



ECOENGINEERS

People Driven Solutions

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February 28th, 2017

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 Low Carbon Fuel Standard (LCFS hereafter) workshop materials, specifically on carbon intensity application and evaluation process, credit reporting and generation process, and the 3rd party verification program for ethanol and biodiesel/renewable diesel. 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. 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 50 pathways using the CA-GREET model (1.8b & 2.0) and submitted over 60 applications to ARB for registration under the LCFS. EcoEngineers has supported the efforts of biodiesel, renewable diesel, 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 Standards (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 fuel producers.

Ethanol in the LCFS

General Comment: CARB should clarify whether the purpose of the simplified calculator is to eliminate other supporting documents as much as possible, or to present raw data from invoices/data measurement system as much as possible. One example is the usage of biomass as process heat source. The invoices for purchased biomass are usually on an as-is basis, but the calculation in GREET model is based on a dry basis. If in the simplified calculator, we only input on dry basis, supporting calculation files are needed to prove these input values. If we input on an as-is basis, and provide the moisture content, no additional calculation files will be needed as the calculation will be conducted within the simplified calculator.



1. **Reference:** Slide # 4

Comment: For biomass used as process fuel in an ethanol plant, the weight for purchased biomass is unlikely to be measured in dry tons and is typically measured as-is. If the facility is sourcing the material on-site, it is possible that they do not have invoices for this production.

Recommendation: Allow for facility specific descriptions and accounting of biomass used in production. The facility should be able to define the materials in use, and track the quantity and source of the materials.

2. **Reference:** Slide # 4

Comment: Kernel fiber ethanol is developing quickly, and the kernel fiber ethanol produced from co-processing technology could be easily calculated within the same simplified calculator with energy allocation method. The ongoing reporting form currently does not cover kernel fiber ethanol or kernel fiber considerations.

Recommendation: Include an option for calculating and reporting the CI for kernel fiber ethanol produced with co-processing technology, from the same corn/sorghum feedstock from which the corn/sorghum starch ethanol is produced.

3. **Reference:** Slide # 4

Comment: For natural gas bills, some gas companies only provide numbers in scf or mcf.

Recommendation: Allow both units to be used for inputting natural gas use, either in volume, or in higher heating value.

4. **Reference:** Slide # 8

Comment: In current calculator spreadsheet, the usage of feedstock and some process inputs are calculated based on monthly inventory and purchase record. However, many plants use SCADA systems to track usage and materials on-site with greater accuracy than inventory and purchase data, and may be better suited to using the SCADA data for reporting rather than the proposed calculation.

Recommendation: Allow two options to report the feedstock use:

- 1) The one currently proposed that uses monthly inventory and purchase records
- 2) Based on SCADA (Supervisory Control And Data Acquisition) system records

5. **Reference:** Slide # 10

Comment: It would be difficult to measure the energy input on an ongoing basis for multiple co-products. There were similar difficulties in the past when proving energy reduction from the extraction of corn oil.

Recommendation: If producers wish to have separated co-product pathways, allow them to demonstrate the energy consumption for each co-product when CARB registration is first



completed. That consumption amount should then be used on an ongoing basis rather than be verified unless a change takes place at the facility.

6. **Reference:** Slide # 14

Comment: While transactions with reconciliation difficulties must be resolved, an automated hold on unreconciled credit transactions may be cumbersome and create delays for legitimate LCFS Credit trading.

Recommendation: Solutions currently exist for other programs that minimize the need for manual reconciliation between parties. Potential solutions include creating a tracking system like EMTS, or implementing credit labelling to eliminate the problem of reconciliation.

7. **Reference:** Slide # 20

Comment: Validating the initial 24 months of operational data needed for FPC approved may be unnecessary since many of those FPCs have already been certified from the Tier 1/2 application process after the thorough review and validation by CARB staff

Recommendation: Consider possible Grandfathering for companies that were approved in 2017 and 2018 to avoid duplication of verification work by CARB staff and verifiers. Alternatively, identify areas that were not reviewed with sufficient thoroughness during the application process and review those only.

8. **Reference:** Slide # 20

Comment: The verification calendar is unclear for the first year of participation in the LCFS Verification program. Depending on when a facility joins the verification program, it may be subject to a compliance period that is on less than a full year because the program is on a calendar year basis. This may affect the quality of data used to evaluate the CI score for the facility due to seasonal trends.

Recommendation: The first compliance period for a facility should be 4 quarters after its initial approval. Following the first compliance period, all following compliance periods should be based on the calendar year as proposed. This may create overlap for the first and second compliance periods, but it will avoid difficulties that would arise from using less than a full year of data.

9. **Reference:** Slide # 30

Comment: Site audits are necessary for the Renewable Fuel Standard for companies participating in a voluntary Q-RIN quality assurance program.

Recommendation: Make the site visit requirement biannual to match the RFS Q-RIN program requirements. This would be a cost savings for producers participating in the LCFS and RFS verifications programs.

10. **Reference:** Slide #30

Comment: Remote monitoring in verification is not sufficient to detect potential fraud.



Recommendation: We do not support the use of remote monitoring in verification

Biodiesel-based Diesel in the LCFS

1. **Reference:** Slide # 5
Comment: "Tons" are not typically used for liquid inventory tracking,
Recommendation: Allow producers to choose the unit of measurement that fits their plant, be it tons, lbs or gallons.

2. **Reference:** Slide # 5
Comment: In our experience, moisture content of feedstock is not tracked in the same manner as it is tracked at ethanol facilities, so it will be difficult for biodiesel producers to supply moisture level data on a monthly basis.
Recommendation: Establish a maximum moisture content assumption for feedstock used at the facility if measuring moisture is required for BD Feedstock.

3. **Reference:** Slide # 5
Comment: While Temperature correction for fuel sales is mandatory industry wide, the correction is not performed using the same method at every production facility. Automatic temperature correction meters are used at most facilities, but not all. Some facilities complete manual temperature calculations per RFS regulations. Temperature corrected inventory values may not be available at some facilities that only measure gross inventory numbers. There is also variation in the measurement of inventory present on site. Some facilities "stick" tanks to take the measurements, or have graduated tanks.
Recommendation: Allow for flexibility in the recordkeeping and temperature correction equipment requirements for facilities participating in the LCFS to avoid excluding producers. Requiring temperature corrected meters and temperature corrected inventory numbers may pose difficulties for some participants.

4. **Reference:** Slide # 5
Comment: Not all facilities produce FFAs in their production process, so the required measurement may not be appropriate.
Recommendation: Have FFA production be an optional component rather than a required component.

5. **Reference:** Slide # 6
Comment: Obtaining yield of corn oil, soybean oil and other oils from feedstock production process, and the DGS reduction percentage can be prohibitively difficult. Ethanol facilities and feedstock suppliers are unwilling to share information they view as proprietary, which included their yields and the reduction percentage for DGS.



Recommendation: We support standardizing the yield of corn oil, soybean oil, and other oils from the feedstock production process using the GREET Model defaults. We also support standardizing the DGS reduction percentage. The standard yield could be used by applicants, or substituted with actual data.

6. **Reference:** Slide # 7

Comment: It could be difficult to monitor different feedstocks collected from different regions, especially when considering fluctuations in the supply chain for participating companies.

Recommendation: We recommend a substantiality of 2 gCO₂e/MJ to have a different pathway based on different distance from feedstock suppliers and different electricity mixes. A 2 gCO₂e/MJ variance would be determined by comparing the supplier list for the facility and recalculating the weighted average distance for the suppliers in their respective region along with comparing the regional electricity mix.

Also, we recommend the weighted average distance for suppliers be approximated or simplified within a region to avoid constant fluctuation from changes in in the supply chain and suppliers to the production facility. Otherwise, producers would be forced to update their CI constantly based on changes to their supply chain which can happen as often as weekly due to factors outside their control.

7. **Reference:** Slide # 8

Comment: An “unequivocal” comparison of feedstock to fuel would be very difficult to measure at a mixed-feedstock continuous-flow facility in practice. Variation in the types and quality of feedstocks can make the allocation uncertain. Additionally, depending on the inventory and input system, it is difficult to assign feedstock used to produce fuel in exactitude.

Recommendation: Production yield from feedstocks should be given a minimum or maximum yield which is defined by the historical production at the facility from using a single feedstock, or defined by CARB. The CI value assigned should be allocated according to the minimum amount of fuel produced from the lowest CI fuel. If the yield cannot be proven, fuel produced beyond the minimum value would need to be allocated to higher CI feedstocks. CARB should define the minimum yields and allow producers to provide a superior yield via their allocation.



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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,

A handwritten signature in black ink, appearing to read "John Sens", with a long, sweeping horizontal stroke extending to the right.

John Sens

Regulatory Consultant

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