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SIERRA CLUB CALIFORNIA

January 10, 2020

Docket No. 19-DECARB-01
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

RE: Sierra Club California Comments on Building Decarbonization Assessment Project Scope

Dear Commissioners and Staff:

Sierra Club California appreciates the opportunity to provide comments on the California Energy Commission's ("Commission") Building Decarbonization Assessment Project Scope.

Sierra Club is the nation's oldest and largest grassroots environmental organization which has nearly over 3.5 million members and supporters nationwide, with approximately 500,000 members and supporters in California.[1] Sierra Club is dedicated to the protection of public health and the environment and has long been a leading voice for reducing our greenhouse gas emissions by eliminating the use of fossil fuels.

I. Introduction

California homes and buildings have been one of the largest sources of climate pollution, accounting for over a quarter of the state's greenhouse gas (GHG) emissions.[2] The California Legislature recognized that if California is going to meet its target to be carbon-free by 2045, it is essential to decarbonize the state's buildings.[3] Thus, Assembly Bill 3232 was passed.

AB 3232 requires the Commission to assess the potential to reduce GHG emissions from residential and commercial buildings by at least 40 percent below 1990 levels by January 1, 2030. This bill is a critical step in identifying key policies and options needed to achieve aggressive GHG emissions reductions in residential and commercial buildings. The Assessment

[1] As of November 2019, there are roughly 800,000 Sierra Club members nationwide and approximately 170,000 in California. The above-referenced figures also include Sierra Club supporters, in addition to members.
[2] This includes emissions from electricity generation, gas use, and methane leaks from gas use. California Air Resources Board (CARB), GHG Current California Emission Inventory Data — 2019 Edition, *available at* https://ww2.arb.ca.gov/ghg-inventory-data (last visited Jan. 10, 2020).
[3] Assem. Bill 3232, 2017-2018, ch. 373, 2018 Cal. Stat., *available at* https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180AB3232.

required by AB 3232 will help inform policymakers and provide guidance for future policies that will put California on a path to decarbonize its buildings in an equitable way.

A. Sierra Club supports the Commission's proposed baseline approach with the exception of the exclusion of upstream methane leakage.

The Commission proposes to include certain types of GHG emissions in the Building Decarbonization Assessment (hereafter "Assessment") baseline when assessing the feasibility of meeting the AB 3232 2030 GHG reduction target. These types of GHG emissions include: (i) core building emissions (fuel combustion and refrigerants and other high-global warming potential gases), (ii) methane emission from behind-the-meter leaks, and (iii) incremental electricity emissions from the increased loads from fuel substitution activities.

In general, Sierra Club supports the Commission's baseline approach. Including core emissions in the baseline will ensure the Assessment is ambitious and aligned with the state's climate targets. Gas combustion in our homes and buildings from appliances like furnaces, water heaters, and stoves, make up roughly two-thirds of the GHG emissions from California's buildings.[4] We need more aggressive action that reflects the urgency of the climate crisis. Focusing on the core emissions is in line with our state's goal to achieve carbon neutrality by 2045 and is necessary to establish a pathway for reducing building emissions at a rapid pace.

In addition, the Sierra Club agrees that emissions from behind-the-meter leaks are important to include in the baseline since it at least 0.5% of the gas that reaches residential homes leaks into the atmosphere.[5] Methane leakage is found to be even higher behind-the-meter in restaurants, as presented in the California Energy Commission's 2019 Integrated Energy Policy Report's Energy Efficiency and Building Decarbonization workshop. We also agree that including incremental electricity emissions from fuel substitutions activities is appropriate and in line with the goal of AB 3232 since we may see an increase in electricity use from fuel substitution such as with heat pumps replacing gas systems.

Furthermore, we agree that the Commission should not include electricity emissions in the baseline. The intent of AB 3232 is to focus on decarbonizing aspects of the buildings sector that are not already being addressed. Electricity emissions are already being addressed through state supply-side policies, such as the Renewable Portfolio Standard ("RPS") and SB 100. Therefore,

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[4] Energy Information Administration (EIA), Household Energy Use in California, *available at* https://www.eia.gov/consumption/residential/reports/2009/state_briefs/pdf/ca.pdf.

[5] California Energy Commission, Natural Gas Methane Emissions from California Homes (Aug. 2018), *available at* https://ww2.energy.ca.gov/2018publications/CEC-500-2018-021/CEC-500-2018-021.pdf.

if electricity emissions were included in the baseline, this would lead to double counting GHG savings from pre-existing policies like SB 100. In turn, this will slow down efforts to drive additional GHG reductions and delay efforts to electrify our homes and buildings.

Thus, we believe the proposed baseline method is the most appropriate pathway for achieving greater emissions reductions in our buildings sector, with an exception discussed in the next section.

B. AB 3232 Assessment baseline should include a portion of upstream methane leakage.

The Assessment baseline should not only account for behind-the-meter methane leakage with at least a 0.5percent estimate,[6] but should also include some portion of upstream leakage. For example, upstream methane leakage has a widely accepted rate of 2.3 percent that occurs during the supply chain such as from production, processing, distribution, etc.[7]

Not including some portion of upstream methane emissions will underestimate the climate impacts of gas combustion and the climate benefits of electrification. Upstream methane emissions associated with gas consumption have a significant impact on our climate. Methane is a significant driver of short-term global warming and reducing methane emissions can help slow the rise in global temperatures. There is already a wealth of information and knowledge on upstream methane emissions, and thus, incorporation of these emissions into the AB 3232 Assessment at this time is feasible.

To capture the full impact of methane and the gas lifecycle, we recommend the following methodology:

1. The Assessment baseline should be calculated based on a total leakage rate of 2.8 percent, which accounts for 2.3 percent upstream leakage[8] and 0.5 percent leakage behind-the-meter.[9]

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[6] *Id.*

[7] *See* Science, Assessment of Methane Emissions from the U.S. Oil and Gas Supply Chain, p. 186-88 (July 13, 2018), *available at* https://science.sciencemag.org/content/361/6398/186 (noting 2.3% methane leakage in gas production).

[8] It is accurate to use a national average leakage rate since California imports approximately 90% of its methane gas. E3, *Residential Building Electrification in California* (April 2019), p. 43, *available at* https://www.ethree.com/wp-content/uploads/2019/04/E3_Residential_Building_Electrification_in_California_April_2019.pdf.

2. Of this total 2.8 percent,
    a. One-third of the methane leaks from drilling, processing, storage and transmission should be included,[10]
    b. All leaks from distribution beyond city gate are included, and
    c. All behind the meter leaks (0.5% residential, 1% restaurants[11]) for residential and commercial are included.
3. Global Warming Potential (GWP) 20-year time horizon is used.

Sierra Club understands there is uncertainty around including methane reductions specifically around which portions of the gas lifecycle to which the methane emissions can be attributed. However, even though it may involve some uncertainty, these emissions cannot be ignored especially due to the benefits that can be achieved by taking them into account. When full upstream methane leaks are accounted for, the climate benefits of electrification show roughly 90 million metric tons of CO2 equivalent annual savings on average through 2045, equivalent to taking 20 million cars off the road.[12] This is nearly double the annual savings determined in Air Resources Board's 2019 Greenhouse Gas Inventory, since the agency did not account for the full impact of methane.[13] To stabilize the climate, we need to address GHG emissions from *all* sources. By not including an analysis of upstream methane emissions, the future policies and goals may fall short in achieving our climate targets.

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[9] Assessment of Methane Emissions from the U.S. Oil and Gas Supply Chain, p. 186-188; Lawrence Berkeley National Laboratory, A Survey of Methane Emissions from the California Natural Gas System, at 51 (Oct. 2017) (noting 0.3-0.5% methane leakage), *available at* https://ses.lbl.gov/sites/default/files/pdf.pdf; CEC, Natural Gas Methane Emissions from California Homes, at 2 and 38 (Aug. 2018), *available at* https://www.energy.ca.gov/2018publications/CEC-500-2018-021/CEC-500-2018-021.pdf.

[10] This assumes that two-thirds of the leaks are attributed to gas used for power plants and industry.

[11] Guido Franco, California Energy Commission, presentation, CEC Research on GHG impacts of the Natural Gas System, IEPR Joint Agency Workshop on Energy Efficiency and Building Decarbonization, Aug. 27, 2019.

[12] Sierra Club, Building Electrification Action Plan for Climate Leaders, December 2019, p. ES-1, *available at* https://www.sierraclub.org/sites/www.sierraclub.org/files/Building%20Electrification%20Action%20Plan%20for%20Climate%20Leaders.pdf.

[13] In the California Air Resources Board's 2019 Greenhouse Gas Inventory, the agency assumes a 100 year GWP of methane of 25 and an implied leakage rate of 1% from well to building end use. The implied leakage rate was calculated based on CARB's "fugitive" methane emissions. CARB only includes fugitive losses within California, which does not capture much of the upstream leakage due to the gas California uses from out of state.

C. Hydrofluorocarbons ("HFCs") must be addressed but the Commission should clarify the opportunities electrification presents for reducing HFCs.

According to the California Air Resources Board, HFCs are the fastest growing category of GHGs, currently accounting for about 4% of California's total GHG emissions.[14] Therefore, we agree that emissions from HFCs used as refrigerants should be included in the baseline.

However, it is important to look at the specific data when analyzing the GHGs from refrigerants. Studies have shown that the GHG impacts are greater from the methane leakage attributed to gas appliances than from heat pumps with refrigerant leakage.[15] So building electrification actually presents opportunities to reduce refrigerant emissions through the replacement of existing buildings' A/C units with lower-GWP and lower-emission technologies.

In sum, there should be clarification around this topic to avoid confusion that could hinder building electrification efforts and to ensure that strategies encourage using lower-GWP refrigerants and reducing methane leakage.

D. AB 3232 must prioritize equity and low-income needs.

An equitable and just approach to decarbonization and electrification requires planning for the transition and listening to, prioritizing, and protecting low-income people and environmental justice (EJ) communities from the outset.[16]

As illustrated in the Commission's Low-Income Barriers Study as well as E3's Future of Gas Report, low-income people and communities face significant barriers to living in decarbonized homes that offer the benefits of better indoor air quality, enhanced climate resilience, and lower energy bills. Therefore, the AB 3232 Assessment should not just consider the feasibility to

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[14] California Air Resources Board, Building Decarbonization: Update on CARB Programs, presented on Dec. 4, 2019, *available at* https://efiling.energy.ca.gov/GetDocument.aspx?tn=231007&DocumentContentId=62634.

[15] E3, *Residential Building Electrification in California* (April 2019), p. 104, *available at* https://www.ethree.com/wp-content/uploads/2019/04/E3_Residential_Building_Electrification_in_California_April_2019.pdf; Sierra Club Comments on the South Coast Air Quality Control Management District's Net Emissions Analysis Tool – Response to Working Group Meeting #3 (Apr. 16, 2018), *available at* https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/life-cycle-analysis-working-group/sierra-club-041618.pdf?sfvrsn=6.

[16] Carmelita Miller et al., *Equitable Building Electrification: A Framework for Powering Resilient Communities* (Sept. 30, 2019), *available at* http://greenlining.org/wp-content/uploads/2019/09/Greenlining_EquitableElectrificationReport_2019_WEB.pdf.

reduce GHG emissions, but it should also assess how to achieve those reductions in an equitable manner that prioritizes access to clean energy homes for low-income and EJ communities, and protects tenants in the process of decarbonization. In addition, the Assessment should also consider the labor impacts from building decarbonization and how to encourage a transition to high quality jobs while achieving the GHG emissions reductions.[17]

E. AB 3232 Assessment should ensure scalability beyond 2030.

To be consistent with California's 2045 goals, the Commission should look beyond 40% by 2030 and include an assessment of achieving 100% emissions reductions in the building sector by 2045. The law set forth in AB 3232 sets a floor not a ceiling. It states that the Assessment should evaluate the ability to reduce emissions by at least 40% below 1990 levels by 2030. Thus, the Commission has the ability to assess a target higher than as stated in AB 3232.

In addition, conducting an analysis beyond 2030 to 2045 would be consistent with other state policies. Executive Order 5-55-18 set forth a state goal to achieve carbon neutrality by 2045. Also, the Commission is working with other state agencies on the implementation of SB 100 which requires the state to achieve zero-carbon electricity by 2045.

Furthermore, limiting the focus to 2030 risks the promotion of solutions that are not scalable or cost-effective for achieving carbon neutrality. If California is to achieve the GHG reductions to stabilize the climate by 2045, we must look at the full picture. The Commission should ensure that building decarbonization strategies are scalable beyond 2030. This is essential if California is to develop the most successful policies that will also lower costs for ratepayers and the state.

II. Conclusion

In sum, Sierra Club agrees with the Commission's proposed baseline approach focusing on direct, on-site emissions, but we urge the Commission to also include a portion of upstream methane leakage in its Assessment. We also agree with the consideration of HFCs but strongly recommend the Commission highlight the opportunities in which building electrification can help reduce HFCs in our homes and buildings. And, as stated above, we also recommend prioritization of equity and low-income needs in the Assessment as well as an analysis that looks beyond the minimum requirements in the law.

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[17] Jones, et al., UCLA Luskin Center for Innovation, California Building Decarbonization Workforce Needs and Recommendations, (Nov. 2019), *available at* https://innovation.luskin.ucla.edu/wp-content/uploads/2019/11/California_Building_Decarbonization.pdf.

Thank you for the opportunity to provide comments on the AB 3232 proposed baseline approach and project scope.

Sincerely,

Lauren Cullum
Policy Advocate
Sierra Club California