 

February 20, 2024

To: California Air Resources Board (CARB)

**Re: Joint Comments on Proposed Low Carbon Fuel Standard Amendments**

*Submitted via CARB’s online Comment Submittal Form*

On behalf of Clean Air Task Force (CATF) and Pacific Environment, we are pleased to submit comments on CARB’s proposed amendments to California’s Low Carbon Fuel Standard (LCFS). We greatly appreciate the tremendous amount of work and transparency the CARB staff have invested in considering strengthening the LCFS 2030 targets, recommending new targets out to 2045, and proposing the important step of eliminating the current aviation fuel exemption for intrastate fossil jet fuel from the standard. However, as we and other have groups communicated with Chair Randolph[[1]](#footnote-2) and as elaborated on by CARB staff at the February 22, 2023, workshop[[2]](#footnote-3), without adequate safeguards, these measures pose significant and unacceptable risks of rapidly driving up demand for crop-based biofuels with several potential negative consequences. Such consequences include increased lifecycle greenhouse emissions from direct and indirect land use changes, as well as disruptions to food markets and natural ecosystems.

Pursuant to the California Global Warming Solutions Act of 2006, CARB must “adopt greenhouse gas ...emissions reduction measures by regulation to achieve the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions in furtherance of achieving the statewide greenhouse gas emissions limit.”[[3]](#footnote-4) The California Legislature strengthened this directive in the California Climate Crisis Act, which provides that it is the “policy of the state” to “[a]chieve net zero greenhouse gas emissions as soon as possible, but no later than 2045, and to achieve and maintain net negative greenhouse gas emissions thereafter.”[[4]](#footnote-5) CARB recognized in adopting the LCFS that the goal of the regulation is to “reduce the full fuel-cycle, carbon intensity of the transportation fuel pool used in California.”[[5]](#footnote-6) Without adequate safeguards limiting the rapid growth in demand for crop-oil based biofuels, the current LCFS proposal could result in an increase in lifecycle greenhouse emissions due to direct and indirect land use changes. This would not “effectuate the purpose of” the above statutes.[[6]](#footnote-7) Instead, such an outcome would go against the express goals of the LCFS and would frustrate California’s mandate to reduce greenhouse gas emissions and effectively address climate change.[[7]](#footnote-8)

While CATF is submitting separate comments on other aspects of the proposed amendments, these joint comments focus on the risks that the LCFS, if amended as proposed, will result in unsustainable consumption of vegetable oil-based biofuels and undermine the emission-reduction goals of the program.

In particular:

* Without adequate safeguards, strengthening and extending LCFS carbon intensity benchmarks will likely accelerate the rapid growth in demand for bio-oil based biofuels, directly and indirectly impacting food markets and increasing emissions from land use changes;
* Including intrastate fossil jet fuel in the LCFS is an important policy signal for decarbonizing the aviation sector, but the current proposal will further increase demand for bio-oil based fuels, given that refining and hydrotreating bio-oils is currently the only commercially viable alternative to fossil jet fuel at scale; and
* The only proposed sustainability requirement for crop-based biofuels is third-party certification that the feedstocks are derived from land that has not been forested since 2008, which is too narrowly scoped to serve as an effective constraint on climate-damaging land use change.

Given these risks, we make the following recommendations:

1. CARB should limit the volume of first-generation vegetable oil-based fuels that are eligible to generate credits under the LCFS program;
2. CARB should assess on an annual basis the direct and indirect market impacts from fuels obligated under the proposed sustainability requirements; and,
3. CARB should extend the sustainability requirements beyond crop oils to used cooking oil (UCO) and waste oils.

***The Proposed Amendments to California’s Low Carbon Fuel Standard Regulation[[8]](#footnote-9) are likely to further accelerate the already growing demand for crop-oil based biofuels.***

While our groups support CARB’s intention to strengthen the LCFS’ targets the lack of adequate safeguards or limitations on crop-oil feedstocks used in producing diesel and aviation fuel will further accelerate an already unsustainable growth in demand for crop-oil feedstocks. According to CARB’s reporting data below, renewable diesel from bio-oils (mostly used cooking oil, tallow, and vegetable oils) are by far the largest and fastest growing source of credits in California’s LCFS. [[9]](#footnote-10)



According to the most recently available data, bio-oil based diesel accounted for 60% of the California diesel fuel market as of the third quarter of 2023.[[10]](#footnote-11) Since CARB has tracked feedstock data, beginning in 2021, quarterly use of crop-oil based fuels has grown by over 350% to 192 million gallons, accounting for 30% of the state’s bio-oil diesel market.[[11]](#footnote-12) California’s use of crop-oil based fuels is now on track to exceed 700 million gallons in 2023.

In addition, in 2023 CARB certified 29 fuel pathways using soy, canola and corn oil feedstocks, compared with 8 such pathway certifications the year before. This further underscores the potential growth in crop-oil feedstock demand and attendant risks to food markets, climate, and the environment.[[12]](#footnote-13)

While CARB projects that the use of renewable diesel will decline in the future as vehicle standard requirements tighten and the fuel begins generating deficits under the LCFS, CARB’s regulatory impact assessment indicates that the *combined* in-state production of renewable diesel and alternative jet fuel alone will increase to more than 700 million gallons by 2028 and more than 800 million gallons by 2040.[[13]](#footnote-14) Beyond in-state production of bio-oil fuel production, a recent study from U.C. Davis projects that strengthening California’s LCFS reduction target to 30% by 2030 could result in 100% of the state’s 3.5 billion gallons of diesel demand being met by bio-based diesel, most of which derived from vegetable oils.[[14]](#footnote-15) Such a massive influx of vegetable-oil based diesel fuel would not only pose very large indirect land use impacts and potential GHG emissions, but could substantially erode carbon credit prices, which CARB is trying to address.

These recent trends and CARB’s projections underscore the urgent need for careful safeguards in the LCFS amendments. Without adequate safeguards, the strengthening of the LCFS carbon intensity targets for diesel fuel and diesel substitutes to 74.03 gCO2e/MJ by 2030 and 10.57 gCO2e/MJ by 2045,[[15]](#footnote-16) combined with the newly proposed Automatic Acceleration Mechanism (which increases the stringency of CI targets if triggered[[16]](#footnote-17)) could greatly accelerate the unsustainable growth of crop-oil feedstocks used for making renewable diesel and alternative jet fuel. The resulting and potentially massive increase in demand for crop oil-based fuels markets can contribute to higher food and feed prices, which in turn can accelerate climate-damaging land clearing to accommodate new crop production.

***While obligating intrastate jet fuel is an important step in achieving emissions reductions, it will further accelerate demand for crop-oil feedstocks without proper safeguards.***

As with strengthening the LCFS targets, our groups have also supported CARB’s consideration and intention to obligate fossil aviation fuels as a deficit generating fuel. CARB’s proposal to eliminate the exemption for intrastate fossil jet fuel beginning in 2028[[17]](#footnote-18) is an important (if limited) step toward reducing emissions from aviation fuel in California. Intrastate fuels account for approximately 10% of the roughly 3 billion gallons of jet fuel used in California each year.[[18]](#footnote-19) Given the multiple certified fuel pathways for using crop oils as feedstocks for alternative jet fuel, obligating intrastate aviation fuel after 2028 could result in the consumption of several hundred million gallons of additional crop-based aviation fuel in addition to the rapidly increasing market for renewable diesel fuel. In addition, new federal tax credits for sustainable aviation fuels enacted in the Inflation Reduction Act[[19]](#footnote-20) could drive further growth in crop-based alternative jet fuel, which will remain an opt-in fuel for interstate and international flights originating in California.

***Rejecting a cap on vegetable oil-derived diesel fuel based on modeled health benefits is unjustified.***

CARB’s rejection of limits on credits from diesel fuel derived from vegetable oil feedstocks was based on modeled assumptions that particulate matter (PM) and smog-inducing nitrogen oxide (NOx) emissions would decline less than otherwise would occur under the proposed LCFS revisions that allow for continued growth of renewable diesel use. Research prepared for CARB, however, in which fuel blends were tested in diesel engines, concluded that there was no statistical difference in PM or NOx emissions between renewable diesel and fossil diesel used in new diesel engines with modern pollution controls.[[20]](#footnote-21) Due to CARB’s 2007 Truck and Bus regulation, all on-road diesels are required to be equipped with modern pollution controls; non-road diesel emission regulations require equivalent emission control regulation on an increasing share of vehicles in that sector as well. Air quality modeling studies by UC Davis have found minimal emission benefits from increasing blends of renewable diesel or biodiesel in 2030 and beyond due to the prevalence of these pollution controls. While biomass-based diesel played a real historical role in reducing emissions from diesel engines, significant evidence indicates that this will not be the case in the future.[[21]](#footnote-22), [[22]](#footnote-23)

***The proposed sustainability requirements for crop- and forest-based biofuels will not limit adverse environmental or food market impacts.***

In considering the risks associated with crop-based biofuels, CARB concluded that “biofuel production must not come at the expense of food production or forests”.[[23]](#footnote-24) As CARB explained in its draft environmental impact analysis, “cultivation of biofuels on land currently used for food production could result in the conversion of additional existing forest, grassland, or other non-agricultural land to food-related agricultural uses.”[[24]](#footnote-25) Guardrails are necessary to avoid increased GHG emissions from land use change. CARB has stated it is considering such guardrails, including volume-based limits, credit limits, feedstock sustainability criteria, explicit bans on particular feedstocks, and bans of feedstocks from particular regions.[[25]](#footnote-26)

The proposed sustainability certification requirement for crop- and forest-based biofuels,[[26]](#footnote-27) however, will not guard against food production or forest impacts. By merely requiring third-party certification that the crop-based feedstocks were derived from land that was not forested as of 2008, without additional criteria to even evaluate secondary market impacts domestically or globally, the updated LCFS will continue to allow bio-oil feedstocks that negatively impact food markets and secondary impacts of expanded conversion of land for crop production, either within the country of the feedstock’s origin or other crop-exporting countries. The likelihood of expanded land conversion could hinder the very GHG emissions reductions the LCFS seeks to achieve.

For example, this past December, a pathway application from Phillips 66 for importing soy oil from Argentina was approved by CARB.[[27]](#footnote-28) As Argentina is the second largest exporter of soy meal and oil[[28]](#footnote-29), any substantial diversion of exports from Argentina to California will likely create demand for expanded soy and/or palm oil production with impacts on food markets and/or forests that the proposed sustainability requirement would neither prevent nor track.

**Recommendations**

Given CARB’s intention to strengthen and extend the carbon intensity benchmarks of the LCFS program and to obligate intrastate aviation fuels and considering the unexpected, highly risky, and rapid growth of bio-oil based fuels that will be accelerated by stronger targets and obligating aviation fuels, our organizations strongly recommend the following:

1. **CARB should limit the volume of first-generation vegetable oil-based fuels that are eligible to generate credits under its LCFS program.**

We propose the following mechanisms for limiting such fuels. First, CARB could establish a percentage-based system, based on the volume of diesel and aviation fuels sold in the state, such that only a certain percentage of credits may come from biolipid feedstocks. Alternatively, CARB could cap the total number of credits that may be generated from these fuels. In each of these two scenarios, the carbon intensity of the subsequent volumes of biolipid-based fuels would revert to the base fossil fuel CI score once the percentage or cap was surpassed. CARB should set these limits and add them to the updated LCFS, either in 17 C.C.R. § 95486, “Generating and Calculating Credits and Deficits” or 17 C.C.R. § 95486.1, “Generating and Calculating Credits and Deficits Using Fuel Pathways.”

1. **CARB should conduct annual assessments of the direct and indirect market impacts from fuels obligated under the proposed Sustainability Requirements.**

CARB should assess and report on an annual basis the market impacts on crop prices, acreage, and exports resulting from diverting bio-based feedstocks to biofuel production and imports that are obligated under the proposed Sustainability Requirements.

1. **CARB should extend the sustainability requirements beyond crop oils to used cooking oil (UCO) and waste oils.**

While UCO and waste oils are preferable and have lower carbon intensities than crop oils, there are existing markets for these oils that will otherwise turn to crop-based oils when UCO and waste oils are used to produced biofuels for use in California, which also results in land-use change impacts. Furthermore, instances of fraud of crop oils, such as palm oil, being passed off as waste oil have been reported and investigated.[[29]](#footnote-30) Given the number of pathways that CARB has approved for imported waste oils, requiring 3rd party certification for these feedstocks and fuels is warranted.

With great appreciation for the tremendous effort CARB staff have invested in developing and proposing important revisions to California’s Low Carbon Fuel Standard, we thank you for your consideration of our recommendations and would be glad to elaborate or discuss these issues further.

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1. Environmental Defense Fund, Clean Air Task Force and World Wildlife Fund-US letter to Chair Liane Randolph, May 5, 2023. [↑](#footnote-ref-2)
2. [Low Carbon Fuel Standard Public Workshop: Potential Regulation Amendment Concepts, February 22, 2023](https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/lcfs_meetings/LCFSpresentation_02222023.pdf) [↑](#footnote-ref-3)
3. Cal Health & Saf. Code § 38562(a); see also id. § 38550 (directing CARB to establish a greenhouse gas emissions limit to be achieved by 2020). [↑](#footnote-ref-4)
4. Cal Health & Saf. Code § 38562.2(c). [↑](#footnote-ref-5)
5. 17 C.C.R. 95480. [↑](#footnote-ref-6)
6. See Cal. Gov. Code § 11350(b)(1); see also id. (CARB’s regulation must be supported by “substantial evidence” to demonstrate that it is “reasonably necessary to effectuate” the purpose of its enabling statutes). [↑](#footnote-ref-7)
7. See Cal. Health & Saf Code § 38562.2; see also Rocky Mt. Farmers Union v. Corey, 913 F.3d 940, 945 (9th Cir. 2019). [↑](#footnote-ref-8)
8. [Proposed Amendments to the Low Carbon Fuel Standard Regulation, Appendix A-1, January 2, 2024](https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/lcfs_appa1.pdf)

 [↑](#footnote-ref-9)
9. [Low Carbon Fuel Standard Reporting Tool Quarterly Summaries-Graphs, CARB, October 31, 2023](https://ww2.arb.ca.gov/resources/documents/low-carbon-fuel-standard-reporting-tool-quarterly-summaries) [↑](#footnote-ref-10)
10. Calculated from [Low Carbon Fuel Standard Reporting Tool Quarterly Summaries, CARB, October 31, 2023](https://ww2.arb.ca.gov/resources/documents/low-carbon-fuel-standard-reporting-tool-quarterly-summaries) [↑](#footnote-ref-11)
11. Calculated from [Low Carbon Fuel Standard Reporting Tool Quarterly Summaries, CARB, October 31, 2023](https://ww2.arb.ca.gov/resources/documents/low-carbon-fuel-standard-reporting-tool-quarterly-summaries) [↑](#footnote-ref-12)
12. [2023 LCFS Pathways Requiring Public Comments and 2022 LCFS Pathways Requiring Public Comments, CARB](https://ww2.arb.ca.gov/resources/documents/lcfs-pathways-requiring-public-comments) [↑](#footnote-ref-13)
13. [Standardized Regulatory Impact Assessment (SRIA) of Proposed Amendments to the Low Carbon Fuel Standard Regulation, Table 47, CARB, September 9, 2023](https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/appc-1.pdf) [↑](#footnote-ref-14)
14. [Forecasting Credit Supply Demand Balance for the Low-Carbon Fuel Standard Program, Bushnell et al, UC Davis, August 2023.](https://haas.berkeley.edu/wp-content/uploads/WP340.pdf) [↑](#footnote-ref-15)
15. *See* CARB, *Proposed Amendments to the Low Carbon Fuel Standard Regulation*, § 95484(e), Appendix 1 - table 2. [↑](#footnote-ref-16)
16. *See* CARB, *Proposed Amendments to the Low Carbon Fuel Standard Regulation*, § 95484(b). [↑](#footnote-ref-17)
17. *See* CARB, *Proposed Amendments to the Low Carbon Fuel Standard Regulation*, § 95482(c)(2). [↑](#footnote-ref-18)
18. [California State Energy Profile, U.S. Energy Information Administration, April 20, 2023](https://www.eia.gov/state/print.php?sid=CA) [↑](#footnote-ref-19)
19. *See* 26 U.S.C. 40B; *id.* 45Z. *See also* Internal Revenue Service, Notice 2023-06, Guidance on New Sustainable Aviation Fuel Credit (Dec. 19, 2022), <https://www.irs.gov/pub/irs-drop/n-23-06.pdf>. [↑](#footnote-ref-20)
20. Low Emission Diesel (LED) Study Final Report, UC Berkeley for CARB, December 19, 2021. [↑](#footnote-ref-21)
21. Modeling expected air quality impacts of Oregon's proposed expanded clean fuels program, UC Davis, March 1, 2023. [↑](#footnote-ref-22)
22. Quality Impacts of Renewable Diesel and Sustainable Aviation Fuel (SAF) in California, UC Davis, presentation to the Joint Sustainable Aviation Fuels Subcommittee of the Transportation Research Board, January 8, 2024. [↑](#footnote-ref-23)
23. [California Low Carbon Fuel Standard, CARB presentation, September 28, 2023](https://ww2.arb.ca.gov/sites/default/files/barcu/board/books/2023/092823/23-8-1pres.pdf) (slides 36-37). [↑](#footnote-ref-24)
24. [Draft EIA at 69] [↑](#footnote-ref-25)
25. *Id*. (slide 37). [↑](#footnote-ref-26)
26. *See* CARB, *Proposed Amendments to the Low Carbon Fuel Standard Regulation*, § 95488.9(g). [↑](#footnote-ref-27)
27. [Low Carbon Fuel Standard Tier 2 Pathway Application No. B0521, certified December 29, 2023](https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/fuelpathways/comments/tier2/b0521_cover.pdf) [↑](#footnote-ref-28)
28. [Oilseeds: World Markets and Trade, USDA, January 2024](https://apps.fas.usda.gov/psdonline/circulars/oilseeds.pdf) [↑](#footnote-ref-29)
29. Calls for tighter rules on biofuels imports to root out palm oil fraud, The Guardian, December 14, 2023. [↑](#footnote-ref-30)