



BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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Order Instituting Rulemaking to Oversee the
Resource Adequacy Program, Consider
Program Refinements, and Establish Forward
Resource Adequacy Procurement Obligations.

Rulemaking 19-11-009
(Filed November 7, 2019)

**OPENING COMMENTS OF
CENTER FOR ENERGY EFFICIENCY AND RENEWABLE TECHNOLOGIES ON
PROPOSED DECISION ON TRACK 3B.2 ISSUES: RESTRUCTURE OF
THE RESOURCE ADEQUACY PROGRAM**

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For: CENTER FOR ENERGY EFFICIENCY AND RENEWABLE TECHNOLOGIES

June 30, 2021

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Center for Energy Efficiency and Renewable Technologies (CEERT) respectfully submits these Opening Comments on the Proposed Decision on Track 3B.2 Issues: Restructure of the Resource Adequacy Program (Proposed Decision), mailed in this proceeding on June 10, 2021. These Opening Comments are timely filed and served pursuant to Rule 14.3 of the Commission's Rules of Practice and Procedure and the instructions accompanying the Proposed Decision.

**I.
THE PROPOSED DECISION MOSTLY REPRESENTS A PRUDENT AND REASONABLE
ROADMAP FOR SYSTEMIC RESOURCE ADEQUACY REFORM**

CEERT supports the Proposed Decision and believes that overhaul of the Resource Adequacy framework for grid reliability and consumer cost is mission critical over the next decade. CEERT looks forward to the series of workshops ordered by this Proposed Decision over the next six months to begin that process. CEERT can work with the Commission decision to base the overhaul on Pacific Gas & Electric Company's (PG&E) Slice of Day proposal. If the Commission had chosen to base the overhaul on the Southern California Edison/California Community Choice Association (SCE/CalCCA) Net Qualifying Energy (NQE) proposal, or the tide shifts toward that proposal during the workshops, CEERT can work with that decision as well.

CEERT does not believe that the “critical temporal issue” the Commission is concerned about will turn out to be not quite as critical as some parties believe given the large amount of storage that will be an integral part of the resource mix of the future. After all, that is the essential nature of storage – the ability to efficiently move energy produced in times of “surplus” to hours of “shortage.” The issue is not so much the duration of the storage, but the total MWh stored, location, and transmission deliverability for both charge and discharge cycles. The duration is simply a function of the size of the inverter and Point of Interconnection (POI) injection rights, and a larger inverter (shorter duration) is better for the grid. It makes no sense to undersize the inverter simply to meet an arbitrary four hour duration and forego the ability to respond quickly with large bursts of energy at the appropriate time and place. CEERT believes the Commission significantly underestimates the power of storage to solve the “temporal issue” and underestimates the power of demand response to accomplish a similar end.

What is critical is that the new RA paradigm rely principally on price signals and market forces to accomplish its goal and that the individual producers and consumers are incentivized to act in the interest of the grid by following wholesale prices to produce more or consume less as prices rise rather than only being penalized for not behaving like a traditional fossil generator or blindly following the California Independent System Operator (CAISO) dispatch algorithm. This algorithm is designed to efficiently deal with a relative few large, centralized generation resources and struggles to deal with a resource mix that contains large quantities of distributed robust hybrids that include storage and have significant resource specific opportunity costs. We must appropriately value hybrids where the resource owner/operator can assess the real time opportunity costs and decide how to dispatch the individual components of the hybrid to meet its energy and ancillary services bids to respond to identified grid needs at the POI.

CEERT is extremely disappointed that the Commission in D.21-06-029 declined to start down that path by adopting CEERT's proposal to recognize the energy contained in a DC coupled hybrid when assigning a capacity value to that form of simple hybrid.¹ This is not to say that there is no role for market monitoring and bidding behavior mitigation for these dispatchable hybrids. This topic and its broader implications must be part and parcel of the next round of workshops.

We must not hamstring the ability of storage to solve the "temporal issues" by designing an administratively inefficient, centralized, top down, one size fits all "state of charge management" protocol. Vigilance to avoid that temptation is an important consideration over the next six months.

CEERT is cautiously optimistic that the Commission has finally begun the process of rationally integrating distributed energy resources into the Resource Adequacy framework in D. 21-06-029 with the formation of a Distributed Energy Resource Working Group with a comprehensive agenda and expedited timeline for results that dovetails nicely with this Proposed Decision.² We must begin to repair the significant damage done to "demand response" these past few years trying to make it appear as a conventional dispatchable generation resource and subjecting it to rigid, onerous measurement and verification protocols that do not reflect true opportunity cost during grid stress hours.

The centralized CAISO dispatch algorithm must concentrate on sending accurate real time nodal price signals rather than micromanaging the distributed dispatch of microgrid/hybrid elements operating in parallel with the grid during normal times and potentially capable of islanded operation of critical loads during grid outages. There clearly is a point where paid

¹ D.21-06-029, at pp. 48-50.

² *Id.*, at p. 33.

voluntary “curtailment“ of “non-critical” loads is much more cost effective than either involuntary blanket load shedding or building out supply side resources that are only “needed” once in ten or more years. The easiest way to identify those “non-critical” loads is to look at the designation of critical loads to be maintained with a microgrid during grid outages.

Unless and until we focus on the ability of the total portfolio of resources on both the supply and demand side to provide a reliable, resilient, cost effective grid across all hours of the year rather than fixate on the algebraic sum of “NQC” or “NQE” of discrete individual resources, both grid reliability and consumer costs will suffer. CEERT believes that one of the most important aspects of the original SCE/CalCCA proposal that seems to have been lost in the subsequent discussions is conducting a total portfolio sufficiency analysis post the procurement/showings phase of the annual cycle followed by residual procurement of additional resources if necessary. Rather than developing that concept further, CEERT believes that parties wandered off into the wasteland of an ex ante “temporal issues” discussion that seems to have led to the proposal’s undoing.

The transformation to align RA with future grid conditions and resource mix will not occur in one step and will not be nearly complete by 2023-2024, but this Proposed Decision does offer a path of progress to that end. There should be no expectation that the result of the next round of workshops will be a durable paradigm that will allow financial “certainty” and precision in assigning a long term fungible capacity value to each individual resource and a multi-year load-serving entity (LSE) obligation that is both cost effective and reliable. If that were to be the result over the next six months, the process will have failed. Cementing in static but fungible long term capacity values for resources without regard for the mix of other resources on the grid or the changing mix of opportunities and challenges presented in a decarbonized world may be

convenient for existing legacy resource owners, but their convenience is not one of the four Principles articulated in the Proposed Decision.

The two key concepts contemplated by the Proposed Decision that start the long journey ahead are (a) Explicit recognition of the importance of energy sufficiency in stress hours rather than simply some static fungible peak hour capacity value for existing resources, and (b) Evaluation of performance of individual resources on a granular plant by plant level. This second issue is accomplished in PG&E's proposed exceedance counting methodology and/or CAISO's UCAP proposal rather than the existing least common denominator class average metric that papers over individual plant location, design, and operational issues that, in the end, will truly determine least cost grid reliability. With one important exception explained below, that two item agenda is close to the maximum rate of change that the system can afford in the next 2-3 years as contemplated by the Proposed Decision. Certainty of legacy resource value and stability of Resource Adequacy market design are simply not possible while the grid is rapidly evolving. Administratively providing that certainty to existing resources while ignoring the ability of novel combinations of new resources to cost effectively provide resiliency and reliability is simply a prescription for a high risk of high prices and challenges to grid reliability.

What *is* missing from the workshop agenda is any consideration of the interaction between the natural gas and electric systems at high electric loads and high coincident natural gas usage given the slow pace of procurement to date of clean, zero carbon resources to drive down gas demand and greenhouse gas emissions. When electric loads exceed 40-42 GW, the natural gas slice of system energy is well over 50% and marginal energy is provided by high heat rate less reliable gas facilities. Electricity prices spike well before any grid reliability threshold is reached.

CEERT agrees with the Energy Division that the “root cause” and proposed mitigation of these price spikes is a critical discussion topic in the upcoming workshops. In this Proposed Decision, the Commission ascribes these electricity price spikes to rolling off of investor-owned utility (IOU) tolling agreements subject to Commission least cost dispatch requirements, and generator market power that allows bidding behavior in excess of marginal cost. The Energy Division believes that this bidding behavior needs to be mitigated with bid caps and mandatory hedging strategies. CEERT believes a more plausible hypothesis is that, by and large, generators are indeed bidding at their marginal cost. This hypothesis is supported by the recognition in the Energy Division hedging proposal that default energy bids routinely exceed \$300/MWh. That can only occur if burner tip gas prices are well in excess of commodity index gas prices. This indicates that it is the gas traders and the Southern California Gas Company (SoCalGas), not the gas generators who are exercising market power. It is the Southern California gas supply system, constrained by operating restrictions on in Basin gas natural storage withdrawals coupled with transmission capacity restrictions caused by operating pressure reductions necessary for safety in the face of systemic corrosion of the desert backbone from the Arizona border that allows Los Angeles Citygate gas prices to spike during high demand stress hours.

These high spot gas price events are difficult to precisely predict and thus effectively hedge at the individual plant level -- especially since the marginal producers operate at very low annual capacity factors and cannot accurately predict timing and quantity of dispatch awards. These factors are compounded by the increased balancing penalties imposed by SoCalGas to deal with its compromised fuel delivery system. When system marginal electricity prices are set by high and volatile spot gas prices combusted in the least efficient, most unreliable gas facilities, and these high marginal prices set generator payments for all producers through the CAISO

market design, the result is indeed high and volatile system wide electricity prices. The more efficient higher capacity factor gas facilities that can and do hedge fuel purchases simply keep quiet and enjoy the infra-marginal rents. The result is revenues well above marginal costs. However, the potential misdiagnosis of the cause of price spikes means that fuel hedging and bid caps will not mitigate the problem.

The best mitigation strategy is to dramatically increase the procurement of alternatives to the high heat rate, high forced outage rate dregs of the gas fleet. The Commission has accomplished this with D.21-06-035, issued in the integrated resource plan (IRP) proceeding (R.20-05-003) – the 11.5 GW Mid Term IRP procurement of clean non-fossil resources. What is critical here is to expedite construction and operation of this new, clean, low cost resource fleet, gain operational experience with the new hybrid configurations that promise higher capacity factors, dispatchability, and much more efficient transmission utilization than stand alone storage plus stand alone solar (even if co-located). Gaining this experience and reflecting it in RA valuation plus finally cutting the Gordian knot on grid exports of behind the meter distributed energy resources and microgrids operated in parallel with the grid offer much more promise for price spike mitigation than bid caps and inefficient plant-by-plant fuel hedges. CEERT believes it imperative that this market based path that is consistent with long-term energy policy is chosen, and the journey begins with a forensic analysis of the historic interaction between burner tip gas prices and electricity spot prices as a function of electric load levels. This topic needs to be added to the workshop agenda.

II. CONCLUSION

CEERT asks that the Proposed Decision be modified to add examination of the interaction between spot natural gas prices, electricity prices and electricity load levels to the

workshop agenda. The needed modifications to the Proposed Decision are included in Appendix A (Proposed Modifications to Findings of Fact, Conclusion of Law, and Ordering Paragraph) attached and incorporated by reference hereto.

Respectfully submitted,

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APPENDIX A

CENTER FOR ENERGY EFFICIENCY AND RENEWABLE TECHNOLOGIES PROPOSED FINDINGS OF FACT, CONCLUSIONS OF LAW, AND ORDERING PARAGRAPHS FOR THE PROPOSED DECISION ON TRACK 3B.2 ISSUES: RESTRUCTURE OF THE RESOURCE ADEQUACY PROGRAM

Center for Energy Efficiency and Renewable Technologies (CEERT) proposes the following modifications to the Findings of Fact, Conclusions of Law, and Ordering Paragraphs in the Proposed Decision on Track 3B.2 Issues: Restructure of the Resource Adequacy Program, mailed in R.19-11-009 on June 10, 2021 (Proposed Decision).

Please note the following:

- A page citation to the Proposed Decision is provided in brackets for each Finding of Fact, Conclusion of Law, or Ordering Paragraphs for which a modification is proposed.
- Added language is indicated by **bold type**; removed language is indicated by **bold strike-through**.
- A new or added Finding of Fact, Conclusion of Law, or Ordering Paragraph is labeled as “**NEW**” in **bold underscored** capital letters.

PROPOSED FINDINGS OF FACT:

NEW. Los Angeles Citygate natural gas prices are volatile and highly correlated with system wholesale electricity prices.

PROPOSED CONCLUSIONS OF LAW:

NEW. The interaction between Los Angeles Citygate gas prices and system level wholesale electricity prices should be investigated with a forensic analysis of data since 2015

PROPOSED ORDERING PARAGRAPHS:

1. [46] Parties shall undertake a minimum of five workshops over the next approximately six months to develop implementation details based on Pacific Gas and Electric Company’s slice-of-day proposal. The workshops shall cover the following implementation details: (1) Structural

Elements; (2) Resource Counting; (3) Need Determination and Allocation; (4) Hedging Component **and interaction between systemwide wholesale electricity prices and Southern California burner tip natural gas prices** ; and (5) Unforced Capacity Evaluation and Multi-Year Requirement Proposals.

2. [46] An implementable Resource Adequacy framework is one that addresses the implementation details in Ordering Paragraph 1, as well as four key principles, as follows:

- Principle 1: To balance ensuring a reliable electrical grid with minimizing costs to customers.
- Principle 2: To balance addressing hourly energy sufficiency for reliable operations with advancing California’s environmental goals.
- Principle 3: To balance granularity and precision in meeting hourly RA needs with a reasonable level of simplicity and transactability.
- Principle 4: To be implementable in the near-term (e.g., 2024).

Parties shall also consider a final proposed framework’s compatibility with existing Commission planning goals and programs, such as the Integrated Resource Plan and Renewables Portfolio Standard proceedings.