



October 24, 2022

Liane M. Randolph
California Air Resources Board 1001 I St
Sacramento, CA 95814

RE: Comments on Recirculated Draft Environmental Analysis of the 2022 Scoping Plan Update

Dear California Air Resources Board,

On behalf of the World Resources Institute, thank you for the opportunity to provide additional comments in response to the recirculated Draft Environmental Analysis of the 2022 Scoping Plan Update. There have been fundamental state and federal policy developments since the Draft Scoping Plan was released in May, which require significant revisions to the Scoping Plan Update and therefore additional consideration of the environmental effects of the plan.

In these comments we will focus on the implications of the enactment of AB-1279 and SB-905 at the state level and the enactment of the federal Inflation Reduction Act. Together these new laws create the most significant change—and advance—in the climate policy landscape in which CARB operates since the California Climate Solutions Act was first enacted in 2006.

AB-1279 codifies in law the state policy to “Achieve net zero greenhouse gas emissions **as soon as possible**, but no later than 2045...” and to ensure that statewide emissions are reduced to **at least 85%** below 1990 levels by 2045 (emphasis added). The law further requires CARB to include measures to achieve this policy in updates to the scoping plan. At the same time SB-905 requires CARB to establish a Carbon Capture, Removal, Utilization, and Storage Program and sets out a strong policy framework to guide this program. Meanwhile, the federal Inflation Reduction Act establishes powerful incentives to accelerate the deployment of clean energy and carbon removal technologies, including establishing a set of tax credits for zero-carbon electricity generation that will be available for a full decade and extending and enhancing the tax credit for carbon dioxide capture, removal, utilization, and storage, including a credit of \$180 per ton of CO₂ permanently sequestered via direct air capture. Meanwhile, Governor Newsom has set a target to achieve 20 million tons of CO₂ removal by 2030 and 100 million tons by 2045, which has been adopted by CARB as an objective of the scoping plan in the Recirculated Environmental Analysis (EA) Table 2-1.

This new policy landscape has multiple significant implications for the Scoping Plan Update, including:

1. Assuming the 100 million ton carbon removal target is met, combined with the requirements of AB-1279, California’s 2045 target would be **net removal of 35 million tons**.¹ It follows that California would need to achieve **net zero emissions well before 2045** in order to reach -35 million tons by 2045.

¹ 1990 emissions of 431 Mt x (1 – 85%) – 100 Mt carbon removal target = -35 Mt.

2. The faster California deploys clean energy and carbon removal the more it can take advantage of the federal tax credits included in the Inflation Reduction Act.

The Recirculated EA does not yet reflect this new policy landscape. For example, Table 4-12 projects statewide GHG emissions under the Proposed Scenario of 95 million tons in 2045, in violation of AB-1279.

The new policy landscape gives CARB the opportunity to finalize its Scoping Plan Update with a plan that is more ambitious, has greater environmental benefits, particularly for disadvantaged communities, and is less costly for Californians. We plan to provide more detailed recommendations based on a review of recent deep decarbonization modeling in the coming weeks. Given the deadline for comments on the recirculated EA, we offer the following preliminary recommendations for the final scoping plan update and its accompanying final EA:

- **Provide a plan for an orderly phase out of California petroleum refining and a just transition for refinery workers consistent with the California’s commitment to transition to 100% zero emission vehicles.** Doing so would be consistent with California’s plan for an orderly phase out of crude oil production by 2045,² including enactment of SB-1137 prohibiting new drilling within 3200 feet of homes, schools, and commercial buildings. While the recirculated EA notes that decommissioning and consolidation of oil refineries could occur, the Proposed Scenario in the May draft and the recirculated EA assume installation of carbon capture and sequestration (CCS) on a majority of petroleum refining operations by 2030 (Table 2-1). This would require substantial investment in long-lived assets, including capture equipment and CO₂ pipelines, which is unlikely to be useful for more than a handful of years, given the shrinking liquid fuel demand in California and in other Western states. For this reason, these investments are not at all cost-effective compared to other actions that could be taken and that result in lower frontline community impact. The climate investments enacted by the California legislature this summer combined with the federal tax incentives for electric vehicles in the IRA will only accelerate the transition to ZEVs and the reduction in petroleum demand. The vast majority of new vehicles in California will be ZEVs well in advance of the 2035 100% ZEV requirement established by CARB in August.
- **Plan for further reductions in electricity sector emissions.** The Proposed Scenario from the May draft and the recirculated EA interpret SB100 to allow ongoing emissions of 31 million tons from electricity generated for use in California based on the difference between total generation and retail sales (Table 4-12). Regardless of this (strained) interpretation of SB100, electric power emissions can be cost-effectively reduced much further, to zero or near zero, and such reductions will be necessary to meet the requirements of AB-1279. The IRA provides powerful incentives to build wind and solar generation more rapidly than was assumed in May, as well as to keep existing nuclear capacity online longer than anticipated.
- **Provide a more detailed roadmap for carbon dioxide removal.** The recirculated EA incorporates the goal set by Governor Newsom to remove 20 million tons of CO₂ by 2030 and 100 million tons by 2045 and describes some of the potential compliance activities in very general terms, but it does little to explore how to integrate this level of carbon removal into a zero net

² <https://www.gov.ca.gov/2021/11/11/governor-newsom-announces-california-has-joined-new-global-alliance-committed-to-ending-reliance-on-fossil-fuels/>

emissions energy system with the lowest possible environmental impacts, nor does it provide an assessment of the potential location of key facilities, such as geologic sequestration reservoirs, carbon dioxide pipelines, direct air capture equipment and biomass gasifiers and/or pyrolyzers. For example, a least-cost strategy to achieve these carbon removal goals will almost certainly involve a combination of direct air capture (DAC) and sequestration of carbon obtained from biomass waste (BiCRS).

- The DAC component will require substantial amounts of electricity and may require high- or medium-temperature heat, depending on the technology employed. The final Scoping Plan Update should explore using surplus renewable electricity that would otherwise be curtailed and waste heat from power plants and/or industrial facilities to supply the energy requirements of DAC to improve the economics and reduce the environmental impacts that would be associated with building dedicated energy sources. The final Scoping Plan Update should examine how to optimize the location of DAC facilities and geologic reservoirs to take advantage of available energy sources and minimize the need to build contentious and expensive pipelines.
- The BiCRS component could sequester carbon contained in agricultural residues and biomass removed from forests to reduce wildfire risks. This strategy would turn a waste disposal problem into a carbon removal opportunity, potentially resulting in additional environmental benefits beyond carbon removal. Biomass waste gasification with CCS could also be used to produce hydrogen, supplying a carbon-free fuel that could be used to reduce industrial and power plant emissions as well as achieving carbon removal. The IRA provides a strong financial incentive both for DAC and for clean hydrogen production, significantly lowering the cost of achieving California's carbon removal targets. The final Scoping Plan Update should examine the air emissions implications of collecting and processing waste biomass and the optimal location of biomass processing facilities.

The recirculated Environmental Analysis incorporates some important new information since the draft Scoping Plan Update was released in May, but the policy landscape for the Scoping Plan Update has shifted more fundamentally than CARB has been able to reflect to date. These comments are intended to help CARB lay out a more ambitious, realistic, and robust strategy for decarbonizing California's economy in the final Scoping Plan Update.

Sincerely,

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