May 5, 2022

California Air Resources Board Staff
California Air Resources Board
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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

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[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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