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**PG&E Comments on CEC's Resource Portfolio Assumptions for
CAISO 20-Year Transmission Outlook**

Additional submitted attachment is included below.



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California Energy Commission
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RE: Resource Portfolio Assumptions for the Next CAISO 20-Year Transmission Outlook

Pacific Gas and Electric Company (PG&E) appreciates the opportunity to comment in response to the California Energy Commission’s (CEC) Resource Portfolio Assumptions for the Next CAISO 20-Year Transmission Outlook:

- 1. PG&E appreciates CAISO’s inclusion of an assessment of the impact of local area gas retirements assumptions on transmission need in its 20-year Transmission Outlook update.**

In the 2022 version of the 20- year transmission outlook, the CAISO focused on *“the high-voltage bulk transmission, recognizing that local transmission needs and generation interconnections will ultimately need to be addressed as well”*¹. Although the CAISO conducted a high-level assessment² of local areas needs with gas retirement, the analysis was not robust enough to provide actionable insights for planning purposes.

The potential retirement of local resources combined with the anticipated increase in electrification demand (building and transportation), will require a coordinated effort between the CAISO and the CPUC to develop cost-effective replacement solutions. The CAISO is in the best position to provide details on cost of transmission solution and location specific resource requirements and support the identification of an integrated, cost-effective solution (e.g., portfolio of supply/demand-side resources, transmission alternatives, or a combination) to adequately address location-specific requirements.

In the May 2022 version of the 20-year outlook the CAISO described its methodology for allocation electrification demand to the transmission bus level. Due to lack of a location-specific electrification forecast, the CAISO used a simple scaling approach³ to allocate the electrification

¹ See Pg. 3, <http://www.caiso.com/InitiativeDocuments/20-YearTransmissionOutlook-May2022.pdf>

² See Pg. 15, <http://www.caiso.com/InitiativeDocuments/20-YearTransmissionOutlook-May2022.pdf>

³ See Pg 16, <http://www.caiso.com/InitiativeDocuments/20-YearTransmissionOutlook-May2022.pdf>
<http://www.caiso.com/InitiativeDocuments/20-YearTransmissionOutlook-May2022.pdf>

demand to all transmission buses. While this simple approach is reasonable for bulk transmission analysis, for local areas better granularity is required to understand the location-specific resource/ transmission needs. From the information presented in the workshop it remains unclear if an improved transmission busbar-level forecast is available now. PG&E encourages the CEC to continue to improve its locational granularity of demand forecast; doing so will help the CAISO improve its local area transmission and resource need assessment, especially as the proposed 2045 SB 100 Portfolio retires approximately 15 gigawatts (GW) of gas capacity primarily in these areas.

2. The CEC should consider separating the generic clean firm resource into two attribute categories and map capacity accordingly.

Some generic clean firm resource capacity is reasonable given the lack of emerging technologies explicitly modeled in the RESOLVE model used. However, it may be useful to separate the generic clean firm resource capacity added to the portfolio into two attribute categories and map them accordingly.

The first category would be generic clean firm capacity which requires some energy to operate or produce the clean fuel utilized (e.g., pumped storage and thermal utilizing hydrogen). As proposed by the California Public Utilities Commission (CPUC), it is reasonable to assume such capacity would be located near renewable generation and outside of local areas to take advantage of potential renewable curtailment.

The second category of generic clean firm capacity would be associated with technologies which do not need significant grid support for production (e.g., carbon capture and storage). Such firm capacity would not need to be located near renewable generation and could support thermal resources in local areas.

3. The 2045 SB 100 Portfolio should use a load forecast aligned with the 2022 CARB Scoping Plan.

The proposed 2045 SB 100 portfolio assumes California's policy objectives related to thermal retirements and offshore wind are achieved. Similarly, portfolio development should use a load forecast aligned with the 2022 CARB Scoping Plan.

The 2022 CARB Scoping Plan represents California's formal plan to economywide decarbonization at least-cost. Acknowledging CEC's significant efforts in improving its electrification forecast, PG&E notes that the CEC's 2022 Integrated Energy Policy Report (IEPR) planning scenario forecast potentially underestimates the impact of building electrification and electric vehicles (EV). The CEC's 2022 IEPR planning scenario does not include likely policy drivers that have the potential to substantially accelerate the adoption of building electrification technology. In particular, the planning scenario does not include zero-emission space heating and water heating appliance standards, such as those approved by the Bay Area Air Quality Management District in March 2023 or those included in the CARB's 2022 State Implementation Plan (which are yet to be developed). In addition, the planning scenario may underestimate the EV demand as it uses a lower energy/vehicle/day assumption.

Aligning the load forecast used in portfolio development and the 20-year Transmission Outlook with the 2022 CARB Scoping Plan will provide insights into transmission requirements given the

load growth from electrification requisite to achieving California’s economy-wide net-zero objective and California’s formal plan.

4. The CEC, CAISO, and CPUC should consider utilizing a portfolio with advanced load management for a scenario in the 20-year Transmission Outlook.

Advanced load management planning and analysis is required to ensure optimized load and supply, a clear objective identified by the CPUC⁴ and CEC⁵. PG&E agrees that optimized advanced load management is necessary to achieve California’s decarbonization objectives. Studies have consistently shown a diverse set of resources is required to achieve California’s decarbonization goals at least cost.⁶ A portfolio scenario which captures advanced load management should be one scenario in the next CAISO 20-year outlook in order to capture the transmission needs with one potential electric sector decarbonization path.

PG&E appreciates the opportunity to comment on these resource portfolio assumptions. Please reach out to me if you have any questions.

Sincerely,

Josh Harmon
State Agency Relations

⁴ The CPUC recently issued a new Order Instituting Rulemaking to consider efforts to better coordinate Distributed Energy Resource (“DER”) customer programs and a decision recognizing the saliency of vehicle to grid integration, ensuring charge and discharge occurs in ways beneficial to the electric grid. See R.22-11-013, pp. 18-25, Order Instituting Rulemaking [OIR] to Consider Distributed Energy Resource Cost-Effectiveness Issues, Data Use and Access, and Equipment Performance Standards. (available at: <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M499/K158/499158023.PDF>) and D.22-11-040, Decision on Transportation Electrification Policy and Investment, p. 39 (available at: <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M499/K005/499005805.PDF>).

⁵ The CEC established a goal to make up to 7 gigawatts (GW) of electricity available through a suite of efforts to incentivize customers to shift electricity use to other times of day load shifting. See <https://www.energy.ca.gov/news/2023-05/california-adopts-goal-make-more-electricity-available-through-smarter-use>

⁶ See *2021 SB 100 Joint Agency Report: Achieving 100 Percent Clean Electricity in California*, p. 16 (available at: <https://efiling.energy.ca.gov/GetDocument.aspx?tn=237167&DocumentContentId=70349>).