



Clerk of the Board  
California Air Resources Board  
1001 I Street  
Sacramento, CA 95814

December 2, 2022

Dear Chair Randolph and Members of the Board:

Global Clean Energy is a California-based renewable fuels innovator specializing in the production of ultra-low carbon renewable fuels from patented nonfood camelina varieties. Thank you for the opportunity to comment on the changes proposed for the Low Carbon Fuel Standard (LCFS). We appreciate the California Air Resources Control Board (CARB) taking the benefits of renewable diesel (RD) into account in your emission reduction goals. Renewable diesel has fewer Greenhouse Gas (GHG) and local emissions than both traditional diesel and biodiesel fuels, acts as a drop-in replacement for modern traditional diesel engines, and does not require large scale infrastructure replacement. It will be a critical component in reaching our state's carbon neutrality goals, particularly in hard to decarbonize sectors.

A proposal of concern that was outlined within your November 9 [Public Workshop: Concepts and Tools for Compliance Target Modeling](#) discussed limiting the use of certain virgin agriculture oils (i.e. soybean oil) in renewable diesel credit generation. If such a limit is ultimately adopted, renewable diesel producers would likely have to re-direct their volumes to other markets or compete for waste fats supply, driving up costs and limiting available feedstock supply necessary to meet market demand.

Given [Governor Newsom's letter to CARB dated July 22, 2022](#) outlining the administration's goals of setting a clean fuels target of 20% for the aviation sector and the acceleration of refinery transitions away from petroleum to the production of clean fuels, CARB's suggestion of limiting certain types of crop-based renewable fuel feedstocks available for use in California would place these goals at risk.

We encourage CARB to recognize that there is a great demand for virgin oil feedstocks and, with the adoption of continued climate neutrality-focused regulations, that demand will continue to rise. Renewable diesel is a clean energy technology option that will improve air quality in the near-term but also deliver on longer-term climate goals. All renewable fuel feedstock options should be taken into account toward meeting our climate goals, including "intermediate crops" like camelina.

Global Clean Energy specializes in ultra-low carbon renewable fuels from our patented nonfood camelina feedstock, a crop that offers benefits commonly referred to as “regenerative agriculture” as well as providing a low carbon fuel solution to help California meet its ambitious clean air targets. Camelina is a lipid-based feedstock that is nonfood, grows between traditional crop cycles on dryland farms, and does not contribute to land use change. Indeed, our patented camelina varieties were issued a first-of-its kind LCFS pathway by CARB in 2015. Further, camelina has the potential to be the lowest carbon intensity renewable fuel feedstock on the market. Camelina-based renewable fuels produced by Global Clean Energy have the potential to go to a zero or below carbon intensity score in the coming years.

We encourage the greater adoption of camelina feedstocks and other intermediate crops to assist in meeting the growing demand for renewable fuel production. By crafting a policy similar to the European Union’s as outlined within the Renewable Energy Directive 2018/2001/EU (RED II), CARB can help to ensure feedstock supply remains strong while limiting Direct and Indirect Land Use Change (ILUC)-related impacts.

For example, the European Union’s (EU) revised RED II set a biofuels target of 14% of transportation fuels by 2030. RED II sub-targets and limitations were defined within the regulation as follows: 1) High ILUC risk crops (such as palm oil) will be banned in 2030, and 2) Food & Feed crops (such as rapeseed, soy, and sunflower oil) have a cap of 7%.

As stated above, the rules limit quantities of existing food vegetable oil (palm, soy, rapeseed, sunflower) that can be used for biofuel production in Europe at 7%, meaning the remaining volume (to reach the 14% target) needs to come from new alternative sources, including **“intermediate crops.”** Within the directive, intermediate crops are considered nonfood & feed crops defined as, “Catch and cover crops, provided that the use of such intermediate crops does not trigger demand for additional land.”

These intermediate crops are defined under the International Civil Aviation Organization’s (ICAO) pathway within the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) as, “Feedstock grown as a secondary crop that avoids other crops’ displacement.” Given these existing definitions, and the exemptions provided for intermediate crops within these existing policies, California would be well positioned to further the LCFS by adopting a similar tactic.

We suggest CARB consider the following definition for “intermediate crops” for exempted virgin oil or lipid-based feedstocks: “Intermediate crops refer to crops grown between main crops (before or after), usually on arable land. Intermediate crops protect the soil (which would otherwise lie bare during such growing period) against wind and water erosion as well as mitigate the loss of soluble nutrients, such as nitrogen. Intermediate crops also improve the structure of the soil and diversify the cropping system, providing weed and other pest control as well as habitat for beneficial organisms. Intermediate crops are terminated, harvested, or grazed prior to the main crop being planted, without impacting the following main crop’s sowing date. The intermediate crop is not a commodity crop (e.g., corn, soy, wheat) and

typically is grown during the most difficult climatic conditions of the year, usually measured in terms of rainfall and/or temperature.”

This suggested definition ensures crops that would qualify for such an exemption under the LCFS would not contribute to your agency’s stated areas of concern, namely contributing to land use change and competing with crops otherwise used as food sources. Further, a robust definition like that offered above helps to ensure the integrity of feedstock sourcing by limiting any type of fraud or suspicion over sourcing, an area of concern that has arisen in the EU in recent years.

The stated goal of the LCFS is to limit carbon in the transportation sector. Renewable fuels are a critical piece in accomplishing this aim. Incentivizing the use of intermediate crops, like camelina, as renewable fuel feedstock options can help our state reach its climate goals.

Intermediate crops can play a major role as a new sustainable source for biofuels in California and throughout the nation. We should not be taking away California’s options to meet our carbon reduction objectives, rather we ought to enhance these options by incentivizing the use of crops that provide climate benefits throughout their lifecycle – by positively contributing to the land as they are grown and generating ultra-low carbon renewable fuels that reduce air emissions when they are used - all while not contributing to land use change.

As demand for sustainable low carbon renewable fuels grows, we will need more feedstock options, not less, to meet projected market growth. Given this concern, of the alternatives outlined within the November 9 LCFS Public Workshop, we would encourage the adoption of Alternative C to ensure adequate supply of clean fuels throughout the state in the years to come.

As a further emission reduction strategy for California’s clean air future, we encourage CARB to explore expanding LCFS credit eligibility to stationary compression ignition engines under the LCFS program. Stationary and mobile generators that currently operate on diesel fuel can be powered using renewable inputs, further reducing emissions throughout the state. However, due to the limitation of LCFS eligibility, certain sectors are structurally disadvantaged to further the adoption of renewable fuels and transition away from traditional petroleum-based fuels. We believe expanding the policy to include stationary compression ignition engines in both nonagricultural and agricultural operations would bring the Golden State even closer to meeting and exceeding our ambitious clean air targets.

Sincerely,

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