

October 22, 2021

Honorable Chair Liane Randolph
Honorable Board Members
California Air Resources Board
1001 “I” Street
Sacramento, CA 95814



RE: Initial Comments on Proposed Scoping Plan Scenario Modeling Assumptions

Dear Chair Randolph and the Air Resources Board,

Communities for a Better Environment (“CBE”) submits the following comments on the Proposed PATHWAYS Scenario Modeling Assumptions (“CARB Proposed Scenarios”) presented at the California Air Resources Board (“CARB”) 2022 Scoping Plan Update – Scenario Inputs Technical Workshop on September 30, 2021. CBE is a statewide environmental justice (“EJ”) organization with a strong focus on addressing the fossil fuel energy sources that heavily pollute the California communities of Wilmington, Southeast Los Angeles, East Oakland, Richmond, and surrounding areas where we organize, live, and work. Climate change, smog, and toxic emissions severely and disproportionately impact our communities, including oil refineries, oil wells and drilling, power plants, transportation and other sources.

In this initial comment, CBE identifies elements CARB should include in all scenarios for sectors that are in the inextricably interconnected ‘Transportation Fossil Fuel Chain’. CBE also supports the more extensive letter submitted by the California Environmental Justice Alliance (“CEJA”), of which CBE is a member organization. CBE expects to submit additional comments in the coming weeks on hydrogen and biofuels projects, which have been proposed to replace refinery petroleum fuels in our communities. These projects have extensive potential complicating impacts locally and across many other EJ communities, and must be evaluated with great care. We also plan to submit more extensive comments on the need to plan and fund a just transition for workers and communities. A summary of our initial comments is below:

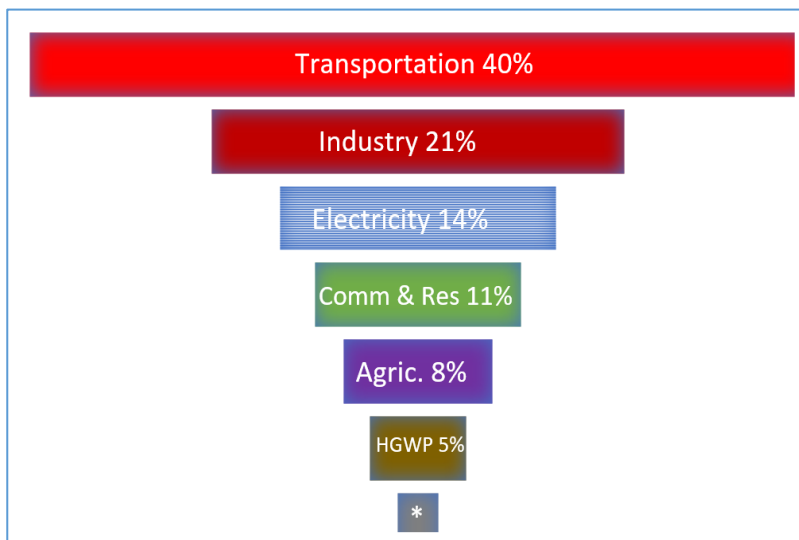
- **California cannot address the alarming climate disaster, nor the public health disasters of smog and toxics, without requiring the phaseout of oil extraction, oil refining, and the combustion of fossil transportation fuels** because these sectors collectively emit more than half the state’s greenhouse gases (“GHGs”), as well as smog precursors and toxics.
- **All EJ communities—even those without fossil fuel sources nearby—are disproportionately impacted by this global climate catastrophe**, making significant cuts to GHGs across these interconnected sectors an environmental justice issue and an existential threat to all.
- **This Scoping Plan provides the best opportunity to address climate change and the smog our communities have dealt with**, but we fear the opportunity will be squandered if there is a failure to commit to a regulated phaseout of every step in the Transportation Fossil Fuel Chain.
- **We must plan the phaseout of the Transportation Fossil Fuel Chain intentionally, using readily-available zero emission energy**, primarily through transportation electrification while the grid is decarbonizing *and* intentionally phasing out refineries and oil extraction through a Just Transition.

We describe elements CARB should include in any Scenario for these sectors below.

I. The Fossil Fuel Transportation Chain of Extraction—Refining—Combustion of Gas and Diesel Fuels Dominates California’s Greenhouse Gas Emissions

► **Total Transportation and Industrial emissions together make up over 60% of the state’s GHG emissions.** The chart to the right illustrates GHG emissions by sector, as provided in the state’s most recent inventory.¹

Electricity is the third-largest emitter and plays a pivotal role, because the electrification of transportation is the main way to cut Transportation and Industrial sector emissions. However, the electricity sector has made far more progress toward decarbonization than any other sector in the state.²



CBE Figure 1: 2019 - CBE graphed from 2000–2019 GHG Emissions Trends Report Data available in Excel Spreadsheet “Fig. 4” Tab.

It is vital to ensure that we do not miss this opportunity to phase out the largest interconnected sources of GHGs, which impact the entire planet—and disproportionately affects all EJ communities worldwide. However, highlighting the sectors with the largest GHG emissions is not to imply that other sectors are unimportant, and ignoring other sectors could lead to unintended consequences. For example, Central Valley EJ communities are heavily impacted by the Agricultural sector. If the state decides to expand harmful biofuel operations there, rather than opting for zero emission replacements for fossil fuels, Agricultural-related emissions will grow.

► **The four largest GHG emitting subsectors are within the Transportation and Industrial sectors, making up about half the state’s GHG emissions:**

- 29% of statewide GHG emissions from Fuel Combustion in Passenger Vehicles
- 8% of emissions from Fuel Combustion in Heavy Duty Trucks
- 7% of emissions from Oil Refining
- 4% of emissions from Oil Extraction (*with these last two likely underestimated*)

¹ California Air Resources Board, [2000–2019 GHG Emissions Trends Report Data](#), Release Date: 7/28/21: Tab “Fig. 4”, Transportation-166 Million Metric Tons CO₂e, Industrial 80 million, Electricity 59 million, Commercial & Residential 44 million, Agriculture 33 million, High GWP (Global Warming Potential) 21 million, Recycling & Waste 9 million (2%). CBE produced the charts above from this CARB 2019 (most recent) GHG inventory.

² CARB’s GHG emissions inventories including the most recent 2019 inventory cited above. Previous 2017 and 2018 inventories showed that only the electricity sector was able to achieve significant GHG cuts. This reduction can be mainly attributed to the Renewable Portfolio Standard, which was in effect a transition plan to phase out natural gas fired power plants over time—a plan we now need to apply to oil refineries.

Consequently, the state cannot solve the climate crisis without phasing out these four subsectors—Fossil Fuel Combustion in Passenger Vehicles and Heavy-Duty Trucks, Oil Refining, and Oil Extraction—which are all inherently interconnected. Crude oil is extracted, sent to oil refineries to make gasoline and diesel (and other petroleum products), which are mostly burned in passenger vehicles and heavy-duty trucks. (Note, however, that the four subsectors we listed do not include another 3.5% from aviation, ships, rail, and “other” transportation sources.)

II. Focused Scoping Plan Scenario Comments

Background: CARB proposed four draft “scenarios,” which are possible pathways or combinations of lower-carbon energy sources and end-use technologies that can be chosen to replace current polluting sources in order to meet California GHG reduction goals. Alternatives 1 & 2 meet “Carbon Neutrality” (“CN”) by 2035, and 3 & 4 by 2045.³ CARB is now taking public comment to decide what scenarios to input into computer modeling for the Scoping Plan.

Choosing the right energy sources and end-uses as scenario modeling inputs will determine how much and how quickly GHG emissions are cut to benefit the planet, especially *all* EJ communities who are disproportionately affected by the climate crisis. For EJ communities living near fossil fuel and industrial sources, it will also drastically cut smog and toxic emissions, unless replaced with sources causing new emissions.

Below are high-level principles and comments about Transportation, Refining and Extraction sector input assumptions that should be reflected in every Scenario.

► CARB should only advance emission targets through zero emission technology innovation and direct emission reduction strategies.

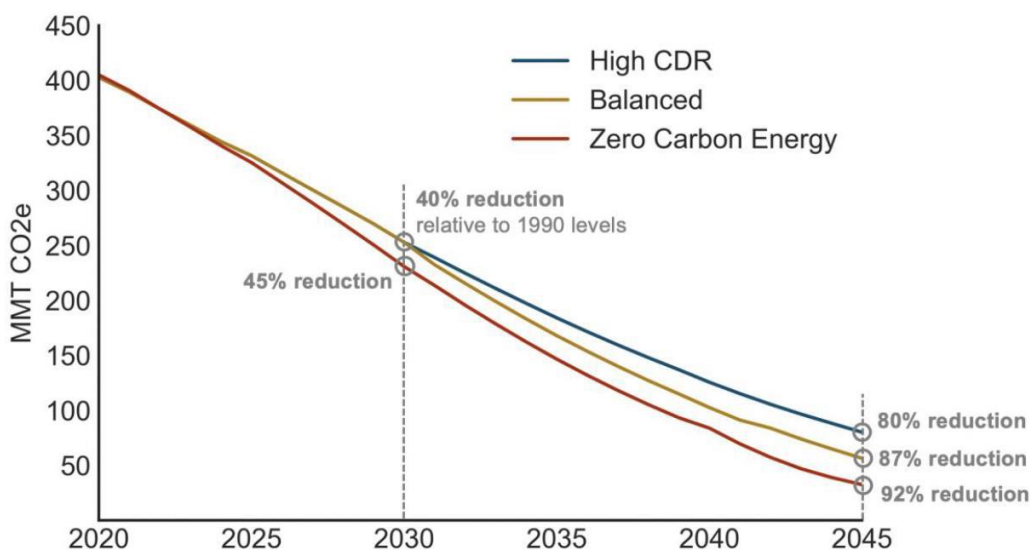
1. **CBE strongly supports an expeditious phaseout of the Fossil Fuel Chain. However, we oppose speeding up deadlines through the use of harmful, shortsighted, and/or unproven alternatives in order to reach “net zero” instead of investing in direct emission reduction strategies.** CBE opposes any alternative scenarios that may result in maintaining oil refineries while relying on carbon capture, fossil fuel-based hydrogen production, or inappropriate and unsafe biofuel refinery conversions, instead of a full, regulated refinery phaseout accompanying zero emission transportation assumptions.
2. **At least 45% cuts in GHGs by 2030 are achievable,** as demonstrated by the Zero Carbon Energy scenario in the October 2020 *Achieving Carbon Neutrality in California* (“Achieving CN”) report for CARB. CARB *should* speed up dates and set more aggressive targets when it is shown achievable, rather than arbitrarily picking dates. See Figure 2 below.
3. **CARB should take two steps to identify target zero emission dates: (1) model phaseout based on evidence (for example in already-completed modeling) to achieve GHG targets while prioritizing direct zero emission energy replacements and (2) commit to revisiting those dates** regularly to bring them forward as zero emission innovations and cheaper clean energy emerge.

³ California Air Resources Board, Scoping Plan Meetings and Workshops, Workshop Presentation and Draft Scenario Assumptions, Sept. 30, 2021. Available at: <https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/scoping-plan-meetings-workshops>.

► **Modeling already completed for CARB in October 2020 shows CARB must set aggressive oil refining and extraction direct emission reduction targets in any scenario to meet the state’s GHG reduction goals.**

Background: In October 2020, the *Achieving Carbon Neutrality in California* (“Achieving CN”) report was produced for CARB with three scenarios to achieve the 2045 carbon neutrality target.⁴ The three achievable scenarios in *Achieving CN* totaled 80-92% cuts in emissions from all sectors through direct emission reduction strategies. The following highlights critical findings in the Achieving CN report.

- All three scenarios assume a 90-100% phaseout of emissions from Oil Refining and Oil Extraction subsectors by 2045.** (Table 1, p. 24) At a minimum, CARB must commit to requiring phase-out of these sectors at these rates and target dates. In addition, CARB should make a clear commitment to update the phaseout timetable every few years to evaluate whether the state can achieve an accelerated statewide 2035 target in a just transition.



CBE Figure 2: Figure 4 in “Achieving Carbon Neutrality”

- 92% overall direct emissions cuts are achievable by 2045 for all sectors** as shown under the most aggressive decarbonization assumptions, the Zero Carbon Energy scenario. The 8% remaining non-energy, non-combustion emissions were then addressed through carbon capture *after* direct emissions cuts. Therefore, in the E3 modeling, dubious and harmful carbon capture and storage (“CCS”) strategies *did not* replace direct emission phaseout strategies despite oil industry’s frequent focus on CCS instead of direct phaseout regulation.⁵

⁴ *Achieving Carbon Neutrality in California PATHWAYS Scenarios, Developed for the California Air Resources Board, E3, October 2020, available at: https://ww2.arb.ca.gov/sites/default/files/2020-10/e3_cn_final_report_oct2020_0.pdf*

⁵ See CBE Figure 2 above, and also assumptions indicated throughout in the E3 report, including Figures 1 and 2, Table 1, and many places in the report, where E3 assumed that at minimum 80% overall emissions reductions be met, and up to 92%, and that the transportation fuel chain elements meet between 90-100% cuts in every scenario.

6. **CARB should at minimum utilize the Zero Emission Scenario phaseout dates and percentages from E3 modeling in *Achieving CN* for the four worst GHG emitting subsectors and commit to expeditious further evaluation regarding the potential acceleration of these dates.** Our table below identifies known achievable phaseout dates and percentages from the *Achieving CN* modeling, specifically for the four worst GHG emitting subsectors of oil refining, oil extraction, passenger_vehicles, and heavy-duty trucks. CARB should include at least these percentages and dates at a minimum in every scenario, and as described above, evaluate expediting dates and expanding direct emission reduction percentages in each successive Scoping Plan.

Subsector	Proportion of Current Statewide GHG Emissions	Energy Transition Modeling Assumptions <i>From “Achieving CN”’s Zero Carbon Scenario</i>
Passenger Vehicles (Mainly Gasoline)	29%	Light Duty Vehicles: 100% Battery Electric Vehicles (BEV) sales by 2030 Medium Duty Vehicles: 100% BEV sales by 2030
Heavy Duty Trucks	8%	50% BEV sales by 2030 50% Hydrogen Fuel Cell Vehicles sales by 2030 <i>CBE only supports this option if hydrogen is produced through zero emission options such as solar generation.</i> <i>CBE opposes replacing diesel with 48% CNG (Compressed Natural Gas)⁶</i>
Oil Refining and Oil & Gas Extraction	11%	100% reduction is achievable at least by 2045, with proportional cuts by 2030 <i>Additionally, note that CBE and allies are calling for a phaseout of all oil drilling in California by 2035. More comments will be provided at a later time on this issue.</i> <i>We also note that there are many economic indicators that oil refineries will become economically untenable by 2035, and request further evaluation by CARB on this deadline, in order to aid in the expeditious and just transition for the workers and the community. CBE will provide further input on this issue in the future.</i>

⁶ Note that in *Achieving CN*, one scenario did include a 48% CNG replacement case for Heavy Duty Trucks (Table 1, High CDR Scenario, Transportation, Heavy Duty Trucks, p. 24)

We are at a crucial crossroads, and we depend on California officials to address climate for our survival. Our EJ communities are hit first and hardest, and we are running out of time. Thanks for your consideration.

Sincerely,

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Connie Cho, Justice Catalyst Legal Fellow, CBE

Dan Sakaguchi, Staff Researcher, CBE

cc. Daniela Simunovic - Senior Advisor on Environmental Equity, Office of the Chair, California Air Resources Board, daniela.simunovic@arb.ca.gov