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PG&E Comments on SB 100 Joint Agency Draft Results Workshop

Additional submitted attachment is included below.



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California Energy Commission
Docket Unit, MS-4
Re: Docket No. 19-SB-100
1516 Ninth Street
Sacramento, California 95814-5512

RE: Pacific Gas and Electric Comments on SB 100 Joint Agency Draft Results Workshop

Pacific Gas and Electric Company (PG&E) appreciates the opportunity to submit these comments on the California Energy Commission's (CEC) Draft Results Workshop as part of the public process for developing the Joint Agency Report required by Senate Bill 100 (SB 100). PG&E supports California's clean energy goals and is committed to partnering with the CEC, the California Public Utilities Commission (CPUC), the California Air Resources Board (CARB), and other energy agencies to chart a cost-effective and sustainable path to meeting 100 percent of the state's retail electricity sales with renewable and zero-carbon resources by 2045. The Joint Agency Report required by SB 100 is a critical step in working to achieve SB 100's goal, and PG&E recognizes the challenges in this undertaking.

PG&E offers the following comments:

I. Recommendations on Modeling Scenarios

PG&E has several recommendations regarding the scenarios under consideration for analysis including comments on reliability, missing elements needed to assess zero-carbon emission technologies, and the ability to measure greenhouse gas (GHG) emission numbers in the draft report.

A. Reliability

PG&E previously provided comments on how to assess reliability and is reiterating those points here for consistency. Given the August 2020 grid events, PG&E strongly recommends that the

CEC's RESOLVE modeling work be supplemented by a more robust reliability assessment to surface reliability issues that may have been overlooked by a capacity expansion tool.

At a minimum, PG&E recommends that the CEC study leverage the reliability modeling improvements made by the CPUC in its 2019/2020 integrated resources plan (IRP) cycle (e.g., validate the RESOLVE portfolio under a production cost modeling tool such as SERVM). A SERVM type of analysis will provide a better estimate of the amount and the type of resources required for resource adequacy.

Additionally, to ensure that the total cost captures any additional costs associated with operational reliability needs, it is crucial that the process include a reliability assessment by the California Independent System Operator (CAISO). This CAISO assessment is critical to confirm that the RESOLVE resources portfolio adequately addresses operational reliability needs and that any incremental costs associated with the infrastructure upgrades needed to integrate additional zero-carbon resources is a part of the cost analysis.

B. Specific Technology Concerns

The modeling seems to exclude drop-in renewable fuels (hydrogen and biomethane) as these technologies are not yet commercially available in California and have inadequate cost and supply data for modeling. PG&E disagrees. Drop-in biomethane is a Renewable Portfolio Standard (RPS) eligible technology and is commercially available in California via common carrier pipeline. At a minimum, drop-in biomethane should be included. PG&E believes drop-in renewable hydrogen, while not as far along as biomethane, should also be included. We note that E3 has developed cost and supply estimates of both biomethane and hydrogen for prior California studies¹ that could be leveraged here for input assumptions.

Additionally, the modeling excludes small hydroelectric generation from 2020 modeling. PG&E encourages the CEC to include existing small hydro in 2020 modeling. Additionally, PG&E suggests clarifying that this exclusion applies only to new small hydro, and not to existing small hydro. PG&E notes that its latest RPS compliance report projects that existing small hydro will contribute a total of 5,336 GWh or approximately 8.5% of PG&E's third RPS compliance period (2017-2020) RPS deliveries. Excluding existing small hydro, a long-standing renewable resource in PG&E's portfolio, would undercount PG&E's available RPS supply.

C. GHG emission estimates

Since the RESOLVE model includes a simplified model of the CAISO system and resources, the GHG emission estimates should be validated using a more detailed model (e.g., SERVM or PLEXOS).

¹ See for example Aas et al (2020). The Challenge of Retail Gas in California's Low-Carbon Future.

II. Recommendations on Costs and Affordability

Notably missing from the draft results are costs reflective of *each* modeling scenario for the SB 100 report (e.g., the firm zero-carbon and accelerated timeline scenarios). These costs are *essential* for the proper evaluation and comparison of the scenarios and to shed light on the economic implications of certain approaches. Furthermore, costs associated with each modeling scenario are required by SB 100. Specifically, Public Utilities Code (PUC) Section 454.53 requires the agencies to address costs to ratepayers and the costs and benefits of each scenario.

PG&E previously provided comments considering affordability. We reiterate those today. It is critical for the CEC to include behind-the-meter (BTM) photovoltaic (PV) sensitivities, as the CPUC's IRP process has shown that different levels of BTM PV can lead to vastly different total cost figures.²

In terms of resource costs, the current SB 100 model, like the 2020 IRP model before it, assumes that reductions in capital costs for all renewable and storage resources will slow from 2022 through 2030, and cease thereafter. All other recent forecasts, including the presentation from Bloomberg NEF made during the workshop, indicate declining costs for renewable technologies and energy storage at non-trivial rates at least through 2030.³ Using excessively-high and outdated capital cost forecasts in the SB 100 study not only impacts the overall cost impact estimates, it also influences the chosen resources, and could feed back into the IRP and IDER proceedings, creating unlevel playing fields between front-of-the-meter (FTM) and BTM resources and between technologies.

The current structure of the NEM program is inequitable—shifting significant costs from customers adopting renewable distributed generation to customers who cannot afford or are otherwise without these resources. For the year 2019 alone, the cost shift from NEM program participants to non-participants was approximately \$1.3 billion in PG&E's service area. This compensation for excess distributed generation provided to the grid is significantly more expensive than the cost of utility-scale solar, and NEM allows customers to avoid grid costs that are critical to integrating increasingly high levels of renewable energy needed to meet the SB 100 goals.

² For instance, in the 2017 IRP modeling, the high BTM PV scenarios resulted in over \$1 billion higher total annual costs than the low BTM PV scenarios to achieve the state's GHG reduction goals in 2030 and had a significant impact on investment levels for other resources like utility-scale solar. Similarly, PG&E's analysis of the CPUC's most recent Reference System Plan modeling shows that additional distributed energy resources would result in additional costs to meet California's GHG goals of \$500 million to \$2 billion per year through 2030—or cumulatively \$10+ billion more than needed through 2030. These estimates are based on the RESOLVE model results guiding the CPUC's November 6, 2019 Proposed Reference System Plan for the 2019-2020 IRP.

³ The most recent public forecast is NREL's Annual Technology Baseline, which forecasts annual cost declines of 4-6% through 2030, available at <https://atb.nrel.gov/electricity/2020/data.php>.

PG&E further notes that the CPUC has made affordability a priority in several recent proceedings. To the extent that any potential recommendations from this SB 100 study could affect customers that are less equipped to bear those costs or benefit from programs and new technologies, this scope of work threatens to make electricity substantially less affordable. Apart from its intrinsic harm to the disadvantaged, this affordability threat poses obstacles to political acceptance and customer adoption. PG&E believes we must find ways to cost-effectively achieve California’s broader economy-wide long-term GHG reduction objectives. Long-term analyses should include not only estimates of total implementation cost, but just as importantly, regular and transparent evaluations of who bears that cost. Such evaluations should include (at reasonable intervals) calculation of SB 100 effects on standard CPUC affordability metrics after they go into effect.

III. Recommendations on Definitions

PG&E supports the joint agencies’ focus on “RPS+” scenarios, which we believe most closely aligns with the language in SB 100 on eligible technologies to include all “zero-carbon” resources.⁴ Additionally, PG&E supports the agencies’ interpretation of the loads subject to SB 100, which include “retail sales and other state agency loads only and excludes wholesale, or nonretail, sales, storage losses, and transmission and distribution line losses.”⁵ We agree that the statutory language is clear that the SB 100 policy applies to all retail sales. In addition, we note that any remaining GHG emissions in the electric sector can be studied in CARB’s next Scoping Plan, due by 2022, which will analyze economy-wide carbon neutrality by 2045.

Thank you for the opportunity to comment on the SB 100 report development process. PG&E looks forward to continued engagement in the development of this report. Please feel free to contact me if you have any questions or concerns.

Sincerely,

Licha Lopez
State Agency Relations Rep.

⁴ This also aligns with the intent of SB 100, as reflected in Senator de León’s letter to the Daily Journal, which states “the zero-carbon portion of SB 100 is intended to be more inclusive than the RPS in terms of the types of resources that are eligible. Specifically, that portion is intended to be inclusive of all zero-carbon resources, including RPS eligible resources and existing zero-carbon resources serving California customers. That portion of the bill is technology neutral – if an energy generation resource does not produce greenhouse gas emissions, it would be eligible to meet the 100% renewable and zero-carbon target.” Available at: <https://leginfo.legislature.ca.gov/faces/pubSenDailyJrn2.xhtml?type=doc&sessionyear=20172018&pagenum=6071&sessionnum=0>.

⁵ SB 100 Joint Agency Report: Modeling Framework and Scenarios Overview, p.4.