construction due to the groundwork not being laid in advance.

IV. GREENHOUSE GAS ABATEMENT PRICES SHOULD BE CONSISTENT FOR UTILITY-SCALE AND DISTRIBUTED ENERGY RESOURCES.

The Proposed Decision opts to take a different approach from the Staff Proposal by using the actual GHG abatement prices from RESOLVE from 2018-2030 for LSE IRP filings and by taking the staff's original straightline approach for IDER cost-effectiveness analysis, beginning with the cap-and-trade reserve price for 2018.⁸

⁸ Proposed Decision, pp. 95-96.

CESA strongly supports the use of a GHG price but recommends use of a single price for all projects. Since some of the reasoning for using a more stringent GHG price for DERs also can apply to other projects, CESA recommends the use of a single methodology for all projects. For instance, the Proposed Decision reasons that some providers require greater market and timing certainty and face barriers related to longer planning horizons, have customers who face more resource options, and require many individual actions that are inherently more difficult. Much of this can be equally true for utility-scale developers who also face long planning horizons, significant upfront study deposit costs to enter the CAISO interconnection, and a rigorous two-year process to interconnect a project. More importantly, CESA does not, as a global view, believe any barriers or ‘costs’ should be reflected in the marginal GHG abatement price *per se*, but perhaps in other cost considerations in IDER cost-effectiveness analyses. The marginal GHG abatement price should thus only reflect the cost of avoiding GHG emissions. Otherwise, CESA is concerned that resource procurement will be unduly biased toward DERs as LSEs are directed to add resources until the cost of the marginal resource equals the marginal GHG abatement price.

Rather, CESA recommends that the Proposed Decision be revised to adopt the Staff Proposal’s straight-line approach for the marginal GHG abatement cost for all resources. Specifically, CESA recommends the following change to Findings of Fact 15:

The GHG Adder identified in Table 6 of this decision is appropriate for replacing the GHG Adder in D.17-08-022 and for use in evaluating cost-effectiveness of ~~DERs~~ **all resources** when a marginal GHG abatement cost is required.

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V. **CONCLUSION.**

CESA appreciates the opportunity to submit these comments on IRP Reference System Plan and LSE filing requirements, and we look forward to working with the Commission, LSEs, and other stakeholders going forward in this proceeding.

Respectfully submitted,



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