

DOCKETED

Docket Number:	23-SB-100
Project Title:	SB 100 Joint Agency Report
TN #:	252198
Document Title:	PG&E Comments on SB 100 Kickoff Workshop
Description:	N/A
Filer:	System
Organization:	PG&E
Submitter Role:	Public
Submission Date:	9/8/2023 3:50:18 PM
Docketed Date:	9/8/2023

Comment Received From: Josh Harmon
Submitted On: 9/8/2023
Docket Number: 23-SB-100

PG&E Comments on SB 100 Kickoff Workshop

Additional submitted attachment is included below.



Josh Harmon
CEC Liaison
State Agency Relations

1415 L Street, Suite 280
Sacramento, CA 95814
(628) 777-4138
Joshua.Harmon2@pge.com

September 8, 2023

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

RE: SB 100 Kickoff Workshop

Pacific Gas and Electric Company (PG&E) appreciates the opportunity to respond to the California Energy Commission's (CEC) joint agency SB 100 Kickoff Workshop held on August 22, 2023.

Pathway Analysis Variables

In addition to evaluating reliability, affordability, non-energy benefits, social costs, and land use, the CEC's SB 100 Report should also evaluate feasibility uncertainty. Below PG&E provides recommendations below for at least two areas which should be evaluated, addressing feasibility uncertainty.

Unprecedented solar and storage capacity additions

Decarbonization analyses from the CEC, California Public Utilities Commission (CPUC), and California Air Resources Board (CARB) have identified solar and storage to make up the vast majority of new capacity additions in any pathway, occurring at unprecedented levels. PG&E agrees incorporating a Core Land Use Scenario into the CEC's pathways will provide some insights into which technologies or set of technologies are best suited as the secondary backbone for decarbonization. However, it should be noted that other market factors outside of land use may impact resource development (e.g., global supply chain constraints, interconnection queue delays, an economy with increasing interest rates and other costs). As such, PG&E recommends the CEC either expand the Core Land Use Scenario to include other potential development constraints or add an additional base assumption which could be altered for pathway analysis. Such analysis should address, directionally, what technology or set of technologies are the secondary backbone for decarbonization and the underlying reason.

Development timelines for Long-Lead Time Resources (e.g., offshore wind, out-of-state wind, geothermal, biomass, long-duration storage)

To date, California has included significant capacity additions in the long-lead time resource categories for planning purposes. For example, the CPUC's Preferred System Plan (PSP) assumes 1,801 MW of out-of-state wind and 195 MW of offshore wind in 2030, increasing to 4,636 MW and 4,707 MW,

respectively, in 2035. PG&E recommends the CEC craft the pathways and/or assumptions to address timeline uncertainty for these technologies. Such pathways and/or assumption development could be used to understand: 1) the magnitude impact on electric sector reliability and decarbonization goals associated with long-lead time resource timeline delays; and 2) place further emphasis on actions which may have already been identified. PG&E further notes that addressing development timelines for long-lead time resources will have salience for planning around the 2030-2035 time horizon.

Evaluating the areas above, among others, will provide California new, important insights into actions which may need to be taken given feasibility uncertainty.

Load Forecast

PG&E recommends that the CEC examine whether the Reference Scenario and Policy-Compliance Scenario are sufficiently different to produce meaningfully different results.

The SB 100 Kickoff Workshop indicates that the Reference Scenario will be based on the 2023 Integrated Energy Policy Report (IEPR) Planning Forecast, and there is an intention to have a separate Policy-Compliance Scenario. However, based on the CEC's August 18 IEPR workshop presentations, PG&E's understanding is that the IEPR 2023 Planning Forecast and Local Reliability Scenario are both already intended to comprise the full impacts of major decarbonization policies, such as Advanced Clean Cars II, Advanced Clean Fleets, and zero-NOx space and water heating appliance standards. Given the scope of the Planning Forecast, PG&E would appreciate further information about what policy impacts the Policy-Compliance scenario would include beyond the Reference Scenario to ensure the Reference Scenario and Policy-Compliant Scenario produce meaningfully different results.

Rather than have multiple scenarios that are substantially similar, it would instead be more valuable if the Long-Term Energy Demand Scenarios span a range of assumptions that reflect the actual uncertainty with all components of load forecasting: economic, demographic, and price; behind-the-meter solar; behind-the-meter storage; transportation electrification; energy efficiency; and fuel substitution. Treating any of these components as constant among scenarios oversimplifies their inherent uncertainty and risks conveying an unfounded sense of certainty.

PG&E recommends the CEC expand the scope of the demand scenarios to include potential new large industrial loads such as off-road transportation, industrial electrification, data centers, cryptocurrency miners, and hydrogen production.

PG&E recognizes that forecasting these new industrial loads is challenging and would likely require substantial investment of resources; however, there is a reasonable likelihood that these loads could have major impacts on a decarbonized energy system in the United States and California. Some of these new industrial loads are flexible and could play a meaningful role in improving the efficiency and reliability of California's energy resources and grid while decarbonizing our energy systems. Additionally, in the specific case of hydrogen production, such a forecast would provide a valuable, more comprehensive insight into how hard-to-electrify industrial customers and hydrogen fuel cell transportation — especially of medium- and heavy-duty vehicles — will affect electricity demands.

Defining “Zero-Emission Resource” for SB 100 and SB 1020

PG&E supports the California Public Utilities Commission's (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. 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 become 100% clean 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 mature 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 cost-effective plan to decarbonization—CARB's 2022 Scoping Plan—should be considered in setting SB 100 and SB 1020 modeling constraints: IRP GHG targets are based on CARB's 2022 Scoping Plan, which represents California's cost-effective 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 the 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.

¹ See page 10, <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2022-irp-cycle-events-and-materials/cpuc-irp-zero-carbon-technology-assessment.pdf>

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.

Reliability

PG&E supports the CEC's focus on reliability. In addition to loss of load expectation (LOLE) modeling, PG&E strongly recommends the CEC collaborate with the California Independent System Operator (CAISO) for SB 100 Reliability Assessments to include analysis of operational reliability and locational need determination.

PG&E supports the CEC's expanded scope of the SB 100 report to include production simulation LOLE analysis for different scenarios. PG&E believes that the use of a production simulation model and an assessment of LOLE over a range of system conditions will provide useful information to support the development of reliable and cost-effective portfolios. As California has not studied reliability beyond 2035, long-term insights related to increasingly stringent GHG targets and system reliability will be particularly salient and insightful. In addition to LOLE analysis, PG&E urges the CEC to complete the following complementary reliability assessments:

- Locational Need Determination and Combustion Retirements: The potential retirement of local resources combined with the anticipated uneven increase in electrification demand (building and transport), will require a coordinated effort between the CAISO, CPUC, and CEC. Previous analyses by the joint agencies have not fully addressed location-specific resource retirements. Given that a significant portion of today's combustion capacity is in local areas, for the CEC's SB 100 combustion retirement pathway to be robust enough to provide actionable insights for planning purposes, an assessment of what resources or transmission and distribution upgrades are needed for local area reliability is needed. Combustion retirements in local areas cannot occur until combustion capacity is replaced and a plan is in place to achieve local area reliability standards. Such findings should also be incorporated in cost estimates for SB 100 pathways.
- Operational Reliability: In assessing reliability for the SB 100 report, PG&E recommends the CEC work with the CAISO to confirm that California can maintain operational reliability under different operating conditions given both the high penetration of intermittent/inverter-based energy resources as well as the potential for significant combustion retirements. The CAISO currently includes an operational reliability assessment as a part of the Transmission Planning Process which could be leveraged. Operational reliability will be critical to understanding the reliability trade-offs between the pathways, including costs.

Wholistically assessing reliability for all pathways will provide insights on the trade-offs between the different pathways, including costs. PG&E supports the CEC's work to put reliability at the forefront of the 2025 SB 100 Report.

Affordability

Scope of Costs

Similar to the IRP's cost framework, PG&E believes the scope of costs in the CEC's SB 100 Report should include the full costs of behind-the-meter technologies. This will ensure consistency with procurement planning for the majority of the state's electricity load and allow fair comparisons of scenarios that rely on resources that do not directly impact utility/load serving entity revenue requirements. Additionally, similar to reliability need determination, PG&E supports analysis which identifies resource capacity, transmission, and distribution need by location as a part of the SB 100 cost framework. The CAISO's 2022 20-Year Transmission Outlook highlighted that electrification may result in uneven increases in loads at individual buses, dependent on the geographic distribution of end uses that are electrified. Some technologies or programs could reduce costs to ratepayers ensuring that transmission and distribution costs are fully utilized. Such assessments should be completed to provide actionable insights and understand how bills for different pathways and customer types could vary. The CEC could also qualitatively describe how pathways may cause differing distributional impacts, if any.

Non-Energy Benefits (NEBs) and Social Costs

Evaluation of Non-Energy Benefits and social costs should be consistent across the various venues in which they are considered.

PG&E appreciates the CEC continuing to analyze the full suite of potential costs and benefits of decarbonizing California's electric supply as part of the SB 100 report. PG&E has commented extensively on this topic in past iterations of the SB 100 report, and those comments remain relevant.² To reiterate some of those points, the joint agencies should strive to use the same metrics, assumptions, and processes for evaluating NEBs and social costs across the various venues *"...to provide meaningful comparative review of the analytics. Generally, key modeling assumptions should be aligned across planning venues for consistency. There may be circumstances in which differing study assumptions provide additional insights. However, for those insights to be identified, differences in inputs and assumptions need to be easily understood and comparable. Consensus on the assumption differences driving insight is also necessary to ensure that various analyses can be utilized across proceedings without misinterpretation, minimizing the need for duplicative work."*³

For example, the CPUC has been considering if/how NEBs and other societal costs should be included in multiple proceedings.⁴ In particular, a joint analysis of incorporating societal benefits in supply side and demand side procurement indicated that in some scenarios incorporating societal benefits would lead to increased cost and rates if any increased incentives or program spending justified by an SCT are paid through via electric rates.⁵ PG&E noted in comments that great care should be taken when interpreting or applying societal costs and benefits in the California resource planning context that already embeds many of these societal goals in its existing decarbonization pathways through legislation, CARB scoping plans and CPUC Integrated Resource Planning and Distributed Energy Resource (DER) planning.⁶ This

² PG&E Comments on SB 100 Workshop on NEBs, Social Costs, and Reliability, November 12, 2021.

³ PG&E Comments on SB 100 Workshop on NEBs, Social Costs, and Reliability, November 12, 2021, pp. 5-6.

⁴ See, e.g., CPUC R.22-11-013, the Order Instituting Rulemaking To Consider Distributed Energy Resource Program Cost-Effectiveness Issues, Data Use And Access, And Equipment Performance Standards

⁵ See CPUC Societal Cost Test Impact Evaluation, January 2022, at p. 29. Accessed through the CPUC IRP webpage: <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-power-procurement/long-term-procurement-planning/2019-20-irp-events-and-materials>

⁶ Pacific Gas And Electric Company's (U 39 E) Response To The February 13, 2023, Administrative Law Judge's Ruling Seeking Comments From Parties On The Societal Cost Test And Air Quality Research Results, April 28, 2023, pp. 4-7

analysis was informed by a lengthy proceeding record that narrowed the scope of benefits considered to those tied to electric system generation planning. The joint agency SB 100 analysis should leverage these existing analyses to ensure consistent treatment and application of societal values and non-energy benefits.

Moreover, as PG&E has previously commented, the analysis should be constrained to NEBs that are measurable and produce quantifiable results for all California rate payers. *"To comply with the Public Utilities Code Section 454.53(b)(2) requiring that the agencies will take actions to 'prevent unreasonable impacts to electricity, gas, and water customer rates and bills[...], taking into full consideration the economic and environmental costs and benefits of renewable energy and zero-carbon resources', emphasis should be placed on benefits that provide value to all ratepayers. Ratepayers' funds, if at all used, should be used efficiently."*⁷

Finally, as PG&E has previously commented, *"[f]or SB 100 benefit-cost analysis to be useful, it should focus on analyzing benefits that have the most direct relationship to procurement of renewable energy, such as the environmental benefits of reducing greenhouse gas (GHG) emissions and criteria air pollutants through reduced use of fossil fuel resources. These benefits can be relatively straightforward to calculate and can be useful in comparing different renewable energy candidate resources, which have different cost and production profiles, as is currently done in the CPUC's IRP analysis."*⁸

--

PG&E appreciates the opportunity to comment on the SB 100 Kickoff Workshop and looks forward to continuing to collaborate with the CEC on the 2025 report. Please reach out to me if you have any questions.

Sincerely,

Josh Harmon
State Agency Relations

⁷ PG&E Comments on SB 100 Workshop on NEBs, Social Costs, and Reliability, November 12, 2021, p. 4.

⁸ PG&E Comments on SB 100 Workshop on NEBs, Social Costs, and Reliability, November 12, 2021, p. 4.