August 27, 2024

Chairperson Liane Randolph

California Air Resources Board

1001 I Street

Sacramento, CA 95814

RE: Proposed Low Carbon Fuel Standard Amendments issued August 12, 2024

Dear Chairperson Randolph,

EcoEngineers appreciates the opportunity to submit comments regarding the Proposed Low Carbon Fuel Standard Amendments issued on August 12, 2024.

EcoEngineers is one of the nation's leading auditing, verification, and consulting firms for renewable fuel and clean energy technologies. We are accredited under the California Low Carbon Fuel Standard (LCFS), USEPA Renewable Fuel Standard (RFS), the Washington and Oregon Clean Fuel Standards, and the Canadian Government Clean Fuel Standard. We are also accredited by the American National Standards Institute (ANSI) National Accreditation Board (ANAB), in accordance with the International Organization for Standardization (ISO) standards ISO/IEC 17029:2019. EcoEngineers has performed over one thousand registrations and audits under the LCFS program and is proud to be a strong partner and advocate for the program. We appreciate the opportunity to share some of our thoughts and comments on the proposed amendments.

EcoEngineers strongly supports the advancement of policies, regulations, and programs that address the global reduction of greenhouse gas (GHG) emissions across all sectors. The LCFS program continues to be a vital tool that can assist California and the U.S. meet their climate reduction goals. This program serves as an example to jurisdictions around the world looking to decarbonize their transportation fuel sector and, as such, should continue to strive towards ambitious targets while closely considering market dynamics. EcoEngineers applauds the steadfast ambition that CARB has demonstrated to reduce GHG emissions in the transportation sector. This leadership has made the LCFS and related climate policies a model for other states and countries pursuing decarbonization strategies.

EcoEngineers presents the following comments on the Proposed Amendments.

1. **Program Benchmarks**

As stated in Eco's comments on the Proposed Amendments issued on December 19, 2023, including a step-down mechanism is a crucial element of the proposed rules and, if implemented correctly, could help stabilize the credit market. EcoEngineers supports the increase in the step-down mechanism from the originally proposed 5% to 9% in 2025. Our modeling has shown that this will be valuable for program performance in the short and medium term, and we thank CARB for re-examining this key element for program success.

2. **Modification to Treatment of Fossil Jet Fuel**

The LCFS compliance mechanism has proven that the proper policy structure can reduce emissions. As of September 2023, over 25 billion gallons of petroleum fuel have been displaced from transportation since the program began in 2010. This happened because the LCFS set a strict carbon intensity reduction requirement for on-road fuels. Fuels in use today, such as renewable diesel and renewable natural gas, did not exist in significant volumes when the program was launched. However, the right combination of policy and credit pricing created a marketplace for those fuels. Regulated entities have consistently over-complied with the standard, generating a bank of credits, and at the end of Q1 2024, the bank stood at nearly 26.07 million credits. The lessons learned from decarbonizing on-road transportation should now be applied to the aviation sector.

EcoEngineers recommends that CARB stays firm in setting a carbon intensity reduction goal for the aviation fuel sector. As such, EcoEngineers strongly recommends the intrastate flight obligation be added to the list of transportation fuels included in the LCFS as proposed on December 19, 2023. This inclusion would result in a positive ripple effect across the industry while providing positive market signals to both obligated parties and low-carbon aviation fuel producers. The inclusion of fossil jet fuel would be consistent with European initiatives as well as support the International Civil Aviation Organization's (ICAO) Carbon Offsetting and Reduction Scheme for Aviation (CORSIA). EcoEngineers continues to support the inclusion of aviation fuel under the obligation. We encourage CARB to reevaluate its decision continuously to ensure the LCFS remains successful at meeting its overarching objectives and those of the State of California.

3. **Hydrogen**

EcoEngineers applauds CARB's efforts to support the development of a low-carbon intensity hydrogen economy. However, the LCFS regulation has always been science-based and technology-neutral, and the removal of LCFS crediting eligibility for hydrogen from fossil natural gas after January 1, 2031, defies these long-standing CARB principles within the LCFS. This proposed amendment discounts the potential for carbon capture and sequestration and assumes the carbon intensity of the natural gas grid will remain the same until 2030. The rule effectively eliminates natural gas production pathways with carbon capture, regardless of carbon intensity, including hydrogen produced via steam methane reforming (SMR), autothermal reforming (ATR), or methane pyrolysis, from supporting California's hydrogen economy. Doing so narrows the field of low-carbon producers (and supply), reduces competition among low-carbon hydrogen suppliers, and enables green

hydrogen producers to charge a premium for their product absent competition. EcoEngineers strongly recommends that CARB reconsider this amendment.

Regarding heavy-duty hydrogen refueling infrastructure (HD-HRI), the proposed amendments include restrictive location requirements per section (a)(1)(B)(1):

> "The proposed HD-HRI station must be located in California, and if a shared HD-HRI station be: Located within five miles of any ready or pending Federal Highway Administration Alternative Fuel Corridor."

Linking HD-HRI funding to a designated clean corridor ignores the fact that some high-density freight corridors, particularly along the California-Mexico border, would not qualify. EcoEngineers recommends that CARB reconsider the restrictive location requirements so that the industry can grow across the state.

Finally, changes to substantially narrow process energy to renewable co-located electrolytic hydrogen only devalue and undermine progress on energy policy. Current energy policy allows grid-connected hydrogen to provide "good load," thus reducing curtailment and distribution needs by being located closer to demand. Narrowing this policy will be contrary to program goals.

4. **RNG Compliance Requirements**

We thank CARB for including RNG projects that have broken ground by January 1, 2030, to be eligible for the two consecutive 10-year renewal periods. Additionally, an essential element to achieving sustainability is ensuring that the industry can meet effective requirements economically and without undue administrative burden. EcoEngineers is concerned about the proposed regulations regarding RNG directionality requirements.

Book-and-claim is an essential element of RNG project implementation and success. The requirement to prove directionality for RNG will add complexity to project implementation and cause inconsistencies in LCFS policy. For example, phasing out book-and-claim for RNG while promoting book-and-claim for hydrogen is an inconsistency that will weaken the confidence producers and investors need in policy stability to make project financing decisions. Requiring proof of directionality will also increase the administrative burden while providing no additional benefits for the LCFS program's success. EcoEngineers encourages CARB to revise this amendment.

5. **Land Use Change, Biodiversity, and Other Sustainability Requirements for Purposely Grown Feedstock**

EcoEngineers strongly supports the advancement of measures to ensure renewable fuel is produced in a sustainable and ecologically sound manner. Land use change and biodiversity loss are important issues to consider while reviewing the environmental impact of low-carbon fuel policy. However, we have concerns regarding CARB's proposed approach to regulating these issues: the 20% limit for soy and canola renewable diesel/biodiesel-based fuels, the proposed sustainability requirements for biomass, and the approach to determining land use change risks.

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EcoEngineers is concerned with the ability of pathway holders to meet the proposed sustainability requirements without additional details on what is needed to demonstrate compliance. Though sustainability requirements were further clarified and given a phase-in period from the 45-day amendments, there are outstanding questions on quantification and demonstrating how producers can satisfy these requirements. There could be an immense administrative and economic burden due to certification requirements that many producers may be unable to satisfy. As an accredited LCFS auditor, we have first-hand experience that clarity in compliance requirements is of utmost importance as we attempt to retrieve and review all necessary documentation during a verification.

To address the potential negative impact of land use change from incentives for purposely grown feedstock, CARB indicates Global Trade Analysis Project – Biofuels Model and Database (GTAP-BIO) and Agro-Ecological Zone Emission Factor Model (AEZ-EF) models should be used for estimating Indirect/Induced Land Use Change (ILUC). EcoEngineers requests clarification on the definition of regions with "higher LUC risk." Since GTAP geographical levels are based on 18 agro-ecological zones (AEZs), EcoEngineers requests clarification on which AEZs and counties are considered higher LUC risk. This will ensure consistency across ILUC estimates.

Finally, that biomass-based feedstocks are the most feasible solution to decarbonizing transportation (on-road, aerial, and marine) in the short and medium term, EcoEngineers objects to the 20% cap on soy and canola renewable diesel/biodiesel-based fuels.

Instead of setting a cap on two of the most successful feedstocks and creating additional administrative burdens for producers, EcoEngineers recommends CARB convene a committee dedicated to addressing how the energy in purposely grown feedstock can be harnessed ecologically. Emissions from land-use change, impact on food and feed markets, and a commitment to biodiversity and sustainability should be studied to understand how to cultivate low-carbon feedstock for fuel. This committee can provide recommendations for how these necessary fuels can be produced in the most sustainable, ecologically sound manner.

Thank you once again for the opportunity to comment on the proposed amendments. Please do not hesitate to contact me for more details. We look forward to continuing to work with CARB on implementing a successful LCFS program.

Sincerely,

Lisa Hanke

Director, Regulatory Engagement

EcoEngineers