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**Comments of the Union of Concerned Scientists on the SB 100  
Analytical Framework Workshop**

*Additional submitted attachment is included below.*

November 14, 2023

California Energy Commission  
1516 Ninth Street  
Sacramento, CA 95814-5512

Docket 23-SB-100  
*Submitted via electronic comment system*

**RE: Comments of the Union of Concerned Scientists on the SB 100 Analytical Framework Workshop**

The Union of Concerned Scientists ("UCS") appreciates the opportunity to submit these comments on the SB 100 Analytical Framework Workshop, conducted on October 31, 2023.

UCS thanks the California Energy Commission ("CEC"), California Public Utilities Commission ("CPUC"), and California Air Resources Board ("CARB") for their leadership in crafting the SB 100 Joint Agency Report, and for all the hard work that has gone into creating the analytical framework presented at the October workshop.

In these comments, UCS offers six core recommendations, which are summarized below:

1. UCS recommends that the joint agencies interpret SB 100 to include line losses and storage losses as part of retail sales. Regenerate California's comments<sup>1</sup> for the SB 100 Kickoff Workshop lay out the reasons for this expanded interpretation and UCS supports these comments.
2. UCS thanks the joint agencies for including the retirement of the three once-through-cooling plants by the 2026 deadline in the base assumptions, as well as the inclusion of a Combustion Retirement scenario. UCS recommends that the joint agencies conduct additional analysis on combustion retirements in other scenarios for comparison.
3. UCS recommends a different method for modeling front-of-the-meter (FTM) distributed resources. The current method does not capture certain cost benefits of distributed resources, such as reduced transmission needs and land impact, and risks underestimating the optimal amount of FTM distributed resources.
4. UCS recommends the joint agencies do not use a different land use screen for the High DER scenario. This indirect method to incentivize DER resources may also bias against renewables that are highly land dependent compared to resources that do not require as much land, such as gas.

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<sup>1</sup> Regenerate California, Regenerate California Comments on SB 100 2023 Kickoff Workshop (September 2023), p. 5-8. Available at: <https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=23-SB-100>

5. UCS supports continued CEC engagement with tribal groups and requests clarity in how tribal feedback is helping shape the analytical framework for the modeling scenarios. Specifically, a clear description of how tribal cultural resources and areas of cultural significance are being factored into the scenarios (noted as a recommendation from the Tribal Listening Sessions), as these factors are not considered in the current land use screens.
6. UCS recommends that all hydrogen combustion is excluded from the SB 100 modeling. The path to develop all the necessary hydrogen infrastructure to serve the power sector remains unclear, including issues relating to the production, transportation, storage, and use of hydrogen. UCS does not believe hydrogen combustion is needed for California's power sector to meet its climate targets and should be limited to hard-to-electrify sectors.

First, UCS recommends that the joint agencies interpret SB 100 to include line losses and storage losses as part of electricity retail sales. UCS supports the reasons for this interpretation laid out in Regenerate California's comments for the SB 100 Kickoff Workshop. UCS agrees that the intent of SB 100 was to include all electricity generation and the 'retail sales loophole' should be fixed.

Second, UCS strongly supports the retirement of the three once-through-cooling plants (Ormond Beach, AES Alamitos and AES Huntington Beach power plants) and thanks the joint agencies for including the retirements in the base assumptions. These retirements should happen by the 2026 deadline with no possibility of further extension. Properly planning for the retirement of these facilities in the SB 100 Report analysis is an important step for ensuring they will no longer be needed for reliability purposes.

UCS believes that the SB 100 pathways should do more to plan for the retirement of gas power plants, especially in disadvantaged communities. Half of California's gas power plants are in the 25 percent of communities that are most disadvantaged.<sup>2</sup> Retiring these plants and reducing their air pollution emissions is an important part of achieving California's environmental justice and air pollution emissions reduction goals. To the extent that gas power plants are retired in any scenario, UCS recommends those located in disadvantaged communities are prioritized.

In this vein, UCS suggests running all scenarios with a combustion retirement baseline in addition to the current scenarios. Modeling the scenarios with a combustion retirement baseline will be helpful for understanding how the other levers affect the Combustion Retirement scenario and for assessing potential pathways to address the equity concerns raised above. Additionally, comparing the set of scenarios with and without the combustion retirement baseline will provide useful information in the non-energy benefits evaluation, particularly around public health.

Third, UCS recommends rethinking the method for how front-of-the-meter distributed resources are selected for in the model. The current method pulls out a target of FTM distributed resources from the utility-scale resources selected in the model. However, this method does not capture certain cost benefits of FTM distributed resources, such as reduced

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<sup>2</sup> PSE Healthy Energy, *Natural gas power plants in California's disadvantaged communities* (April 2017), p. 1. Available at: [https://www.psehealthyenergy.org/wp-content/uploads/2017/04/CA.EJ\\_.Gas\\_.Plants.pdf](https://www.psehealthyenergy.org/wp-content/uploads/2017/04/CA.EJ_.Gas_.Plants.pdf)

transmission needs and reduced land use impacts, in the model which may lead to an underestimate of the optimal FTM distributed resources selected.

Possible solutions to address this issue could be to treat FTM distributed resources as a separate resource in the optimization or pull out the determined target of FTM distributed resources and allow the optimization to select additional FTM distributed resources above the target.

Fourth, UCS suggests the joint agencies do not use a different land use screen for the High DER scenario. The High DER scenario should focus on directly incentivizing distributed resources rather than indirectly selecting against land-dependent resources. The current methodology raises concerns that the High DER scenario will bias against utility-scale solar and onshore wind resources that are more land dependent compared to resources that do not require as much land, such as gas.

UCS suggests that the joint agencies consider separating the land use impacts into its own scenario with the Terrestrial Climate Resilience Study Screen as the changing lever to better isolate the impacts that more restricted land use would have on the resource portfolio selected in the model. Furthermore, for the non-energy benefits and land use evaluation, UCS suggests running select scenarios with both the Core and Terrestrial Climate Resilience Study land use screen to better understand the affects that land use has on resource selection when paired with the other scenario assumptions.

Fifth, UCS supports that the joint agencies continue engaging with tribal groups and requests more transparency in how tribal feedback is helping shape the analytical framework for the modeling scenarios.

In the SB 100 Kickoff Workshop's 2025 Report Vision presentation, one of the analytical recommendations from the Tribal Listening Sessions was to consider tribal cultural resources and areas of cultural significance to tribes in land use evaluations. The current land use screens used in the modeling do not consider these areas. UCS recommends joint agencies continue discussions with tribes for how to incorporate these cultural resources in the model, possibly as inputs to the model, rather than after-the-fact evaluations.

Sixth, UCS recommends that all hydrogen combustion is excluded from the SB 100 modeling. The path to develop all the necessary hydrogen infrastructure to serve the power sector remains unclear, including issues relating to the production, transportation, storage, and use of hydrogen. UCS believes that hydrogen combustion is not necessary for the power sector to achieve its climate goals and should instead be limited to hard-to-electrify sectors, such as cement manufacturing and aviation.

UCS is additionally concerned that hydrogen combustion risks increasing NOx emissions. Because hydrogen's flame temperature is higher than that of natural gas, hydrogen combustion can result in higher levels of NOx air pollution emissions<sup>3</sup>. Increased NOx emissions risk worsening the air quality in nearby communities and exacerbating issues of inequity that already exist in the energy system. UCS believes excluding hydrogen

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<sup>3</sup> General Electric, Hydrogen as a fuel for gas turbines: A pathway to lower CO2 (2021), p. 5. [https://www.ge.com/content/dam/gepower-new/global/en\\_US/downloads/gas-new-site/future-ofenergy/hydrogen-fuel-for-gas-turbines-gea34979.pdf](https://www.ge.com/content/dam/gepower-new/global/en_US/downloads/gas-new-site/future-ofenergy/hydrogen-fuel-for-gas-turbines-gea34979.pdf).

combustion in the power sector is a safer and more efficient option to meet California's climate goals.

UCS looks forward to further participation in SB 100 implementation, and we thank the CEC, CPUC, and CARB for their consideration of these comments.

Sincerely,

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