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Liane Randolph, Chair  
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The unprecedented speed and magnitude of the expansion of renewable diesel used in California, increasingly made from soybean oil, is harming people, accelerating tropical deforestation, and undermining California's climate policies. **We call on the California Air Resources Board (CARB) to immediately cap the use of vegetable oil-based biofuels and to strengthen safeguards within the Low Carbon Fuel Standard (LCFS) to ensure that the use of biofuels does not directly or indirectly contribute to global food price shocks, agricultural expansion, and deforestation.** Capping the use of crop-based biofuels is neither radical nor unprecedented<sup>i</sup>, and is urgently required to align the LCFS with California's focus on transportation electrification and to ensure that California remains a leader in effective and responsible climate policies.

Fifteen years ago, in the midst of rapid expansion of corn ethanol, more than 170 scientists urged CARB to "include indirect land use change in the lifecycle analyses of heat-trapping emissions from biofuels and other transportation fuels."<sup>ii</sup> The Board listened to the science, and for more than a decade this and other policy decisions effectively prevented large increases in the use of crop-based biofuels in California. But these safeguards are no longer functioning effectively.

In the last few years California's consumption of renewable diesel has outstripped the sustainable sources of waste oils and fats, and is increasingly produced from soybean oil, some of it imported directly from South America.<sup>iii</sup> California is on pace to consume 1.3 million metric tons of soybean oil for fuel in 2023, equivalent to 10 percent of global trade in soybean oil.<sup>iv</sup> As California consumes more of the world's supplies of soybean oil, palm oil cultivation is expanding to replace soybean oil diverted from food to fuel use.

Three primary reasons the California LCFS requires an immediate cap on the use of vegetable oil-based fuels are:

**The global poor are at risk:** Use of vegetable oil for fuel contributed to a global food crisis in 2022. That year the World Food Price Index, published by the Food and Agriculture Organization of the United Nations, reached its highest level in a quarter century. Oils were the component of the index with the largest increase, with real prices up 84 percent compared to the 2014–2016 reference. Other factors were primarily responsible for this price spike, but despite the global food crisis, California consumption of renewable diesel increased by 47 percent in 2022 and more than 900

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<sup>i</sup> Amendments to the Renewable Energy Directive of the European Union. 2023. [Link](#).

<sup>ii</sup> Scientists and Economists Letter on Indirect Land Use Change, 2009. [Link](#)

<sup>iii</sup> Phillips 66 LCFS Tier 2 Pathway Application No. B0520. 2023. [Link](#)

<sup>iv</sup> Soybean oil consumption projected based on data from CARB covering the first three quarters of 2023. Data on soybean oil trade from United States Department of Agriculture Foreign Agricultural Service. Oilseeds: World Markets and Trade. [Link](#).

thousand metric tons of soybean oil were used to produce renewable diesel for consumption in California. California should not be bidding against the global poor to fuel its trucks.

**Cropland continues to expand into sensitive ecosystems:** The expansion of soybean and palm oil (to replace soy oil used as fuel) is a major driver of tropical deforestation. Recent analysis finds that annual forest carbon loss in the tropics doubled during the early twenty-first century<sup>v</sup> and that oil palm and soybeans are, respectively, the second and third largest drivers of deforestation after cattle.<sup>vi</sup>

**Support for renewable diesel is diverting resources from transportation electrification:** Renewable diesel generated 40 percent of LCFS credits reported in the most recent quarter, and the large increase in credits from renewable diesel has depressed LCFS credit prices. Capping the use of renewable diesel and other fuels made from vegetable oil will focus more of the support provided by the LCFS on transportation electrification, which can be scaled up with clear climate benefits and without the harsh tradeoffs associated with vegetable oil and other crop-based fuels.

We therefore urge CARB to cap vegetable oil–based biofuels immediately in this rulemaking. Nothing short of a cap will effectively stem the widespread harms caused by the rapidly growing use of these fuels.

**Meaningful safeguards must effectively ensure that the use of vegetable oil or other crops for biofuels does not divert food to fuel uses or expand the footprint of agriculture.** California’s existing land-use safeguards within the LCFS rely on an estimation of land use change emissions developed using complex economic and land-use models. More than 15 years of research has not led to a consensus estimate of these emissions. A 2022 study from the National Academy of Sciences<sup>vii</sup> describes the methodological problems arising from combining an attributional life cycle for fuel production with a consequential assessment of the climate impacts of fuel pathways or policies. A recent Model Comparison Exercise<sup>viii</sup> conducted by the US Environmental Protection Agency highlights the deep uncertainty underlying the modeled climate benefits attributed to soybean oil–based biofuels. *In light of the methodological and modeling challenges with the current approach, more direct safeguards against excessive and damaging diversion of food to fuel use are required to effectively prevent bad outcomes.*

The data make clear that there is no surplus vegetable oil available in the United States, which is projected by the US Department of Agriculture to become a net importer of soybean oil.<sup>ix</sup> In the global marketplace, as more soybean oil is redirected from food uses to fuel production, palm oil is the largest and fastest-growing source of vegetable oil substituting for it in global food markets.<sup>x</sup> Because of this substitution, tracking the chain of custody of the oils used for fuel in California or banning the use of palm oil–based fuels is not an adequate safeguard. A cap on the total quantity of vegetable oil used for fuel is the most effective way to ensure California’s LCFS does not contribute to harmful outcomes. While the rapid growth of vegetable oil–based fuels in California is the immediate concern, policymakers in all jurisdictions should develop comprehensive safeguards to ensure current and future biofuel production does not harm people or the planet.

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<sup>v</sup> Feng, Y., *et al.* 2022. Doubling of annual forest carbon loss over the tropics during the early twenty-first century. *Nat Sustain* 5, 444–451. [doi.org/10.1038/s41893-022-00854-3](https://doi.org/10.1038/s41893-022-00854-3)

<sup>vi</sup> World Resources Institute. 2021. Global Forest Review. [Link](#)

<sup>vii</sup> National Academies of Sciences, Engineering, and Medicine. 2022. *Current Methods for Life-Cycle Analyses of Low-Carbon Transportation Fuels in the United States*. Washington, DC: The National Academies Press. [Link](#).

<sup>viii</sup> US Environmental Protection Agency. 2023. Biofuel Greenhouse Gas Model Comparison Exercise. [Link](#).

<sup>ix</sup> Bukowski, M., & Swearingen, B. 2023. *Oil crops outlook: December 2023* (Report No. OCS-231). U.S. Department of Agriculture, Economic Research Service. [Link](#).

<sup>x</sup> United States Department of Agriculture Foreign Agricultural Service. Oilseeds: World Markets and Trade. [Link](#).

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