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California Air Resources Board ("CARB")
California Air Resources Board Staff
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SUBMITTED VIA EMAIL

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RE: Comments on Specific Sectors and Greenhouse Gas Emission Reduction Measures in the 2022 Draft Scoping Plan

Dear Board Members of the California Air Resources Board:

As members of the California Environmental Justice Alliance ("CEJA"), we thank you for this opportunity to comment on the 2022 Draft Scoping Plan ("Draft Scoping Plan"), the Draft Environmental Analysis ("Draft EA"), and other accompanying documents to the Draft Scoping Plan.

CEJA's comments are based on our fundamental commitment to ensure well-being and equity for all Californians, including low-income communities and communities of color who experience the worst climate and pollution impacts. AB 32, SB 32, AB 197, and other key climate laws also embody the values of well-being and equity. Under AB 32, CARB must design GHG emission reduction measures "in a manner that is equitable, [] seeks to minimize costs and maximize the total benefits to California,"[1] and ensure that these measures "do not disproportionately impact low-income communities."[2] Similarly, AB 197 requires CARB to "protect the state's most impacted and disadvantaged communities" and prioritize direct emissions reductions when adopting rules and regulations to reduce GHG emissions.[3]

[1] Cal. Health & Safety Code § 38562(b)(1).
[2] Cal. Health & Safety Code § 38562(b)(2); *see also* Draft Scoping Plan, Appendix B at 13 (Project Objective 13).
[3] Cal. Health & Safety Code § 38562.5.

Unfortunately, CARB's Proposed Scenario ("Alternative 3") and the Draft Scoping Plan fail to meet these clear mandates. As detailed in the proceeding sections, CARB has failed to meet these statutory directives for the following reasons:

- Alternative 3, if adopted, will not ensure that California's GHG emission reduction measures are direct, equitable, and maximize the total benefits to California, in violation of both AB 32 and AB 197.
- Alternative 3 will not allow the State to meet its 2030 emission reduction target and 2045 carbon neutrality goal.
- If adopted, Alternative 3 will create an overreliance on costly and high-risk mechanical carbon capture and sequestration ("CCS") and carbon dioxide removal ("CDR") actions.
- Alternative 3 will perpetuate unacceptable climate, air quality, and health impacts resulting from the extraction and refining of oil and gas, transportation, electricity generation, building emissions, industrial agriculture, and livestock methane sectors.
- CARB fails to analyze a range of viable and cost-effective alternatives that would allow CARB to meet all of the Scoping Plan's objectives while maximizing short and long-term health, environmental, and economic benefits. S*ee* Attachment A: Real Zero Alternative.
- Despite relying on Cap-and-Trade as a vehicle for emissions reductions, CARB improperly defers its analysis of California's Cap-and-Trade until after its adoption of the Final Scoping Plan.
- Additionally, the environmental impacts, alternatives, public health, and social costs analyses in the Draft Scoping Plan and Draft EA are inadequate.

As a result of these profound inadequacies, the Draft Scoping Plan and Draft EA fail to provide crucial information that the CARB Board needs in order to meaningfully evaluate the costs and benefits of each proposed alternative, and ensure that the alternative that is ultimately adopted will not disproportionately harm low-income and disadvantaged communities. As such, we request that the Board direct CARB staff to substantially revise the Draft Scoping Plan and accompanying Draft EA to achieve compliance with the State's climate laws and the California Environmental Quality Act ("CEQA"). We specifically request that CARB analyze and adopt the Real Zero Alternative, attached below as Attachment A.

We provide cross-sector comments on the Draft Scoping Plan and Draft EA in this letter. Additionally, we provide comments on CARB's proposed alternatives and measures focusing on specific AB 32 GHG Inventory sectors in a separate letter.

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I. CARB fails to disclose the sources of its emissions estimates, making it impossible for the public to verify the accuracy of its project baseline regarding GHG emissions.

CARB uses 2021 statewide emissions of GHGs as its project baseline for the Draft Scoping Plan's GHG emissions modeling and analysis in the Draft EA.[4] Under CEQA, CARB must describe physical environmental conditions as they exist at the time the notice of preparation is published, or at the time the lead agency commences its environmental analysis.[5]

As detailed below, the Draft Scoping Plan and Draft EA's baseline GHG emissions estimate is unsubstantiated. CARB has not disclosed the source(s) of the emissions data included in its Modeling Data Spreadsheet. Therefore, it is impossible for the public to verify it. The GHG emissions modeling data that CARB includes in the Draft Scoping Plan is significantly lower than CARB's own publicly-available emissions data.[6] The Draft Scoping Plan estimates that the 2021 baseline GHG emissions for the Reference Scenario totaled 381.8 MMT CO_2e.[7] Alarmingly, this is more than *27 MMTCO_2e less* than CARB's own provisional estimate of 2021 emissions of 409 MMT CO_2e.[8] Even in 2019, GHG emissions under the Reference Scenario were 402.7 MMT, which is more than *15 MMT lower* than the 418.1 MMT CO_2e emissions level that CARB includes in its official GHG emissions inventory.[9]

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[4] Draft Scoping Plan at 88; Draft EA at 31.
[5] 14 C.C.R. § 15125(a)(1); 14 C.C.R. § 15125(a)(3) (baselines cannot contain hypothetical conditions).
[6] *See* AB 32 GHG Inventory Sectors Modeling Data Spreadsheet. https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents [hereinafter ("Modeling Data Spreadsheet")].
[7] *Id.*
[8] *See* Cal. Air Res. Bd., Preliminary Assessments of California's 2020 and 2021 Greenhouse Gas Emissions for Budget Item 3900-001-3237 1 (Apr. 2022), available at: https://ww2.arb.ca.gov/sites/default/files/2022-04/2021%20GHG%20Estimates%20Report%20for%20Item%203900-001-3237%20-%20Remediated.pdf.
[9] Draft Scoping Plan at 33; Cal. Air Res. Bd., Current California GHG Emission Inventory Data (last visited June 23, 2022), available at: https://ww2.arb.ca.gov/ghg-inventory-data.

CARB fails to explain the significant discrepancy between its prior estimates and the reference scenario on which it relies. As such. CARB must revise the Draft Scoping Plan's modeling and Draft EA to incorporate its provisional estimate of 2021 emissions, or include an updated estimate based on actual emissions in 2021 to ensure that the project baseline is based on available data supported by substantial evidence, in accordance with CEQA.[10] An accurate baseline, drawing from CARB's provisional estimate of sector-by-sector GHG emissions, would likely reveal greater total GHG emissions in 2030. Accordingly, CARB must ensure that the Final Scoping Plan acknowledges and addresses the significant discrepancy between its provisional estimate of 2021 emissions and its project baseline estimate—either by increasing direct emission reduction measures or adopting additional ones, as we propose in the Real Zero Alternative (*see* Attachment A) and throughout our comments.

II. Alternative 3 will not achieve the State's 2030 GHG emissions reduction target.

SB 32 mandates that CARB reduce statewide emissions to below 259 MMT CO_2e (or 40 percent below 1990 levels) by 2030.[11] CARB incorporates this requirement into the Draft EA's Project Objective 2.[12] Further, CARB must assess the State's progress towards achieving its 2030 emission reduction target (Project Objective 1).[13] As discussed in detail in our technical comments, many of CARB's GHG reduction measures do not result in real-world emissions reductions or do not incorporate significant sources of GHGs from oil and gas, industrial, or agricultural sectors. Moreover, as noted above, CARB presents an unsubstantiated project baseline that likely underestimates overall emissions of GHGs in California. As such, although CARB claims that Alternative 3 will allow the State to meet its 2030 target,[14] this statement is likely based on incorrect and overly-optimistic assumptions. Consequently, California is likely not on track to meeting its 2030 target based on CARB's 2030 GHG emissions projection for the Reference Scenario.[15] Further, in Appendix C, CARB fails to describe the quantity of GHG emissions reductions necessary under each proposed reduction measure to achieve its 2030 target.

On the contrary, CARB will not be able to meet the 2030 target under Alternative 3. Among other things, CARB has incorrectly assumed that carbon capture and sequestration (CCS) technology at refineries *had already been implemented and achieved substantial GHG emissions at refineries beginning 2021*. This assumption is clearly false; refinery CCS technology has not been deployed at any California refinery.[16] Thus, accurate AB 32 GHG Sector modeling, including using a feasible timeline for deployment of CCS technology at refineries, would reveal that Alternative 3, which relies heavily on speculative CCS technology, will not meet the 2030 target. We discuss this fatal flaw in Section IV of our Sector-Specific Comments.

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[10] *North County Advocates v. City of Carlsbad* (2015) 241 Cal.App.4th 94.
[11] EO B-30-14 and SB 32; Legislative Analyst Office, Assessing California's Climate Policies-Electricity Generation (Jan. 2020), available at*:* https://lao.ca.gov/Publications/Report/4131.
[12] *Id.* at 12.
[13] Draft EA at 11.
[14] Draft Scoping Plan at 56 ("The Proposed Scenario achieves GHG emission reductions that exceed levels expected based on existing policies represented in the Reference scenario, keeping California on track to achieve the SB 32 GHG reduction target for 2030 and become carbon neutral no later than 2045."). *See also* Draft Scoping Plan at 57 (Figure 2-1).
[15] *See* Draft Scoping Plan at 90 (Figure 2-10).
[16] *See* Sector-Specific Comments, Section IV.

Because Alternative 3 will not achieve the State's 2030 emission reduction target, CARB must analyze and adopt the Real Zero Alternative, in order to meet this goal and comply with SB 32.

III. Alternative 3 will not achieve the State's 2045 carbon neutrality goal.

CARB claims that Alternative 3 will meet the carbon neutrality goal established under Executive Order B-55-18, which directs the State to achieve net-zero emissions by 2045.[17] (Project Objectives 1 & 2). However, contrary to this mandate and CARB's own goals, CARB's modeling data makes clear that all of the proposed alternatives will in fact result in net 15 MMT CO2 emissions by 2045.[18]

This discrepancy likely stems from CARB's error in assuming that Natural and Working Lands (NWL) Sector measures will act as a net carbon sink of 15 MMT CO_2e per year by 2045.[19] CARB acknowledges that this assumption was incorrect: "[f]or purposes of the Draft 2022 Scoping Plan, CARB assumed NWL could compensate for 15 MMTCO_2e of residual emissions. This assumption was made prior to completion of the NWL GHG analysis described in Chapter 2."[20] Indeed, CARB concludes that NWLs will be a net source of CO_2, emitting 8 MMT CO_{2e} per year from 2025 through 2045.[21] Although CARB recognizes, in the Draft Scoping Plan, that NWLs will be a net source of emissions, this is not reflected in CARB's technical modeling spreadsheet. In actuality, CARB's claim that Alternative 3 will achieve net-zero emissions does not reflect any real pathway towards net neutrality, but rather represents an artifact of CARB's prior, admittedly incorrect assumption that NWLs would be a net carbon sink. In total, this discrepancy accounts for a 23 MMT CO_2e per year difference between CARB's incorrect modeling assumptions and the actual GHG emissions resulting from implementation of Alternative 3.

This error represents only one, albeit significant, discrepancy of many between CARB's modeling assumptions and the actual climate implications of the Proposed Scenario. We further reiterate that CARB's incorrect assumption that refinery CCS can achieve emissions reductions immediately—and may even be applied retroactively—jeopardizes any opportunity for CARB to achieve a true net-zero scenario by 2045.

Because neither Alternative 3, nor any other proposed alternative, will achieve CARB's 2045 carbon neutrality goal, CARB must analyze and adopt the Real Zero Alternative (Attachment A).

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[17] Cal. Exec. Order No. BO-55-18 § 1; *see also* Draft EA at 11 (describing the Scoping Plan's goals of achieving carbon neutrality no later than 2045).
[18] AB 32 GHG Inventory Sectors Modeling Data, *supra* note 6.
[19] Danny Cullenward, *California's Draft Climate Change Scoping Plan is Incomplete*, CARBONPLAN (May 17, 2022), available at: https://carbonplan.org/research/scoping-plan-comments.
[20] Draft Scoping Plan at 94, fn. 165.
[21] Draft Scoping Plan at 72.

IV. CARB's alternatives analysis is inadequate.

CARB's Draft EA shall contain "[a] discussion of a reasonable range of alternatives to the proposed project [that] could feasibly attain most of the project objectives but could avoid or substantially lessen any of the identified significant impacts[]."[22] CARB must discuss a reasonable range of alternatives in order to "foster informed decision making and public participation."[23] Unfortunately, the alternatives sections in both the Draft Scoping Plan and Draft EA fail in several fundamental ways, which CARB must correct by revisiting its analysis of potential alternatives or adopting the attached Real Zero Alternative. We discuss these points in further detail below.

A. CARB fails to analyze the same alternatives in the Draft Scoping Plan and Draft EA.

The Draft Scoping Plan provides that "[f]our scenarios for the AB 32 GHG Inventory and NWL were considered separately and helped to inform the Proposed Scenario."[24] The Draft EA concludes that "CARB has identified a reasonable range of four alternatives that allow the public and CARB to understand the differences among the different approaches."[25] However, the alternatives analyzed in the Draft EA are drastically different from the proposed AB 32 GHG Inventory and NWL alternatives in the Draft Scoping Plan. As a result, there is simply no way that the alternatives analyzed in the Draft EA allow the Board to make an informed decision on completely different alternatives included in the Draft Scoping Plan.[26]

Specifically, in the Draft Scoping Plan, Alternatives 1 and 2 would allow the state to achieve carbon neutrality by 2035, while Alternatives 3 and 4 would allow the state to achieve carbon neutrality by 2045.[27] The Draft Scoping Plan also provides four NWL alternatives with various management intensities for forest shrublands/chaparral/grasslands, croplands, developed lands, wetlands, and other lands.[28] The Draft EA, however, describes environmental impacts of a no project alternative and Alternatives A to C that are significantly different from the alternatives presented in the draft Scoping Plan. Below, we detail the ways in which the alternatives in the Draft EA differ from those presented in the Draft Scoping Plan, which again makes it impossible to understand the environmental impacts of the Draft Scoping Plan's alternatives or for the Board to make an informed decision, in violation of CEQA.

i. Alternative A

- CARB claims that Alternative A in the Draft EA is the "most similar" to the AB 32 GHG Inventory Sector Alternative 1 in the Draft Scoping Plan. However, these two alternatives

[22] 17 C.C.R. § 60004.2(a)(5) (citing 14 C.C.R. § 15126.6).
[23] 14 C.C.R. § 15126.6(a), (f) (lead agencies must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation).
[24] Draft Scoping Plan at 39.
[25] Draft EA at 252.
[26] 14 C.C.R. § 15126.6; 17 C.C.R. Section 60004.2(a)(5).
[27] Draft Scoping Plan at 40, 43-47.
[28] *Id.* at 48-51, 64-65; Draft Scoping Plan, Appendix C at 10-13, Table C-2.

are fundamentally different, as Alternative A analyzes carbon neutrality by 2045, not 2035.[29]

- CARB claims that Alternative A also contains an analysis on NWL Alternative 3/the Proposed Scenario. However, CARB fails to discuss any environmental or related health impacts of the land management strategies contained in NWL Alternative 3.[30]

ii. Alternative B

- Alternative B in the Draft EA, which CARB claims is similar to Alternative 4 in the Draft Scoping Plan, is fundamentally different. Alternative B would not meet the zero-emission goals for light-duty trucks, in contravention of both EO N-79-20 and Project Objective 5.[31]
- In Alternative B, CARB ignores likely significant environmental and health impacts resulting from the extensive build out and operation of mechanical CCS and carbon dioxide removal facilities. We discuss these impacts in more detail in Section IV of our Sector-Specific Comments.
- CARB claims that Alternative B contains an analysis on NWL measures contained in the Proposed Scenario. However, this is also unsupported, as CARB fails to discuss any environmental or related health impacts of the land management strategies contained in NWL Alternative 3.[32]

iii. Alternative C

- CARB claims that Alternative C in the draft EA considers the Proposed Scenario's AB 32 GHG Inventory Sectors and NWL Alternative 2.[33] Contrary to CARB's claim, Alternative C does not include any environmental impact analysis of Alternative 3 for the AB 32 GHG Inventory Sectors.

iv. Other Significant Errors and Omissions in the draft EA

- Shockingly, the draft EA fails to include any environmental impact analysis of:
    - Alternatives 2 for AB 32 GHG Inventory Sectors, nor
    - Alternatives 1 and 4 for the NWL scenarios.[34]
- The Proposed Scenario is not defined in the Draft EA. Given that none of the alternatives analyzed in the Draft Scoping Plan and the Draft EA are the same for the AB 32 GHG Inventory Sectors or NWL Sectors, CARB must include, in the Draft EA, the full range of reasonably foreseeable environmental impacts under the Proposed Scenario.

In sum, CARB must revise the Draft Scoping Plan and EA so that all of the AB 32 GHG Inventory and NWL Sector Alternatives analyzed in the revised documents are the same, and that

[29] Draft EA at 256, 260.
[30] *Id.* at 256-57 Table 7-1, 260-62.
[31] *Id.* at 263.
[32] *Id.* at 256; 263-64.
[33] *Id.* at 263.
[34] *Id.* at 256.

the Proposed Scenario is clearly defined. Only then can the CARB Board and the public evaluate and compare the different environmental impacts of these alternatives as mandated by CEQA.

B. Alternative 3 is not a reasonable alternative as it will not allow the Scoping Plan to feasibly meet most of its project objectives.

To the extent that Alternative 3 is analyzed in the Draft EA or will be analyzed in a revised draft environmental analysis, it should be rejected as it is not feasible and will not be able to meet most of the Scoping Plan's project objectives.[35] Unfortunately, as discussed in Sections II and III above, Alternative 3 will fail to meet the Scoping Plan's Project Objectives 1 and 2. Additionally, we discuss in this letter and in our Sector-Specific Comments how CARB has failed to ensure that Alternative 3 and associated measures do not disproportionately impact low-income communities (Objective 13); do not worsen air pollution and toxic air contaminant emissions (Objective 14); consider overall societal benefits, including air pollution reduction and public health benefits (Objective 15); maximize additional environmental and economic benefits (Objective 18); and consider the social costs and prioritize direct emissions reductions (Objective 20). Therefore, Alternative 3 is not a reasonable alternative and should not be considered or adopted by CARB.

C. CARB's inclusion of mechanical carbon capture and sequestration and carbon dioxide removal in all of the AB 32 GHG Inventory Sector alternatives artificially narrows the alternatives in a way that forecloses meaningful consideration of alternatives that do not contain these unnecessary and infeasible technologies

Unfortunately, three of the four proposed AB 32 GHG Inventory alternatives in the Draft Scoping Plan, and most of the alternatives included in the Draft EA, heavily rely on mechanical carbon capture and sequestration ("CCS") and carbon dioxide removal ("CDR")." This artificially narrows CARB's alternative analysis in a manner that forecloses the Board's ability to meaningfully consider alternatives that do not rely on CCS on industrial facilities such as refineries, and thus their ability to make an informed decision.[36]

Additionally, as we discuss in Section IV of our Sector-Specific comments, CCS, in particular on refineries, is not feasible. By focusing on unproven and currently infeasible technologies—to the detriment of effective alternatives that do not overzealously promote CCS and CDR—CARB fails to analyze a reasonable range of alternatives that are feasible and incorporate stronger direct emissions reduction measures to meet the Scoping Plan's project objectives.

To ensure that CARB provides a reasonable range of feasible alternatives that do not artificially narrow the Draft Scoping Plan and Draft EA's alternatives analysis, we recommend that CARB analyze a new alternative—the Real Zero Alternative—that will meet all of the Scoping Plan's project objectives, including reducing GHG emissions to 80-92% below 1990 levels by 2045, and avoiding disproportionate harm to low-income and disadvantaged

[35] 17 C.C.R. § 60004.2(a)(5); 14 C.C.R. § 15126.6.
[36] CEQA Guidelines § 15126.6(a), (f) (lead agencies must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation).

communities. The Real Zero Alternative also allows California to naturally transition internal combustion vehicles to ZEVs. See more details in Attachment A: Real Zero Alternative.

V. CARB fails to describe the environmental setting in low-income and disadvantaged communities.

CARB must provide a "description of the applicable environmental and regulatory setting for the project" in its environmental analysis.[37] The purpose of the environmental setting description is "to give the public and decision makers the most accurate and understandable picture practically possible of the project's likely near-term and long-term impacts."[38]

In addition, AB 32 requires and CARB includes as Objective 13 that the "activities undertaken to comply with [proposed GHG emission reduction] measures do not disproportionately impact low-income communities".[39] Similarly, AB 197 requires CARB to ensure that the Scoping Plan's measures "protect the state's most impacted and disadvantaged communities."[40] In light of these statutory mandates and Objective 13, the Draft EA's environmental setting discussion must describe existing environmental conditions in California's low-income and disadvantaged communities.

Unfortunately, CARB fails to describe existing physical conditions in low-income and disadvantaged communities in the Draft EA. Rather, Attachment A to the Draft EA (Environmental and Regulatory Setting) only discusses existing physical conditions and climate laws and regulations in California generally. As we discuss throughout this and our Sector-Specific Comments, the environment in which low-income and disadvantaged communities live is disproportionately polluted, and therefore are distinct from the environmental setting for California as a whole. Without explicitly including the baseline conditions facing low-income and disadvantaged communities, CARB would not be able to analyze and disclose whether the Scoping Plan's measures will result in short- and long-term impacts in these communities, in violation of CEQA, AB 32, and AB 197.

CARB must therefore revise Attachment A to the Draft EA to explicitly describe the existing environmental conditions in low-income and disadvantaged communities in California.

VI. CARB fails to analyze the health effects that the Draft Scoping Plan would have on low-income and disadvantaged communities in the draft EA.

The Draft EA fails to analyze the Draft Scoping Plan's impacts on human health, in particular in low-income and disadvantaged communities.

The draft EA must include "[a] discussion and consideration of environmental impacts, adverse or beneficial, and feasible mitigation measures which could minimize significant adverse

[37] 17 C.C.R. § 60004.2(a)(2).
[38] 14 C.C.R. § 15125(a).
[39] Cal. Health & Safety Code § 38562(b)(2); Draft EA at 13 (Project Objective 13).
[40] Cal. Health & Safety Code § 38562.5.

impacts identified".[41] Section 15126.2(a) of the CEQA Guidelines clarifies that environmental documents shall clearly identify and describe direct and indirect significant environmental effects of the project on the environment, including "*health and safety problems* caused by the physical changes . . . ."[42] Relatedly, a project may have a significant effect on the environment if "[t]he environmental effects of a project will cause substantial adverse effects *on human beings, either directly or indirectly*," among other criteria.[43]

As discussed above, CARB is also required, under AB 32 and AB 197, to ensure that the Scoping Plan's measures protect and not cause disproportionate impacts to low-income and disadvantaged communities. In light of these statutory mandates, CARB must also analyze and disclose the nature and magnitude of the measure's human health impacts in low-income communities and disadvantaged communities.

CARB includes health benefit estimates from projected PM2.5 and ozone reduction under the various proposed alternatives, in its discussion on long-term air quality impacts.[44] Unfortunately, the rest of the Draft EA fails to discuss the potential human health impacts that could result from the Draft Scoping Plan's reasonably foreseeable compliance responses. Nor does CARB specifically analyze health impacts in low-income and disadvantaged communities in the Draft EA or elsewhere in the Draft Scoping Plan.

CARB must therefore analyze the health impacts of each reasonably foreseeable compliance response, in order to comply with CEQA and ensure that the Board and the public understand the short- and long-term health impacts of the Scoping Plan, in particular in low-income and disadvantaged communities.

VII. CARB's public health analyses are inadequate and misleading.

We appreciate CARB staff's effort in providing preliminary public health analyses on the Draft Scoping Plan. However, the Draft Scoping Plan provides piecemeal, incomparable, and misleading analyses and therefore fails to provide critical information that the CARB Board needs to meet its legal obligation and ensure that the Final Scoping Plan minimizes negative health impacts and maximizes health benefits, particularly for low-income and disadvantaged communities.

Under AB 32, CARB shall "consider overall societal benefits, including reductions in other air pollutants . . . and other benefits to the economy, environment, and public health" when adopting GHG emission reduction measures in the Scoping Plan.[45] Relatedly, under AB 197, CARB must identify: (a) the range of projected GHG emissions reductions; (b) the range of projected air pollution reductions; and (c) the cost-effectiveness, including avoided social costs,

[41] 17 C.C.R. § 60004.2(a)(3).
[42] 14 C.C.R. § 15126.2(a).
[43] Cal. Pub. Res. Code § 21083(b)(3).
[44] Draft EA at 68-71.
[45] Cal. Health & Safety Code § 38562(b)(2); *see also* Draft EA at 13 (Project Objective 15).

for each proposed measure.[46] Social costs estimates must include the economic damages to public health, among other criteria.[47]

Ultimately, CARB must design GHG emission reduction measures "in a manner that is equitable, [and] seeks to minimize costs and maximize the total benefits to California []."[48] CARB must ensure that it reduces GHG emissions in a way that "benefits the state's most disadvantaged communities,"[49] and "do not disproportionately impact low-income communities".[50]

To meet the above statutory requirements, CARB must estimate how much overall air pollution reduction would be achieved under each proposed GHG emission reduction measure by 2045. CARB must also analyze both the short and long-term negative health impacts and benefits that each measure would bring, in particular in low-income and disadvantaged communities. These comprehensive public health analyses are necessary for the Board to be adequately informed so it can select the scenario or a combination of measures that would meet its statutory requirements, maximize health benefits, and minimize harm to low-income and disadvantaged communities.

Instead, CARB staff presents a partial, flawed public health analysis in the Draft Scoping Plan:

- For the proposed AB 32 GHG Inventory Sector alternatives, CARB provides an estimate of:
    - Avoided short-term negative health incidents and health benefits in monetary terms (i.e. health savings) for the months of January and July 2045, based on projected PM2.5 and ozone precursor emissions reductions under each proposed alternative.[51]
    - Avoided negative health incidents for the five measures "that are represented by changes to fuel combustion," in the years 2035 and 2045.[52]
- For the NWL alternatives, an estimate of:
    - Average annual avoided negative health incidents from 2025-2045, based on projected forest, shrubland, and grassland wildfire PM2.5 emissions reductions.[53]
    - Average annual relative health savings, based on projected forest, shrubland, and grassland wildfire PM2.5 emissions reductions.[54]
- A qualitative analysis of health benefits of "take action" scenarios versus the "no action" scenario.[55]

Unfortunately, these quantitative analyses are based on arbitrary or unsubstantiated modeling assumptions, partial data, and inconsistent methodologies—all of which lead to partial,

[46] Cal. Health & Safety Code § 38562.7.
[47] *Id.* § 38506.
[48] *Id.* § 38562(b)(1).
[49] Senate Bill 32 § 1(d) (2016).
[50] Cal. Health & Safety Code § 38562(b)(2); *see also* Appendix B at 13 (Project Objective 13).
[51] *See* Draft Scoping Plan at 102-7; Draft Scoping Plan, Appendix H at 62-85.
[52] Draft Scoping Plan at 113-17; Draft Scoping Plan, Appendix C at 17-25.
[53] *See* Draft Scoping Plan at 117-18; Draft Scoping Plan, Appendix C at 27-28.
[54] *See* Draft Scoping Plan at 107-08, Appendix I.
[55] Draft Scoping Plan at 127-144; Appendix G.

misleading, and incomparable results. Accordingly, the Draft Scoping Plan's incomplete and inconsistent public health analyses fails to provide the information that the CARB Board needs in order to evaluate which measures and alternatives would provide the greatest health benefits to Californians, and balance health benefits with other societal costs and benefits as mandated by AB 32, SB 32, and AB 197. As we detail below, CARB staff's decision to conduct piecemeal and incomparable health analyses is arbitrary and in violation of these laws. We urge CARB staff to substantially revise the draft health analyses in order to allow CARB to meet its statutory mandates, and to allow the Board to meaningfully compare the costs and benefits of each proposed measure and alternative.

A. CARB's Analysis on Short-term Health Savings of AB 32 GHG Inventory Sector Alternatives Is Inadequate for Meaningful Cost-Benefit Analysis, In Violation of AB 32.

CARB's preliminary health benefits and savings analyses for PM2.5 and ozone for only two months in 2045 result in extremely short-term and incomplete estimates that should not be used in CARB's analysis of the cost-effectiveness of the AB 32 GHG Inventory Sector alternatives. Yet, CARB inappropriately compares apples to oranges by weighing the estimated health savings for two months in 2045 from projected PM2.5 and ozone emissions reductions against estimated economic costs (direct costs, economic growth, and jobs) in the entire years of 2035 and 2045.[56]

CARB acknowledges that its health incident reductions and health savings estimates are episodic and do not amount to a comprehensive analysis of health benefits for the year of 2045 or over the Scoping Plan period.[57] Accordingly, CARB acknowledges that the value of short-term exposure health benefits is significantly lower than estimates of long-term exposure.

CARB has the ability to analyze long-term health benefits. CARB states that "BenMAP can be used to estimate long-term health impacts such as those occurring from annual average PM2.5 changes []."[58] CARB's decision not to analyze avoided health incidents and health savings over the Scoping Plan period or another longer period of time is arbitrary, especially given its ability to do so and its legal mandate to "maximize total benefits to California," consider overall societal benefits, social costs, and ensure the cost-effectiveness of each GHG emission reduction measure.[59] As we discussed above, it is impossible for CARB Board members to fulfill these mandates without being able to meaningfully compare the costs and benefits of the proposed alternatives and measures.

CARB's arbitrary decision to only analyze two months of data is especially irresponsible given that its sister agency, the Office of Environmental Health Hazard Assessment (OEHHA),

[56] Draft Scoping Plan at 51-53.
[57] Draft Scoping Plan, Appendix H at 72.
[58] *Id.*
[59] Cal. Health & Safety Code § 38562(b)(1); Cal. Health & Safety Code § 38562(b)(2); Cal. Health & Safety Code § 38562.7.

recently used BenMAP to project long-term (2020 to 2045) health benefits of implementation of 100% electric heavy-duty vehicles by 2045.[60]

Currently, CARB estimates that 362-606 premature deaths would be avoided in January and July, 2045.[61] If CARB analyzes health benefits and in turn, health savings, over the Scoping Plan period of 2021 to 2045, it would likely project an exponential increase in health savings than its current estimates.

In sum, we strongly recommend that CARB revise its AB 32 GHG Inventory Sector Alternative health analyses to disclose health savings based on average annual health benefits from the baseline year of 2020 through 2045 so that CARB Board members and the public can truly compare health benefits against other costs and benefits.

We highlight other arbitrary, unexplained, and unsubstantiated aspects of CARB's AB 32 GHG Inventory Sector alternative health analyses:

- Inexplicably, emissions reductions, reductions in health incidents, and health savings for $PM_{2.5}$ by itself are only presented for only January 2045, and are not compared to a reference scenario.[62]
- Health savings for "total health benefits" are also presented only for January and July 2045, and are not compared to a reference scenario.[63] CARB also fails to define "[t]otal health benefits."

B. CARB Fails to Adequately Analyze Health Benefits and Savings in Low-income and Disadvantaged Communities.

CARB estimates that health savings in disadvantaged communities from the AB 32 GHG Inventory Sector Alternatives range from $2.5 to $4.7 billion, based on only two months of data in January and July 2045.[64] Unfortunately, this analysis fails in several ways.

First, CARB's analysis does not allow CARB to meet its AB 32 mandate to ensure that the Scoping Plan does not disproportionately impact low-income communities. In order to analyze whether low-income communities are disproportionately impacted by the Scoping Plan's alternatives and measures, CARB should have compared health savings in low-income communities, not DACs, to higher-income communities.

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[60]CAL. OFFICE OF ENV'T HEALTH HAZARD ENF'T, IMPACT OF GREENHOUSE GAS EMISSIONS LIMITS WITHIN DISADVANTAGED COMMUNITIES: PROGRESS TOWARD REDUCING INEQUITIES 11, 28-29 (Feb. 2022), available at: https://oehha.ca.gov/media/downloads/environmental-justice/impactsofghgpoliciesreport020322.pdf.

[61] *See* Draft Scoping Plan, Appendix H at 79, 81, Tables H-40 and H-42. These calculations are based on avoided mortality estimates from $PM_{2.5}$ emissions reductions in January and July 2045, and $PM_{2.5}$ and ozone emissions reduction in July 2045.

[62] Draft Scoping Plan at 104-05, Figure 3-5; Draft Scoping Plan, Appendix H at 79-81, Tables H-40 & H-41.

[63] Draft Scoping Plan at 106, Figure 3-6; Draft Scoping Plan, Appendix H at 85, Table H-44.

[64] Draft Scoping Plan at 106-07, Figure 3-7; *see also* Draft Scoping Plan, Appendix H at 85, Table H-44.

Additionally, at the April 20, 2022 workshop, experts from UC Irvine also stated that they have the ability to evaluate public health impacts of GHG emissions reduction measures in disadvantaged communities.[65] Yet CARB fails to present any information on public health impacts and benefits of the measures for each disadvantaged community. Similarly, while CARB calculated health savings in DACs at a 4km x 4 km granularity, and acknowledges that the results "can then be reasonably down-scaled to the census tract level," it has failed to disclose this information in the Draft Scoping Plan. CARB must revise the Draft Scoping Plan to analyze and disclose health savings data at the census tract level.

In addition, the Integrated Transportation and Health Impacts Model (Cal-iTHIM) shows that increased physical activity from active transport and reduced vehicle miles traveled (VMT) yield significant health benefits and as a result significant health savings. The draft scoping plan fails to integrate these significant VMT health benefits into its analysis.[66]

C. CARB Fails to Conduct Pollution Reduction, Health Benefits, and Health Savings Analyses for NOx, ROG, and Other Criteria and Toxic Air Contaminants, in Violation of AB 32 and AB 197.

CARB has completely failed to conduct health analyses for nitrogen oxides (NOx) and reactive organic gases (ROG), and other criteria and toxic air contaminants. AB 32 requires CARB to "consider overall societal benefits, including reductions in other air pollutants . . . and other benefits to the economy, environment, and public health".[67] Under AB 197, CARB must identify: (a) the range of projected GHG emissions reductions; (b) the range of projected air pollution reductions; and (c) the cost-effectiveness, including avoided social costs, for each proposed measure.[68]

In the Draft Scoping Plan, CARB presents emissions reductions data for three primary pollutants, NOx, particular matter (PM), ROG, as well as two secondary pollutants, ground-level ozone and fine PM ($PM_{2.5}$).[69] CARB recognizes that "both primary (emitted) and secondary (formed) pollutants are important from a public health standpoint and contribute to the incidents of air pollution-related mortality and disease within California populations".[70]

CARB estimates that NOx emissions will be reduced by 89 percent under Alternative 1 and 43 percent under Alternative 4 in 2045, compared to 2020 baseline emissions.[71] However, CARB fails to explain why it does not take the necessary next step to evaluate the avoided negative

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[65] 2022 Scoping Plan Update - Initial Air Quality & Health Impacts and Economic Analyses UCI (4-20-22), Slides 8, 13, 16, available at: https://ww2.arb.ca.gov/sites/default/files/2022-04/SP22-Initial-AQ-Health-Econ-Results-ws-UCI.pdf; *see also* Video, "2022 Scoping Plan Update - Initial Air Quality & Health Impacts and Economic Analyses Workshop," at 4:00:20 to 4:02:37, *available at* https://www.youtube.com/watch?v=PtsFweUncT4.

[66] Neil Maizlish et al., *Health Benefits of Strategies for Carbon Mitigation in US Transportation, 2017–2050*, AM. J. PUB. HEALTH (Oct. 15, 2021), available at: https://ajph.aphapublications.org/doi/10.2105/AJPH.2021.306600.

[67] Cal. Health & Safety Code § 38562(b)(2); *see also* Draft Scoping Plan, Appendix B at 13 (Project Objective 15).

[68] Cal. Health & Safety Code § 38562.7.

[69] Draft Scoping Plan at 102.

[70] *Id.*

[71] *Id.* at 103-104, Figure 3-4.

health incidents and health savings for NOx, as it does for $PM_{2.5}$ and ozone. CARB fails to provide any evidence on why it has not conducted this analysis despite recognizing that primary pollutants are important contributors to air-pollution related health incidents, as discussed above. Similarly, CARB fails to analyze the public health benefits of projected ROG emissions reductions, and fails to substantiate this decision.

In Table H-38 of Appendix H, CARB also estimates emissions reduction of NOx, PM2.5, and ROG under each alternative in January and July of 2045.[72] However, CARB fails to explain whether these estimates are relative to the same 2020 baseline and 2045 Reference Scenario as used in the 2045 NOx emissions reduction estimates in Figure H-4. Without knowing this information, it is impossible to understand the relevance of the information presented in Table H-38.

Furthermore, CARB must analyze the public health impacts of reducing other criteria and toxic air contaminants, such as benzene, (a known carcinogen), and diesel particulate matter, for each alternative. CARB recognizes that it has not studied the health benefits of reducing benzene and other toxic air contaminants, which pose "known risks to public health".[73] The fact that toxic air contaminants are regulated via local rules and regulations does not excuse CARB from fulfilling its legal requirements under AB 32 and AB 197. Indeed, CARB already has emissions data on both criteria air pollutants and toxic air contaminants from existing stationary sources.[74] We urge CARB to analyze the health impacts of projected reductions for all criteria air pollutants and toxic air contaminants associated with GHG emission reduction measures.

D. CARB's Health Analysis on Select GHG Emission Reduction Measures Violates AB 197.

CARB also presents, in Appendix C (AB 197 Analysis), an analysis on relative avoided mortality and other negative health incidents for specific measures in the years 2035 and 2045.[75] As discussed above, AB 197 requires CARB to identify a range of GHGs, air pollutants, and assess the cost-effectiveness of all of the specific measures evaluated for the Draft 2022 Scoping Plan.[76]

CARB claims that it uses the criteria pollution emission reduction data in Tables C-3 to C-5 to calculate the health benefits/avoided negative health incidents (e.g., mortality, cardiac ER visits) that are "associated with the five key measures that are represented by changes to fuel combustion."[77] CARB completely failed to analyze the health impacts of non-fuel combustion measures, such as landfill and dairy emission reduction measures.[78] However, CARB fails to explain why it limited its health benefits analysis to these five key measures, instead of all measures as required by AB 197.[79] CARB's decision to conduct this limited analysis is arbitrary, violates AB 197, and likely resulted in a gross-underestimation on the health benefits associated

[72] Draft Scoping Plan, Appendix H at 73, Table H-38.
[73] Draft Scoping Plan at 102.
[74] OEHHA, *supra* note 59, 28-29.
[75] Draft Scoping Plan at 113-17; Draft Scoping Plan, Appendix C at 17-25.
[76] Cal. Health & Safety Code § 38562.7.
[77] Draft Scoping Plan, Appendix C at 17-18.
[78] *See Id.* at 9-10 (summarizing non-combustion emission reduction measures).
[79] Cal. Health & Safety Code § 38562.7.

with each alternative. Additionally, CARB estimates the health benefits of measures related to fuel combustion only for the years 2035 and 2045.

Additionally, CARB must also analyze the health savings of each GHG emission reduction measure to comply with its mandate to assess the cost-effectiveness of each measure under AB 197.[80]

CARB's health benefits analysis of measures related to fuel combustion, based only on these "snapshot" years of 2035 and 2045, violates AB 197, and is insufficient for CARB Board and the public to understand the public health benefits and savings of each emission reduction measure. Therefore, we recommend that CARB analyze and disclose health savings for all proposed GHG emission reduction measures based on average annual health benefits from 2021 through 45.

E. Appendix G functions as a scientific literature review; it does not incorporate this information into emissions reductions strategies or foster informed decision-making by the CARB Board.

We appreciate that CARB acknowledges in Appendix G that climate-related health risks and impacts are not distributed equally in California, and that specific populations face the greatest health risks and impacts.[81] Unfortunately, CARB does not use the information provided in Appendix G (Public Health) to supplement the qualitative health analyses discussed above.

Appendix G does not analyze qualitative health impacts or benefits among the AB 32 GHG Inventory Sector alternatives and measures.[82] Instead, Appendix G adopts a completely different methodology that has no connection to the Draft Scoping Plan's scenarios or measures. Appendix G describes health impacts between "no action" and "take action" scenarios.[83] The "no action" scenario assumes "[i]f the state and other jurisdictions take no action to reduce or minimize expected impacts from future climate change".[84] The "take action" scenario "is not a specific scenario within the Draft Scoping Plan but examines the broad outcomes of actions to achieve carbon neutrality in 2045".[85] Relatedly, the "take action" scenario alludes to "Draft Scoping Plan actions," but fails to define what these actions actually are.[86] CARB further fails to analyze in Appendix G how the Draft Scoping Plan's proposed measures would affect the health of specific communities, in particular low-income or disadvantaged communities.

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[80] Cal. Health & Safety Code § 38562.7.
[81] *See* Draft Scoping Plan, Appendix G at 6.
[82] The only section in Appendix G where CARB evaluates relative health impacts among proposed scenarios is in its comparison of the health impacts and savings/costs that would result from different wildfire smoke exposures based on the four proposed NWL alternatives. *See* Draft Scoping Plan, Appendix G at 46-48. However, this information is derived from analysis included in Appendix I. *See* Draft Scoping Plan, Appendix I at 100-02.
[83] Draft Scoping Plan, Appendix G at 30-31, 91.
[84] Draft Scoping Plan, Appendix G at 30.
[85] Draft Scoping Plan at 129, 140.
[86] Draft Scoping Plan, Appendix G at 31 (stating generally that "[t]aking the actions outlined in the Draft Scoping Plan will dramatically reduce fossil fuel combustion," as well as reduce heat and air pollution and wildfire smoke emissions).

In sum, the current public health analysis in Appendix G is nothing more than a literature review that does not inform CARB Board and the public on the public health tradeoffs among the alternatives. There is no clear connection between the information in Appendix G and the specific measures proposed by CARB. To correct this oversight, CARB must integrate a robust health equity analysis in the design and prioritization of its strategies and substantially revise Appendix G to analyze health impacts according to the AB 32 GHG Inventory Sector alternatives or the proposed measures within each alternative.

VIII. CARB's social costs analysis is inadequate.

As we pointed out in our May 5 Comment Letter, CARB uses the Interagency Working Group on the Social Cost of Greenhouse Gases (IWG)'s 2021 interim Values, but inexplicably does not evaluate the social costs of NOx emission reductions.[87] CARB also fails to analyze and present the social costs of GHGs at the community level.[88]

A. CARB must complete and incorporate the climate vulnerability metric into this Scoping Plan.

In the Draft Scoping Plan, CARB states that its contractors at UC Santa Barbara are developing a Climate Vulnerability Metric (CVM) "to quantify and map climate impact on human welfare in California communities, taking into account community vulnerability, and provide this information at the census tract level."[89] We appreciate CARB's and UCSB's work on developing the CVM, but are alarmed that CARB states that this critical tool *may* be included in the Final Scoping Plan.[90]

CARB's delay on finalizing the CVM violates its AB 32 mandate to ensure that the Scoping Plan's measures and actions do not disproportionately impact low-income communities,[91] and its AB 197 mandate to include in the Scoping Plan "[t]he cost-effectiveness, including avoided social costs, of [each GHG emission reduction] measure."[92] This delay necessarily means that CARB will fail to fulfill its commitment, articulated in the 2017 Scoping Plan, "to evaluate the comprehensive California-specific impacts of climate change and air pollution."[93] Indeed, CARB staff noted in the March 15, 2022 workshop that the purpose of the CVM is to help CARB fulfill its AB 197 requirement and commitment in the 2017 Scoping Plan to analyze the social costs of carbon at the community level.[94]

Even if CARB includes the CVM in the final Scoping Plan, it will not have provided sufficient time for the Board to use this information to consider social costs of climate change

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[87] Draft Scoping Plan at 120-21.
[88] See detailed comments in pages 8 to 10 of our May 5 Comment Letter (Attachment B).
[89] Draft Scoping Plan, Appendix G at 6.
[90] Draft scoping Plan, Appendix G at 6.
[91] Cal. Health & Safety Code § 38562(b)(2).
[92] *Id.* § 38562.7.
[93] CAL. AIR RES. BD., CALIFORNIA'S 2017 CLIMATE CHANGE SCOPING PLAN 41 (Nov. 2017) available at: https://ww2.arb.ca.gov/sites/default/files/classic//cc/scopingplan/scoping_plan_2017.pdf (emphasis added).
[94] Video, 2022 Scoping Plan Update - Initial Modeling Results Recording (March 15, 2022) at 5:48:15 to 5:53:00, available at https://www.youtube.com/watch?v=_lVCQ-RpTRM.

under AB 197, and ensure that the alternative it adopts for the Scoping Plan does not result in disproportionate impacts on low-income communities under AB 32.

Consequently, we urge CARB to complete the CVM and include it in a revised draft Scoping Plan, as well as provide an additional public comment period for the draft Scoping Plan, before presenting the final Scoping Plan along with the complete CVM for Board's consideration.

IX. Local Actions to Reduce GHG Emissions Must Be Equitable.

A. Local Climate Actions Must Prioritize Benefits to Low-income and Disadvantaged Communities.

i. Transportation Electrification

We appreciate CARB's guidance in the Draft Scoping Plan and Appendix D (Local Actions) on how local governments may reduce GHG emissions by decarbonizing and electrifying the transportation sector.[95] We strongly recommend that CARB revise Appendix D to clarify that all transportation electrification projects must prioritize the needs of disadvantaged community members. For instance, CARB should emphasize that state and local ZEV programs must prioritize residents living in low-income and disadvantaged communities. See our Sector-Specific Comments, at Section V, for additional recommendations on transportation.

ii. VMT Reduction

We also appreciate CARB's goals to reduce vehicle miles traveled (VMT) as the transportation sector accounts for the largest share of greenhouse gas emissions in our state. We again recommend that CARB emphasize that local actions to reduce VMT must be equitable for low-income and disadvantaged communities. See our Sector-Specific Comments, at Section V, for additional recommendations on transportation.

We further recommend that CARB explicitly direct local governments to pair their VMT reduction actions with actions to increase affordable housing near public transit. We are concerned that CARB's current guidance reinforces the notion that local governments could reduce or eliminate parking standards in new developments as a stand-alone strategy to achieve GHG reductions; such a measure will negatively impact low-income communities.[96] Instead, CARB should clarify that local governments should use the Density Bonus Law, which allows project proponents to bypass minimum parking availability requirements if they build 100 percent affordable housing projects near public transit. Similarly, CARB should clarify that local governments' actions to amend zoning or development codes to enable infill development must prioritize affordable housing.[97]

[95] Draft Scoping Plan, Appendix D at 3-5.
[96] *Id.* at 5, Table 1.
[97] *Id.*

iii. Building Decarbonization

While CEJA is in support of building decarbonization, we urge CARB to emphasize that local governments' efforts must prioritize projects that benefit low-income and disadvantaged communities first, before directing incentives to higher-resourced communities. See our Sector-Specific Comments on building decarbonization in Section VII.

B. CARB Should Not Contribute to the False Narrative that the California Environmental Quality Act ("CEQA") is a Barrier to Infill Development. Appendix D Should Requize That CEQA is Necessary to Advance and Sustainable and Equitable Development.

CEJA supports the use of land use planning laws and sustainable development projects as tools to advance our state's GHG emission reduction goals. In particular, we appreciate the set of recommendations in Appendix D entitled "Equity and Other Social and Environmental Considerations are Key Elements in Addressing the Climate Crisis."[98] We agree that comprehensive and integrated plans that center equity and guarding against displacement are crucial to advancing our state's climate, housing, and sustainable development goals.

However, we are very concerned that CARB perpetuates the misleading narrative that CEQA is a major barrier to development, most notably for infill housing.[99] This narrative has been created and perpetuated by corporate developers and industry representatives to inappropriately target CEQA, our state's most important environmental law. This narrative is problematic, disproven, and could lead to further environmental and public health harm, especially to low-income and disadvantaged communities.[100]

In Appendix D, CARB states that CEQA GHG impact analyses and mitigation measures continue to be sources of litigation and delay for projects, especially for infill housing projects in high-resource areas.[101] This narrative implicitly and errantly antagonizes CEQA as a reason for local governments' inability to reduce GHG emissions through infill development, and should be removed. Empirical data demonstrates that CEQA has not recently served as a barrier to new housing production, due to existing streamlining measures, CEQA's long-standing tiering and standardized mitigation measures, and the use of existing exemptions, where appropriate.[102] Additionally, CARB must recognize in Appendix D that: (1) CEQA litigation is often a last resort to compel local governments and developers to adopt more necessary practices that would result in greater GHG and co-pollutant emissions reduction; and (2) CEQA and CEQA litigation is necessary to protect low-income and EJ communities from projects on or near toxic or polluted areas.

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[98] *Id.* at 7-9.
[99] *Id.* at 6-7.
[100] ROSE FDN. & THE HOUSING WORKSHOP, CEQA'S ROLE IN HOUSING, ENVIRONMENTAL JUSTICE, & CLIMATE CHANGE 30 (Oct. 2021), available at: https://rosefdn.org/wp-content/uploads/CEQA-California_s-Living-Environmental-Law-10-25-21.pdf (concluding that CEQA has not restricted the supply of housing in California).
[101] Draft Scoping Plan, Appendix D at 7.
[102] Rose Fdn. & The Housing Workshop, supra note 99 at 41.

Indeed, CEQA is one of the few legal tools that allows low-income and EJ communities to meet both their housing and environmental protection needs.[103] It allows a community to be notified of projects that are proposed in their neighborhoods, to share their concerns regarding such projects, and to recommend ways to improve a project so that it better serves and protects the community. CEQA also provides a mechanism for holding project proponents and agencies accountable if they insufficiently analyze potential harms against local residents and neighborhoods.[104] The current pandemic demonstrates that we must carefully analyze and reduce projects' environmental impacts to protect the most vulnerable residents throughout the State, who are extremely susceptible to such public health threats.

While CARB recommends CEQA streamlining to facilitate forms of development that may reduce GHGs, it fails to provide any data to support the notion that such streamlining will result in more infill development, let alone tangible VMT reductions or other climate benefits. As discussed, a number of recent studies undermine the false narrative that CEQA creates significant barriers to development, and instead show that CEQA results in environmentally protective and equitable planning.

In addition, CARB concludes that if a residential project has all of the attributes it lists on pages 10-11 in Appendix D (e.g., minimum 20 percent affordability for lower-income families; siting on previously developed or underutilized land), there is "generally no evidentiary support for an argument that projects with all of these attributes would present potentially significant GHG/climate change impacts under CEQA".[105] We caution CARB to remove this sweeping and unsupported statement, as local governments could rely on them, resulting in unintended consequences, especially for already vulnerable and overburdened disadvantaged communities. For instance, if a residential development is being proposed on or near a toxic site, the project may result in significant GHG, co-pollutant, and public health impacts during excavation, build out, and/or use of it as a residence or mixed-use space.

Unfortunately, there are a number of additional claims within this section that are inaccurate and problematic, as they do not, in fact, promote equitable and sustainable development. For instance, "net-zero emissions" developments such as the FivePoint Valencia development project (formerly known as Newhall Ranch) that have been touted as climate-friendly models actually promote sprawling development[106] and are likely to produce impacts on the local ecology despite its claim of being "net-zero GHGs." This section also discusses the alleged benefits of projects subject to AB 900 (2011) and, similarly, SB 7 (2021) CEQA judicial streamlining processes," despite the fact that the purported environmental and climate benefits of such projects

[103] CAL. ENV'T JUSTICE ALLIANCE, RETHINKING LOCAL CONTROL IN CALIFORNIA 8-9, 19-20 (Mar. 2020), available at: https://calgreenzones.org/report-rethinking-local-control/; ROSE FDN., CEQA: CALIFORNIA'S LIVING ENVIRONMENTAL LAW 77-79 (Oct. 2021), available at: https://rosefdn.org/wp-content/uploads/CEQA-California_s-Living-Environmental-Law-10-25-21.pdf.
[104] *Id.*
[105] Draft Scoping Plan, Appendix D at 11.
[106] Emily Witt, *Can Sustainable Suburbs Save Southern California?*, NEW YORKER (May 3, 2022), available at: https://www.newyorker.com/news/letter-from-los-angeles/can-sustainable-suburbs-save-southern-california.

are unclear and dubious at best.[107] Furthermore, we continue to urge CARB to reduce or eliminate the use of market mechanisms such as cap-and-trade, including carbon offset programs.

Instead of promoting false solutions that disproportionately harm low-income residents and communities of color, CARB should revise Appendix D to present a more nuanced perspective and recognize the important role of CEQA, or eliminate its critique of CEQA altogether in this section. For further reference, CEJA recommends reviewing the Environmental & Housing Justice Platform (EHJP) for CARB's consideration.[108]

C. Local Governments Should Prioritize Avoiding and Mitigating GHG Emissions and other Pollution Impacts On-site, and Eliminate the Use of Offsets.

We appreciate CARB's statement in Appendix D that it would be inappropriate for local governments "to rely upon the State's Cap-and-Trade Regulation as a reason not to provide appropriate GHG analysis and, if needed, mitigation, for local development projects."[109] We also appreciate that CARB emphasizes that project proponents should first exhaust all on-site mitigation options before turning to local off-site mitigation options, as it is important to prioritize direct emissions reductions at the source. However, CARB contradicts this latter statement by also stating that a desired outcome of its guidance on mitigation hierarchy is to encourage project proponents and local governments to "use local, *off-site* mitigation options consistent with CEQA's requirements."[110] CARB should correct its error by emphasizing that project proponents must first exhaust *on-site* mitigation throughout Appendix D.

We appreciate CARB's guidance that lead agencies minimize the usage of CEQA "Statement of Overriding Considerations" to avoid mitigating impacts, and instead build better projects that avoid significant impacts or mitigate them on-site. However, we are severely concerned that CARB continues to promote the usage of carbon offset strategies, which have been proven to be inequitable, ineffective, and unverifiable.

Fundamentally, offsets allow harmful industry and development to pollute the same neighborhoods where they are located, and are likely to produce disproportionate harms and burdens for historically-marginalized low-income neighborhoods and Black, Indigenous, and people of color (BIPOCs). Offset projects in the form of local infrastructure may actually increase socioeconomic inequities if the investments (e.g., electric vehicle charging stations or energy efficiency retrofits) benefit higher-resourced households at the expense of lower-income BIPOC residents. In many instances, development that purports to produce environmental and climate benefits are "greenwashing" strategies that cover up sprawling growth and local damage to the environment while not, in fact, reducing GHGs.[111] In addition, "[o]ffsets are different than the cap and trade market as there is no regulatory cap ratcheting down emissions for the land development

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[107] POLICY MATTERS, REVIEW OF ENVIRONMENTAL LEADERSHIP DEVELOPMENT PROJECTS (Apr. 2019), available at: https://www.pcl.org/media/2019/09/2206-policy-matters-04.19-environ.-leadership-projects.pdf.
[108] *Environmental & Housing Justice Policy Platform,* Cal. Env't Justice Alliance, https://calgreenzones.org/platform-for-environmental-housing-justice/.
[109] Draft Scoping Plan, Appendix D at 19.
[110] *Id.* at 14.
[111] Witt, *supra* note 105.

sector."[112] We discuss additional issues with Cap-and-Trade offsets in Section VIII of our Sector-Specific Comments.

Furthermore, while regional frameworks and collaborations are important for designing and implementing regional solutions for reducing emissions, such strategies should not be undertaken to advance local mitigation markets.[113] Similarly, we are wary of CARB's suggestion to create a statewide mitigation bank if it would allow developers to pay a nominal fee in order to avoid their responsibility to directly lower emissions and mitigate environmental harms on-site or locally.[114] Similar to the existing challenges with in-lieu fees for housing developments,[115] stricter standards must be established to ensure that money held in trust will be used to deliver its intended benefits, such as direct and verifiable GHG emissions and pollution reduction, as well as benefits in low-income and disadvantaged communities. If a statewide mitigation bank is created, the majority of funds should be directed to affordable housing developments in disadvantaged communities. Moreover, statewide mitigation banking should not take precedent over on-site mitigation strategies, to ensure that directly impacted communities experience the benefits of mitigation activities.

D. Appendix E Should Recognize That CEQA is Necessary for Advancing Sustainable and Equitable Communities.

We appreciate the recommendations in Appendix E that encourage the preservation of existing housing stock in order to protect residents and businesses from displacement and harmful climate impacts.[116] Similar to our comments regarding Appendix D, however, we are concerned that the recommendations in this section promote the troubling misconception that CEQA remains a significant barrier to housing development in California. Action G, in particular, encourages the state to remove "CEQA barriers to increasing density and streamlining affordable housing development, and create policy protections that preempt local voter initiatives."[117] While CEQA is frequently blamed as a major barrier to housing in our state, no credible evidence or research has been shown to support that hypothesis.[118] We recommend that CARB remove this unsupported and false narrative in Appendix E.

In addition to CARB's use of CEQA as a scapegoat for California's affordable housing concerns, we are concerned about the language in Action G that recommends preempting certain voter initiatives to remove alleged hurdles to housing development. When designed well, voter initiatives can create important solutions for healthier and more sustainable development (e.g., designating land use setbacks or buffers between incompatible uses, or creating urban growth boundaries to curb sprawl). The recommendation to preempt local voter initiatives could empower local governments to inappropriately overturn any local initiative that aims to protect public health

[112] *Id.*
[113] Draft Scoping Plan, Appendix D at 20.
[114] *Id*.
[115] Aaron Shroyer, *Determining In-Lieu Fees in Inclusionary Zoning Policies*, URBAN INST. 5 (May 2020), available at: https://www.urban.org/sites/default/files/publication/102230/determining-in-lieu-fees-in-inclusionary-zoning-policies.pdf.
[116] Draft Scoping Plan, Appendix E at 28-29.
[117] *Id.*
[118] ROSE FDN., *supra* note 41 at ii.

if it could be misconstrued as a "barrier to development." Reversing local voter initiatives is undemocratic, subverts the will of local communities, and may lead to further environmental and environmental justice harms for low-income and BIPOC communities. We recommend that CARB remove this language in Appendix E.

X. CARB has failed to provide individuals with limited English proficiency the opportunity to participate in the Scoping Plan process.

Finally, CARB has failed to provide meaningful opportunities for engagement to individuals with limited English proficiency (LEP), who represent a major constituency across diverse California communities. In doing so, CARB violates its own Bilingual Services Policy.[119] As of this writing, CARB has produced no materials regarding the Draft Scoping Plan—not even brief summaries outlining the major policy decisions contained therein—in any language other than English.[120] Nor were any of the written materials prepared for more than a dozen public workshops provided in any language other than English.[121] The only apparent attempt to address the significant participation barriers facing LEP individuals appears in the "Notice of Public Meeting to Consider the Draft 2022 Climate Change Scoping Plan" which provides written instructions—in Spanish only—for those wishing to request live interpretation services during the Board hearing on June 23, 2022.[122]

CEJA is composed of a diverse coalition of grassroots environmental justice organizations representing low-income communities, including many low-income immigrant communities and communities of color. Collectively, our organizations represent a richly diverse set of communities, including many LEP individuals who primarily or exclusively speak Spanish, Tagalog, Cantonese, Mandarin, various Indigenous languages, , and others. As the Draft Scoping Plan appropriately notes, Black, Indigenous, and People of Color (BIPOC) communities, and particularly low-income BIPOC communities, have been disproportionately burdened with the negative health and environmental impacts of climate change and the continued failure to curb its effect. It is essential that CARB, in executing its mandate, take meaningful steps to engage with those most deeply impacted by its efforts. The piecemeal language access measures CARB has taken to date are sorely inadequate in upholding this important responsibility.

Thank you for considering our comments above and our separately-submitted Cross-cutting Sector Comments on the Draft Scoping Plan. We hope to continue working with CARB

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[119] BILINGUAL SERVICES POLICY 07-14, CALIFORNIA AIR RESOURCES BOARD (CARB), (Oct. 2007), https://ww3.arb.ca.gov/eeo/07-14.pdf.

[120] The website hosting the 2022 Draft Scoping Plan, which CARB initially published on May 10, 2022, currently states that a Spanish translation of the Draft is "forthcoming." To date, however, no such document has been publicly posted nor is there any indication that translations in other languages will be provided. *See* CAL. AIR RES. BD., 2022 SCOPING PLAN DOCUMENTS (last visited June 24, 2022), available at: https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents.

[121] Scoping Plan Meetings & Workshops, CARB (last updated June 10, 2021), available at: https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/scoping-plan-meetings-workshops.

[122] CAL. AIR RES. BD., NOTICE OF PUBLIC MEETING TO CONSIDER THE DRAFT 2022 CLIMATE CHANGE SCOPING PLAN (May 10, 2022), available at: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/draftsp22notice1.pdf.

staff and the Board to adopt a Scoping Plan that meets California's climate and equity mandates to promote well-being for all Californians and our planet.

Sincerely,

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Connie Cho, *Attorney*
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Attachment A: Real Zero Alternative - June 2022

Sector		Alternative 1 Carbon Neutral by 2035	Alternative 3 Carbon Neutral by 2045	Real Zero Alternative **Carbon Neutral by 2045** **80% - 92% GHG reductions by 2045*** **The majority of our recommendations are based on most ambitious scenario in E3's 2020 Achieving Carbon Neutrality Report, which if implemented would result in 80-92% statewide GHG emissions reduction from 1990 levels by 2045. We note below policy measures that were recommended in that report.*
Transportation	VMT	VMT per capita reduced 25% below 2019 levels by 2030, and 30% below 2019 levels by 2035	VMT per capita reduced 12% below 2019 levels by 2030 and 22% below 2019 levels by 2045	VMT per capita reduced 25% below 2019 levels by 2030, and 30% below 2019 levels by 2035[1]
	LDV ZEVs	100% LDV sales are ZEV by 2030	100% LDV sales are ZEV by 2035	100% LDV sales are ZEV by 2035, and at least 75% LDV sales are ZEV by 2030[2]
	Truck Heavy-Duty ZEVs	100% of MD/HDV sales are ZEV by 2030	100% of MD/HDV sales are ZEV by 2040	100% of MD/HDV sales are ZEV by 2035[3]; 100% of all transit buses ZEV by 2030
	Port Operations	100% of cargo handling equipment is zero-emission by 2030; 100% of drayage trucks are zero-emission by 2030	100% of drayage trucks are zero emission by 2035	100% of drayage trucks are zero emission by 2030[3]; 100% of cargo handling equipment is zero-emission by 2030[4]
	Vehicle Early Retirements	LDV: 16M 5 - 16 yr. old MD/HDV: 1.4M 5 - 16 yr. old	N/A	HDV: ~131,000 13 - 18 yr. old trucks[5]
Fossil Fuels	Oil & Gas Extraction	Phase out operations by 2035	Phase out operations by 2045**	Phase out operations by 2035
	Petroleum Refining	Phase out production by 2035 in line with petroleum demand	CCS on majority of operations by 2030 Production reduced in line with petroleum demand	Phase out production by 2045[3]
	Petroleum Refining Remaining	2035: 0% 2045: 0%	The Draft Scoping Plan contains inconsistent data regarding refinery emissions.	2035: Proportional based on planning[3] 2045: 0%[3]
	Total CCS Needs (Industrial & Refining)	2035: <1MMT 2045: <1MMT	2035: 10MMT 2045: 4MMT	2035: <1 MMT 2045: <1 MMT
Electricity	Electricity Generation	GHG target of 23 MMTCO2e in 2030, and 0 MMTCO2e in 2035	GHG target of 38 MMTCO2e in 2030, and 24 MMTCO2e in 2045	GHG target of 0 MMTCO2e in 2035; Total load coverage; Renewable Portfolio Standard (RFS)-eligible and zero carbon resource generation, and no new gas build or expansion. Instead, scale up peak shaving measures; No CDR/CCS in electric sector
	Annual Build Rates	Solar: 10GW Battery: 5GW	Solar: 7GW Battery: 2GW	Solar: 6 GW Wind: 1.5 GW Battery: 4 GW
Building Decarb	Existing Residential Buildings	80% of appliance sales are electric by 2025; 100% of appliance sales are electric by 2030; All buildings retrofitted to electric appliances by 2035	80% of appliance sales are electric by 2030; 100% of appliance sales are electric by 2035; Appliances are replaced at end of life	100% of appliance sales are electric by 2030[3]; Establish and fully fund programs for no/little up front cost retrofits (weatherization, efficiency, conservation, demand management / load shifting, efficient electric appliances) for low-income communities by 2025; Retrofit 50% of all existing residential buildings (replace gas-fired space heating, A/C and water heaters with efficient electric heat pump appliances) by 2035; 100% of existing residential buildings retrofitted by 2045; All gas end uses retired by 2045[3]
	Residential Early Retirements	7M electric homes. Appliances 5-16 yr old	N/A	No recommendation
Industry and Agriculture	Agriculture Energy Use	50% energy demand electrified by 2030, and 100% by 2035	25% energy demand electrified by 2030, and 75% electrified by 2045	No recommendation
	Low Carbon Fuels for Buildings & Industry	RNG directed to Cement facilities by 2035	In 2030s RNG blended in pipeline Renewable hydrogen blended in natural gas pipeline at 7% energy (~30% by volume), ramping up between 2030 and 2040	No RNG use and no hydrogen blending for use in buildings
	Non-Combustion Methane Emissions	No additional landfill or dairy digester methane capture; Rate of dairy herd size reduction increases compared to historic levels	Increase landfill and dairy digester methane capture; Moderate adoption of enteric strategies by 2030	Directly regulate and enforce necessary decreases in livestock methane emissions to achieve 40% reduction target set forth in SB 1383; Accelerate alternative, sustainable farming models that will also help sustain farm production, starting 2024; Remove incentives for dairy biogas[6]; Disontinue dairy digester program and retire dairy digesters at latest by 2030; Redirect millions in funding to further develop regenerative, agroecological programs; Significantly reduce density of the California's dairy herd, which is necessary to support manure management techniques that do not incentivize methane production; Limit alternative manure management projects to only those that reduce methane production at the source
	Residual Carbon Emissions *Current global DAC 0.01MT/year*	2035: 48MMT 2045: 37MMT	2035: 0MMT 2045: 100MMT	2035: 0 MMT 2045: X for residual MMT[3] *The most ambitious pathway in the Carbon Neutrality Report estimated a remainder of 33 MMT CO2e by 2045, representing a 92% reduction in gross emissions relative to 1990 levels.*

1. CAL. STATE TRANSP. AGENCY, CALIFORNIA TRANSPORTATION PLAN 2050 91 (Feb. 3, 2021), available at: https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/ctp-2050-v3-a11y.pdf.

2. This recommendation is consistent with our advocacy in CARB's Advanced Clean Cars II rulemaking process.

3. ENERGY & ENVT'L ECON. INC. (E3), ACHIEVING CARBON NEUTRALITY IN CALIFORNIA: PATHWAYS SCENARIOS DEVELOPED FOR THE CALIFORNIA AIR RESOURCES BOARD (Oct. 2020), available at: https://ww2.arb.ca.gov/sites/default/files/2020-10/e3_cn_final_report_oct2020_0.pdf.

4. PORT OF SAN DIEGO, MARITIME CLEAN AIR STRATEGY (Oct. 2021), available at: https://pantheonstorage.blob.core.windows.net/environment/20211214-Final-MCAS.pdf.

5. This recommendation is based on the Coalition for Clean Air's Truck Retirement Proposal to CARB in July 2021.

6. Michael Sainato, "California subsidies for dairy cows' biogas are a lose-lose, campaigners say," The Guardian (Feb 4, 2022), available at: https://www.theguardian.com/environment/2022/feb/04/california-subsidies-biogas-dairy-cows-emissions-climate; *Petition for Rulemaking to Exclude All Fuels Derived From Biomethane From Dairy and Swine Manure From The Low Carbon Fuel Standard,* available at: https://food.publicjustice.net/wp-content/uploads/sites/3/2021/10/Factory-Farm-Gas-Petition-FINAL.pdf.

** It is unclear whether CARB affirmatively proposes this measure, due to other contradictory statements in the Draft Scoping Plan.

Last Updated: 6/24/22

Attachment B

May 5, 2022

California Air Resources Board Staff
California Air Resources Board
1001 "I" Street
Sacramento, CA 95814

VIA EMAIL

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RE: Environmental Justice Concerns Regarding Initial Scoping Plan Modeling

Dear CARB Staff,

We thank you for your commitment to the enormous task that is the California Air Resources Board (CARB) 2022 Climate Change Scoping Plan (Scoping Plan). Although we are disappointed with the modeling process and CARB staff's recommendation that Alternative 3 be adopted, the California Environmental Justice Alliance (CEJA) offers these comments with a

deep commitment to the iterative revision process for the 2022 Scoping Plan. Low-income people and people of color who live, work, and organize in the most polluted areas of California cannot afford any less than a Plan that truly advances environmental justice.

None of the alternatives currently proposed by CARB can or should be considered a pathway to achieve environmental justice in California, including Alternative 1. In a comment letter submitted on March 9, 2022[1], environmental justice organizations urged CARB to put California on the path to a full, coordinated phase out of fossil fuels by 2045, and ensure that the communities most harmed by the fossil fuel industry benefit from the transition to clean, zero-emissions energy. Specifically, we asked CARB to:

- Conduct a **robust public health equity analysis** that is embedded into and informs the evaluation, selection, and prioritization of various Scoping Plan strategies and policies.
- **Prioritize direct emission reductions** at the source that amount to at least 40% below 1990 levels by 2030 and at least 80% to 92% below 1990 levels by 2045.[2] *Appendix A: Table Summary of Direct Emission Reduction Strategies* from our March 9, 2022 letter provides a suite of policy recommendations to meet these targets.
- **Eliminate or minimize reliance on climate policy dead ends** including the use of market mechanisms such as cap-and-trade, engineered carbon removal such as Carbon Capture, Utilization and Sequestration (CCUS), and other purportedly "carbon neutral" technologies and fuels which facilitate continued use of fossil fuels and new polluting fuels in disadvantaged communities.
- **Conduct equitable implementation and provide investments in community-driven solutions** that ensure the communities most harmed by the fossil fuel industry are first in line to benefit from the transition to clean energy. Our proposed policies can and should be implemented in coordination with other state agencies in a way that deeply benefits disadvantaged communities without increasing economic and health burdens.

CARB staff has prematurely recommended Alternative 3 based on unreliable modeling assumptions and preemptively made policy choices in an arbitrary manner. After our review and assessment of the initial set of modeling results, we recommend CARB take steps to revise the modeling based on the following:

- Update crude draft assumptions about technology costs with operational data and update macroeconomic employment data with additional research and projections pertaining to a zero-emissions economy and a comprehensive set of economic sectors.

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[1]Environmental justice organizations, March 9, 2022 comment letter submitted to CARB: Re: EJ Recommendations for 2022 CARB Scoping Plan, *available at* https://www.arb.ca.gov/lists/com-attach/3-ejacrecommendations-AW1RMgdyUXZXNFMh.pdf

[2] *Achieving Carbon Neutrality* report (Oct. 2020) at 26 / Figure 4 -- E3 modeled (without carbon capture) direct emission reductions of 80%, 87%, and 92% by 2045) *available at* https://ww2.arb.ca.gov/sites/default/files/2020-10/e3_cn_final_report_oct2020_0.pdf

- Consider the severe limitations of social and public health costs modeling approaches and supplement with more accurate data and analyses when making a recommendation.
- Refrain from overreach in policy-making through modeling assumptions which inappropriately predetermines a program before demonstrating thorough analysis of alternatives, like in the case of internal combustion engine early vehicle retirements.

CARB must rectify the concerns outlined before adopting a scenario as the basis for the 2022 Scoping Plan by revising its modeling with more rigorous, evidence-based cost assumptions and greater nuance in the policy choices that undergird modeling assumptions. Without revision and based on such a flawed foundation, CARB risks seriously misunderstanding the costs, benefits, and tradeoffs of different policy options, which could lead to CARB staff recommending a suboptimal or even harmful path forward, further burdening disadvantaged communities and leading us astray from meeting California's climate goals.

I. Alternative 1 is Not an Environmental Justice Scenario

We had some initial hope that Alternative 1 would become an environmental justice scenario based on intentions named by CARB staff to the Environmental Justice Advisory Committee (EJAC). However, from the very outset, key recommendations for scenario inputs were sidelined. Subsequently, scenario input revisions released on December 15, 2021 and additional assumptions revealed in the initial PATHWAYS, BenMap, and IMPLAN modeling and social costs calculations during the March 15, 2022 and April 20, 2022 workshops further proved Alternative 1 was not reflective of environmental justice concerns or positions. For example, neither the EJAC nor CEJA advocates have specified a preferred carbon neutrality date for *all* sectors in the Scoping Plan. Instead, we called on CARB to prioritize aggressive direct emissions reductions in the short term, and direct our attention and investments in zero-emissions infrastructure *now*, rather than relying on an arbitrary 'neutrality' timeline in the long term. In addition, advocates neither asked for a standalone internal combustion engine (ICE) vehicle buy-back program nor a 2035 oil refinery phase out deadline. These additional assumptions–made by CARB staff and not environmental justice advocates–generated modeling results with significant cost implications that inaccurately inflate the costs of policies, targets, and goals that environmental justice advocates have actually developed.

II. Key Modeling Flaws and Assumptions

With the currently modeled scenarios, CARB is presenting Californians and the Governor's office with a skewed picture of our state's economic outlook. For example, the modeling does not sufficiently incorporate the avoided costs of climate and health damages as part of the benefit of each scenario. Additionally, global cost estimates of climate damages provided by the Interagency Working Group on the Social Costs of Greenhouse Gases do not

reflect what percentage or fraction of damages will occur in California. For example, as *California's Fourth Climate Change Assessment* by the Office of Planning and Research predicts, there will be a $50 billion annual price tag for extreme heat alone in the state.[3] It is predictions like this that are crucial to creating a complete picture of the economic necessity of directly reducing economy-wide emissions to zero. Additionally, the limited and insufficient calculations of health burdens and associated cost assumptions makes the justification of a trade-off between our communities' lives and the longevity of the fossil fuel industry more permissible.

We request that CARB reconsider the limitations of the modeling, as expressed by modelers themselves, and reevaluate whether it is appropriate to issue a recommendation before a thorough public and Board-wide analysis and rectification of modeling assumptions. We hope to comment more comprehensively after receiving a full disclosure of the cost assumptions used in PATHWAYS modeling for the Scoping Plan. In the interim, we offer the below comments on key modeling flaws and assumptions:

1. **Transportation Modeling**

   A. Transportation electrification (Alternative 1): The inclusion of an early retirement program to remove all ICE vehicles is responsible for the rapid increase in costs between 2030 and 2035. This is a significant policy choice that CARB staff made on their own, and is not something environmental justice advocates on the EJAC or at CEJA asked for. Tying the most ambitious zero-emission vehicles (ZEV) and vehicle miles traveled (VMT) reduction targets with a vehicle retirement program skews key information about the costs and benefits of the aggressive transportation strategy we asked for. These modeling assumptions about the early vehicle retirement program are not only infeasible, but are entirely cost prohibitive, which distorts the results of the economic modeling to the point where it is unusable and counterproductive to informed decision-making. ***CARB should decouple the accelerated ZEV sales and VMT targets from an ICE vehicle early retirement program in order to give a more accurate assessment of the costs and benefits from those strategies.***

   B. Vehicle energy efficiency: Though not currently reflected in the modeling, PATHWAYS is capable of modeling energy efficiency per vehicle type, which can reflect the cost and benefit comparison between electric light-duty vehicles and zero-emission buses. ***CARB should model energy efficiency per vehicle type.***

[3] *California's Fourth Climate Change Assessment: Statewide Summary Report* (Aug. 2018) at 95, CA Office of Planning and Research, *available at* https://www.energy.ca.gov/sites/default/files/2019-11/Statewide_Reports-SUM-CCCA4-2018-013_Statewide_Summary_Report_ADA.pdf.

C. VMT costs: Cost estimates for VMT reduction transportation strategies were not modeled, which limits the data available to the CARB Board to make an informed decision. ***CARB must utilize data that demonstrates the costs of VMT reductions compared to the costs of ZEVs and ZEV charging infrastructure. VMT reduction costs must be modeled to compare the cost effectiveness of investing in light-duty vehicles versus light-rail transit.*** Additionally, costs related to VMT reduction measures were not included in the economic modeling. VMT reduction measures should be analyzed similar to direct subsidies to transit operators for fee reductions, increased frequency in existing transit routes, road congestion pricing, increases in mass transit statewide mode share, and/or accelerated California Transportation Plan (CTP)/Climate Action Plan for Transportation Infrastructure (CAPTI) implementation.[4]

2. Carbon Capture and Storage (CCS) / Direct Air Capture (DAC) Modeling

A. CCS cost assumptions: ***Cost assumptions of CCS should be based on operational data and actual capitalized cost timelines based on different carbon management technologies***, not just industry proposed budgets for Front End Engineering Design (FEED) studies. Costs also differ drastically across types of technology and industry (e.g. CDR, DAC, BECCS, CCS, CCUS), by sector, where it applies, and by type of point source emission infrastructure. The modeling results do not accurately reflect reality, particularly regarding oil refineries. ***CARB must also consider comparative capitalized cost inefficiencies***[5], including climate and financial risks of sinking billions of dollars into fossil fuel infrastructure that California and other western state climate policies will soon render obsolete, versus, for example, investing in electrifying and expanding California's bus fleet.

B. DAC cost assumptions: PATHWAYS modeling inaccurately uses the solar-electric industry as a proxy for the direct costs of liquid solvent DAC technology powered by off-grid solar. Given there is currently not an existing DAC industry, ***CARB must be accurate and transparent about the exact assumed costs attributed to DAC***. The assumption of cost parity with the solar industry is unsubstantiated, and DAC cost accuracy is critical to adequately comparing the costs of post-combustion emissions captured with direct emissions reductions. Accuracy is doubly important from an environmental justice perspective because the modeling assumes costs of DAC are passed on to consumers, which has significant

[4] Note: the California Transportation Plan 2050 balanced scenario estimates a 28% VMT reduction associated with various land-use and transportation strategies reflecting a 11% statewide mode share for transit, *available at* https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/ctp-2050-v3-a11y.pdf.

[5] Wara et al, Stanford, April 4, 2022, Comment letter submitted to CARB portal on modeling results, *available at* https://www.arb.ca.gov/lispub/comm2/bccommlog.php?listname=sp22-modelresults-ws.

implications for household spending, particularly for low-income and disadvantaged communities. Furthermore, it is concerning that this assumption automatically implies that the financial risks of this technology will fall squarely on taxpayers.

C. Safety risks: California has massive, aging, volatile, and severely space-limited refineries with hundreds of combustion stacks and thousands of fugitive emission sources. CARB's consideration of oil refineries as if they were simple industrial facilities with one stack has no relation to the reality of vastly complex refinery systems. ***Attempting to fit CCS onto acres of tightly spaced refinery stacks is not only infeasible and ineffective, but if forced, would create a new and substantial safety hazard***. We direct your attention to Communities for a Better Environment (CBE) documentation previously submitted to CARB for more details.[6]

D. Infeasibility: There are currently *no* refinery-wide CCS systems (either pilot or operating) anywhere on the planet, according to maps in a Stanford report, even though this same report praises the future *theoretical* potential of CCS on refineries, and proposes subsidizing it to make it profitable. This assertion seems primarily based on pilots at much simpler industrial sites, without evaluation of application to a whole existing refinery, regarding space, logistics, engineering, and safety complexities.[7] The only CCS systems listed in a refining facility are for a small part of related activities: hydrogen plants (frequently owned by a third party). Even ***for these limited refinery systems, CARB must consider them very low efficacy, and consider that refinery CCS is largely being proposed by the oil industry despite infeasibilities, in order to prolong the operation of inherently dirty refineries, and at the expense of a phase out plan***. Ultimately, CCS can never eliminate the bulk of refinery greenhouse gases (GHGs), smog-precursors, and toxic emissions. Only feasible zero-emission transportation fuels to replace refineries and their products can.

3. Macroeconomic Modeling

CARB can and should strengthen its subsequent economic modeling for the Scoping Plan to more holistically incorporate research to date documenting California's economic future. We raise the following limitations of the IMPLAN modeling conducted for the Scoping Plan so to

[6] Communities for a Better Environment (CBE), April 4, 2022 comment letter submitted to CARB: Re: CARB Draft Scoping Plan: AB32 Source Emissions Initial Modeling Results, at 4-10, *available at* https://www.arb.ca.gov/lispub/comm2/bccommlog.php?listname=sp22-modelresults-ws.

[7] *An Action Plan for Carbon Capture and Storage in California: Opportunities, Challenges, and Solutions*, Stanford, (Oct. 2020). *See* maps at S-5. This report praises CCS systems in other industries and in general, recommends additional subsidies to make it more profitable. It provides no analysis about the efficacy or feasibility of carbon capture and sequestration for refinery-wide systems with hundreds of combustion stacks and thousands of fugitive emissions sources. It lists a small number of hydrogen plants related to refineries and cites no evidence regarding the ability of this refinery-specific technology to address other co-pollutant emissions, *available at* https://sccs.stanford.edu/california-projects/opportunities-and-challenges-for-CCS-in-California

highlight what additional information beyond this modeling is necessary to make an informed recommendation.

First, the modeling is limited in the scope of the sectors of the economy being evaluated. The modeling only evaluates a subset of industries that are considered to be directly impacted by CARB's regulations and accounted for in the state's GHG Inventory. Therefore, the indirect impact or independent growth of other sectors not included in the state's GHG Inventory is not represented. This limits the overall picture of our state's economic health and future. It is important for CARB to consider the impact of other economic sectors, especially ones as significant as the healthcare sector, in its evaluation of the state's economic forecast and the potential impact of CARB regulations on the entire statewide economy.

Second, the modeling does not appear to reflect recent leading research demonstrating achievable frameworks for a zero-emissions economy. For example, the Political Economy Research Institute's (PERI) June 10, 2021 report and the corresponding 'California Climate Jobs Plan' state that California's 2030 and 2045 *emissions reduction* targets–not merely carbon neutrality targets–are achievable through phasing out consumption of oil, coal, and natural gas and through investing in climate stabilization efforts, leading to an "increase of over 1 million jobs in the state through investment programs in energy efficiency, clean renewable energy, public infrastructure, land restoration and agriculture."[8] The report further considers the importance of regulations driving private investment to finance a just transition, stating that roughly half of the combined costs of the just transition programs presented in the report are assumed to be provided by private investors, much of which must be incentivized by federal and statewide regulatory certainty through clear policy signals. Nuanced economic factors considered in the PERI report and other transition frameworks, such as the scale of jobs created by unparalleled investment into zero-emissions and climate stabilizing industries and through regulatory certainty, must be accounted for in CARB's assessment of economic impact in the Scoping Plan.

Lastly, the modeling focuses on economic growth factors (e.g. GSP, employment), and does not incorporate more holistic social and environmental factors of *economic health* into its modeling. Other metrics of economic health, like the United Nations' Human Development Index, for example, weigh health outcomes, education, and income, emphasizing that "people and their capabilities should be the ultimate criteria for assessing the development of a country, not economic growth alone."[9] In order to consider the macroeconomic impacts of the Scoping Plan alternatives as accurately as possible, CARB staff should supplement the IMPLAN modeling with assessments of California's economic health that consider these critical factors.

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[8] *A Program for Economic Recovery and Clean Energy Transition in California,* Political Economy Research Institute, University of Massachusetts Amherst (June 2021) at 1, *available at* https://peri.umass.edu/images/CA-CleanEnergy-6-8-21.pdf. *See also* www.californiaclimatejobsplan.com.
[9] hdr.undp.org/en/content/human-development-index-hdi

4. Social Costs Modeling

During the April 20, 2022 workshop, CARB presented an estimate of the social cost of GHGs for each alternative using the Interagency Working Group on the Social Costs of Greenhouse Gases (IWG)'s interim values for carbon dioxide and methane.[10] Concerningly, CARB's current social cost estimate substantially underestimates the full scope of avoided costs for GHGs and co-pollutant changes associated with each emissions reduction measure, and does not allow decision-makers and the public to evaluate these avoided costs at the California or local community levels.

First, CARB's social cost analysis does not include all of the greenhouse gases for which monetized estimates are available. In particular, the current estimate does not include the social cost of nitrous oxide (N2O), another dangerous greenhouse gas. The IWG's interim value for N2O is $5,800 per metric ton at a 5% discount rate, $18,000 per metric ton at a 3% discount rate, and $27,000 per metric ton at a 2.5% discount rate.[11] In the 2017 Scoping Plan, CARB recognized that the social costs of carbon dioxide, methane, and nitrous oxide provide baseline metrics to account for the social costs of climate change.[12] It also committed to incorporating all three metrics into its regulatory analyses, while working to "more comprehensively identify the costs of climate change and air pollution to all Californians."[13] CARB must now meet this commitment by incorporating the readily-available N2O values into its current social costs analysis.

Second, CARB must consider the social costs of toxic and criteria air pollution emissions changes associated with each proposed GHG emissions reduction measure. AB 197 requires CARB to identify the following information for each emissions reduction measure: a) the range of projected GHG emissions reductions; b) the range of projected air pollution reductions; and c)

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[10] 2022 Scoping Plan Update - Initial Air Quality & Health Impacts and Economic Analyses Workshop CARB Intro-Summary (4-20-22) at Slide 13, *available at* https://ww2.arb.ca.gov/sites/default/files/2022-04/SP22-Initial-AQ-Health-Econ-Results-ws-CARB-Intro-Summary.pdf.

[11] Interagency Working Group on Social Cost of Greenhouse Gases, Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990 (Feb. 2021) at 6 (Table ES-3), *available at* https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf.

[12] Cal. Air Res. Bd., California's 2017 Climate Change Scoping Plan (Nov. 2017) at 41, *available at* https://ww2.arb.ca.gov/sites/default/files/classic//cc/scopingplan/scoping_plan_2017.pdf (" . . . California will continue to analyze ways to more comprehensively identify the costs of climate change and air pollution to all Californians . . .includ[ing] following updates to the IWG methodology and social costs of GHGs and incorporating the SC-CO2, SC-CH3, and SC-N2O into regulatory analyses")[*hereinafter* 2017 Scoping Plan].

[13] *Id.*

the cost-effectiveness, including avoided social costs, for each measure.[14] Social costs include an estimate of the economic damages to public health, among other criteria.[15]

Importantly, CARB also recognized in the 2017 Scoping Plan that "there are additional costs to society outside of the SC-CO2, including costs associated with changes in co-pollutants..."[16] Accordingly, CARB committed to continuing to work with experts in order "to evaluate the comprehensive California-specific impacts of climate change and air pollution."[17] We are disappointed that CARB appears to have made little progress to meet its AB 197 mandate and commitment, as it continues to rely on the IWG's values to estimate the social costs of carbon.[18] CARB must include in its draft scoping plan an estimate of the avoided costs that would result from the reduction of all co-pollutants as associated with each emissions reduction measure. See additional comments on the initial modeling results regarding public health and air quality impacts in Section 5 of this letter below.

CARB should also conduct lifecycle analyses for GHGs and co-pollutants in order to comprehensively account for their full social costs.[19] A narrow focus on on-site emissions underestimates the full social costs associated with the modeled scenarios. Without accounting for the GHG and co-pollutant emissions throughout the supply chain, CARB understates the full social costs associated with the Scoping Plan's measures and alternatives. Additionally, lifecycle analyses are necessary to identify and avoid any disproportionate impacts that a proposed measure may have on environmental justice communities.

Additionally, because CARB's current estimate of social costs are based on *global* damages, they do not allow decision-makers and the public to evaluate these costs across communities in California. Under AB 197, CARB is required to ensure that its climate policies "protect the state's most impacted and disadvantaged communities."[20] Relatedly, under AB 32, CARB must also "[e]nsure that activities undertaken to comply with [emission limits and

[14] Cal. Health & Safety Code § 38562.7. Relatedly, AB 32 requires CARB to "consider overall societal benefits, including reductions in other air pollutants . . . and other benefits to the economy, environment, and public health." Cal. Health & Safety Code § 38562(b)(2).
[15] *See* Cal. Health & Safety Code § 38506.
[16] Cal. Air Res. Bd., California's 2017 Climate Change Scoping Plan (Nov. 2017) at 41, *available at* https://ww2.arb.ca.gov/sites/default/files/classic//cc/scopingplan/scoping_plan_2017.pdf.
[17] Cal. Air Res. Bd., California's 2017 Climate Change Scoping Plan (Nov. 2017) at 41, *available at* https://ww2.arb.ca.gov/sites/default/files/classic//cc/scopingplan/scoping_plan_2017.pdf. Similarly, CARB stated that " [] California will continue to analyze ways to more comprehensively identify the costs of climate change and air pollution to all Californians." *Id.*
[18] 2022 Scoping Plan Update - Initial Air Quality & Health Impacts and Economic Analyses Workshop CARB Intro-Summary (4-20-22) at Slide 12, *available at* https://ww2.arb.ca.gov/sites/default/files/2022-04/SP22-Initial-AQ-Health-Econ-Results-ws-CARB-Intro-Summary.pdf.
[19] *See* CEJA et al. Comments on 2022 Scoping Plan Update - Scenario Concepts Technical Workshop, September 3, 2021, at 4-5, *available at* https://www.arb.ca.gov/lists/com-attach/55-sp22-concepts-ws-WzgAY1E6ADJVDARh.pdf.
[20] Cal. Health & Safety Code § 38562.5.

emission reduction measures] do not disproportionately impact low-income communities."[21] As discussed earlier, CARB has previously committed to improving its social cost estimate by working with experts "to evaluate the *comprehensive California-specific* impacts of climate change and air pollution."[22] In the April 20, 2022 workshop, experts from UC Irvine also stated that they have the ability to evaluate public health impacts of emissions reduction measures on disadvantaged communities.[23] Therefore, CARB can and must evaluate the social costs of all co-pollutants associated with each proposed measure at increased spatial granularity. Only by knowing the social costs of GHGs *and* co-pollutants for each proposed strategy at the community level can decision-makers meaningfully weigh the costs and benefits of proposed measures and alternatives on all Californians, including the most impacted and disadvantaged communities.

Finally, it is unclear how the climate vulnerability metric that UC Santa Barbara is developing will be incorporated into this Scoping Plan's scenarios and analyses, and whether it will be completed in time to help inform CARB in its adoption of the final 2022 Scoping Plan. We appreciate CARB's and UC Santa Barbara's efforts in developing this metric to quantify climate impacts on society and differential vulnerability at the census tract level.[24] However, we are concerned to see CARB introduce this analysis at such a late stage in the March 15, 2022 workshop.[25] Without this analysis, CARB cannot adequately determine how this Scoping Plan will impact the most vulnerable and disadvantaged communities in California.

5. Public Health & Air Quality Modeling

During the April 20, 2022 workshop, modelers contracted by CARB clearly presented the limitations of its public health and air quality modeling, demonstrating that the data presented was a floor and not at all comprehensive. Simultaneously, CARB staff used these incomplete results to justify recommending adoption of Alternative 3. Despite multiple asks from the Environmental Justice Advisory Committee (EJAC), provided both in the EJAC Final Responses to CARB Scenario Inputs on December 2, 2021 and in the Preliminary Draft of EJAC Scoping Plan Recommendations, submitted on April 1, 2022, CARB did not provide a more thorough and comprehensive analysis. It is irresponsible for CARB to make such important decisions and

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[21] Cal. Health & Safety Code § 38562(b)(2).
[22] Cal. Air Res. Bd., California's 2017 Climate Change Scoping Plan (Nov. 2017) at 41, *available at* https://ww2.arb.ca.gov/sites/default/files/classic//cc/scopingplan/scoping_plan_2017.pdf (emphasis added).
[23] 2022 Scoping Plan Update - Initial Air Quality & Health Impacts and Economic Analyses UCI (4-20-22), Slides 8, 13, 16, *available at* https://ww2.arb.ca.gov/sites/default/files/2022-04/SP22-Initial-AQ-Health-Econ-Results-ws-UCI.pdf; *see also* "2022 Scoping Plan Update - Initial Air Quality & Health Impacts and Economic Analyses Workshop," at 4:00:20 to 4:02:37, *available at* https://www.youtube.com/watch?v=PtsFweUncT4.
[24] *See* Scoping Plan Initial Modeling Results UCSB (3-15-22), *available at* https://ww2.arb.ca.gov/sites/default/files/2022-03/SP22-Model-Results-UCSB-ppt.pdf.
[25] *See* Scoping Plan Initial Modeling Results UCSB (3-15-22) Slide 16, *available at* https://ww2.arb.ca.gov/sites/default/files/2022-03/SP22-Model-Results-UCSB-ppt.pdf; *see also* 2022 Scoping Plan Update - Initial Modeling Results Recording (March 15, 2022) at 5:32:29 to 5:33:22, *available at* https://www.youtube.com/watch?v=_lVCQ-RpTRM.

recommendations that have lasting ramifications for our state's climate future and environmental justice communities' lives without a full understanding of the multiple burdens and benefits of its policies.

CARB's health and air quality analyses leave much to be desired in terms of the scale and granularity of the data, types of health impacts and outcomes assessed, pollutants analyzed (including interactions between them), and an accurate reflection of the cumulative nature of impacts particularly relevant to disadvantaged communities. We direct your attention to Physicians for Social Responsibility (PSR)'s comment letter to CARB regarding these modeling results for more details and recommendations for improving these critical analyses. Further, if CARB had more accurately assessed these impacts and thoroughly incorporated them into the economic analysis, we project that Alternative 1 would yield even more than the already doubled benefits relative to other Alternatives presented. We urge CARB staff to reevaluate their proposal and fully consider the comprehensive public health and air quality impacts of the Alternatives, and then adequately incorporate them into any economic discussion regarding health costs and benefits. Only then will CARB be able to better assess the proposed policies and make a sound determination.

III. Conclusion

From the diesel truck routes of the Inland Empire to the backyard oil refineries of Contra Costa, our members will disproportionately incur the costs of a stalled transition away from oil, gas, and other polluting sources. Without accurate and comprehensive data and analyses regarding potential emissions reductions, technology costs, health and social costs, and the economic implications of proposed policies, CARB staff and the Board cannot make an informed decision that would avoid further negative impacts to environmental justice communities. The stakes are too high for our communities, and for our climate future, for the state not to conduct a thorough assessment of climate and health impacts at a more granular scale. It is ill-advised for the state to rely on industry funded data and financial projections which do not accurately reflect the actual costs and technical challenges of proposed fuels and technologies. The assumptions and limitations inherent in the models CARB is relying on hinders our collective ability to chart a path forward that is simultaneously aggressive enough to meet the climate crisis, environmentally just, and logistically feasible. We urge CARB to address the concerns in this letter, those posed by the EJAC, and those raised by disproportionately impacted members of the public to improve its analyses and offer a sound foundation for such critical decision-making. We look forward to continuing our engagement in this important process, and thank you for your consideration of our recommendations.

Sincerely,

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