

DOCKETED

Docket Number:	23-SB-100
Project Title:	SB 100 Joint Agency Report
TN #:	269246
Document Title:	PG&E Comments RE SB 100 Joint Agency Report Draft Results Workshop
Description:	N/A
Filer:	System
Organization:	Josh Harmon
Submitter Role:	Public
Submission Date:	3/18/2026 5:24:57 PM
Docketed Date:	3/19/2026

*Comment Received From: Josh Harmon
Submitted On: 3/18/2026
Docket Number: 23-SB-100*

**PG&E Comments RE SB 100 Joint Agency Report Draft Results
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

18 March 2026

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

RE: Joint Agency Workshop on 2025 SB 100 Joint Agency Report Draft Results

Pacific Gas and Electric Company (PG&E) appreciates the opportunity to comment on the SB 100 Report Draft Results workshop on February 19, 2026, hosted jointly by the California Energy Commission (CEC), California Public Utilities Commission (CPUC), and California Air Resources Board (CARB) (hereafter “joint agencies”).

PG&E applauds the joint agencies for their work in modeling pathways to achieve SB 100 targets. This work is essential to understanding the costs, benefits, and tradeoffs of resource alternatives needed to meet California’s ambitious climate goals in the electric sector. PG&E acknowledges the complexity of this modeling effort and the need to make simplifying assumptions to tractably model the tradeoffs between different alternatives. Building upon this effort and testing sensitivities is the best way to provide consistent insight and guidance to policy makers, utilities, load serving entities (LSE), and the industry on least cost resource mixes for the state. PG&E respectfully provides the following suggestions for potential incorporation into the final SB 100 report expected in early April, as well as future CEC reports that may leverage this modeling framework:

1. The CEC should consider extended operations of Diablo Canyon Power Plant (DCPP) in long-term resource planning modeling – at a minimum as part of an alternatives analysis.
2. The CEC should consider the role of enhanced geothermal systems in addition to conventional geothermal systems in SB 100 modeling.
3. PG&E supports inclusion of carbon capture and sequestration (CCS) as a candidate resource in SB 100 modeling, and the CEC should refine inputs and dispatch assumptions for future resource planning modeling efforts.
4. PG&E requests that the CEC provide more information on the dispatch of demand side resources in the final SB 100 report.

PG&E provides more details on these recommendations below.

The CEC should consider extended operations of DCPP in long-term resource planning modeling.

PG&E agrees with one of the CEC’s primary modeling conclusions—meeting the requirements of SB 100 and other state climate goals, “demonstrate(s) a need for large amounts of renewable and zero carbon resources and *in particular*, clean-firm resources by 2045.”¹ DCPD is a clean-firm resource operating today. Given uncertainties in the availability, cost, and timing of emerging clean-firm alternatives, as well as the unprecedented build rate of renewables and storage resources necessary to meet mid-term reliability and GHG-free requirements, planning exercises should examine system outcomes with DCPD in extended operations. In its recent modeling of resource plans for the Transmission Planning Process (TPP), the CPUC modeled a sensitivity where DCPD operates until 2045, assuming the 20-year license request is granted by the Nuclear Regulatory Commission (NRC).² This sensitivity portfolio presented two scenarios that would result in substantial annual savings. The CPUC’s Base Case assessment estimates a net decrease in costs of \$2.7 billion to \$3.7 billion by displacing the need for solar and battery resources in the 2030s, as well as AB 1373 procurement volumes of offshore wind and multi-day storage forced into the Base Case. The Least Cost assessment resulted in a net decrease in costs of \$600 million to \$1.2 billion each year, primarily by offsetting the need to build 8-12 GW of renewables and storage resources.³

PG&E acknowledges that SB 846 constrains the inclusion of DCPD’s energy, capacity, or attributes in actually meeting SB 100 goals.⁴ However, SB 846 does not limit the ability of the joint agencies to model the impacts of DCPD. Indeed, Section 454.53(b)(5) prohibits only considering DCPD “in *achieving* the policy” of 100 percent renewable and zero carbon energy.⁵ SB 846 did not preclude the CEC from modeling DCPD entirely, however, as that provision also requires the joint agencies to consider “[a]lternative scenarios in which [SB 100] can be achieved and the estimated costs and benefits of each scenario.”⁶ These alternative scenarios presumably include DCPD’s extended operations.

Put simply, there is a difference between using modeling to inform options and relying on modeling to make procurement or system decisions. SB 846 prohibited the latter, but not the former. Planning efforts led by the joint agencies are designed to inform understanding of system needs, risks, and tradeoffs, rather than to authorize procurement or inform transmission build in the TPP. Including scenarios or sensitivities that reflect DCPD’s extended operations can improve transparency around the scale of resources, infrastructure, and system costs required under alternative futures, especially considering unprecedented clean energy build rates and ongoing development, interconnection, permitting, and affordability challenges the state is facing.

PG&E requests that the CEC consider the role of enhanced geothermal systems in addition to conventional geothermal systems in SB 100 modeling due to their ability to scale and deliver cost-competitive zero carbon firm energy to the grid.

¹ See 2025 Senate Bill (SB) 100: Draft Results Workshop presentation, 2/18/2026, at p. 47.

<https://efiling.energy.ca.gov/GetDocument.aspx?tn=268689&DocumentContentId=105843>

² See R.25-06-019 Integrated Resource Planning 26-27 Transmission Planning Process RESOLVE Modeling Results, 9/30/2025, at p. 94. https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2024-2026-irp-cycle-events-and-materials/assumptions-for-the-2026-2027-tpp/ruling_26-27_tpp_results.pdf

³ *Ibid*, at p. 107 and 110

⁴ Pub. Util. Code Section 454.53(b)(5).

⁵ *Id.*, emphasis added.

⁶ Pub. Util. Code Section 913.11(b)(5).

PG&E notes that the SB 100 modeling only considers conventional geothermal energy, which tends to be smaller scale, less flexible, and has limited geographic opportunity compared to enhanced geothermal systems (EGS). Limiting the geothermal potential in the model to conventional greatly understates the value of geothermal to the 2045 grid. PG&E recommends adding EGS to the modeling as it is an increasingly viable option for new, clean firm power on the grid.

Unlike conventional geothermal, EGS can function as a large, scalable, dispatchable, zero carbon firm resource with far greater geographic flexibility. Because EGS accesses heat rather than naturally occurring hydrothermal reservoirs, and does not depend on preexisting permeability, its potential is not constrained to a small number of known geothermal fields. This fundamentally changes the resource picture: EGS can be developed across much broader areas of California and the western United States, providing firm capacity and operational flexibility comparable to conventional thermal resources while remaining fully zero carbon.

As a result, EGS offers orders of magnitude greater scale potential than conventional geothermal. Advances in drilling, reservoir stimulation, and subsurface characterization—many adapted from the oil and gas sector—have significantly expanded the amount of economically accessible geothermal heat. The U.S. Department of Energy estimates more than 300 GW of potential EGS resources, concentrated primarily in the western U.S., including California.⁷ At the same time, learning effects and economies of scale are driving rapid cost reductions: DOE analyses and recent modeling indicate EGS costs declining substantially over time, with some projections reaching the ~\$70/MWh range by the mid-2030s,⁸ positioning EGS as a competitive source of clean firm power in deeply decarbonized systems.

Given California's significant geothermal energy potential, technological improvements in geothermal energy systems, declining technology cost curves, and California's limited toolkit for clean, firm generation, SB 100 modeling should reflect the potential for geothermal to be a source of firm generation for California by 2045. PG&E also recommends the CEC coordinate with CPUC staff on inputs and assumptions developed for the most recent 2024-2026 IRP cycle, including costs, resource potentials, transmission availability, commercial interest, realistic permitting timelines, and sensitivities related to EGS resources.

PG&E supports inclusion of CCS as a candidate resource in SB 100 modeling, and the CEC should refine inputs and assumptions for future resource planning modeling efforts.

CCS is appropriately included as a candidate resource in SB 100 modeling to identify least-cost pathways that maintain system reliability while achieving deep decarbonization. Including CCS as a candidate resource enables the modeling to capture the value of dispatchable, very low-emission generation that can operate during periods of low renewable output, extreme weather, or extended system stress. This approach is consistent with the conclusion that California will need additional clean, firm resources to reliably meet SB 100 goals, particularly as electrification increases demand and places greater pressure on the power system to perform under a wider range of conditions.

⁷ See DOE report (Pathways to Commercial Liftoff: Next-Generation Geothermal Power), at p. 2. <https://cdn.catf.us/wp-content/uploads/2025/06/09154348/doe-liftoff-nextgen-geothermal.pdf>

⁸ See 2024 DOE Annual Technology Baseline, LCOE for NF EGS Binary, advanced scenario <https://atb.nrel.gov/electricity/2024b/geothermal>

To improve transparency and interpretation of results, PG&E requests that the final SB 100 report includes a clear description of the model's CCS plant operating assumptions. Explicitly describing these operating assumptions will help stakeholders better understand the role CCS plays in the modeled portfolios and how they would contribute to a reliable SB 100 compliant grid. Public CCS cost models published by entities such as NETL⁹ typically assume 85% capacity factor for CCS-enabled generation, i.e., constant full-capacity operation minus maintenance periods; downward deviation would influence 45Q tax credit economics at least for the first twelve years of operation, assuming the plant is 45Q eligible and construction commences before 2033. However, much of the value of natural gas plants today is their dispatchability; it will be critical to understand how natural gas plants with CCS can support a reliable and flexible grid from 2035 and onward as SB 1020 goes into effect.

PG&E requests the CEC provide more information on the dispatch of demand side resources in the final report.

PG&E requests that the CEC provide additional details in the final report on how demand side resources are dispatched within the production cost modeling. It would be helpful for stakeholders to understand which demand side candidate resources are dispatched by the model, the conditions under which dispatch occurs, (e.g., system load levels, weather conditions, or the assumed bid or marginal dispatch price of the resource), and how these factors differ across resource types. PG&E also requests that the CEC clarify the time periods of the forecast in which demand side resources are relied upon, including whether dispatch occurs primarily in the near-term, mid-term, long-term, or across all modeled years. Providing this information would improve transparency into the operational role demand side resources play in the modeled portfolios and support more informed interpretation of the SB 100 results.

PG&E appreciates the opportunity to comment on this 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

⁹ See NETL report (Cost and Performance of Retrofitting NGCC Units for Carbon Capture – Revision 3)
https://www.netl.doe.gov/projects/files/CostandPerformanceofRetrofittingNGCCUnitsforCarbonCaptureRevision3_031723.pdf