



December 10, 2022

RENEWABLE DIESEL: Comments on CARB's November 9, 2022 Workshop on the Low Carbon Fuel Standard Program

Climate Action California, with more than 5,000 supporters around California, is pleased to comment on the November 9 workshop describing the Air Resources Board's (CARB's) considerations for the Low Carbon Fuel Standard Program update, coming in 2023. We have submitted other comments on various elements of the program, but we want to highlight our concerns about potential reliance on renewable diesel (RD) in California's efforts to decarbonize.

A critical assumption in each of the scenarios described for the LCFS update is the large role that CARB expects renewable fuels to play. We find serious flaws in this assumption with regard to the environmental impacts of these fuels.

First, RD should not, and we believe cannot, be considered a long-term sustainable fuel source, as burning this fuel causes immediate emission of carbon dioxide into the atmosphere. It does not matter to the ecosystem whether the carbon has been sequestered for a million years or 1 year...when it is burned it has the same global warming effect and the same emissions of combustion pollutants such as NO_x. ***The value of any credits for renewable diesel must be scaled down to zero in less than a decade, in order to prevent excessive growth of capacity.*** Such a cap has already been proposed by the [International Council on Clean Transportation](#).

Secondly, as was pointed out in the presentation, if virgin oils such as soy oil are used to make the fuel, the impact on croplands, natural lands, and likely the global food supply will be vast. It has been estimated that the four renewable diesel refineries proposed just for California could, at full capacity, consume 43 percent of U.S. lipid production.¹

Finally, large amounts of hydrogen are required to convert a vegetable oil to a hydrocarbon. At present most hydrogen is produced using steam reforming of fossil methane—which has a huge carbon footprint due to both the carbon dioxide released in the steam reforming process and methane leaks during the production and distribution of the fossil methane.

We urge CARB to:

- Convene a committee of recognized environmental scientists, unaffiliated with the carbon fuel industry, to confirm the assumptions behind the LCFS modeling for renewable diesel

¹ Greg Karras, *Changing Hydrocarbons Midstream: Fuel chain carbon lock-in potential of crude-to-biofuel petroleum refinery repurposing*, report prepared for NRDC, 2021. The estimated combined feedstock capacity of 4 RD projects planned for California, the Phillips 66 project in Rodeo, the Marathon project in Martinez, the AltAir project in Paramount, and the Global Clean Energy Holdings facility in Bakersfield (164,500 barrels per day total ; page 11) require 43% of total US lipid supply based on USDA data from Oct 2016 through Sep 2020. The lipid amount for the 4 California refineries is estimated at 8.91 MM tons/yr. For reference, total soy oil production for the US is 10.69 MM tons/yr. The refineries propose to use other feedstocks such as livestock fats and corn oil, thus reducing the soy oil demand.

- Examine the lifecycle emissions of the entire production process involved in converting fatty acids to hydrocarbons, to be sure that you are accounting for the full carbon intensity of this fuel

We also take issue with the assumption that “crop-based biofuels generate credits and are unconstrained.” In fact, as the Karras report clearly points out, the capacity to produce virgin oils is severely constrained by our ability to produce the raw lipids needed;² consequently, any model based on this false assumption is doomed to fail. We suggest that LCFS credits should only be used for those applications where electrification or clean electrolytic hydrogen is not yet feasible and cost-effective (e.g., aviation and long-haul marine shipping).

Thank you for considering these comments. If you wish to discuss them further, I will be happy to speak with staff at any time.

Sincerely,



Stephen Rosenblum, Ph.D., Chemistry
For Climate Action California



Daniel Chandler, Ph.D.
For 350 Humboldt

² Karras, *op. cit.*, p. 14 ff.