

**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)

**REPLY COMMENTS OF THE CALIFORNIA ENERGY STORAGE ALLIANCE
TO THE ADMINISTRATIVE LAW JUDGE'S RULING SEEKING COMMENT ON
PROPOSED SCENARIOS FOR 2019-2020 REFERENCE SYSTEM PORTFOLIO**

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March 15, 2019

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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 reply comments on *Administrative Law Judge’s Ruling Seeking Comment on Proposed Scenarios for 2019-2020 Reference System Portfolio* (“Ruling”), issued by Administrative Law Judge (“ALJ”) Julie A. Fitch on February 11, 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 appreciates the constructive and insightful comments by parties in the Integrated Resource Planning (“IRP”) proceeding, who generally supported the Commission’s improvements to the modeling to include a thermal generation analysis as well as to model 2045 scenarios. While supportive of the direction of the Commission’s proposed scenarios and thermal generation analysis, CESA offers recommendations on how the modeling process should be changed or improved to ensure actionable results and to allow for certain policy and procurement actions by the Commission. Our recommendations are summarized as follows:

- Linkages between 2030 core scenarios and 2045 framing scenarios are needed to inform policy action.
- A framework to direct least-regrets procurement is needed to ensure reliability and cost-effective achievement of IRP goals.
- Unit-specific and Local Capacity Requirements (“LCR”) analysis is needed in coordination with the California Independent System Operator (“CAISO”).

II. LINKAGES BETWEEN 2030 CORE SCENARIOS AND 2045 FRAMING SCENARIOS ARE NEEDED TO INFORM POLICY ACTION.

CESA agrees with many parties such as the California Environmental Justice Alliance (“CEJA”), Environmental Defense Fund (“EDF”), and Sierra Club on how linkages are needed between the modeling done through 2030 with the 2045 analysis.² One way to achieve this is to adopt the recommendation from Southern California Edison Company (“SCE”) to model the High Electrification scenario as one of the alternative base cases for 2030.³ There are many uncertainties related to forecasts, available technologies, technology costs, and policies that make it difficult to take any procurement actions related to the 2045 modeling results, notwithstanding the lack of a

² CEJA, EDF, and Sierra Club comments at pp. 5-6.

³ SCE comments at pp. 3, 5, and 8.

definition at this time on the definition of “zero-carbon resources” to comply with Senate Bill (“SB”) 100. However, by incorporating a High Electrification Scenario among the core sensitivities for the 2030 case, the Commission will ensure a nearer-term trajectory toward our 2045 goals, which as SCE aptly notes, can inform deployment and market transformation strategies.⁴ This core sensitivity may highlight the need for policy actions to create pathways (e.g., multiple off-taker contracting) for the *potential* procurement of long lead-time resources such as pumped hydro storage (“PHS”) or other bulk storage resources, among other key insights, if those results highlight a need for such resources to ensure the state is on the trajectory toward meeting 2045 goals.

Similarly, the 2045 study may also inform the need for key modeling changes needed for the 2021-2022 IRP cycle. CESA agrees with the comments by Pacific Gas and Electric Company (“PG&E”) the 2045 study can provide helpful information on the limitations of the current modeling tools and framework, which CESA has previously highlighted in comments may overlook the need and benefits of long-duration and seasonal storage solutions due to the 24-hour intra-day optimization structure of RESOLVE. PG&E also highlights how the 37 representative days approach may impose similar limitations to the modeling results that overlook the need for longer-duration storage solutions.⁵ Thus, in addition to ensuring the state is on the path toward 2045 goals, the 2045 framing scenario may be informative on how the Commission may need to take action to refine, enhance, or replace the modeling tools used for future IRP cycles.

⁴ SCE comments at p. 5.

⁵ PG&E comments at p. 11.

III. A FRAMEWORK TO DIRECT LEAST-REGRETS PROCUREMENT IS NEEDED TO ENSURE RELIABILITY AND COST-EFFECTIVE ACHIEVEMENT OF IRP GOALS.

CESA observes several parties' comments around taking a conservative approach to mandated procurement decisions given policy uncertainties, such as from San Diego Gas and Electric Company ("SDG&E"),⁶ or the lack of Commission authority to direct retirement⁷ or procurement from load-serving entities ("LSEs") such as community choice aggregators ("CCAs").⁸ While cognizant of these factors in addition to the new three-year forward procurement requirement for Local Resource Adequacy ("RA") as adopted in Decision ("D.") 19-02-022, CESA has some concerns about how the thermal generation analysis would ultimately lead to procurement decisions to replace retiring resources. The new multi-year RA framework provides some short-term stability for near-term reliability issues, but there does not appear to be a mechanism or framework developed in this proceeding on whether or how replacement resources would be procured. CESA is unclear on what would trigger action from LSEs or the Commission on procurement to ensure a smooth transition toward our 2030 and 2045 goals. CESA recommends that the Commission begin developing these triggers for procurement actions needed, whether through guidance for LSE self-procurement or through directed procurement from the Commission.

CESA makes this point because the modeling done here should be initially focused on some least-regrets procurement that could be directed or initiated based on the results, similar to points made by SDG&E.⁹ Procurement should not be paralyzed due to the multitude of

⁶ SDG&E comments at pp. 2 and 4.

⁷ Calpine comments at p. 6.

⁸ Western Power Trading Forum ("WPTF") comments at p. 3.

⁹ SDG&E comments at p. 4.

uncertainties around policy, modeling, load migration, or the many other variables that parties have highlighted in comments, as the Commission may then miss critical opportunities for certain least-regrets investments to make a ‘down payment’ on some of our GHG emissions and criteria pollutants reductions, deliver immediate ratepayer value, and hedge against the range of uncertainties. For example, CESA has introduced some of our initial modeling results on the potential benefits and value of hybridizing the existing gas fleet with energy storage resources, which was the basis for CESA and Wellhead Power Solutions in recommending hybrid gas-plus-storage be added as a candidate resource in the 2019-2020 IRP cycle, or at the very least, to conduct a sensitivity for such resources by modifying certain parameters of existing gas candidate resources.¹⁰ Our results showed that all of the candidate peakers modeled in Gridpath were selected for hybridization in the economic case.¹¹ Hybridization thus represents a potential least-regrets investment that not only should be modeled in the 2019-2020 IRP cycle – *i.e.*, due to the potential to reduce GHG emissions and criteria pollutants from reduced starts/stops and cycling and to deliver near-term reliability benefits in the form of operating reserves, all at a very low cost to the ratepayer – but should also be charted a potential pathway for procurement in the IRP process. Furthermore, hybridization represents a resource option that is proven and ready to go, which addresses some parties concerns such as that of NRG around the uncertainty of the cost, viability, and scale of various technologies.¹² Granted, hybridization is not the only type of least-regrets investment that could be made to hedge against future uncertainties, but all forms of least-

¹⁰ Wellhead comments at p. 3.

¹¹ See our updated modeling results in Attachment 1 of *Comments of the California Energy Storage Alliance on the Ruling of Assigned Administrative Law Judge Seeking Comment on Proposed Preferred System Portfolio and Transmission Planning Process Recommendation*, R.16-02-007, filed on January 31, 2019. See link [here](#).

¹² NRG comments at p. 6.

regrets investments do not currently have a clear mechanism or framework to deliver such resources.

IV. UNIT-SPECIFIC AND LOCAL CAPACITY REQUIREMENTS ANALYSIS IS NEEDED IN COORDINATION WITH THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR.

While most parties supported the addition of the thermal generation analysis and the economic retention functionality to RESOLVE, CESA agrees with some of the observations about the potential limitations of studying classes of thermal generators (as opposed to specific units)¹³ and the lack of focus on LCR needs in assessing retirement and retention decisions, which the Public Advocates Office (“PAO”) comments as not being useful guidance for new resources.¹⁴ SCE makes an important point about not delaying the LCR analysis to the next 2021-2022 IRP cycle,¹⁵ which presents risk or infeasibility for the timely procurement of long lead-time resources such as bulk storage and transmission but also potentially raises costs for replacement resources that may need to be procured on a quick timeline.

Rather than delay the LCR analysis, CESA recommends that the Commission coordinate with the CAISO to establish a feedback loop between capacity expansion modeling that optimizes for least-cost resource investment decisions and production cost modeling (after a calibration of the Commission’s SERVUM modeling and the CAISO’s PLEXOS modeling) that optimizes granular unit dispatch and operations for grid reliability and cost. Any retirement decision or replacement resource mix should be validated in production cost modeling and re-run in RESOLVE after making certain changes in assumptions around LCR needs, reliability constraints,

¹³ SCE comments at p. 9 and Hydrostor comments at p. 7.

¹⁴ PAO at p. 17.

¹⁵ SCE comments at p. 11.

etc. as revealed in the production cost modeling. In coordinating with the CAISO and in establishing feedback loops between RESOLVE and production cost modeling, there may be no need to develop and establish an energy sufficiency constraint, which should be revealed in the CAISO's production cost modeling and LCR studies.

V. 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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Date: March 15, 2019