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SDGE SB 100 Modeling Workshop Comment letter

Additional submitted attachment is included below.

California Energy Commission
March 9, 2020

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March 9, 2020

California Energy Commission
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RE: San Diego Gas & Electric Company Comments on the Senate Bill 100 Modeling Inputs & Assumptions Workshop, Docket No. 19-SB-100

Dear Commissioners Hochschild and McAllister:

San Diego Gas & Electric Company ("SDG&E") thanks the California Energy Commission ("CEC"), California Public Utilities Commission ("CPUC"), and California Air Resources Board ("CARB") (together "Agencies") for hosting the Senate Bill ("SB") 100 Modeling Inputs & Assumptions Workshop to inform development of the Senate Bill 100 Joint Agency Report, on February 24, 2020.

SDG&E proposes that the modeling, definition, report and implementation of SB 100 be based on the following set of guiding principles:

- Prioritize affordability, reliability, and technology inclusivity – a balanced and responsible approach to implementing this ambitious, statewide initiative is critical to its success.
- Take an economy-wide view – achieving California's ambitious decarbonization goals will require the electrification of other economic sectors (e.g. transportation), the success of which will largely depend on the sustainable and cost-effective implementation of SB 100.
- Reexamine the existing electric rate structure including volumetric rates – current customer cross-subsidies and cost-shifts are becoming increasingly untenable[1] and will be unsustainable over time.
- Promote resource diversity and account for regional differences in resource availability – establishing technology mandates, carveouts and/or imposing other artificial portfolio constraints reduce competition and increase costs.
- Remain flexible – in order to capture benefits resulting from innovations in the years ahead, SB 100 must be implemented in a way that allows new innovations to become key components of statewide solutions.

[1] CPUC Actions to Limit Utility Cost and Rate Increases: Public Utilities Code Section 913.1 Annual Report to the Governor and Legislature, May 2019.

- Adopt a measured approach to procurement that allows time for technology to develop – rushing to procure resources, in SDG&E's view, would unduly benefit developers and harm customers.
- Ensure the SB 100 framework supports customer choice and ensures fair and equal treatment of all Load Serving Entities ("LSEs") – full participation by all LSEs is needed to ensure SB 100 is implemented in a successful and sustainable fashion.
- Prioritize the creation of a statewide central procurement entity ("CPE") that is responsible for residual procurement[2] – this will act as a backstop to safeguard the goals of SB 100.

SDG&E's comments below focus mainly on reliability and affordability issues as they pertain to SB 100 modeling efforts.

Comments

Modeling should provide as much information as possible about clean technologies that can provide the flexibility, dispatchability and duration currently supplied by gas fired generation.

SDG&E agrees with concerns expressed by California Independent System Operator Corporation ("CAISO") regarding modeling that tends to rely heavily on solar and battery storage. Recent studies[3] that consider the types of resources the state needs to achieve climate goals tend to rely heavily on solar and storage as relatively low-cost clean energy solutions. Heavy reliance on these types of intermittent resources does not address two key reliability issues. First, seasonal variability of renewable generation highlights the need for flexible, dispatchable resources that are available year round. Second, multiple-day renewable energy droughts create a need for long duration storage. Today's grid relies heavily on gas fired generation to solve these problems. In order to achieve SB 100 goals, California needs clean resources that provide the same kind of seasonal and multi-day dispatchability gas fired generation provides.

Current modeling could be improved to provide important additional information about these two reliability concerns. First, the model should assess the value of resources over consecutive days, instead of only modeling a subset of non-consecutive days throughout the year. Modeling consecutive days would allow results to show the relative value of resources that can provide the type of long duration storage that is needed to maintain reliability over multiple low renewable energy days. As the CAISO pointed out at the February 24th workshop, "if storage is used to provide flexibility, how will it be charged if there are multiple days of cloud coverage?"[4] The modeling should provide as much information as possible about potential solutions to this problem.

Second, SDG&E recommends that SB 100 modeling should provide as much information as possible about the various types of clean technologies that purport to provide the flexibility, dispatchability and duration currently provided by gas fired generation. The information provided at the February 24th workshop suggests that the only clean technologies, other than the

[2] Residual procurement means that procurement is limited in scope to the collective deficiencies that result only after all LSEs have made their portfolio decisions.
[3] For example, the CPUC's 2045 Framing Study and the CEC's Deep Decarbonization study.
[4] CAISO presentation "Planning for Reliability and Resource Adequacy Under SB 100" dated February 24th, 2020, slide 4.

solar + storage combination, available to provide these attributes in the model are gas fired generation paired with carbon capture/sequestration and hydrogen fuel cells.[5] SDG&E recommends that the candidate resources be expanded to include gas plants fueled by renewable natural gas, hydrogen or other synthetic fuels. In addition, in order to obtain as much information as possible about the relative impacts of relying on these different resource types, they should be tested through sensitivities. The current proposed scenarios focus on testing the impact of various combinations of offshore wind and out of state wind. The results of model runs for these scenarios will be helpful to show the costs/value of resource diversity. Additional sensitivities should be run to provide similar information about technologies that can provide an alternative to the flexibility, dispatchability and long duration attributes currently supplied by gas fired generation.

The report should acknowledge the limitations of the modeling exercise.

SDG&E agrees with comments from CAISO and The Utility Reform Network ("TURN") at the February 24th workshop, which SDG&E understood as cautioning the joint agencies against over-reliance on the results of E3's modeling exercise. The analysis will provide useful directional information about different potential scenarios, but it is not a forecast. E3's presentation emphasized this point by stating that PATHWAYS scenarios evaluate uncertain and complex futures based on a back-casting approach that allows hypothesis testing predicated on meeting emissions targets, and builds reference scenarios aligned with data sources like the Integrated Energy Policy Report and expert judgment of current trends. SDG&E notes that the scenario modeling process has other limitations, including an inability to include assumptions about how consumer economics might impact usage behavior, and an assumption that any legislative or regulatory action necessary to achieve the results will in fact materialize. SDG&E recommends that the report acknowledge that while the modeling exercise may provide helpful directional information, it should not be viewed as a predictor of the actual volumes and types of resources that should be procured.

The report should acknowledge that load forecast assumptions may be conservative.

E3's February 24th presentation indicates that SB 100 modeling will rely on loads used in E3's 2018 Deep Decarbonization study. Since the publication of that study, SDG&E notes an apparent shift in momentum toward a push for electrification. For example, the cities of Berkeley, San Jose, Mountain View, Santa Rosa, and Brisbane, California, have all enacted bans on natural gas equipment in new buildings. As proposed at the workshop by Rajinder Sahota of the California Air Resources Board, the final joint agency report should acknowledge that the load forecast assumptions may be outdated.

The Modeling and final report should include affordability metrics.

Affordability must be a key driver in determining how the state will reach it's zero-carbon goals. Affordability metrics will need to be developed in order to measure the impacts of SB100 on customer rates and bills. PUC 454.53 (b) (2) states that the goal should be: Prevent unreasonable impacts to electricity, gas, and water customer rates and bills resulting from

[5] CEC presentation "SB 100 Analytical Approach" dated February 24, 2020, slide 32.

implementation of this section, taking into full consideration the economic and environmental costs and benefits of renewable energy and zero-carbon resources.[6]

Unfortunately, Mark Kootstra's presentation identifies affordability as a qualitative rather than quantitative factor.[7] One of the modeling scenarios is to use a 60% RPS without zero carbon as a reference scenario to compare the costs between that scenario and the other scenarios that do result in zero-carbon. While SDG&E appreciates the effort to include affordability modeling, comparing the costs of various scenarios is only the first step in the process of determining what are "unreasonable impacts" to customer rates and bills. Stakeholders will need specific metrics of what "too expensive" means in order to fulfill the mandate to prevent unreasonable impacts to customer rates and bills.

For this reason, SDG&E encourages the modeling team to consider the CPUC's Affordability OIR[8] as a potential source for quantifiable metrics that can be used in the SB100 report. Simply put, a modeling "solution" that fails to include affordability metrics will be incomplete.

Finally, SDG&E agrees with the importance of affordability that Matt Freedman from TURN raised during the panel discussion. While affordability may be difficult to quantify, that does not excuse a failure to undertake the effort in the first place. SDG&E believes that a greater commitment should be made to solving this problem, as opposed to simply relying on overly simplistic metrics like the cost per kW/h. SDG&E echoes Mr. Freedman's concerns that despite increasing quantities of electricity being used, it is not likely that the overall cost per kW/h will decline.

<u>The modeling should consider all costs and should maximize savings by timing procurement to realize benefits from cost curves.</u>

SDG&E believes it is important to consider the totality of costs to implement SB100 rather than focusing on the supply side of the costs of procuring zero-carbon energy. Transmission or distribution upgrades will likely be needed to support a grid that is relying on more renewables and behind the meter resources. The current scope of the modeling does not include efforts to compute transmission and distribution ("T&D") costs or develop a methodology that entities can use to determine T&D costs.

The IRP framework relies on coordination between the CPUC, the CEC, and the CAISO Transmission Planning Process ("TPP") to develop projected costs of infrastructure needed to interconnect new resources. This was reflected in a memorandum signed by the three agencies in 2010.[9] Depending on the type and location of resources selected to achieve the SB100 goals, T&D costs implications can be in the order of several Billions. For instance, the Southern California Edison Company Pathway 2045 Study found that grid investments required to integrate the bulk of renewable generation, storage, and serve load growth could be around $75 Billion[10]. During the workshop, Los Angeles Department of Water and Power also presented the preliminary results of its LA100 Study identifying the need for major T&D upgrades. Therefore, in order to properly assess the affordability aspect of the SB100 goals, it is important to calculate projected T&D costs. A final report without this information would otherwise be incomplete.

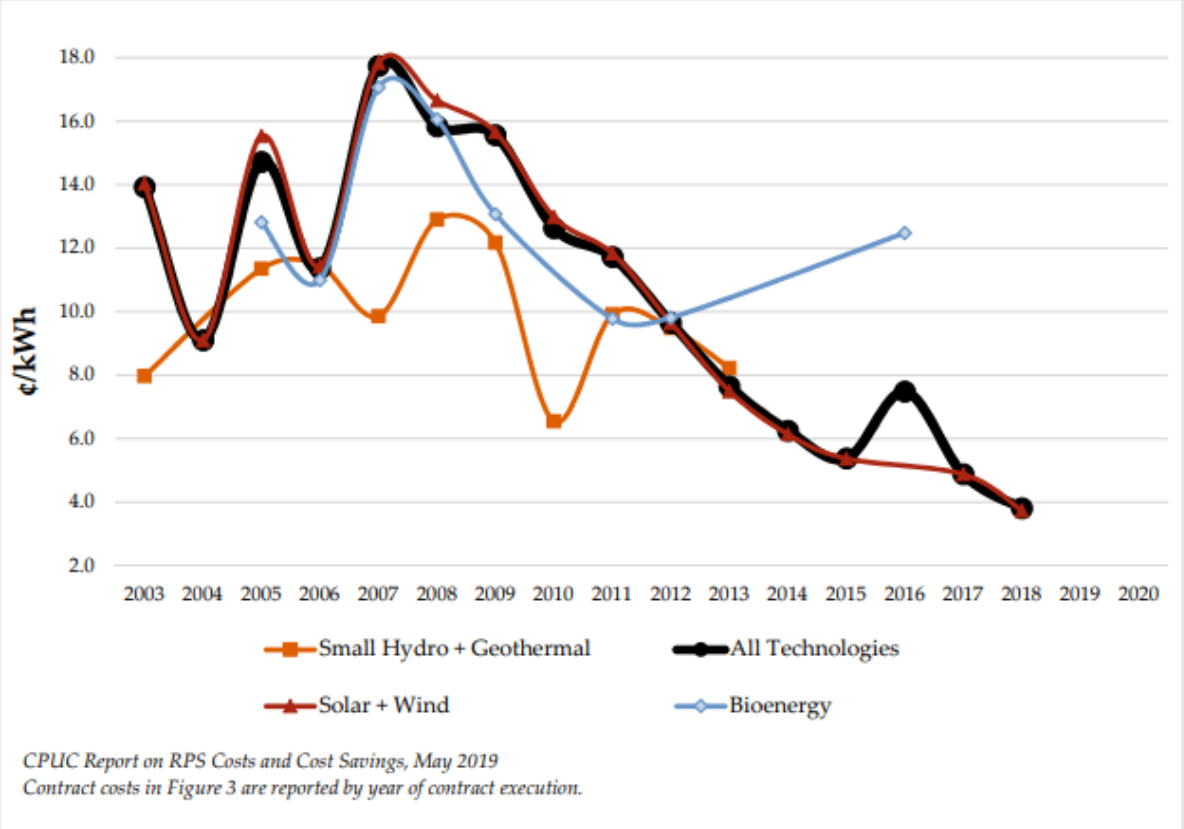
[6] PUC section 454.53(b)(2).
[7] CEC presentation "SB 100 Analytical Approach" dated February 24, 2020, slide 18.
[8] R.18-07-006.
[9] http://www.caiso.com/Documents/100517DecisiononRevisedTransmissionPlanningProcess-CPUCMOU.pdf.
[10] SCE, Pathway 2045, "Update to the Clean Power and Electrification Pathway", November 2019.

Large scale infrastructure projects that are needed to ensure the deliverability of resources require long lead times to be become operational (e.g. 10 years), this can in turn cause significant delays in the building of resources in support of the SB100 goals.

This challenge could be mitigated using a few options. The SB100 modeling scope can be expanded to include activities similar to portions of the TPP cycle that the CAISO performs in order to determine T&D costs to integrate the IRP portfolios. Another option could be for the utilities to work together performing studies similar to those that the CAISO performs to determine T&D costs. Or the CEC could develop, based on stakeholder inputs, a high-level directional methodology or a proxy to determine T&D costs. There are also customer costs like purchasing electric vehicles and electric water heater systems that must be assessed. All these costs should be considered in the affordability metrics used in the modeling.

One key to maximizing cost reduction is to not over-procure new technologies when their costs are high. Mandated early procurement may unnecessarily increase customer costs. The chart below from the 2019 Padilla Report shows the cost curve of RPS contracts between 2003 and 2018:[11]

Figure 3: Historical Trend of RPS Contract Costs by Technology and Year of Execution from 2003-2020 (Real Dollars)



CPUC Report on RPS Costs and Cost Savings, May 2019
Contract costs in Figure 3 are reported by year of contract execution.

Though some early procurement of newer technologies is necessary to drive costs down, the spike in prices for all technologies in 2016 was a result of mandated biomass procurement.[12]

[11] CPUC 2019 Padilla Report, May 1, 2019, p. 7.
[12] Id, p. 8.

This spike highlights that additional costs come with procurement mandates. Thus, in SDG&E's view, the best facilitator of affordable zero-carbon goals is affording flexibility in reaching the goal, rather than mandating a straight-line procurement target as seen in the RPS program. Flexibility will allow the market to take advantage of cost curve savings. Additional modeling could be done that show the added costs of mandated or forced early procurement via straight-line procurement targets as opposed to an approach that affords flexibility in reaching the 2045 target of zero-carbon.

A central buyer should be used to reduce costs.

The creation of a central buyer construct can provide cost savings by procuring resources to meet the needs of load serving entities ("LSE") that elect not to procure. A central buyer would benefit consumers by achieving economies of scale, with costs then allocated to the LSEs that relied on the central buyer procurement following cost causation principles.

Conclusion

SDG&E is focused on working collaboratively to develop solutions to the reliability and affordability problems described above. Solutions must be both flexible and measured, including: (1) maintaining the existing gas fired generation fleet while alternative solutions are established; (2) promoting resource diversity and technology neutral policies that spur innovation and do not pick winners too early; (3) appropriate GHG accounting methods that allow for reasonable trade-offs to increase affordability, including using the use of carbon offsets; and (4) avoiding a rush to procure that could unduly burden customers. SDG&E looks forward to participating in the stakeholder process to develop the SB 100 Joint Agency Report.

Sincerely,

/s/ Miguel Romero

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