



December 20, 2022

Ms. Cheryl Laskowski, Branch Chief
Transportation Fuels Branch
California Air Resources Board
1001 I St
Sacramento, CA 95814

Re: Low Carbon Fuel Standard Workshop November 9, 2022

Dear Ms. Laskowski,

The Renewable Fuels Association (RFA) appreciates the opportunity to comment on the workshop on potential changes to the Low Carbon Fuel Standard (LCFS) program held on November 9, 2022. The RFA supports the LCFS and looks forward to continued engagement in this process to strengthen and extend the program beyond 2030. The RFA is also working around the country in collaboration with other stakeholders to develop and implement LCFS and other clean fuel programs in other states.

The RFA commented extensively on the key issues of the LCFS modifications in our letter of August 8, 2022, following the July 27, 2022, LCFS workshop. These new comments should be considered in combination with the earlier comments and are responsive to CARB staff's request at the most recent workshop for stakeholder input on specific topics.

RFA supports strengthening the current LCFS compliance schedule before and after 2030, in conjunction with other regulatory improvements that will make more stringent targets achievable.

The RFA supports both strengthening the 2030 carbon reduction target to 30 percent and steepening the trajectory of the compliance curve starting in 2024. At the workshop the staff presentation outlined that over-compliance with the program has resulted in LCFS carbon credit pricing of around \$60 per metric ton, chilling investments in new technologies and innovations.

The science as summarized in the most recent UN IPCC report points to the urgent need to make immediate and large-scale reductions in GHG emissions in this decade to avoid catastrophic consequences of climate change. Approving E15 as a legal fuel and further incentivizing flex fuels like E85 (through the value of carbon credits) provides a significant new opportunity for credit generation, supporting a much stronger carbon

reduction compliance curve. However, without complementary action (e.g., E15 approval and promotion of E85 and flex fuel vehicles), more stringent future LCFS requirements may be very difficult to achieve.

Modify The CATS model to better reflect current and projected ethanol economics, carbon intensities and volumes.

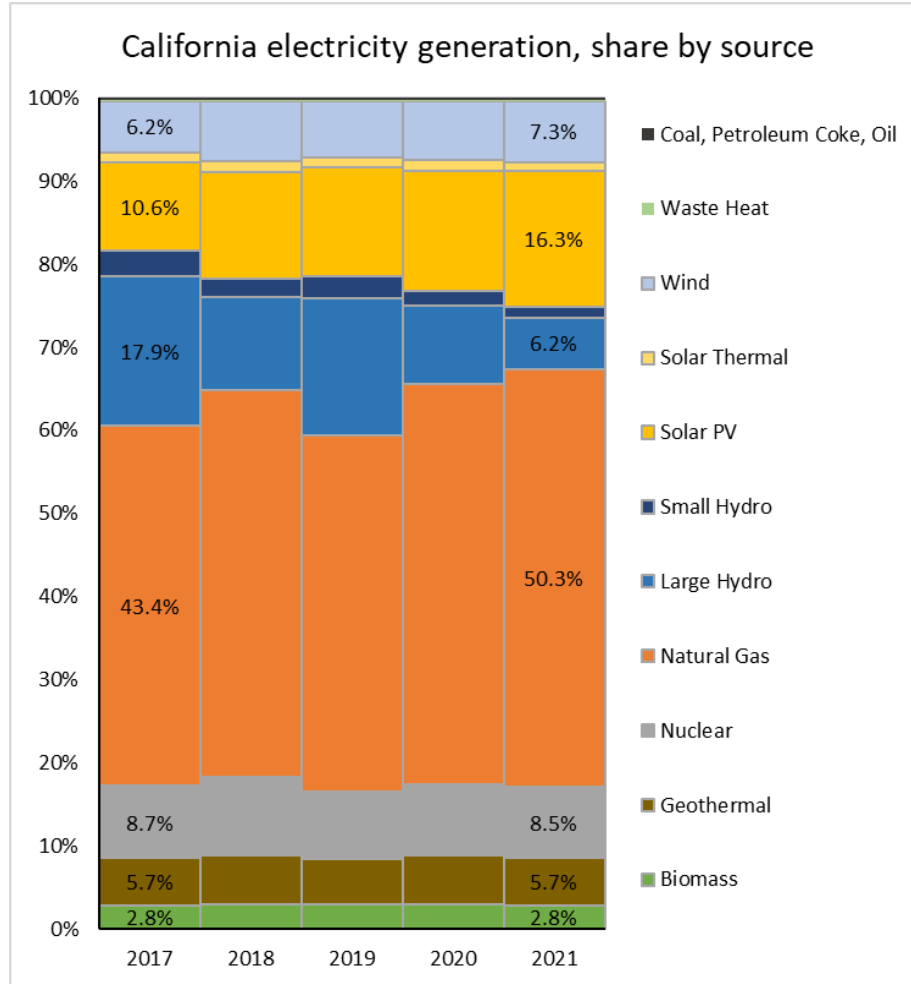
RFA appreciates the release of the CATS model and believes that with the proper assumptions, the model could be a helpful tool for understanding technically and economically viable strategies for improving the LCFS program. Unfortunately, the model was not made available in a timeframe and manner sufficient to facilitate in-depth stakeholder review and input.

Based on the posted CARB Presentation, CATS Model Technical Documentation, CATS Summary Inputs and Supplemental FAQ Documentation, RFA submits for consideration the following comments:

- The CATS model assumes a static 66 gCO_{2e}/MJ (g/MJ) carbon intensity (CI) for ethanol without carbon capture and sequestration (CCS) and a 35 g/MJ CI for ethanol with CCS. The average CI for ethanol in the California market today is 58 g/MJ and has steadily fallen since the inception of the LCFS.¹ The actual values in the market should be used as the starting point and there should be a curve representing the decreasing CI over time for ethanol. RFA members are committed to net zero carbon ethanol production no later than 2050 and have outlined concrete plans and pathways to achieve this result.² Using a declining future trend for ethanol CI would be consistent with both the historical (observed) trend analysis and the model's treatment of electricity, where a declining CI over time is built into the CATS model assumptions. Notably, the model's assumed declining CI for electricity is not necessarily consistent with recent observed trends in California's electricity generation. As shown in the chart below (based on data from the California Energy Commission), the share of California electricity generated from natural gas has increased in recent years, while increases in the solar and wind share of generation have been largely offset by decreases in hydro-electric generation.

¹ <https://ww2.arb.ca.gov/resources/documents/low-carbon-fuel-standard-reporting-tool-quarterly-summaries>

² <https://d35t1syewk4d42.cloudfront.net/file/2146/Pathways%20to%20Net%20Zero%20Ethanol%20Feb%202022.pdf>



- The CATS model assumes an E10 blend in conventional gasoline. Given the significantly lower CI of ethanol relative to CARBOB, and the results of the recent CARB-supported emissions study showing significant criteria pollutant reductions from increasing the blend to E15, the model should run a scenario on higher blends. E15 represents a key strategy for an early acceleration of the LCFS compliance curve.
- E85 represents another significant opportunity for carbon reductions from the light duty vehicle fleet. Given the lower CI of E85 and the fuel's distinct price advantages, California E85 volumes have been increasing at an annual growth rate of approximately 50-60 percent in recent years. From the Technical Documentation, the CATS model is assuming additional costs associated with bringing E85 to market relative to E10 to be reflected by D6 RIN prices (\$1.13 per gallon in the model). This assumption is greatly

overstated given the modest costs of converting existing E10 distribution to E85. We are happy to work with staff to better understand these costs.

- Market prices are used for modelling biofuels, but for electricity the social marginal cost is used; however, the document referenced in the footnote states that “the marginal cost is vastly lower than current rates.” With the need to more than double total electrical production in California to meet state climate objectives and the assumption that the grid CI is dropping, market pricing with some escalation over time seems to be a more appropriate assumption. This would also be more consistent with the treatment of other alternative fuels in the CATS model.
- For ethanol with CCS, the CATS model assumes that the CO2 captured would be used or stored in oil and gas fields qualifying for the \$60 per metric ton 45Q federal tax credit. As a matter of fact, most of the announced ethanol CCS projects will be geologically sequestering the CO2 and qualifying for the higher \$85 per metric ton 45Q credit. The model should be adjusted accordingly.
- A \$7 per bushel corn price assumed in the CATS model is not a representative long-term price for corn. Current corn prices around \$6.50 per bushel are at a multi-year high due to the Russia-Ukraine war and general worldwide commodity price inflation. USDA forecasts that prices will fall to \$4.30 per bushel by 2026 and then remain at that level as shown in the U.S. Feed Grains file in the recent USDA Baseline Projections.³
- The model’s conversion cost for ethanol appears to be higher than actual observed costs. Typical operating costs for ethanol producers are in the public domain and should be used to validate or modify the results of the regression analysis. For example, the Center for Agricultural and Rural Development (CARD) provides weekly updated margin reports that document corn ethanol conversion costs.⁴
- Corn distillers oil from ethanol producers is a coproduct of the production process and is an inedible corn oil (ICO). Consequently, it should not be included on the list of virgin oils. The distillers oil extracted at dry mill ethanol plants is strictly an industrial product and has no human food application. The FAQ supplement stated that it was not included as a waste oil because it had alternative uses as a feed. The same is true of the tallow and used cooking oil, which also have feed market opportunities.

³ <https://www.usda.gov/oce/commodity-markets/baseline>

⁴ https://www.card.iastate.edu/research/biorenewables/tools/hist_eth_gm.aspx

It is critically important for CARB to move quickly and concisely in strengthening the LCFS program. Timely and accurate modelling and scenario development through the CATS model and other analyses is a valuable tool in this regard.

Ethanol has generated the single largest volume of credits in the LCFS program, accounting for roughly four of every 10 credits generated since the program's inception. But constraining ethanol's use to 10 percent blends is sacrificing additional carbon reductions possible today. We urge CARB to move quickly to adopt regulations approving E15, which will allow the ethanol industry to help displace more fossil fuel in California and lower carbon emissions now.

An accurate modelling of ethanol's benefits and an integration of CARB fuels policy to incentivize higher ethanol blends will result in immediate reductions of GHG emissions and criteria pollutants while lowering the cost of compliance to obligated parties and California consumers.

RFA looks forward to working with CARB staff and other stakeholders to strengthen and extend the successful LCFS program.

Sincerely,

Kelly S. Davis
VP of Regulatory Affairs