

**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 INDEPENDENT SYSTEM  
OPERATOR CORPORATION**

Roger E. Collanton  
General Counsel  
Anthony J. Ivancovich  
Deputy General Counsel  
Anna A. McKenna  
Assistant General Counsel  
Jordan Pinjuv  
Senior Counsel  
California Independent System  
Operator Corporation  
250 Outcropping Way  
Folsom, CA 95630  
Tel: (916) 351-4429  
Fax: (916) 608-7222  
Email: [jpjuv@caiso.com](mailto:jpjuv@caiso.com)

Attorneys for the California Independent  
System Operator Corporation

Date: October 17, 2018

## **Table of Contents**

I.	Introduction.....	1
II.	Discussion.....	1
	A. The Commission Should Maintain Current Levels of Reliability and Validate Reliability Through Production Cost Modeling. ....	1
	B. The Commission Should Improve Key Input Assumptions Before Modeling the Preferred System Plan.....	2
	C. The Commission Should Address and Understand Anomalous Modeling Outputs Before Production Cost Modeling of the Preferred System Plan. ....	4
	D. The Commission Should Prioritize Improvements to the Production Cost Modeling Prior to Studying the Preferred System Plan.....	4
	E. The IRP Process Should be Aligned with Other Commission Proceedings and the CAISO’s Transmission Planning Process.....	5
III.	Conclusion .....	6

**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 INDEPENDENT SYSTEM  
OPERATOR CORPORATION**

**I. Introduction**

On September 24, 2018, Administrative Law Judge Fitch issued a Ruling Seeking Comments on Production Cost Modeling (September 24 Ruling). The September 24 Ruling includes an updated description of the role of production cost modeling in the Integrated Resource Planning (IRP) process (Attachment A) and a PowerPoint slide deck detailing the production cost modeling and analysis Energy Division staff conducted on the Reference System Plan (Attachment B). Parties filed opening comments on October 10, 2018. These reply comments address issues raised in opening comments.

**II. Discussion**

The CAISO's reply comments fall into the broad categories of maintaining reliability, improving input assumptions, concerns with modeling outputs, IRP proceeding process improvements, and alignment with other Commission proceedings.

**A. The Commission Should Maintain Current Levels of Reliability and Validate Reliability Through Production Cost Modeling.**

The CAISO agrees with San Diego Gas & Electric Company's (SDG&E) observation that using a 0.02 to 0.03 monthly loss of load expectation (LOLE) in the effective load carrying capability (ELCC) calculation would yield an annual LOLE target of 0.24 to 0.36, which is higher than the current industry-accepted level of 0.1 LOLE.<sup>1</sup> The CAISO also strongly agrees

---

<sup>1</sup> SDG&E Opening Comments, p. 4.

with Southern California Edison Company’s (SCE) conclusion that the production cost modeling results for the Reference System Plan “do not provide a meaningful assessment of the Reference System Portfolio’s feasibility and operability” because there were significant and important differences in input assumptions between the RESOLVE capacity expansion modeling and SERVM production cost modeling.<sup>2</sup> As such, the Ruling’s conclusions that the production cost modeling did not identify reliability issues and that the Reference System Plan provides a 19 percent planning reserve margin in 2030 are misleading and can result in unintended negative consequences.<sup>3</sup>

The CAISO believes the Commission should use the industry-standard 0.1 LOLE for calculating the ELCC in the Preferred System Plan. In doing so, the CAISO agrees with Pacific Gas & Electric Company (PG&E) and SDG&E that the LOLE should be an annual, not monthly, metric.<sup>4</sup> The CAISO also agrees with SDG&E’s request for more detailed analysis on ramping needs, especially in light of natural gas resource retirements.<sup>5</sup> The CAISO recommends that the Commission provide this more detailed analysis as part of the Preferred System Plan modeling.

#### **B. The Commission Should Improve Key Input Assumptions Before Modeling the Preferred System Plan.**

The CAISO believes there are key modeling input assumptions that should be corrected before modeling the Preferred System Plan. Correcting these input assumptions may correct some of the anomalous production cost modeling outputs presented in the Ruling. In addition to input concerns noted in its opening comments,<sup>6</sup> the CAISO recommends that the Commission address several other additional input assumptions raised by other parties, as discussed in more detail in this section.

The CAISO agrees with Calpine, Center for Energy Efficiency and Renewable Technologies (CEERT), and Natural Resources Defense Council (NRDC) that the production cost modeling overestimates the capability of the future fleet by failing to consider the retirement

---

<sup>2</sup> SCE Opening Comments, p. 2.

<sup>3</sup> Ruling, Attachment B, p. 6, p. 64, and p. 78. See California Public Advocates Office (Cal PA) Opening Comments that recommend reducing the level of resources if they exceed the planning reserve margin; Cal PA Opening Comments, p. 1 and p. 4.

<sup>4</sup> PG&E Opening Comments, p. 4 and SDG&E Opening Comments, p. 3.

<sup>5</sup> SDG&E Opening Comments, pp. 4-5.

<sup>6</sup> CAISO Opening Comments, pp. 8-10.

of incremental gas-fired resource retirements beyond those already announced.<sup>7</sup> At minimum, the Commission should use a 40-year retirement threshold for gas-fired generation facilities, as it did in the Commission’s long-term procurement plan (LTPP) process.<sup>8</sup> If time permits, the Commission should study increased economic-based retirement sensitivities as part of its Preferred System Plan analysis and identify any resulting impact on reliability caused by the increased gas-fired generation retirements.

The CAISO also agrees with comments submitted by Green Power Institute (GPI) and Calpine Corporation (Calpine) regarding the need for significant improvements to SERVM’s import assumptions. The CAISO previously noted that the Commission should improve its modeling capabilities for out-of-state hydro resources with realistic GHG emissions rates rather than applying an after-the-fact credit to the model results.<sup>9</sup> GPI points out that the “NW Hydro Credit” for GHG emissions is not intuitive and will lead to sub-optimal production cost modeling results.<sup>10</sup> The CAISO urges the Commission to correct these assumptions as soon as possible, preferably before conducting production cost modeling on the Preferred System Plan. If this cannot be accomplished, the CAISO believes it is critical to correct these inputs for the next RESOLVE run of the 2019 Reference System Plan. The current import assumptions have and will skew RESOLVE’s capacity expansion portfolio.

The CAISO also agrees with Calpine’s comment that SERVM’s 10 GW resource adequacy capacity import assumption may overestimate commercial availability.<sup>11</sup> It is not certain that sufficient energy will be available and it is not known whether out-of-state resources will be willing to enter into capacity-based resource adequacy contracts with Commission-jurisdictional LSEs with its attendant must-offer obligations. These import assumptions, coupled with an overestimation of the available capacity and flexibility of the in-state thermal fleet, produce overly optimistic production cost modeling results. The results mask additional ramping and reliability needs and disfavor out-of-state generation while simultaneously relying on out-of-state generation for resource adequacy.

---

<sup>7</sup> Calpine Opening Comments, p. 3; CEERT Opening Comments, p.3; and NRDC Opening Comments, p. 3.

<sup>8</sup> Order Instituting Rulemaking to Integrate and Refine Procurement Policies and Consider Long-Term Procurement Plans, Administrative Law Judge’s Ruling on Assumptions and Scenarios for 2015-2016 Proceedings, December 23, 2014, p. 47.

<sup>9</sup> CAISO Opening Comments, p. 10.

<sup>10</sup> GPI Opening Comments, p. 7.

<sup>11</sup> Calpine Opening Comments, p. 3.

Lastly, the CAISO agrees with American Wind Energy Association of California (AWEA) that the net export limit should be limited to 2,000 MW.<sup>12</sup>

**C. The Commission Should Address and Understand Anomalous Modeling Outputs Before Production Cost Modeling of the Preferred System Plan.**

The CAISO echoes the numerous party comments citing concerns with the higher GHG emissions in the SERVM results compared to the RESOLVE outputs.<sup>13</sup> The CAISO notes that some of the requested modeling improvements may further increase the GHG emissions observed in the SERVM results.<sup>14</sup> The Commission has not detailed what level of deviation from the RESOLVE capacity expansion modeling is acceptable and why. The CAISO also agrees with parties that highlighted the significant renewable curtailment in the SERVM modeling.<sup>15</sup> These anomalous modeling outputs should be addressed before modeling the Preferred System Plan.

**D. The Commission Should Prioritize Improvements to the Production Cost Modeling Prior to Studying the Preferred System Plan.**

The CAISO understands that the production cost modeling improvements requested by parties are significant and will require more time to address than the current schedule can provide. To address these concerns in a prudent manner, the Commission should prioritize necessary improvements before modeling the Preferred System Plan. Necessary modeling improvements generally fall into two categories, either global modeling changes or specific modeling changes related to aggregated load-serving entity IRPs.

With respect to global modeling improvements, the CAISO recommends that the Commission first prioritize reliability by ensuring that the monthly ELCC calculation does not exceed an *annual* 0.1 LOLE. Second, for thermal generation resources, SERVM should include a 40-year retirement threshold and improved modeling for internal resources to reflect minimum load operation and associated emissions profiles. Third, for renewables, the Commission should conduct much more detailed modeling and vetting to understand the very high level of

---

<sup>12</sup> AWEA Opening Comments, p. 2.

<sup>13</sup> AWEA Opening Comments, p. 3; CEERT Opening Comments, p. 2; CEJA and Sierra Club Opening Comments, p. 7; GPI Opening Comments, p. 2; NRDC Opening Comments, p. 2; and UCS Opening Comments, p. 6.

<sup>14</sup> CEJA and Sierra Club Opening Comments, p. 3.

<sup>15</sup> See opening comments from: CalWEA Opening Comments, p. 2; and GPI Opening Comments, p. 4.

curtailment in the SERVVM results. This process should include investigating whether SERVVM appropriately uses the assumptions from the California Energy Commission's Integrated Energy Policy Report. Fourth, for imports, the Commission should employ more granular modeling to replace the manual "NW Hydro Credit." The Commission should use GHG emissions rates as approved by the California Air Resources Board to model Pacific Northwest hydro imports. Lastly, the net export limit should be reduced to 2,000 MW to better reflect actual historical data. All of these improvements should be discussed with parties, either through Modeling Advisory Group (MAG) meetings or formally through the proceeding.<sup>16</sup> The CAISO encourages the Commission to make these priority improvements before conducting production cost modeling on the Preferred System Plan or as soon as possible.

With regard to modeling aggregated load-serving entity IRP portfolios, the Commission should produce the aggregated physical unit data that was scheduled to be released at end of September as soon as possible.<sup>17</sup> As other parties noted in opening comments, the Commission should articulate the specific steps taken to aggregate the individual LSE plans and how it has resolved contradictions between plans.<sup>18</sup> The Commission should ensure that it adheres to the remainder of the schedule published in the Ruling to allow modeling parties to provide actionable feedback.

**E. The IRP Process Should be Aligned with Other Commission Proceedings and the CAISO's Transmission Planning Process.**

The CAISO agrees with parties that the LOLE and ELCC discussions in the IRP should be coordinated with other Commission proceedings.<sup>19</sup>

For the CAISO's 2018-2019 Transmission Planning Process (TPP), the Commission transmitted the 42 MMT Scenario portfolio to be studied as a sensitivity for the policy-driven assessment to identify Category 2 transmission based on the Reference System Plan.<sup>20</sup> No base portfolio was transmitted to the CAISO as part of the 2018-2019 TPP policy-driven assessment. The CAISO encourages the Commission to transmit a base portfolio to the upcoming 2019-2018 Transmission Planning process by February 2019 for study.

---

<sup>16</sup> Such as the MAG meeting scheduled for October 31, 2018.

<sup>17</sup> Ruling, Attachment B, p. 12.

<sup>18</sup> See opening comments from: Cal PA, p. 3; GridLiance, Section C; LSA, p. 1; PGE, p.6.

<sup>19</sup> See opening comments from: GPI, p. 6 and SCE, p. 6.

<sup>20</sup> CAISO 2018-2019 TPP Study Plan, March 30, 2018, p. 48.

### III. Conclusion

The CAISO urges to the Commission to implement priority improvements to the production cost modeling methodology and input assumptions starting with an ELCC calculation that does not exceed an annual 0.1 LOLE standard, preferably before conducting further analysis on the Preferred System Plan. This should be coordinated across multiple proceedings that use LOLE and ELCC. The CAISO also urges to Commission to provide more detailed explanations and guidance on how the individual LSE plans will be aggregated. Lastly, the CAISO encourages the Commission to provide a base portfolio for 2019-2020 CAISO Transmission Planning Process by February 2019.

Respectfully submitted,

**By: /s/ Jordan Pinjuv**

Roger E. Collanton  
General Counsel  
Anthony J. Ivancovich  
Deputy General Counsel  
Anna A. McKenna  
Assistant General Counsel  
Jordan Pinjuv  
Senior Counsel  
California Independent System  
250 Outcropping Way  
Folsom, CA 95630  
Tel: (916) 351-4429  
Fax: (916) 608-7222  
Email: [jpinjuv@caiso.com](mailto:jpinjuv@caiso.com)

Attorneys for the California Independent  
System Operator Corporation

Date: October 17, 2018