



May 2, 2017

Mr. Sam Wade, Branch Chief, Transportation Fuels Branch
Mr. Jim Aguila, Branch Chief, Program Planning & Management Branch
California Air Resources Board
1001 I Street
Sacramento, CA 95814

RE: Biodiesel and Renewable Diesel workshop; Pathways and Verification; Jet Fuel and Verification systems

Dear Messer's Wade and Aguila:

These comments incorporate previously submitted comments as well as unique comments in anticipation of CARB's May 15th workshop.

Renewable Energy Group, Inc. is a leading provider of cleaner, lower carbon intensity products and services. We are an international producer of biomass-based diesel, a developer of renewable chemicals, and North America's largest producer of advanced biofuel. REG utilizes an integrated procurement, distribution, and logistics network to convert natural fats, oils, greases, and sugars into lower carbon intensity products.

Pathways

CARB is investigating a number of pathway changes with the goal of reducing allocated staff time and improving response time; it is important to point out just how critical this effort is. Delays in pathway registration cause significant uncertainty for producers and their customers and ultimately negatively impact the citizens of California who expect access to lower carbon intensity (CI) fuels. Uncertainty prevents producers and customers from entering into longer term or greater volume contracts due to an inability to adequately determine the producer's ability to generate credits associated with a specific pathway. In turn, this directly impacts the LCFS credits available to meet program GHG reduction goals and can contribute to program instability. Ensuring this aspect of the program functions smoothly and efficiently is paramount.

With respect to simplified CI applications, REG thinks that CARB staff should consider building in unit conversion factors for data input sheets such as the conversion from tons to pounds or from Dekatherms to MMBTU. Staff should consider adding these factors for all standard volume, mass, energy, and density inputs. Many of these conversion factors already exist in the current CA-GREET model and could be easily adapted. This would remove intermediate

conversion steps currently required by the producer, eliminating possible errors. Furthermore, creating automatic conversion factors allows producers to directly input data from their production file, easing the work of the auditor conducting verification.

For feedstock and co-product inventory tracking methods, REG believes that while the proposed worksheet captures some inventory mechanisms used by producers, staff should not attempt to create a 'one size fits all' reporting document. Rather staff should clarify the data they are requesting to create the CA-GREET inputs such as biodiesel produced, rather than biodiesel sold. The documentation which validates the reported inputs should be retained for verification purposes.

REG agrees that CARB should standardize the upstream emissions factors associated with biomass production, collection, and processing for tier 1 applicants. However, we advise CARB to continue to work as much as possible with the various industries and their representatives to make sure these values are grounded in the best available science. CARB should also commit to regularly reviewing these factors especially as new information becomes available.

REG also encourages CARB to work with other jurisdictions, if not already doing so, to understand best practices for quantifying and reporting these emissions. When standardizing these values, CARB should take time to identify regional differences in processing or farming practices which will allow for regionally specific pathway applications. CARB should also attempt to normalize pathway calculations methodology with neighboring jurisdictions. This includes standardizing allocation methods, system boundaries, and ILUC factors.

Allowing for regional variance from a single feedstock is a step in the right direction. This approach has been successfully utilized by British Columbia and other jurisdictions utilizing GHGenius for a number of years. Also, there is agreement with CARB that to avoid an abundance of pathway applications that the agency should entertain a substantiality threshold. This threshold should apply to the aspect of the pathway that is being modified. For example, if a producer is claiming an increased soy-crush efficiency, the substantiality threshold should only apply to crushing aspect of the pathway.

Staff should select a consistent approach for reviewing transportation distances. Producers should be required to use a conservative distance, unless they can prove by way of their monitoring plan that they have an auditable, verifiable system in place to calculate a weighted

average. This system should be a prerequisite for any type of regionally based feedstock pathway.

The option of selecting from standard values for all chemicals is intriguing. However, there are a number of products - methanol, hydrochloric acid, sulfuric acid, citric acid, and hydrogen - that could have a significant impact on the finished fuel. Therefore, any standard values should be based on the best current available science, and be available for producers who use an equal or lesser amount of the applicable chemical. We would encourage CARB to work with academic bodies, research labs, and other jurisdictions when determine which chemicals should receive standard values and the level at which they are set.

CARB should consider the option of allowing producers to retain the ability to input a chemical input should the value relative deviate significantly (<5%) to that of the standardized value. Producer calculated chemical demand should not be subject to substantiality requirement.

REG supports tier 1 biodiesel applications having the ability to claim stripped FFA and biodiesel distillation bottoms as a co-product. The volume of stripped FFA should be audited similar to that of biodiesel; we support assigning a standardized energy value. Biodiesel distillation bottoms should have the same audit requirements as finished fuel; however, we would caution the agency around establishing a single standardized energy content. The energy content of biodiesel bottoms can vary by approximately 20% depending on the underlying feedstock and process conditions. Due to the high variability of this product, CARB should require producers to test their distillation bottoms regularly using ASTM D240 to validate the energy content reported. We support the use of energy, mass, or displacement calculations for dealing with these additional co-products. CARB should also give the producers the flexibility to claim additional co-products or alternative allocation methods through the tier 2 application process.

Renewable hydrocarbon diesel (RHD) facilities produce three distinct co-products: renewable naphtha, a gasoline blend stock; renewable liquefied petroleum gas (LPG); and 'purge gas' or low-grade propane. Each one of these co-products is unique and has the ability to be utilized in a wide variety of applications. CARB should incorporate these options in future Tier 1 revisions if it wishes to reduce the number of Tier 2 applications it receives. Low-grade propane is often used for process energy.

Finally, REG agrees that there may be an incentive for low carbon fuel producers to claim waste status on feedstocks which do not warrant it. In order to identify higher risk parties and avoid

over regulation of the market CARB should consider adoption of a risk-based formulation for auditing. This approach should consider the amount of non-credit generating feedstock relative to all feedstock processed, as well as the relative amount of feedstock that originates from high risk countries. We think a risk-based approach like this that focuses on low carbon fuel producers and not feedstock suppliers is a better, more cost effective approach that aligns with the RFS requirements for separated food waste (i.e. a separated food waste plan¹ that details suppliers, feedstocks, and supply locations). This is further supported by current marketplace data we've seen in the US and the EU where feedstocks like used cooking oil and yellow grease still trade at a discount to virgin vegetable oils like Soybean Oil and Canola Oil. Unless this changes, there is no incentive for feedstock suppliers to intentionally make virgin vegetable oils into used cooking oil. We will elaborate on this more in the verification section below.

Lastly, we encourage CARB to consider the amount of fuel claiming carbon credits in any jurisdiction, relative to the total amount of gallons produced. We encourage staff to refer to ISCC Waste and Residues auditing guidelines² and considering using international risk indicators in their assessment.

Verification

With respect to verification activities, REG has significant concerns that there will not be enough approved verifiers available to conduct annual reviews. With potential conflict of interest rules limiting the time of service a verifier can engage and proposals calling for subjective rotation timelines for verifiers, the addition of pathway registration approvals will further stretch thin verifier resources. In light of these possible developments, REG believes CARB should re-evaluate its reluctance to align with RFS attest engagement rules found in Title 40, Part 80³ that many RFS auditors considering LCFS audit services are already familiar with. This would help widen the auditor pool with more firms and provide a proven audit framework on sample size guidelines, etc. Further, most, if not all of these firms follow the American Institute of Certified Public Accountants (AICPA) Rule 101⁴ as a way to assess conflicts of interest. There may be additional program requirements unique to the LCFS such years of renewable fuels experience for a lead auditor, experience for GHG technical analysis, etc., but Rule 101 would provide a

¹ <https://www.epa.gov/fuels-registration-reporting-and-compliance-help/presentation-separated-food-waste-plans-renewable>

² https://ec.europa.eu/energy/sites/ener/files/documents/2014_letter_wastes_residues.pdf

³ <https://www.epa.gov/fuels-registration-reporting-and-compliance-help/program-specific-instructions-attest-engagements>

⁴ <https://pcaobus.org/Standards/EI/pages/et101.aspx>

solid foundation given its use by the Accounting profession that would quell concern about the potential pool of verifiers.

However, if firm rotation is chosen, the result will likely be a smaller pool of verification bodies per stakeholders who participate in other programs like Cap and Trade. Also, the costs associated with the annual review and pathway registration engagements are going to be potentially significant per research from the Public Company Accounting Oversight Board (PCAOB)⁵. The impact to small producers will be burdensome. It is likely that small producers will not be able to afford to engage verifiers as a result of engagement costs and therefore they will exit the California market which will be a detriment to program goals. Further, we are concerned that CARB has yet to demonstrate the added verification requirements will result in significant increases in reporting accuracy. CARB has stated the goal of increased verification is to ensure Californians are accurately receiving the lower carbon fuels they are promised under the LCFS. However any increases in verification requirements without a corresponding increase in accuracy of reporting only ensures participants will face added costs while the citizens of California receive no added benefit.

If CARB is going to allow verification bodies to assess pathway registrations, they should also allow them to evaluate completeness and sign off and certify the registrations. Without providing this ability to certify pathway registrations, delays in reviews could impact the ability of California to access out of state volumes of all fuels, including biodiesel and renewable diesel. We think that this is reasonable in light of CARB's stated intention of auditing the auditor.

By requiring verification bodies to submit pathway registrations to CARB and wait for a subsequent determination of completeness, the process timeline becomes extended even further. REG is concerned the pathway registration process is already time consuming; this proposal will create delay for negligible gain.

In other words, qualified verifiers should be able to assess the pathway application, make determinations in regard to completeness of applications, and request additional documentation of the Registrants, if it is deemed necessary. A back and forth between CARB, verifiers, and registrants inserts the potential for confusion, errors, and additional process delays. If there are material errors by an auditor discovered by CARB then it may be reasonable to suspend an auditor's ability to certify registrations.

⁵ https://pcaobus.org/Rulemaking/Docket037/068_Jeremy_Pattillo.pdf

Verifiers, or audit firms, require significant lead time for the scheduling of the performance of audits or attestation engagements. Verification bodies typically have their audit staff scheduled out multiple weeks, if not months, in advance of engagement dates. In the event CARB sought more information subsequent to the verification body's review of the pathway registration, there could be significant delay in the ability of the verifier to schedule an additional review that might be deemed necessary.

Regarding the accounting of inputs and outputs, it is important for CARB staff to understand that volumes of fuel produced in a quarter will not necessarily correlate to volumes of fuel sold and upon which LCFS credits are generated. Due to the seasonality of biodiesel production and sales in the Midwest, producers routinely consume feedstocks, produce finished biodiesel, and store the gallons for future sales. This occurs typically in the late Fall through early Spring when temperatures are lower and cloud-point of biodiesel becomes an issue for some customers. The subsequent sale of biodiesel can occur in excess of 6 months from the date of feedstock consumption and biodiesel production dependent upon weather and market conditions.

REG is not supportive of the requirement for ongoing verification of fuel shipments to California. The additional verification of fuel shipments to California would be duplicative of attestation review and testing that will be conducted by verification entities for validation of the generation of LCFS credits.

REG believes that a two quarter limitation on the period of fuel transfer is insufficient. In the Midwest it is a routine course of business to produce biodiesel with higher cloud points in the fourth and first quarters of the calendar year and put them into storage for future sale. These high cloud point gallons are generally not sold until the second and third quarters of the calendar year when high cloud point fuel is more readily useable by customers without concern. It is possible for biodiesel produced in October to be placed into storage and not be sold until April or later of the following year.

Producers will also have situations where they are trying to penetrate a new market and will take a terminal position in that market where there is small demand or the producer is trying to establish a market presence. During that time it is possible for qualified biodiesel to sit unsold for a period in excess of five quarters. While this situation does not occur with great frequency, it does in fact occur, and producers should not be punished monetarily by having the LCFS credits eliminated for an arbitrary time limit on the sale of qualified product.

In regards to attestations, the RFS attestation engagements, required of all LCFS participants as far as we know, test acquisition of feedstocks and consumption through statistical sampling. These engagements test the internal controls related to the purchase; receipt and consumption of feedstocks; the production and sales of biodiesel; and the recordkeeping and reporting associated with these transactions. Additionally, in the case of publicly traded entities, these same internal controls, record keeping and reporting are audited because they are materially significant financially to producers and audits are required as a result of the Sarbanes-Oxley Act of 2002. CARB audit requirements will have these same internal controls and population of transactions audited for a third time in the case of publically traded companies. CARB will not be able to design additional audit requirements or internal control tests that will provide any further assurances in regard to legitimacy and accuracy of feedstock use by producers.

The audit requirements contemplated by CARB should be designed to identify errors and omissions related to the mass balancing of feedstocks & associated CI's and the risks of transaction processing. CARB cannot write an audit program that will prevent fraud. The only way that fraudulent activity can be prevented is through the implementation of solid internal controls and promotion of ethical business practices from the top down in an organization. Audits cannot prevent fraud because they are willful acts of illegal activity and usually involve collusion between multiple parties.

REG is concerned about having two sets of rules for feedstock suppliers. It does not seem logical to have rules that require feedstock supplier verification for some suppliers (i.e. UCO, Corn Oil, and Animal Fat suppliers) and not for other suppliers (i.e. Soybean Oil and Canola Oil). We believe feedstock supplier verification generally shouldn't be required for *any* feedstocks unless there is a high enough risk to warrant it given that the economic incentive is placed upon the low carbon fuel producer and not the feedstock supplier.

As noted above, we believe CARB should consider additional requirements for fuel producers with very low CI which have a higher risk profile. In certain instances additional auditing or surprise site visits might be appropriate. For instance, in local markets where a waste feedstock has a higher market value than a virgin vegetable oil, there might be a higher risk of fraud given the LCFS incentives. Such an approach might make sense for certain pathways depending on what aspect of the supply chain lowered the CI. These items should be part of an audit risk assessment to determine areas of risk and mirror some elements of RFS compliance activities.

For a variety of reasons, we do not believe additional scrutiny is appropriate for pathways sourcing feedstock in regions with well-established renewable fuels programs, auditing practices, and compliance regimes. We would suggest using an index like the World Justice Project Rule of Law Index as a template for assessing jurisdictions with poor regulatory and oversight regimes⁶. When considering risk, geography should not be the only factor, counter-party risk should also be assessed. For example, feedstocks like soy and canola oil are generally sourced from large, well-recognized agricultural processing firms. Entities of this scale are much more risk averse and have very little to gain from fraudulent activity. Similarly, producers of animal fats and corn oils are generally very large entities which have little to nothing to gain from feedstock fraud.

Some of the additional verification requirements on waste based feedstocks that CARB is contemplating will be akin to the ISCC verification requirements associated with “First Gathering Point/Collecting point of wastes and residues,” in particular the requirement to make an on-site audit visit to a sample of suppliers of the waste based residues. REG believes the implementation of such a requirement will be exceedingly difficult given our experience in the marketplace.

Waste/Residue suppliers in the United States are not likely to be willing to submit to such audits because:

- a. Waste and residues are a very low margin business; any additional requirements will cut into the margins of the suppliers disincentivizing them from participating;
- b. These waste/residue producers/collectors have other readily available markets to consume these feedstocks. Additional costs related to sales to biodiesel producers will result in the producers/collectors selling into these other markets, i.e., animal feed market.
- c. Feedstock suppliers that may be willing to participate will require the payment of a premium by the biodiesel producers for their feedstocks; such feedstocks may not warrant a premium – their use may not generate a significantly favorable CI in order to offset the added cost.

The addition of these upstream supply chain requirements would also require producers to alter their contracts with feedstock suppliers to allow for audit rights. This alteration will result in significant legal costs and delays in the ability to service contracts into the state of California.

⁶ <https://worldjusticeproject.org/our-work/wjp-rule-law-index/wjp-rule-law-index-2016>

While these costs can be absorbed by larger entities such as REG, small producers do not have the same ability to absorb the costs and man-hours lost to audits. The proliferation of such requirements will push small producers out of the California market. Additionally, for the same reasons previously stated, REG believes that these additional ISCC type requirements do not gain CARB any assurances in regard to the validity of the purchase and consumption of waste/residue based feedstocks.

Jet

With respect to jet fuel, REG agrees with the agency that jet fuel should be recognized as an opt-in fuel for both commercial and military applications. We support CARB's thinking that they should not try and regulate jet fuel as this may lead to serious logistical and legal implications.

Alternative Jet Fuel (AJF) which is sold into the state of California, either to a military base, or to a commercial airport should qualify for credits. Credit generating fuel which is loaded onto military or military use aircraft or military or military use vessels which leave the state should not be subject to credit retirement. This follows CARB's proposed logic of not restricting the credit generation potential of AJF that is consumed by aircrafts which depart California, but are destined for another jurisdiction. Requiring the US military to track and report fuel volumes leaving the state would cause serious challenges which may dampen the credit generation potential as they may not opt-in to the program.

The Air Resources Board should reconsider creating a separate compliance curve to measure emissions reduction associated with the production of AJF. The vast majority of renewable fuel producers capable of manufacturing AJF are currently producing renewable fuels for on-road transportation use. Due to historic incentives, these facilities were designed, built, and operated to produce on-road fuel rather than AJF. While these facilities are capable of producing AJF with little modification to their process, generally the production of AJF leads to decreased yields and increased operating expenditures when compared to on-road renewable fuel production. If producers are not *equally* incentivized to produce on road transportation fuel and AJF, they will opt for the fuel which requires less operating expenses and inherently has greater credit generation potential. Furthermore, we believe that aircraft fuel emissions weigh more than on-road transportation fuel emissions (~2x) per a recent Biofuels Digest article⁷ and believe CARB should weigh the credit impact accordingly.

⁷ <http://www.biofuelsdigest.com/bdigest/2017/04/23/air-canada-takes-off-with-biofuels-tests/>

We believe CARB should consider one of two potential options. CARB should either measure AJF from a single compliance curve, the distillate fuel curve for example, or CARB should consider measuring AJF credit generation off of the compliance curve associated with the primary on-road fuel produced at that biorefinery. For example, an RHD plant which also makes AJF would generate credits from the diesel baseline; a facility which primarily produces fuel alcohol would be measured off of the gasoline compliance curve.

REG supports the lifting of exemptions on propane as a transportation fuel, fuel for locomotives, and on military tactical vehicles. We believe that allowing these fuels to opt-in will lead to increased renewable fuel production across the board and will align LCFS with the US Renewable Fuel Standard. The US military has been an ardent support of the biofuel industry for several years now, and the state should allow emissions reductions from the use of alternative fuels in military applications to be accounted for in the LCFS program.

REG appreciates the time, effort and thought that CARB staff has put into these proposals. We look forward to continuing the dialogue on refining them further through the workshop process and through additional individual discussion. Thank you in advance for your consideration on these points.

Sincerely,

Scott R. Hedderich
Director, Corporate Affairs