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September 22, 2021

Rajinder Sahota
Deputy Executive Officer
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

RE: 2022 Scoping Plan Update- Short-lived Climate Pollutants Workshop- *To Achieve Carbon Neutrality and Successfully Combat Climate Change, CARB must include all California wildfires in the 2022 Scoping Plan*

(Comment submitted electronically)

Dear Ms. Sahota,

On behalf of Red Rock Biofuels LLC ("Red Rock"), I am writing to urge the California Air Resources Board ("CARB") to comprehensively address wildfires within the scope of the 2022 Scoping Plan. To do otherwise is to ignore the supreme existential threats that wildfire poses to California in terms of 1) threatening the lives and property of the People of California, 2) threatening the majestic lands, forests, and watersheds of the California, and 3) thwarting the goal of carbon neutrality established by Executive Order B-55-18. CARB is respected worldwide for being an agency willing to confront daunting challenges with clear-headed science, technology, innovation and policy. The 2022 Scoping Plan presents a critical time for CARB to bring these capabilities to the table. The inclusion of California wildfires within the Scoping Plan is the essential foundation on which California can build the necessary policy framework to reduce wildfire risk and short-lived climate pollutant ("SLCP") emissions from wildfires.

Red Rock appreciates the opportunity to present this comment relating to the SLCP workshop of the 2022 Scoping Plan. Red Rock is developing the world's first commercial-scale advanced biofuel facility that will utilize woody biomass from forest management as a feedstock. The speed and scale of the development of future Red Rock facilities and other similar facilities in California that can help California solve its woody biomass crisis will be fundamentally impacted by the precise issue of whether or not CARB integrates the climate forcing impacts of wildfire into the Scoping Plan. It is only through careful study and full recognition by CARB of the negative climate impacts of

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wildfire in terms of CO_2 and SLCP emissions that reducing wildfire will be sufficiently integrated into state policy.

In particular, the Low Carbon Fuel Standard ("LCFS") sends a powerful market signal when fuels are recognized as reducing SLCPs. This is presently the case for renewable natural gas derived from qualifying dairy digester facilities resulting in sub-zero carbon intensity scores for these fuel pathways. This type of recognition must also be established for fuel derived from woody biomass that is removed for forest management purposes to reduce wildfire risk and wildfire climate impacts. Currently the LCFS program is the world's most important carbon market in terms of stimulating technological innovation and market demand for low carbon fuels. California desperately needs this market-based solution to create demand for the massive oversupply of woody biomass from forest management as one part of a comprehensive and viable wildfire reduction strategy.

California's Forests are On Fire due to Decades of Mismanagement

While there were 68 references to "methane" and 18 references to "black carbon" in the CARB SLCP presentation, there was not a single reference to "wildfire". Instead, there was only a verbal reference during the workshop to wildfire being outside the scope of the 2022 Scoping Plan. It would be a great relief to California if wildfire were in equilibrium and could be taken out of the Scoping Plan equation and removed from the list of extremely difficult problems that the State must solve to achieve carbon neutrality. However, a review of the GHG impacts estimated from wildfires reveals a state of extreme disequilibrium caused by forest mismanagement[1]:

[1] California Air Resources Board, Public Comment Draft, "Greenhouse Gas Emissions of Contemporary Wildfire, Prescribed Fire, and Forest Management Activities," (December 2020), at p. i., https://ww3.arb.ca.gov/cc/inventory/pubs/ca_ghg_wildfire_forestmanagement.pdf

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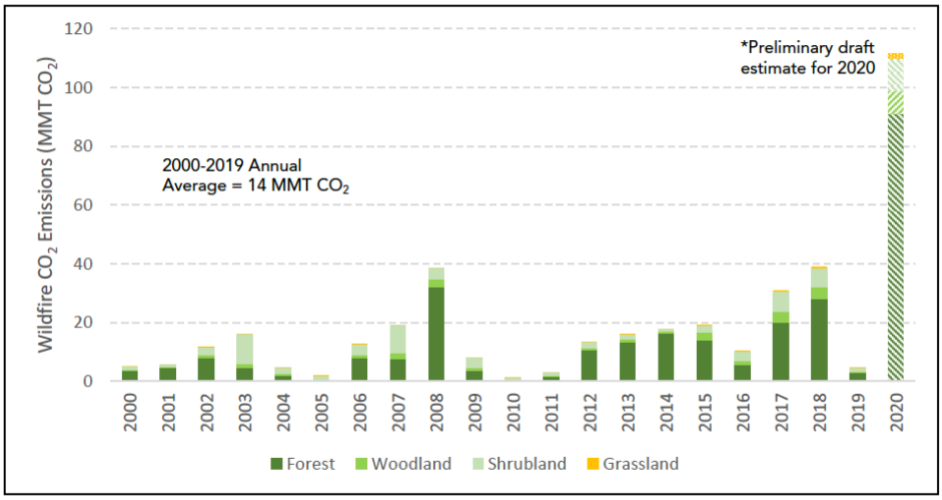
Figure E-1. Annual wildfire CO_2 emissions (million metric tons, MMT) by general vegetation category.



**Preliminary draft estimate of 2020 wildfire emissions will be updated and revised when CAL FIRE's final fire perimeters become available in mid-2021.*

Regrettably, the short-term new normal for California is the estimated emissions of over 100 MMT from 2020, with the still active 2021 wildfire season breaking acreage and GHG emission records, killing Californians, destroying homes, and burning old growth trees that have stood for thousands of years. At this scale of CO_2 emissions, wildfire GHG emissions surpassed in one year the total GHG reductions that have been achieved by the LCFS program over the last decade.

The wildfires are not a series of disasters that can credibly be attributed to the ecosystem's natural processes. To the contrary, the 2018 Legislative Analyst's report, "Improving California's Forest and Watershed Management" report states,

> ## Poor Forest Conditions
> **Forest Management Practices Have Increased Forest Density**. As noted above, forest management practices and policies over the past several decades have (1) imposed limitations on timber harvesting, (2) emphasized fire suppression, and (3) instituted a number of environmental permitting requirements. These practices and policies have combined to constrain the amount of trees and other growth removed from the forest. This has significantly increased the density of trees in forests across the state, and particularly the prevalence of smaller trees and brush. Overall tree density in the state's forested regions increased

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by 30 percent between the 1930s and the 2000s. These changes have also contributed to changing the relative composition of trees within the forest such that they now have considerably more small trees and comparatively fewer large trees. Figure 10 illustrates some key differences between healthy and overly dense forests. The increase in tree density can have a number of concerning implications for California's forests—including increased mortality caused by severe wildfires and disease—as displayed in the figure and discussed below.

Increased Risk of Severe Forest Fires. Dense forest stands that are proliferated with small trees and shrubs contain masses of combustible fuel within close proximity, and therefore can facilitate the spread of wildfires. Moreover, these smaller trees can serve as "ladder fuels" that carry wildfire up into the crowns of taller trees that might have otherwise been out of reach, adding to a fire's potential spread and intensity. As shown in Figure 11, CalFire estimates that most forested regions of the state face a high to extreme threat of wildfires. (…)[2]

Executive Order B-55-18 Clearly Establishes that CARB must consider Wildfires in the 2022 Scoping Plan

The integration of carbon neutrality into the Scoping Plan process is a result of Executive Order B-55-18 signed by Governor Jerry Brown. The text of the Executive Order contains no suggestion that CARB should exclude wildfires from its analysis. Instead, the order recognizes wildfires as a devastating threat to California, defines carbon neutrality in unambiguous terms that extend to GHG emissions including SLCPs emitted from California wildfires into California's atmosphere, and cites forests as an important carbon sink. Tragically, rather than a carbon sink, California's forests are now playing a dangerous role as a net carbon source as a result of forest mismanagement compounded by prolonged extreme heat and drought.

[2] Legislative Analyst Office, "Improving California's Forest and Watershed Management," (April 2018), at p. 18-19, https://lao.ca.gov/reports/2018/3798/forest-watershed-management-040418.pdf

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EXECUTIVE ORDER B-55-18 TO ACHIEVE CARBON NEUTRALITY

WHEREAS climate change is causing historic droughts, devastating wildfires, torrential storms, extreme heat, the death of millions of trees, billions of dollars in property damage, and threats to human health and food supplies; and

(…)

WHEREAS scientists agree that worldwide carbon pollution must start trending downward by 2020, and carbon neutrality—the point at which the removal of carbon pollution from the atmosphere meets or exceeds emissions—must be achieved by midcentury; and

WHEREAS the achievement of carbon neutrality will require both significant reductions in carbon pollution and removal of carbon dioxide from the atmosphere, including sequestration in forests, soils, and other natural landscapes; and

WHEREAS California's 2017 Climate Scoping Plan charts the steps to achieve the state's greenhouse gas emissions goals, presenting a balanced set of economically viable and technologically feasible actions for carbon reduction; and

(…)

IT IS HEREBY ORDERED THAT:

1. A new statewide goal is established to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter. This goal is in addition to the existing statewide targets of reducing greenhouse gas emissions.

2. The California Air Resources Board shall work with relevant state agencies to develop a framework for implementation and accounting that tracks progress toward this goal.

3. The California Air Resources Board shall work with relevant state agencies to ensure future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal.

Executive Order B-55-18 also cites California's Forest Carbon Plan as a specific step taken to reduce GHG emissions, and emphasizes the air quality and environmental justice imperatives of the State finding solutions to California's unending wildfire crisis:

5. All policies and programs undertaken to achieve carbon neutrality shall seek to improve air quality and support the health and economic resiliency of urban and rural communities, particularly low-income and disadvantaged communities.

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As illustrated by the map of Fire Hazard Severity Zones adopted by CalFire and attached as Exhibit A, the areas in the state of California most exposed to wildfire risk are predominately rural with many of the state's poorest counties most vulnerable to fire risk. In addition, given the scale and spread of wildfires in 2020 and 2021, citizens of the entire state are now exposed to the detrimental air quality impacts of wildfires. Both of these factors further underscore the necessity of CARB including wildfires in the 2022 Scoping Plan.

The Rapid Development of Industries with Robust Demand for Woody Biomass and Capability to Reduce Transportation GHG Emissions is an Essential Double Win for California

In January 2020, a team of researchers released the report entitled "Getting to Neutral- Options for Negative Carbon Emissions in California." The study was funded by the Livermore Laboratory Foundation and the ClimateWorks Foundation and was reviewed by a top notch team of twenty-five reviewers from universities, non-governmental organizations and government. The goal of the report was to address practices and technologies for removing carbon dioxide from the air and encompassed the entire breadth of strategies from land management to technological solutions.

The Report identified three strategic pillars that could feasibly enable California to achieve its ambitious but essential goal of achieving carbon neutrality by 2045. In terms of scale, the most important pillar identified was the conversion of waste biomass to fuels with CO_2 storage which could feasibly result in the removal of 84 MMT of CO_2 per year. Within this pillar, waste woody biomass was identified as the largest source of feedstock proving more reductions than the other two primary feedstock sources, agricultural residues and municipal solid waste combined. The second largest pillar in terms of scale was natural and working lands providing an opportunity to remove 25 MMT of CO_2 per year. Within this pillar, implementing changes to forest management was identified as providing the highest negative emissions potential in 2045 of all of the natural and working lands strategies.[3]

Whether one agrees with all of the conclusions of the Getting to Neutral Report or not, the Report provides compelling evidence regarding the massive opportunity presented by the use of woody biomass from forest management to produce transportation fuels and the massive threats posed by continued forest mismanagement and rampant wildfires. In

[3] Sarah E. Baker, Joshuah K. Stolaroff, George Peridas, Simon H. Pang, Hannah M. Goldstein, Felicia R. Lucci, Wenqin Li, Eric W. Slessarev, Jennifer Pett-Ridge, Frederick J. Ryerson, Jeff L. Wagoner, Whitney Kirkendall, Roger D. Aines, Daniel L. Sanchez, Bodie Cabiyo, Joffre Baker, Sean McCoy, Sam Uden, Ron Runnebaum, Jennifer Wilcox, Peter C. Psarras, Hélène Pilorgé, Noah McQueen, Daniel Maynard, Colin McCormick, *Getting to Neutral: Options for Negative Carbon Emissions in California*, January, 2020, Lawrence Livermore National Laboratory, LLNL-TR-796100, https://livermorelabfoundation.org/2019/12/19/getting-to-neutral/, at ES-2, Chapter 2, Chapter 3.

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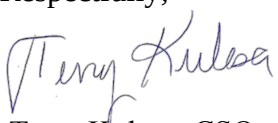
order to properly to assess these opportunities and threats, it is essential that CARB integrate a complete assessment of California wildfires into the 2022 Scoping Plan.

Conclusion

Red Rock appreciates the opportunity to provide comments into the Scoping Plan proceeding and is available for further discussion regarding these topics of vital importance.

Respectfully,



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Fire Hazard Severity Zones
Exhibit A