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California Energy Commission
715 P Street
Sacramento, CA 95814

California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

California Air Resources Board
1001 I Street
Sacramento, CA 95814

RE: 2025 SB100 Joint Agency Report Draft Results

Dear California Energy Commission, California Public Utilities Commission, and California Air Resources Board,

Thank you for presenting the 2025 Senate Bill (SB) 100 Joint Agency Report Draft Results to the Disadvantaged Communities Advisory Group. We are glad that the agencies are undertaking this exercise to ensure that California meets its clean energy and decarbonization goals. However, we are concerned that some of the assumptions used in the modeling and the limited consideration of non-energy impacts in the proposed scenarios will limit the potential for California's clean energy future to provide affordability, public health, resilience, workforce, and other benefits to disadvantaged communities across the state. Below, we provide recommendations for improving the SB100 report development process, resource modeling assumptions, and non-energy impacts analysis.

Many of our comments are similar to those that the DACAG and other parties provided in response to the 2021 SB100 report. Specifically, the 2021 SB100 Report (p.53) states that: "The DACAG and a separate group of community and environmental justice organizations later submitted letters urging the joint agencies to analyze at the local level how SB 100 implementation will affect communities' public health, land use, economic well-being, and air and water quality." We would like to reiterate this request, and provide some additional details below.

1. Process

We urge the Joint Agencies to expand meaningful engagement efforts in the development of the next SB 100 report including:

1.1. We would like to request an opportunity for the DACAG to provide early, regular, and meaningful input on the *development* of modeling assumptions and non-energy impact metrics for the next iteration of the SB 100 report, rather than receive an informational report-out of the finalized metrics. We would also appreciate a report-back of how our suggestions were (or were not) incorporated into the analytical approach.

1.2. We urge the Joint Agencies to conduct outreach, education, and early, regular, and meaningful engagement with disadvantaged and priority communities across California and, in particular, with Tribes, as well as a report-back, where appropriate, of how this outreach and engagement influenced the SB100 report development. Tribal consultation should include, among other matters, cultural and natural resource preservation.

2. Modeling Assumptions

We provide a number of recommendations below addressing assumptions used in the SB100 resource modeling that we believe will enable the realization of greater greenhouse gas, resilience, public health, and affordability benefits.

2.1. **Distributed Energy Resources.** The SB100 scenario modeling explicitly considers distributed energy resources (DERs), such as energy storage, distributed solar, energy efficiency, bi-directional electric vehicle charging, and demand response, to be "load modifiers"—that is, even if these resources can meet energy or reliability needs at a lower cost than utility-scale resources, they will not be adopted at higher rates. This modeling approach introduces numerous limitations to the findings. First, there may be lower-cost pathways to achieve SB100 goals that are not being addressed, contributing to outcomes which may over-rely on more expensive utility-scale resources when other options are available. Staff presenters indicated that the SB100 report feeds into transmission planning, for example, which means that under-valuing DERs may contribute to an over-buildout of transmission infrastructure. The lack of inclusion of DERs also underestimates their potential as dispatchable resources, including in the form of virtual power plants. DERs also hold the potential to provide significant non-energy benefits, which should be reflected in their value (alongside the value of all resources) and incorporated into the modeling.

DERs are adopted by homes and businesses and therefore a baseline deployment level reflecting projected adoption levels for these resources is reasonable. However, we recommend that modeling incorporate additional DERs as a selectable resource, such that higher levels of adoption may be chosen by the model should they be lower cost or contribute to higher net benefits. This modeling should, like other parts of the modeling, reflect sensitivities to assumptions about rates of technology maturation and cost decline curves. Ideally it would also (along with all resources) reflect non-energy impacts and costs, such that these resources may be preferentially selected in part due to their co-benefits (e.g. resilience). At a minimum, it would be useful to assess multiple DER deployment levels and compare the outcomes—including non-energy impacts—to better inform the potential benefits, impacts, and trade-offs of different levels of DERs.

2.2. **Front-of-the-Meter Distributed Energy Resources.** In addition to behind-the-meter DERs, we also strongly recommend the inclusion of front-of-the meter DERs as a candidate resource. Urban land area and the built environment, such as brownfields, warehouse rooftops, and parking lots, all provide promising opportunities for resource deployment. Benefits may be wide-ranging and accrue to both the grid as a system and to society at large. For example, front-of-the-meter clean energy deployment in transmission-constrained regions, such as the Los Angeles Basin, may provide an opportunity to deploy clean energy resources—including to meet growing demand and enable fossil power plant retirements—at a faster speed and lower cost than expanding large-scale transmission infrastructure. Such deployments may provide additional grid benefits, such as deferring distribution grid upgrades and increasing local reliability. Furthermore, they have the potential to yield broader non-energy benefits in the form of reduced land use impacts, increased community resilience, and improved public health when they can facilitate local power plant retirements.

2.3. **Hydrogen and Carbon Capture and Storage.** We are also concerned about the inclusion of certain combustion-based technologies within the modeling scenarios, namely hydrogen blending with methane gas[1] and carbon capture and storage at gas plants. Both of these combustion resources, unlike renewables, produce health-damaging air pollutants that can contribute to adverse health outcomes in nearby and downwind communities. Second, both technologies still produce greenhouse gas emissions. Hydrogen blending at low levels with methane gas has minimal potential to reduce greenhouse gas impacts, in large part because its volumetric

[1] The specific assumptions regarding hydrogen blending were not detailed in the presentation, so our comments are provided given limited information about proposed deployment.

energy density is comparatively low such that a 20% hydrogen blend (volumetric) is only 7% hydrogen on an energy basis—providing a maximum greenhouse gas reduction of 7%.[2] Hydrogen, if it leaks into the atmosphere, can also have indirect warming effects.[3] Meanwhile, carbon capture and storage at gas plants does not reduce—and in fact, due to increased total energy use, may increase—upstream health-damaging air pollutant and methane emissions throughout the gas system, including production, processing, and transmission. One estimate suggests that, using a 20-year global warming potential for methane, 95% CO_2 capture, and average nationwide methane leakage rates, CCS will only reduce lifecycle greenhouse gas emissions at gas plants by 50%. Even considering a 100-year global warming potential, emission reductions are only an estimated 71%.[4] These lifecycle emissions should be considered when evaluating the greenhouse benefits of CCS use.[5] Moreover, the high and uncertain capital costs associated with both CCS and new hydrogen infrastructure suggest that their use may pose a stranded asset risk in the power sector, which could lead to increased affordability impacts.

3. Non-Energy Impacts

We are concerned about the minimal inclusion of non-energy impacts in the Draft SB100 Report. The 2021 SB100 report (p. 18) identified the need for additional analysis of "non-energy benefits and social costs", including: 1) land-use impacts, 2) public health and air quality, 3) water supply and quality, 4) economic impacts, and 5) resilience. The non-energy impact analysis provided in the 2025 SB100 report is insufficiently granular to address equity within its land-use and public health analyses. No clear explanation was provided as to why water supply and quality, economic impacts (including workforce and energy affordability), and resilience were not included. There also was no clear mechanism for the overall non-energy impact analysis to influence subsequent decision-making processes. Ideally, clear metrics for non-energy impacts *would be included up-front* in the values assigned to resources in the SB100 modeling, including DERs. Alternatively, target levels of benefits (e.g. thresholds for resilience, or public health benefits in disadvantaged communities) could be used as constraints in the modeling. At a minimum, there should be a clear pathway by

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[2] Krieger, E., Kwoka, B. and Lukanov, B. (2024). Green Hydrogen Proposals Across California. *PSE Healthy Energy*.

[3] Ocko, I. B., & Hamburg, S. P. (2022). Climate consequences of hydrogen emissions. *Atmospheric Chemistry and Physics*, *22*(14), 9349-9368.

[4] Hersbach, T. J., Mastrandrea, M. D., & Wara, M. W. (2025). Flexible operation and fugitive methane emissions limit the potential of power plant carbon capture and storage. *The Electricity Journal*, *38*(3), 107494.

[5] We also strongly recommend the inclusion of lifecycle greenhouse gas impacts for any biomass resources uses, including in particular methane leakage from biomethane use.

which the assessment of non-energy impacts influences recommendations such that an increase in benefits and decrease in adverse impacts may be meaningfully realized. The CEC's ongoing non-energy impact proceeding, the CEC's JAEDI framework, and the DACAG's equity framework may all provide valuable guidance for this analysis.

Below, we provide a few detailed comments on specific metrics:

3.1. **Land use.** We appreciated the inclusion of land use potential and impacts within this round of SB100 modeling. While the SB100 report is not a siting exercise, it is still possible to identify *subsets* of the available land area that meet certain specifications to better inform planning. First, it would be valuable to identify what portion of the *potential* available land is tribal land. Second, it would be useful to identify what portion of the potential available land is made up of brownfields or degraded land, which could potentially be remediated and repurposed to provide clean energy. Finally, we strongly recommend the assessment of urban land areas that could be used for front-of-the-meter distributed energy resources. This information can help guide future planning efforts, including outreach and engagement, potential to align with brownfield remediation efforts, and programs designed to expand urban front-of-the meter distributed energy resources.

3.2. **Air quality.** We appreciate the inclusion of air quality impacts in the modeling outcomes. However, it is deeply unclear why the results are only provided at the state level. Ideally, we would appreciate the results of this analysis at a local level—including at five-year intervals to better understand which pathways reduce health damages the fastest. The current exercise relies on COBRA, which requires county-level inputs and provides county-level outputs. We ask the agencies to be transparent about the county-level input assumptions, and provide the county-level outputs. This could be conducted for multiple scenarios to better understand the sensitivity to input assumptions (e.g. equal reduction in emissions for all counties, or retirement of power plants based on power plant age, etc.) that could provide a range of possible outcomes and inform decision-making. The aggregated public health data shown provides limited information that can enable decision-makers to *improve* health outcomes, particularly in environmentally overburdened communities, based on scenario choice. Ideally, the Agencies would employ a tool that provides more granular air quality impacts than the county scale such that it would be easier to align with equity analyses.

3.3. **Additional Metrics.** As recommended by stakeholders in response to the 2021 SB100 Draft report, we continue to support the inclusion of additional non-energy impacts. These include resilience, economic impacts (including workforce and energy affordability), and water impacts, as well as others that may be surfaced during meaningful community engagement processes. Furthermore, we urge the Agencies to consider the *distribution* of these impacts at a sufficiently granular local scale that the equity implications can be assessed. SB100 is not a resource siting exercise, and we are not suggesting here that it should be. Precise equity outcomes will, of course, be determined in part through specific project deployments. However, a *range* of possible outcomes may be determined for each scenario that would enable comparison. For example, the inclusion of higher levels of distributed energy storage would have a higher potential for resilience benefits. As noted previously, the inclusion of DERs as a selectable resource (inclusive of non-energy impact costs and benefits) as well as scenarios with different levels of DER deployment would provide meaningful information about the broader non-energy impacts and benefits of different scenario options.

Thank you for bringing this Draft Plan to the Disadvantaged Communities Advisory Group for feedback, and for consideration of our comments.

Sincerely,

The Disadvantaged Communities Advisory Group