June 20, 2022

TO: California Air Resources Board and Governor Gavin Newsom
FROM: 350 Humboldt
Coalition for Responsible Transportation Priorities
Environmental Protection Information Center (EPIC)
Humboldt Unitarian Universalist Fellowship's Climate Action Campaign
Northcoast Environmental Center
North Group of the Sierra Club

SUBJECT: Northcoast environmental groups request you to ask CARB staff to create a revised scoping plan that meets scientific and legal imperatives and focuses on the next eight years

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"The California Global Warming Solutions Act of 2006 designates the State Air Resources Board as the state agency charged with monitoring and regulating sources of emissions of greenhouse gases. The act requires the state board to prepare and approve a scoping plan for achieving the *maximum technologically feasible and cost-effective* reductions in greenhouse gas emissions and to update the scoping plan at least once every 5 years."[1]

PROBLEMS WITH THE CALIFORNIA AIR RESOURCE BOARD (CARB) DRAFT SCOPING PLAN

Legal Issues

1. **The draft plan does not show that California is on track to meet the legally mandated goal of a 40% reduction in greenhouse gases by 2030.** To achieve this goal we will have to triple the rate at which we have been reducing emissions.[2] The draft offers no way to do that. Short-lived climate pollutants are particularly unlikely to achieve a 40% reduction.

[1] Statement of "current law" by Legislative Analyst's Office on AB 2532 (Maratsuchi) and over one hundred other climate bills over the past 16 years.
[2] See the critique of the plan by Danny Cullenward, Ph.D.: https://carbonplan.org/blog/scoping-plan-comments

2. **The draft plan does not follow AB 32's requirement that California achieve "the maximum technologically feasible" emission reductions, using the most cost-effective methods.** "Air board officials said they will propose the option that has the least impact on the economy rather than accelerating the pace of achieving carbon neutrality."[3]

Scientific Issues

1. **The draft plan will not keep global temperatures close to what scientists say will avoid catastrophe.** The Paris Accord committed the world to not exceeding 2.0°C of average warming, with every effort to be made to stay below 1.5°C. The United Nations Intergovernmental Panel on Climate Change (IPCC) is the scientific organization evaluating research and proposing policies necessary to meet the 1.5°C goal. According to its most recent reports issued this last year:
    a. We have only ten years to cut greenhouse gas emissions worldwide by 50% if we are to attain the goal.[4] President Biden has committed the United States to a 50% reduction by 2030. Yet the California draft plan is not on track to achieve even 40% by 2030.
    b. The draft plan actually proposes *new* fossil fuel power plants and does not include concrete plans for phasing out fossil power and industrial installations.
2. **The science of climate change requires front-loading our response.** Making changes rapidly means that we have options if, as has been happening with regularity, scientists discover that even the tight timeframe they have described requires further tightening. This could happen if more methane than anticipated is released from melting permafrost, for example.[5] If we delay what *can* be done in the next ten years we will have fewer and worse choices if the science changes.
3. **The scoping plan could provide a path to achieve 80% reduction in emissions by 2030.** A former coordinating author of the Intergovernmental Panel on Climate Change and Professor of Sustainability at UC Berkeley, Daniel Kammen, Ph.D., set out a scientifically backed and feasible program for California in 2021. It describes how to achieve an 80% reduction in emissions by 2030.[6]
4. **The draft plan only aims for an 80% reduction emissions *by 2045.*** "Net zero" in the draft scoping plan is arrived at with an 80% emissions cut and 20% carbon sequestration attributed to carbon capture and sequestration (CCS) or direct carbon capture (DAC). The draft plan's reliance on CCS and DAC to balance 20% of our emissions is more than New York (15%) and far more than the State of Washington (5%).

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[3] Nadia Lopez. Op cit.
[4] Summary of IPCC AR6 at: https://www.carbonindependent.org/54.html
[5] Fankhauser, Sam, Stephen M. Smith, Myles Allen, Kaya Axelsson, Thomas Hale, Cameron Hepburn, J. Michael Kendall et al. "The meaning of net zero and how to get it right." *Nature Climate Change* 12, no. 1 (2022): 15-21.
[6] Kammen, Daniel M., Teenie Matlock, Manuel Pastor, David Pellow, Veerabhadran Ramanathan, Tom Steyer, Leah Stokes, and Feliz Ventura. "Accelerating the timeline for climate action in California." *arXiv preprint arXiv:2103.07801* (2021).
https://arxiv.org/abs/2103.07801?context=eess.SY

5. **The draft contains a very serious modeling error.** CARB modeler's assumed that natural and working lands would be a large carbon sink. In fact, a different CARB team found these lands will emit emissions, so the draft plan ends up being out of balance by 23 million metric tons of CO_2 in 2045.[7]
6. **Neither CCS nor DAC should be counted on.**
    a. The March 28, 2022 IPCC report on the capacity of different actions to reduce greenhouse gases puts CCS as the least effective and most expensive of the 43 climate actions the IPCC evaluated for deployment prior to 2030.[8]
    b. Direct Air Capture of carbon dioxide has been proven to work in a few small installations. To be of assistance in 2045, however, it would need to expand dramatically and would be immensely energy intensive.[9] Since it has no economic value in itself, it would require government subsidization at a time when we are facing massive costs for reducing emissions and for adaptation to an ever hotter, drier, and less predictable climate.

Environmental Justice Problems

1. **The draft plan drags out elimination of pollution that disproportionately affects poor people including some of our disadvantaged and people of color; rapid elimination of GHG pollution costs less than health and mitigation costs for continuing pollution.** A 2020 peer reviewed study of air pollution-caused mortality that appeared in *Nature Sustainability* reported: "We find that approximately 14,000 premature deaths can be avoided in California in 2050 and that these health co-benefits are disproportionately higher in disadvantaged communities (that is, 35% of avoided deaths will come from 25% of the state's population). The annualized monetary benefits (US $215 billion) exceed the GHG abatement cost (US $106 billion) by US $109 billion.[10] The IPCC also affirms that savings from eliminating pollution exceed mitigation costs globally.[11]
2. **The Environmental Justice Advisory Council (EJAC), which advises the CARB Board, recommends faster and more comprehensive measures so as to protect disadvantaged communities, particularly those suffering from air pollution.**[12]
    a. The draft plan does not end oil refining. EJAC asks for a phase out with no carbon capture.
    b. The draft plan does not end oil extraction until 2045. EJAC asks for phase out by 2035 and no carbon capture for oil and gas operations.

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[7] Cullenward. Op cit.

[8] https://www.ipcc.ch/report/ar6/wg3/figures/summary-for-policymakers

[9] Sekera, June, and Andreas Lichtenberger. "Assessing carbon capture: public policy, science, and societal need." *Biophysical Economics and Sustainability* 5, no. 3 (2020): 1-28.

[10] Wang, T., Jiang, Z., Zhao, B. *et al.* Health co-benefits of achieving sustainable net-zero greenhouse gas emissions in California. *Nat Sustain* **3,** 597–605 (2020). https://doi.org/10.1038/s41893-020-0520-y.

[11] "The economic benefits on human health from air quality improvement arising from mitigation action can be of the same order of magnitude as mitigation costs, and potentially even larger *(medium confidence)*. {3.6.3}" IPCC op cit.

[12] https://caleja.org/wp-content/uploads/2022/05/CARB-draft-plan-vs-EJ-recommendations-FINAL-CORRECTED.pdf

c. The draft plan requires trucks to have zero emissions by 2040. EJAC asks to accelerate this by five years.
d. In contrast to the draft plan agricultural proposals, EJAC asks for no polluting energy creation from farm waste; transition from factory farms to agroecology models; ambitious reduction of synthetic and organophosphate pesticides. Unlike the plan, EJAC also calls for reduction of herd sizes and direct regulation of methane emissions starting in 2024 as well as the phase-out of agricultural burning.

We agree with the EJAC position on these points.

Short-lived Climate Pollutants (SLCPs)

1. **The draft scoping plan recognizes the importance of SLCP abatement but not the importance of moving very quickly.** The following quote is from a 2022 study of how mitigating SLCPs work in relationship to mitigating CO_2.

> [Reducing SLCPs] is essential to slowing the rate of warming *by the 2030s* to under 0.3 °C per decade…. By 2050, the net avoided warming from the targeted non-CO_2 measures is 0.26 °C, almost four times larger than the net benefit of decarbonization alone (0.07 °C).[13]

2. **Reduction of emissions from HFC refrigerants having thousands of times more warming effect than carbon dioxide must be greatly accelerated.** "Emission of HFC refrigerants into the atmosphere, along with other short-lived climate pollutants, will cause 30% of the warming between now and 2050.[14] The draft scoping plan will achieve less than the 40% reduction in emissions required by state law. HFC emissions should be reduced by 90 to 100% by 2030. *There are many feasible avenues to do this.*
3. **The draft plan expects to reduce fugitive emissions of methane by 50%, but it needs to be much higher to keep warming to no more than 1.5°C.** "Pursuing all [methane] mitigation measures now could slow the global-mean rate of near-term decadal warming by around 30%, avoid a quarter of a degree centigrade of additional global-mean warming by midcentury, and set ourselves on a path to avoid more than half a degree centigrade by end of century."[15] There are

[13] Gabrielle Dreyfus, chief scientist for the Institute for Governance & Sustainable Development and lead author of: Dreyfus, Gabrielle B., Yangyang Xu, Drew T. Shindell, Durwood Zaelke, and Veerabhadran Ramanathan. "Mitigating climate disruption in time: A self-consistent approach for avoiding both near-term and long-term global warming." *Proceedings of the National Academy of Sciences of the United States of America* 119, no. 22 (2022): e2123536119. https://www.pnas.org/doi/full/10.1073/pnas.2123536119 This article is the most current and comprehensive on the forcing role of C02, SLCPs and aerosols.

[14] Daniel M Kammen, Teenie Matlock, Manuel Pastor, David Pellow, Veerabhadran Ramanathan, Tom Steyer, Leah Stokes, Feliz Ventura, *Accelerating the timeline for climate action in California, March 2021, https://arxiv.org/abs/2103.07801*

[15] Ocko, Ilissa B., Tianyi Sun, Drew Shindell, Michael Oppenheimer, Alexander N. Hristov, Stephen W. Pacala, Denise L. Mauzerall, Yangyang Xu, and Steven P. Hamburg. "Acting rapidly to deploy readily available methane mitigation measures by sector can immediately slow global warming." *Environmental Research Letters* 16, no. 5

numerous ways to speed up methane abatement from agriculture, landfills, and leaking wells and pipelines.

Cap and Trade

1. **Critics of the Cap and Trade program, a market-based carbon pricing method used in California, believe the program may not be able to achieve its emission reduction goals.** As well as other analysts, the official Cap and Trade advisory board called The Independent Emissions Market Advisory Committee has pointed to design and operational flaws that may prevent Cap and Trade from achieving the 60 million metric tons of CO2e that it must reduce by 2030.[16] CARB has put off discussions of reform until after completion of the scoping plan, even though the plan depends on Cap and Trade.
2. **As a market-based mechanism, the Cap and Trade program does not reduce major sources of pollution fast enough. CARB should consider replacing parts of it by direct regulation.** Environmental justice advocates oppose Cap and Trade as a "permit to pollute."[17] This is literally true in that the legislative compromise worked out to extend Cap and Trade until 2030 prohibits regional air quality boards from regulating pollution from polluters who are covered under Cap and Trade.

Costs

The draft plan show much higher costs in the short-term for Alternative 1 (net zero by 2035). However, the cost analysis in the draft plan has significant weaknesses and cannot be relied upon.

1. It is based on proprietary software and cannot be checked by other scientists.
2. Alternative 1 is not feasible as drafted, so it is unsurprising that costs are high. For example, it assumes all existing fossil-based equipment would be replaced at one time rather than at end of life or some percentage of end of life. A more realistic plan, would not incur many of those costs.
3. CARB favors the 2045 projections, but they are inherently unreliable. Twenty-three years ago could we have foreseen the depression of 2008, Covid, or the Ukraine war?
4. Costs for delayed decarbonization are not fully accounted for. The IPCC has warned: "If mitigation pathways are not rapidly activated, much more expensive and complex adaptation measures will have to be taken to avoid the impacts of higher levels of global warming on the Earth system."[18] These include very expensive mechanical carbon capture systems.
5. The incomplete health analysis does not recognize the financial benefits of reducing pollution quickly.

(2021): 054042. https://iopscience.iop.org/article/10.1088/1748-9326/abf9c8?addl_info=2021%0AThe%20fastest%20way%20to%20slow%20warming

[16] https://calepa.ca.gov/2021-iemac-annual-report/

[17] https://calepa.ca.gov/wp-content/uploads/sites/6/2022/02/Comment_on_IEMAC_Report___CVAQC.a.pdf

[18] https://www.ipcc.ch/sr15/cross-chapter-boxes/

Conclusion

We have pointed out inadequacies in the framing of the draft scoping plan in terms of achieving net-zero in 2045; with the failure of the plan to comply with AB 32 and SB 32; with how the plan ignores the very clear calls of the IPCC for rapid action; and with the valid environmental concerns of the EJAC. We have pointed to specific problems in the main drivers of mitigation, namely reduction of SLCPs and reduction of CO_2 emissions through the Cap and Trade program. If the Board recognizes these fundamental flaws and requires staff to produce a plan adequate to the need, many specific elements regarding transportation, buildings, renewable energy, industrial policy, and public health will need to be refigured. AB 32 requires a scoping plan to show the *approach* California will take to greenhouse gas mitigation. The approach embodied in the draft plan must be revised and a new plan submitted that meets legal and scientific mandates and focuses on the crucial years until 2030.