

March 22nd, 2015

Cal/EPA Headquarters Building
1001 "I" Street
Sacramento, California 95814

RE: Comments Regarding the LCFS Verification Program

To Whom It May Concern,

EcoEngineers would like to thank the California Air Resources Board (Referred to as CARB hereafter) for the opportunity to provide feedback on the LCFS verification program being developed. We are excited to be a part of the process and have prepared the following comments for your consideration.

Background & Qualifications

EcoEngineers is an EPA approved Q-RIN Quality Assurance Program provider under the Renewable Fuel Standard program and conducts quarterly audits of over 40 domestic and international renewable fuel producers to ensure compliance under federal regulations. This has led to the verification of over 275 million RINs in 2015. As evidence of our strong program, we are proud of the fact that the most recent Third Party Attest Engagement of our company resulted in no violations and no findings. In California, we currently provide RIN QAP and LCFS services to several biodiesel producers and compliance management services, pathway petitions, and other services to the ethanol 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 45 pathways using the CA-GREET model (1.8b & 2.0) and submitted over 60 applications to ARB for registration under the LCFS. Through our relationships with LCFS participants we have developed an LCFS verification protocol which we are currently implementing. EcoEngineers has supported the efforts of biodiesel, ethanol and biogas industries in California under the LCFS.

The following suggestions for the verification program come from our auditing experience under the federal Renewable Fuel Standard (referred to as RFS hereafter) program, our experience with GREET modeling and pathway registration and verification under LCFS, and input we received from speaking with several California renewable biofuel producers.

Voluntary Program and Affirmative Defense

We believe the primary purpose of the program is to create trust in the marketplace for LCFS credits. Regulated parties need confidence that the credits they are purchasing are valid and can be used for the compliance purposes set forth in the regulations. This confidence may already exist among parties who have long history of doing business with each other. In other cases, parties may back the validity of the credits they are selling with a sufficiently strong balance sheet or market reputation. We are



recommending that the program should be voluntary, allowing parties who have built sufficient trust in the marketplace to be able to participate in LCFS credit generation and trading without a verification process. This will also keep compliance costs low as regulated parties will do their best to self-regulate and demonstrate compliance.

Whether the program is voluntary or mandatory, the program should offer some clear benefits to participants to incentivize and reward the extra effort they are performing to demonstrate compliance. The reward could be in the form of an affirmative defense similar to that offered by the EPA under the RFS program.

Auditors Qualifications

It is our opinion that the LCFS verification program should be conducted by auditing teams with the industry experience and minimum technical qualifications to effectively evaluate all the relevant components of the fuel production and distribution process. The nature of a verification program for LCFS carbon intensities (CI) requires that the, auditor have a deep understanding of the CI calculation process, the biofuel production process, and biofuels and LCFS credit markets.

Auditors should work under the supervision of licensed engineers who have experience with the biofuel production process being reviewed. Auditors should also work under the supervision of an experienced GREET modeler with minimum qualifications in biofuel engineering and carbon emissions modeling.

Audits of facility operations and review of fuel production and fuel sale records requires knowledge of, and review of, an extensive set of documents, which are industry specific. Therefore, the industry experience of the auditing team is critical to the success and credibility of a verification program.

It will be too burdensome on industry to expect individual auditors to possess all of the qualifications listed above. Therefore, we are recommending that CARB approve auditing teams that can demonstrate the required qualifications. For example, the EcoEngineers team is comprised of two licensed professional engineers, a GREET modeler with a PhD in agricultural engineering and biochemical processes, a CPA, and several auditors, all of whom have multiple years of industry experience.

Finally, the EPA requires QAP auditors to maintain a minimum level of professional liability insurance. We therefore recommend that LCFS Verification auditors be required to hold a minimum level of professional liability insurance.

Auditor Independence

As stated in the preamble to the QAP Requirements for the RFS: “One of the most important requirements for auditors is that they remain independent of renewable fuel producers. Independence of the auditor from RIN generators is necessary to ensure that RINs are not inappropriately validated due to a conflict of interest between the third-party auditor and the renewable fuel producer.”



Auditors should demonstrate sufficient independence from the subject of the audit to maintain the integrity of the verification program. Auditors should not be operated by the renewable fuel producer (or any subsidiary or employee of the producer) and should be free from any interest in the renewable fuel producer's business. Auditors should further be precluded from owning, brokering and trading in fuel or LCFS credits. Auditors should be precluded from being operated by, or being a subsidiary of, parties who are in the business of trading fuel or LCFS credits. We also recommend that, in order to preserve auditor independence and put in place a system to "check the checker," CARB should require an annual attest engagement of the auditing firm, similar to what is required under the RFS program.

However, CARB should not preclude the auditing firm from providing ancillary services to the biofuel company being audited. These ancillary services could include assisting with GREET modeling, gathering and submitting required registration documents, advising on carbon management strategies, and compliance management for other clean fuels or carbon mitigation programs. These tasks require specialized knowledge and there are a limited number of companies operating in this sector capable of providing these services. Prohibiting the auditing firm from performing these tasks would cause undue financial burden on the biofuel company who would have to find separate parties to perform all verification requirements.

Integration with Existing Programs

There is significant overlap between the information requested for the RFS QAP program and the information that could be used for LCFS verification. Therefore, to the extent possible, regulated parties should be allowed to use the data gathered and organized for the RIN QAP program to fulfill the requirements of the LCFS verification program.

Specifically, the following elements are components of the RFS Q-RIN Program¹ review which could overlap with an LCFS verification program:

- A bi-annual site visit of the facility is performed to verify plant operations and obtain feedstock/fuel samples
- Verification of feedstock purchases
- Verification of co-product sales
- Verification of inputs used for biofuel production
- Verification of fuel sales
- Review of energy usage
- A mass and energy balance for the audit period
- Verification of fuel quality via sampling and testing

¹ http://www.ecfr.gov/cgi-bin/text-idx?SID=cb064a7f95a8dab4ca79604c5e067243&mc=true&node=sp40.17.80.m&rqn=div6#se40.17.80_11469



Matching the requirements of the LCFS program with those of the RFS RIN QAP program will save resources, time and effort for all parties involved.

Targeting High CI Components

The verification program should focus on the components that most affect the CI of a fuel pathway's Lifecycle Analysis to ensure that the Carbon Intensity is within a reasonable margin of the pathway for the facility, leaving smaller elements to be confirmed with more qualitative checks if possible.

However, because of the complexity of the CA-GREET model and lifecycle analysis in general, it is not possible to identify components that are always low or high relative to a fuel pathway's CI score. For example, the transportation component of a CI score can be low for a California or domestic producer, and be high for an international client.

We recommend that CARB group fuel producers and/or fuel types into categories to identify which elements are of primary concern, and to focus more attention on those elements. For example, a foreign biodiesel producer in Asia may need to have a greater focus on its transportation values, while a Midwest Ethanol producer may have a greater focus on its energy consumption in the plant.

If the program requires extensive verification of all activities for a facility, it could be incredibly burdensome for all parties involved and yield less marginal results that may not justify the amount of added expense.

Parties Responsible for Credit Validity

The verification program should hold LCFS CI credit generators responsible for the validity of the credits they generate, regardless of the origin of the fuel. Credit generators are typically US entities operating under the jurisdiction of US law and California state law. Credit generators should be incentivized to purchase fuel from producers participating in the LCFS verification program via an affirmative defense clause. This will result in credit generators naturally mitigating their risk through verified purchases. Such a program will offer a level playing field for all fuel suppliers, regardless of fuel type or country of origin.

Clear Protocol, Definitions

Generally, CARB should clearly define the definitions and requirements of the verification program to ensure that third party verifiers can implement the program effectively. Without clear protocols for addressing potential non-compliance, what should be reviewed, timelines for reporting and compliance, and the definitions by which parties should be judged against, the verification program may be very difficult to administer. Fuel types, feedstocks, and all other components of production should be clearly defined, or be tied to industry definitions that accurately reflect the properties of those materials.



The LCFS verification program should identify any specific international organizations or standards that foreign clients must utilize to qualify for the LCFS program. All companies, domestic and foreign, must be able to participate in the LCFS and be not prohibited through due to unknown or unachievable standards.

Feedstock Lab Analysis

Feedstock lab analysis can be an effective tool in the verification process and may be worth including in the requirements for the program. Our Q-RIN QAP verification program has incorporated this type of analysis and we have profiles for the different types of feedstock used to produce renewable fuel. EcoEngineers has been collecting samples for over two years, which has resulted in a large bank of historical data.

The following description details the procedures used by EcoEngineers to verify feedstock through Forensic Analysis:

During the bi-annual site visit, EcoEngineers takes a sample of feedstock at the production facility. This sample is visually inspected and either retained or submitted to a Third Party laboratory for a “forensic feedstock analysis”. This analysis will verify the general characteristics of the sample and determine if it is consistent with the type of feedstock or fuel reported.

Feedstock samples are tested via gas chromatography. The testing methods are able to reveal details about the feedstock that enable us to determine if the feedstock profile matches the fuel profile.

Additional information can be provided to further assist CARB in determining how to best incorporate this procedure into the LCFS verification program.

Staff Questions from March 8th, 2016 Workshop

In addition to our suggestions, we would like to provide responses to the questions in the “Proposed Framework for the LCFS Monitoring and Verification Program” proposed by CARB staff during the March 8th, 2016 workshop which have not already been addressed in the suggestions offered. The topics identified in these questions can be found below:

Substantiating Information and Schedule

Operational parameters should be verified by engineers with the experience to verify the theoretical yields of fuel based on the process equipment and facility. The prior production data should also be reviewed to establish the norms for the operations. To keep the program consistent, verifications should occur on a regular schedule in line with current reporting activities for the LCFS Program, including the Quarterly and Annual reporting.



ECOENGINEERS

People Driven Solutions

300 E. Locust St., Suite 313
Des Moines, Iowa 50309
Phone: 515-309-1279
www.ecoengineers.us

Document Transparency

Documentation transparency is essential to verifying that operations are happening in a conformant fashion. However, 100% of documents do not necessarily need to be reviewed as this can be overly burdensome without yielding results. Taking a sample of documents is a viable alternative currently in use under the RIN QAP program and allows for the review of a representative sample of documents to spot errors and non-conformities.

We would like to thank CARB again for the opportunity to provide comments; we look forward to working with staff to support their efforts as the LCFS verification program is designed and implemented. Please let us know if you have any questions about our comments.

Sincerely,

John Sens

LCFS Program Manager

jsens@ecoengineers.us

300 East Locust Street, Suite 313

Des Moines, IA 50309