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PG&E Comments RE SB 100 Modeling Inputs and Assumptions Staff Workshop

Additional submitted attachment is included below.

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California Energy Commission
Docket Number 23-SB-100
715 P Street
Sacramento, CA 95814

RE: Senate Bill 100 Modeling Inputs and Assumptions Staff Workshop

Pacific Gas and Electric Company (PG&E) appreciates the opportunity to comment on the California Energy Commission's (CEC) Senate Bill (SB) 100 Modeling Inputs and Assumptions Staff Workshop held on February 16, 2024.

In addition to evaluating reliability, affordability, non-energy benefits, social costs, and land use, PG&E believes the CEC's SB 100 Report should evaluate feasibility uncertainty , include the proportional values of GHG-free generation from emerging technologies in counting towards SB 100 and SB 1020 goals, and examine multiple cost scenarios in completing its SB 100 financial cost/benefit analysis. PG&E provides specific recommendations to address these issues.

In addition to land use, PG&E recommends that the CEC's SB 100 Report also consider feasibility uncertainty resulting from global supply chain constraints, interconnection queue delays, and interest rate volatility.

> PG&E agrees that incorporating land use screening into the CEC's scenarios will provide insights into which technologies or set of technologies are best suited to achieve new capacity additions needed to reach decarbonization goals. However, it should be noted that other market factors outside of land use may impact resource development, such as global supply chain constraints, interconnection queue delays, interest rates, etc. As such, PG&E recommends the CEC either expand the sensitivity analysis to include other potential development constraints or add additional analysis to address what technology or set of technologies are the secondary backbone for decarbonization and the underlying reasons.

PG&E supports the California Public Utilities Commission (CPUC) Energy Division's (ED) inclusion of emerging technologies, such as partial carbon capture and sequestration (CCS) and thermal resources utilizing partially clean fuels, as candidate resources to develop a cost-effective portfolio to achieve SB 100 and SB 1020 goals.

PG&E encourages the CEC to also include the proportional values of GHG-free generation from emerging technologies in counting towards SB 100 and SB 1020 goals. Recognizing that currently these technologies provide less than 100% GHG-free energy, inclusion of only the GHG-free portion of the generation will allow load serving entities to maintain flexibility for least-cost solutions to reach net zero and create the correct market signals for emerging technologies to continue to mature over time. Additionally, PG&E supports the inclusion of emerging technologies at their proportional values of GHG-free generation for the following reasons:

- Emerging technologies need support to commercialize: As noted in the CPUC IRP Zero-Carbon Technology Assessment – Final Report, to support California's carbon neutrality policy goals, zero-carbon firm capacity resources may be needed to facilitate cost-effective electric sector decarbonization.[1] However, emerging technologies such as CCS and thermal resources utilizing clean fuels (e.g., hydrogen) have not yet reached full commercialization. PG&E believes that California should avoid creating hurdles for emerging technologies to reach commercial scale, even if they are not 100% clean. Emerging technologies, such as thermal utilizing green hydrogen and CCS, will take time to mature and may require additional technological advances. Exclusion of these technologies from counting towards clean energy goals will make it more challenging for these resources to scale and contribute to decarbonization.
- There is precedent for resources with onsite emissions to count toward clean energy requirements; resources should be treated consistently based on their attributes: In previous modeling efforts associated with SB 100, resources with some onsite emissions—e.g., solar thermal—were permitted to count towards the SB 100 modeling constraints due to their status as renewable-portfolio-standard-eligible resources. PG&E believes that generation from emerging technologies with some onsite emissions should not be fully counted but should be treated consistently and be evaluated based on their attributes.
- California's official roadmap to carbon neutrality—CARB's 2022 Scoping Plan—should be considered in setting SB 100 and SB 1020 modeling constraints: GHG targets are based on CARB's 2022 Scoping Plan, which represents California's technologically feasible, cost-effective, and equity-oriented plan to achieving net-zero emissions as soon as possible. GHG modeling considers the proportional values of GHG-free generation to meet its constraints. PG&E believes that clean energy requirements should follow a similar approach to avoid a more stringent constraint not aligned with GHG targets from CARB's 2022 Scoping Plan. Excluding the proportional values of GHG-free generation from emerging technologies could put California on a less cost-effective path to decarbonization.

Allowing the proportional values of partial CCS and other emerging technologies to count toward California's clean energy goals will create the correct market signals for emerging technologies and maintain flexibility for least-cost solutions to reach net zero.

PG&E recommends that the CEC examine multiple cost scenarios in completing its SB 100 financial cost/benefit analysis.

PG&E recognizes use of the NREL Annual Technology Baseline resource costs as reasonable for capacity expansion modeling in the SB 100 report. As acknowledged by CPUC Staff in inputs and assumption development, the optimal mix of candidate resources is a function of the relative costs and

[1] See page 10, CPUC IRP Zero-Carbon Technology Assessment -- Final Report

characteristics of the entire resource portfolio.[2] That is, relative costs -not absolute costs- dictate portfolio results. A consistent resource cost dataset with a consistent methodology should be used for estimating resource costs in the capacity expansion modeling. However, in the SB 100 financial cost/benefit analysis, true potential costs need to be understood and reported. In the CPUC's IRP proceeding, some modifications were made to resource costs to better capture current tight market conditions such as supply chain constraints. As the CEC completes its cost analysis it should consider creating cost scenarios with adjustments. Including financial analysis with scenarios that capture current market conditions or their extension, which may not be fully captured in the current modeling resource costs, would assist with such analysis and ensuring the true financial costs/benefits of SB 100 are understood.

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PG&E appreciates the opportunity to comment on the SB 100 Modeling Inputs and Assumptions Staff Workshop and looks forward to continuing to collaborate with the CEC. Please reach out to me if you have any questions.

Sincerely,

Josh Harmon
State Agency Relations

[2] See pg. 52. https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2023-irp-cycle-events-and-materials/inputs-assumptions-2022-2023_final_document_10052023.pdf