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*Comment Received From: Joshua Harmon*  
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**PG&E Comments RE SB 100 Demand Scenarios Webinar**

*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](mailto:Joshua.Harmon2@pge.com)

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

**RE: Senate Bill 100 Demand Scenarios Staff Webinar**

Pacific Gas and Electric Company (PG&E) appreciates the opportunity to comment on the California Energy Commission's (CEC) Senate Bill 100 Demand Scenarios Staff Webinar held on August 7, 2024. PG&E staff found the webinar very informative and we look forward to collaborating with the CEC to better understand SB 100 demand scenario development, especially the demand flexibility modeling.

Overall, PG&E agrees with and appreciates the sophisticated, thoughtful approach that the CEC is taking to model demand flexibility. We will be very interested to review the results of the production cost model – specifically how much demand flexibility is ultimately chosen by the model – when those results are ready. In this letter we outline specific recommendations for CEC staff related to the D-Flex tool and labeling of modeling outputs, the limits of using a production cost model to model behind-the-meter resources, and hydrogen electrolysis' impact on electricity demand.

**The CEC should make the D-Flex tool publicly available so that all stakeholders can review the inputs, assumptions, and calculations that are driving SB 100 demand scenarios and statewide load flexibility goals. Additionally, the CEC should clearly label future demand flexibility outputs of the D-Flex tool and SB 100 demand scenarios.**

As noted above, PG&E appreciates the CEC's detailed analysis and approach to estimate demand flexibility potential for the SB 100 report. PG&E agrees with the high-level methodological approach of first estimating demand flexibility technical potential and then simulating its operations in a production cost model (PCM) to determine economic potential. However, PG&E would appreciate more transparency as to how that potential is calculated. This is especially important given the tool was used to set load flexibility targets pursuant to SB 846<sup>1</sup> and will be used to establish feasible pathways to meeting 2045 net zero goals per SB 100. Because the CEC's demand flexibility targets in the SB 846 report led to policy recommendations that implicate IOU and POU programs and procurement<sup>2</sup>, these stakeholders should have the opportunity to test the model parameters and use data from their own

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<sup>1</sup> This fact was called out in slide 4 of the Demand Flexibility Resource Potential presentation. The SB 846 Load-Shift Goal Report does mention briefly in acknowledgements that it engaged Guidehouse for technical support in developing "the demand response tool", though it does not provide references or links to the tool's location or documentation.

<sup>2</sup> SB 846 Load-Shift Goal Report at pp. 28-32

programs to determine the cost and feasibility of demand flexibility potential. PG&E also requests that future demand flexibility modeling outputs are clearly labeled as either technical potential or economic potential, as we believe both to be important considerations in the development of programs to potentially accelerate load flexibility.

Of particular interest is the methodology being used to ensure that demand flexibility potential is not double counted with load impacts from existing load modifiers in the IEPR demand forecast. PG&E appreciates the CEC's discussion of this issue during the August 7 webinar and the illustrative slides that describe the approach to mitigate double counting issues. Providing the datasets and model to stakeholders will give more certainty to program providers, both when developing new program offerings and when tracking progress to meet demand flexibility targets. In addition, PG&E requests the SB 100 report provide an accounting of hourly load impacts due to embedded load modifiers compared to hourly load impacts due to selected demand flexibility resources.

Another specific point of interest is the cost estimate assumptions for demand flexibility options. PG&E appreciates that the CEC walked through the process of creating these cost estimates during the webinar and clearly called out the source of these cost estimates. However, PG&E was unable to find any electric vehicle mentions in the LBNL Phase 4 study of demand response potential, making it unclear how cost assumptions were made for EV charging and V2X. Publicly sharing these cost estimates would promote transparency and facilitate assumption development for PG&E as we consider similar modeling.

**The CEC should note that the production cost model is not designed to consider the distribution system in its selection of load flexibility resources. As such, the CEC should collaborate with stakeholders to consider methods to account for distribution system impacts in its long-term planning scenarios.**

Unfortunately, production cost modeling has limited ability to model distribution system impacts. The resources the CEC is proposing as demand flexibility candidates are behind-the-meter and therefore distribution connected, yet the PCM model will optimize dispatch and recovery/recharge of these resources for the bulk system.

In most cases, it may be that local distribution loading will align with the bulk system; however, there will be certain cases of misalignment. For example, there may be limits on the ability of certain DERs or DER aggregations to discharge or recharge their full technical potential in a local pocket of the grid, even if the economic dispatch at the bulk system level implies this would be most beneficial. Given the breadth, scope, and complexity of SB 100 modeling, it is understandable why this issue is not dealt with directly via modeling assumptions, though it should be called out as a clear gap to explore with stakeholders, including distribution planners familiar with power flow modeling.

**The CEC should consider adding electricity demand from hydrogen electrolysis to its IEPR demand forecast.**

PG&E appreciates that hydrogen electrolysis' impact on electricity demand is being considered for the SB 100 analysis in a sophisticated manner. As the CEC presented during the webinar, this impact could be significant: seemingly a ~10% increase in 2050 electricity demand even in the lower hydrogen use

scenario outlined in the SB 100 webinar, and a ~15% increase in 2050 electricity demand in the high hydrogen use scenario<sup>3</sup>.

In the CEC's IEPR Commissioner Workshop on Electricity Load Growth Areas<sup>4</sup>, PG&E shared its forecast of electricity impact from hydrogen fuel cell electric vehicles (FCEVs), representing a ~5% increase in 2043 electricity demand considering relatively modest impacts of hydrogen FCEVs on electricity demand. Additionally, both PG&E's forecast and the CEC's scenarios shown during the webinar only include hydrogen electrolysis impacts from hydrogen fuel cell electric vehicles, which appears to ignore impacts from other hydrogen end uses (e.g., industrial). This is an area of potential improvement on which PG&E would be happy to collaborate with the CEC. Echoing previous comments PG&E has made on IEPR workshops and publications, PG&E recommends that the CEC consider the electricity impact of hydrogen electrolysis in its IEPR demand forecasting.

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PG&E appreciates this opportunity to respond to the SB 100 Demand Scenarios Webinar 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

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<sup>3</sup> Slide 9 of the CEC Demand Scenarios Project presentation

<sup>4</sup> Slide 6 of PG&E's Forecasting Electric System Impacts of New Large Loads: Challenges and Opportunities presentation