June 29th, 2018

The Honorable Mary Nichols, Chair
California Air Resources Board
1001 I Street
Sacramento, CA 95814

RE: Low Carbon Fuel Standard Extension Draft Regulation

Dear Chair Nichols,

EcoEngineers would like to thank the California Air Resources Board (Referred to as CARB hereafter) for the opportunity to provide comments on the proposed Low Carbon Fuel Standard (Referred to as LCFS hereafter) draft regulation. We are excited to be a part of the process and have prepared the following comments for your consideration.

Background & Qualifications

EcoEngineers is a renewable energy consulting company and an EPA approved Q-RIN Quality Assurance Program (QAP) provider under the Renewable Fuel Standard (RFS). We conduct quarterly audits of over 70 domestic and international renewable fuel production facilities to ensure compliance under federal regulations. EcoEngineers also performs Life Cycle Analysis (Referred to as LCA hereafter) modeling and regulatory consulting for participants in California's LCFS. We currently provide RIN QAP, compliance management, LCA modeling, and other consulting and auditing services to California biofuel producers and the greater biofuels industry.

EcoEngineers has extensive experience working with the California LCFS program and the CA GREET model. EcoEngineers has a full-time engineer dedicated to modeling fuel pathways in GREET and we have modeled more than 90 pathways using the CA-GREET model (1.8b & 2.0). We have also submitted over 90 applications to CARB for registration under the LCFS. EcoEngineers has supported the development of the biodiesel, renewable diesel, ethanol and biogas industries in California.

We believe CARB plays a leadership role in guiding global low-carbon fuel policies, and a successful LCFS is key to reducing greenhouse gases from the transportation sector. We would like to congratulate CARB on steadfastly maintaining the policy objectives of the LCFS over the past decade and having the vision to take it into the next. Our comments are being provided with the intention of building on LCFS' past successes and helping CARB create a robust program for the future.

Biomethane Definition

The definition of biomethane in § 95481(a)(19) states that "Biomethane means methane… which has been upgraded for use in natural gas vehicles." Narrowly defining biomethane as methane upgraded for use in natural gas vehicles limits the potential to use biomethane in other fueling applications and fuel production activities, including, but not limited to the following:

- Renewable electricity generation
- Renewable hydrogen production
- Use as process energy for fuel production

We believe that it is CARB's intention to keep the definition of biomethane broader. For example, in § 95481(a)(113), renewable hydrogen is defined as "hydrogen derived from… catalytic cracking or steam methane reforming of biomethane."

Recommended Action: We recommend that the definition of biomethane in § 95481(a)(19) be changed to "Biomethane means methane derived from biogas or synthetic natural gas derived from renewable sources, including the organic portion of municipal solid waste. Biomethane contains all of the environmental attributes associated with biogas and can also be referred to as renewable natural gas."

Temporary Pathways

EcoEngineers supports increased transparency and guidance for dairy and swine digesters to participate in the LCFS program and thanks staff for adding section §95488.9(f) and reducing the temporary pathway CI value for dairy manure to -150.

We believe it would be prudent to include swine manure in §95488.9 Table 8. There are numerous hog feedlots that could capture methane gas from lagoons and repurpose it as biomethane. Providing them with a temporary pathway CI value will help reduce GHG emissions from agricultural operations and help achieve program goals of reducing average carbon intensity in transportation fuels by 20% by 2030.

Furthermore, biofuel production facilities with feedstock-fuel combinations not identified in Table 8 are currently forced to use the baseline CI value for CaRFG or ULSD. We believe there will be biofuel production facilities with feedstock-fuel combinations not identified in Table 8 who will want to apply for a unique temporary pathway CI value for their facility. Many of them may have operating data or design data to model a reliable score. Providing entities with a clear process to obtain a temporary CI value will result in greater efficiency in credit generation from new projects. It is not clear in the proposed regulations, whether this option is allowed or what alternatives are available for gasoline or diesel substitute feedstock-fuel combinations not identified in Table 8.

Recommended Actions:

1. Add biomethane CNG, LNG and LCNG from swine manure using grid electricity, natural gas, and/or parasitic load to Table 8.
2. Provide a process for entities to create a new temporary pathway and CI to be added to Table 8. Also, provide a process for an entity to create a new temporary CI value for a temporary pathway that is currently listed in Table 8.

Avoided Methane Compliance

EcoEngineers commends CARB on its vision to incentivize avoided methane emissions for biomethane from dairy and swine manure. However, it is unclear whether a project needs to be registered in the CA Cap and Trade program and be fully compliant with all its requirements in order to claim avoided methane emission credits. This lack of clarity results in the following uncertainties for projects:

- If the dairy has a spill event or other compliance issues under cap and trade, will it impact the LCFS carbon intensity score?
- Projects in the cap and trade program are verified annually for the previous year and credits are issued subsequently. How does this match up against a quarterly LCFS reporting schedule?
- Can a verifier or verification body who is approved under LCFS but not under Cap and Trade program verify a LCFS pathway for biomethane from dairy and swine manure that claims avoided methane emission credits?

- Will LCFS registrants get three 10-year periods from the time of registration, or will they would get less because of time served under Cap and Trade?

Moreover, section §95488.9(f)(3)(B) states that the passage of "a law, regulation, or legally binding mandate requiring either greenhouse gas emission reductions from manure methane emissions from livestock and dairy projects or diversion of organic material from landfill disposal, comes into effect in California during a project's crediting period, then the project is only eligible to continue to receive LCFS credits for those greenhouse gas emission reductions for the remainder of the project's current crediting period. The project may not request any subsequent crediting periods." It appears to establish additionality requirements for projects and limit a project's crediting period.

We believe that it is in the best interest of the LCFS program to minimize regulatory uncertainty and allow projects that are built the full benefit of the regulations as they are today. The potential for future laws to destabilize project revenues disincentivizes project development.

Recommended Action:

1. Provide greater clarity in the regulations on the compliance requirements under cap and trade for projects claiming avoided methane credits under LCFS.
2. Allow registered projects to be grandfathered and claim credits for the three 10-year crediting periods allowed during time of registration if a future law raises the baseline for additionality.

Verification Program

We believe CARB is taking the right approach by designating provisions §95503(b)(A),(B),(E),(G),(H),(I), &(N) as medium potential conflict of interest within a five-year look back period ending on January 1, 2023. This provides more time for the low carbon fuels suppliers and the auditing industry to adapt their business practices to these new requirements.

However, we still believe some of the definitions of activities that trigger high conflict of interest are too vague and could benefit from revision. Below are some specific examples:

1. EcoEngineers offers a RIN tracking system to the biofuels industry that allows data transmittals from biofuel plants to the EPA for RIN generation purposes. The system acts as a "conduit" that transports producers' data directly from the producers' servers to EPA databases with no interference from EcoEngineers staff or agents. The system also stores it for future retrieval for record-keeping and auditing purposes. We do not believe this creates a high conflict scenario and it provides our auditors up-to-date information on fuel transaction and credit generation at the facility. Section §95503(b)(2)(A) currently offers an explicit exception to accounting software. We believe EcoEngineers' RIN platform deserves a similar exception.

2. In §95503(b)(2)(C), "Designing or providing consultative engineering or technical services in the development and construction of a fuel production facility; or energy efficiency, renewable power, or other projects which explicitly identify greenhouse gas reductions as a benefit" is identified as triggering a high conflict. First, consultative engineering is a very broad phrase that is not clearly defined. For example, sometimes one of our engineers may be asked to provide an opinion on whether the LCFS requires the installation of a flow meter at a certain location to measure feedstock or finished fuel flows. We do not believe providing this opinion triggers a conflict of interest; however, the phrase "consultative engineering" can be interpreted to argue that it does. Second, the use of the word "development" in this context greatly broadens the

scope of this conflict of interest and could include any task that ultimately helps a facility come into production. We believe that an engineer who is responsible for the design and construction of the facility should trigger a high conflict of interest; however, engineers also often provide independent, third-party opinions which ultimately assist projects make good decisions. These independent, third-party opinions should not be identified as triggering a high conflict of interest.

3. Section §95503(b)(2)(L) identifies "appraisal services of carbon or greenhouse gas liabilities or asset," as a service that triggers a high conflict and §95503(b)(2)(C) identifies "consultative engineering" as a service that triggers a high conflict. EcoEngineers sometimes provides its clients the current market value of renewable fuel credits as seen in 3rd party market transactions or other publicly available data such as CARB's website. This data may or may not be part of an independent economic analysis that compares potential future revenues with estimated capital and operating costs at a facility. It is our unbiased, independent opinion that creates value for our clients. We do not believe these services trigger a high conflict, and there should be some allowance for these types of relationships to continue without triggering a conflict.

4. Section §95503(b)(2)(H) triggers a high conflict if a verification body provides "verification services that are not conducted in accordance with, or equivalent to, section 95503 requirements." The EPA's QAP program is currently the most common verification program among U.S. biofuel producers and it is unlikely to be in accordance with section 95503 requirements. We recommend that CARB modify this language to allow current QAP providers to perform LCFS verification activities without triggering any conflict of interest.

Recommended Action:

1. Modify §95503(b)(2)(A) to include an exception for a data transfer system that exchanges RIN data between a facility and EPA databases.
2. Modify §95503(b)(2)(C) as follows: "Designing or providing engineering or technical services in the design and construction of a fuel production facility; or energy efficiency, renewable power, or other projects which explicitly identify greenhouse gas reductions as a benefit."
3. Modify Section §95503(b)(2)(L) to allow for independent, third-party opinions of credit values or project costs and revenues to be a medium conflict with requirements that the report clearly identify the independence of the opinions within and/or a mitigation plan.
4. Modify section §95503(b)(2)(H) to explicitly create an exemption for QAP services.

Tier 1 Calculators and CA-GREET 3.0 Methodology

Recommended Action: Provide a timeline that demonstrates when a fuel pathway applicant can use CA GREET 2.0 versus CA GREET 3.0 and CARB's review and approval plan for each. For example, will CA-GREET 2.0 pathway applications pending as of 1/1/2019 continue to be reviewed and certified into 2019, or will applications in the queue be rejected?

Tier 1 Simplified CI Calculator for Starch and Corn-Fiber Ethanol

Recommended Action: Assign GHG emissions associated with cellulase to all the ethanol produced from co-processing starch and corn-fiber. The cellulase is added to the corn mash, and this allocation will be consistent with that for other inputs such as electricity, natural gas, yeast, etc.

Tier 1 Simplified CI Calculator for Biomethane from Food, Green and Other Organic Wastes

Recommended Actions:

1. Include biogenic CO2 while calculating tailpipe emissions (Cell I102 and I103) in RNG tab. Because the fuel is taking avoided methane emission credits from landfill diversion, the tailpipe emissions calculations should be similar to those in the dairy and swine manure biomethane calculator.
2. Provide an option for user-defined moisture content. Currently, default moisture of food waste is set at 72% and no user-defined values are currently allowed; therefore, if the actual moisture content of food waste is different from 72%, the final CI will be over or under estimated.

Attachment C: Proposed Modifications to the CA- GREET 3.0 Technical Support Documentation (C-3, page 182)

Recommended Action: Please clarify how monthly weighted methane content (%) in the digester gas should be calculated for all proposed biomethane calculators and what CARB staff will need for as supporting documents.

The Tier 1 Simplified CI Calculator for Biodiesel and Renewable Diesel states that If part or all of the co-products are used as process fuel, co-product credit will not be offered.

Recommended Action: Change the above to state, "If part or all of the co-products are used as process fuel, co-product credit will not be offered for the fraction that are used as process fuel (the other fraction that is not used as process fuel should still get co-product credit)."

Conclusion

We would like to thank CARB again for the opportunity to provide comments and applaud your efforts to implement the LCFS program. We look forward to working with staff to finalize the proposed regulation.

Please let us know if you have any questions about our comments.

Sincerely,

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