



July 9, 2021

Liane M. Randolph, Chair
CC: Board Members
CC: Rajinder Sahota
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: Net Negative Emissions Modeling in the Scoping Plan Update

Dear Members of the California Air Resources Board:

We, the undersigned, believe it is critical that the state seriously examine a wide range of climate action scenarios, including those that achieve carbon neutrality and net negative emissions sooner than the state's 2045 deadline.

Executive Order B-55-18[1] tasked the Air Resources Board (ARB) with creating a scoping plan to aid the state in achieving carbon neutrality as soon as possible but no later than December 31, 2045, and achieving and maintaining net-negative emissions thereafter. These goals are in addition to achieving existing statewide targets for reducing greenhouse gas emissions. Senate Bill 100 tasks ARB and other agencies to plan for 100% renewable, carbon-free electricity by 2045.[2]

While it is important to plan for scenarios where California could meet these targets by 2045, we believe it is equally if not more critical to understand what it would take for the state to achieve these goals sooner, particularly in light of accelerating climate impacts. As you begin the process of updating the Scoping Plan, we urge you to incorporate modeling for more ambitious carbon reduction timelines, including scenarios that achieve net negative greenhouse gas emissions by 2030.

California is on the front lines of climate change. California has already broken several heat records in 2021, including a 109F day in Redding on May 31, 2021.[3] The heat dome that California, the Pacific Northwest, and British Columbia experienced in late June and early July 2021 obliterated previous local temperature records by 6 to 9 degrees C. This unprecedented heat wave exceeded worst case scenarios in climate models[4] and was five standard deviations above expectations, or what used to be considered a once in 5,000 year event pre-climate change.[5] The multi-decadal "megadrought" now gripping the American West imperils our

water supply, food production, economy, ecosystems and human health, and is significantly worse due to climate change.^[6]

Climate change's impacts compound pre-existing inequities within the state. California sustains high levels of poverty and air pollution.^[7] ^[8] Low-income communities and communities of color already experience the worst health outcomes due to pollution from tailpipe emissions,^[9] as well as from oil and gas production,^[10] and direct climate change impacts.^[11]

Add to this the recent unprecedented and deadly heat and fire extremes experienced in other parts of western North America [12] and it is clear that preparing for a more ambitious climate response scenario that achieves net negative emissions by 2030 is more important than ever before.

The latest science shows we are currently experiencing climate impacts not forecasted to occur until decades from now. For example, wildfires of the severity and sizes seen in 2020 were not expected until mid-century. California's Fourth Climate Change Assessment projected a 77% increase by the end of the century, with a maximum possible increase of 178% by 2100 (compared to 1961-1990).^[13] UCLA scientists similarly projected a doubling of the mean area burned by wildfire by 2050. But in 2020, California realized these projections several decades early. The area burned in wildfires that year more than doubled that of 2018.^[14] The 2018 season wildfire caused \$150 billion in damages.^[15]

In a search to explain the rapidly escalating effects of climate change, scientists found shortcomings in the methodology used to inform the state's targets. These projections did not adequately account for the condition of California's forests after decades of fire suppression, droughts that were more extreme than expected, and a severe bark beetle outbreak.^[16] Given that California is experiencing the devastating impacts of climate change far sooner than anticipated, we believe it is imperative for ARB to prepare scenarios where the state reduces greenhouse gas emissions on a more rapid timeline.

New studies warn that we may cross the 1.5C threshold of dangerous warming globally as soon as 2030 – ten years earlier than the IPCC 1.5C report projected.^[17] Considering that state targets are based on this IPCC timeline, and that climate change is likely to escalate more rapidly than the report projected, we urge ARB to study a more ambitious state response that meets the accelerated timeline.

The climate and public health crises demand a bold response from California leadership. Our current targets, unfortunately, fail to adequately address them. Waiting until mid-century to reach carbon neutrality and net negative emissions will further jeopardize our economy and our

communities by locking in even more dangerous levels of warming. ARB has an opportunity, as it develops its Scoping Plan update over the next year, to take heed of the latest science and climate reality, and prepare the state for accelerating climate impacts.

We request that ARB, in its Scoping Plan update, include modeling of emissions reduction pathways in California that achieve net negative emissions by 2030. Modeling pathways to fast-track emissions reductions and sequestration of carbon dioxide equivalents already put into the atmosphere from human activities would not commit ARB or the state to implementing such a pathway. However, in dedicating resources to evaluate it, ARB would spark an urgently needed conversation and change perceptions of what is possible. It would also provide important science-based information, informing California legislators of potential strategies to support accelerated implementation.

Achieving net-negative emissions over the next decade would require pairing significant GHG cuts (e.g., 7.7% per year) with sequestration at scale on natural and working lands, which is at present is the cheapest and only readily available CO₂ removal option.^[18] This approach also offers numerous co-benefits for air and water quality, food production, community health, biodiversity and resilience to growing climate extremes such as drought, heatwaves and flooding.^[19]

Such a bold goal may sound unrealistic. But a recent study by preeminent California-based scientists and climate experts suggested that net-negative emissions by 2030 is achievable.^[20] Research conducted at the Lawrence Livermore National Laboratory also concluded that exceeding the state's deadline is achievable "much sooner with more rapid deployment" of negative emissions approaches.^[21] Given that recent impacts of climate change exceed even the worst-case scenarios in climate models, plotting a more aggressive model scenario is prescient.^[22]

Meeting this target would require a coordinated suite of policies and an unprecedented deployment of resources. The effort will be challenging, but if managed well will also create jobs, prosperity, and a more equitable society. The alternative is a future of rapidly deteriorating public health, a growing number of expensive and deadly natural disasters, grave threats to biodiversity and ecosystem function, and a much less habitable planet.

ARB has a track record of redefining what is possible in climate action for both California and the world. By including more ambitious model scenarios for achieving net-negative emissions by 2030 in its Scoping Plan update, ARB will further establish its climate leadership, providing possible pathways for addressing and reversing the unexpectedly rapid deterioration of our life-sustaining climate.

Sincerely,

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- [1] <https://www.californiabiodiversityinitiative.org/pdf/executive-order-b-55-18.pdf>
- [2] https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB100
- [3] <https://www.scientificamerican.com/article/record-heat-bakes-drought-stricken-west/>
- [4] <https://www.theguardian.com/environment/2021/jul/02/canadian-inferno-northern-heat-exceeds-worst-case-climate-models>
- [5] <https://nymag.com/intelligencer/2021/07/how-to-live-in-a-climate-permanent-emergency.html>
- [6] <https://science.sciencemag.org/content/368/6488/314>
- [7] https://www.thecentersquare.com/california/california-continues-to-have-the-highest-poverty-level-in-the-nation/article_45a6e2fc-f9f8-11ea-a19d-cf1649965470.html
- [8] <https://www.sacbee.com/news/california/article242169741.html>
- [9] <https://www.calhealthreport.org/2019/02/08/people-of-color-and-the-poor-disproportionately-exposed-to-air-pollution-study-finds/>
- [10] <https://ui.adsabs.harvard.edu/abs/2019AGUFMPA11B0942F/abstract>
- [11] <https://news.climate.columbia.edu/2020/09/22/climate-change-environmental-justice/>
- [12] <https://nymag.com/intelligencer/2021/07/how-to-live-in-a-climate-permanent-emergency.html>
- [13] https://www.energy.ca.gov/sites/default/files/2019-11/Statewide_Reports-SUM-CCCA4-2018-013_Statewide_Summary_Report_ADA.pdf
- [14] <https://www.scientificamerican.com/article/californias-mega-fires-have-arrived-30-years-early/>
- [15] <https://www.nature.com/articles/s41893-020-00646-7>
- [16] <https://academic.oup.com/bioscience/article/68/2/77/4797261>
- [17] <https://www.nature.com/articles/d41586-018-07586-5>
- [18] https://www.gs.llnl.gov/content/assets/docs/energy/Getting_to_Neutral.pdf
- [19] <https://e2.org/wp-content/uploads/2021/03/Jock-Final-Report-The-Promise-of-Regenerative-Agriculture.pdf>
- [20] <https://arxiv.org/abs/2103.07801>
- [21] https://www.gs.llnl.gov/content/assets/docs/energy/Getting_to_Neutral.pdf
- [22] <https://www.theguardian.com/environment/2021/jul/02/canadian-inferno-northern-heat-exceeds-worst-case-climate-models>