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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

**ADMINISTRATIVE LAW JUDGE'S RULING SEEKING
COMMENT ON PROPOSED SCENARIOS
FOR 2019-2020 REFERENCE SYSTEM PORTFOLIO**

This ruling and its attachments contain the recommended scenarios and associated analyses to be prepared by California Public Utilities Commission (Commission) staff to inform the proposed Reference System Plan (RSP) for the 2019-2020 integrated resource planning (IRP) cycle, that is designed to move California's electric sector toward achievement of the goals of Senate Bill (SB) 350, as described in Decision (D.)18-02-018. The proposed scenarios are informed by a larger number of scenarios analyzed for the 2017-2018 IRP cycle. Also included is a separate proposal for a more in-depth analysis of the existing thermal generation fleet.

Commission staff will hold a webinar to explain the proposed scenarios and answer any clarifying questions on February 28, 2019 at 1:00 p.m. Details will be provided to the service list. Parties are invited to comment on this ruling, the questions embedded in it, and its attachments, by no later than March 5, 2019. Reply comments are invited by March 15, 2019.

1. Background

On November 29, 2018, an Administrative Law Judge (ALJ) ruling was issued seeking comments on the proposed inputs and assumptions for the 2019-2020 IRP cycle, to support the development of the RSP. Parties submitted comments and reply comments in response to that ruling on January 4, 2019 and January 15, 2019, respectively. This ruling includes the associated proposal for scenarios to be analyzed for the RSP, utilizing the inputs and assumptions that are also expected to be revised in response to comments from parties.

2. Proposed 2019-2020 Reference System Plan Scenarios

Attachment A of this ruling contains a Commission staff proposal for scenarios to be analyzed to inform the RSP in the 2019-2020 IRP cycle. Staff proposes three sets of scenarios, designed for slightly different purposes:

1. Framing study scenarios: three long-term, high-level scenarios looking out to 2045, in keeping with the SB 100 (DeLeon, 2018) zero-carbon goals for that timeframe, and utilizing analysis conducted by the California Energy Commission (CEC). The scenarios include:
 - a) A 2045 high electrification scenario;
 - b) A 2045 high biofuel scenario; and
 - c) A 2045 high hydrogen scenario.
2. Main scenarios: three main levels of greenhouse gas (GHG) emissions targets for the electric sector in 2030, including:
 - a) 46 million metric ton (MMT) case: the base case, previously adopted by the Commission as the 2030 electric sector GHG planning target;¹

¹ The Commission actually adopted a 42 MMT case in D.18-02-018, but the scenario did not account for approximately 4 MMT of emissions associated with combined heat and power. That assumption will be modified in this IRP cycle; thus, the equivalent case is now a 46 MMT case.

- b) 38 MMT case; and
 - c) 30 MMT case.
 - d) The main scenarios will also have associated sensitivities of three types:
 - i. Core sensitivities, representing uncertainty around policy options and electricity load trajectories.
 - ii. Resource cost sensitivities.
 - iii. Demand side sensitivities.
3. Special studies: special analyses of specific resource types, including:
- a) Existing thermal generation retirement and retention
 - b) Renewable generation comparison
 - c) Cost of decarbonizing the electric sector.

2.1. Questions for Parties

Parties are invited to respond to the following questions in their comments on this ruling and Attachment A.

1. Do you agree with the proposed 2045 framing study scenarios? What modifications should be made to better characterize the role of the electricity sector in meeting California's GHG reduction goals in 2030 and beyond, given the zero-carbon goals outlined in SB 100 and imperfect information regarding future GHG reductions in other sectors of the economy? Provide detailed data sources which may be used in order to construct your recommended scenarios.
2. Based on the various technology deployments assumed in the framing study scenarios, what implementation or feasibility assessments may be needed to better understand the costs and risks associated with the technologies that contribute to GHG reductions? How should the results of those assessments be used to evaluate which economy-wide GHG mitigation policy pathways to pursue and/or account for in statewide planning?

3. Do you recommend alternative scenarios or sensitivities for the 2030 timeframe that should be studied? If so, provide detailed rationale and data sources for the proposed additional scenarios.

3. Recommended Analysis of Existing Thermal Generation

Attachment B to this ruling contains a powerpoint slide deck describing additional analysis that Commission staff recommends conducting to look at issues associated with the retention or retirement of existing thermal generation. This analysis is designed to inform decisions related to the volume and type of thermal generation resources that could retire without impairing system or local reliability, as well as the amount of retention of existing generation that may minimize ratepayer costs in the long-run if the attributes delivered by that generation are necessary for grid reliability.

The study would look at classes of thermal power plants, not individual plants, and is designed to be indicative and/or illustrative and not to suggest specific retention or retirement/mothballing of particular plants. The study would also be designed to contain local reliability constraints, but will not be centered around either local or intra-hour analyses.

Staff proposes to utilize the RESOLVE model, with reliability analyses in SERVM, to conduct the analysis. The analysis would be carried out in four steps:

Step 1. Ensuring local reliability under a system level analysis.

Step 2. Ensuring energy sufficiency under a deep decarbonization future.

Step 3. Incorporating economic retention functionality into core scenarios and special study cases.

Step 4. Reliability check on reference system plan.

Staff proposes to look at two primary scenarios, beyond the default scenario that would utilize the newly-created economic retention functionality in

the RESOLVE model. The first stress case would force the retirement of a large quantity of thermal resources by 2030, in order to test the resiliency of the system without these resources, as well as the resources that would be most economic to utilize/build as replacement, if necessary. The second case would retain all thermal generation to surface the impact on ratepayer costs.

In addition, Commission staff suggests some modifications to improve the quality of the local air pollutant analysis associated with existing thermal generation.

3.1. Questions for Parties

Parties are invited to respond to the following questions in their comments on this ruling and Attachment B.

4. Should the default assumption for core scenarios rely on the economic retention functionality in RESOLVE? Why or why not?
5. Is it reasonable to implement staff's suggested minimum local capacity requirement constraint as an interim approach for dealing with local reliability issues? Or if you prefer a different approach, explain in detail.
6. Comment on staff's suggested "energy sufficiency" approach as described in Step 2 of Attachment B.
7. Are there other reliability checks that you would recommend? Describe in detail.
8. Staff would like to apply the economic retention functionality to all thermal generators; however, cogeneration facilities raise a particular challenge due to the need to consider the value of heat to industrial processes. This value may be substantial, and lead to resource retention in reality, even if the model demonstrates no need for the resource for electric system reliability. What specific data can be used and what interim study approach could be performed to approximate the

- application of economic retention functionality to cogeneration?
9. Should staff study any additional intermediate years in addition to the four IRP resource planning years (2020, 2022, 2026, and 2030) in order to better understand near- and medium-term reliability issues, or would the additional granularity result in false precision considering that RESOLVE is a capacity expansion model designed to study long-term economics? Explain.
 10. Are there other specific data sources you recommend for any component of the thermal generation analysis described in Attachment B?
 11. Comment on staff's proposed improvements to the local air pollutant emissions analysis.

IT IS RULED that:

1. Attachments A and B to this ruling are hereby entered into the formal record of this proceeding.
2. Commission staff will conduct a webinar related to Attachments A and B on February 28, 2019 at 1:00 p.m.
3. Parties may file and serve comments in response to this ruling by no later than March 5, 2019. Parties may, but are not required to, respond to the numbered questions throughout this ruling with reference to specific question numbers. Comments on any and all other aspects of any of the ruling or its attachments may follow.

4. Parties may file and serve reply comments on this ruling and its attachments by no later than March 15, 2019.

Dated February 11, 2019, at San Francisco, California.

/s/ JULIE A FITCH

Julie A. Fitch
Administrative Law Judge