

**AIR RESOURCES BOARD
LOW CARBON FUEL STANDARD (LCFS)**

**DRAFT FREQUENTLY ASKED QUESTIONS REGARDING
LEGACY PATHWAY RE-CERTIFICATIONS,
NEW TIER 1 AND TIER 2 PATHWAYS, AND THE ALTERNATIVE FUELS PORTAL**

Last Updated: November 3, 2015

I. INTRODUCTION

Following the approval to re-adopt the Low Carbon Fuel Standard (LCFS) by the Air Resources Board (Board) at the September 24-25, 2015 Board Hearing, staff has compiled this list of Frequently Asked Questions (FAQs) to assist *legacy* pathways applicants to re-certify their pathway CIs and for *new pathway* applicants to obtain new certified pathway CIs under the re-adopted LCFS regulation, which will take effect on January 1, 2016. The purpose of this document is to provide simple and clear answers to the most commonly asked questions or concerns related to fuel pathways.

While this document attempts to provide answers to many of the commonly asked questions, affected entities can also consult these documents for additional guidance:

- *Draft Guidance Document for LCFS Pathway Re-certification:*
- *Draft Guidance Document for LCFS New Pathway Applications.*

Important Web Links

ARB LCFS Home Page:

<http://www.arb.ca.gov/fuels/lcfs/lcfs.htm>

Alternative Fuels Portal (AFP) and LRT-CBTS Reporting Tool:

www.arb.ca.gov/lcfsrt

CA-GREET 2.0 Model and Documentation:

<http://www.arb.ca.gov/fuels/lcfs/ca-greet/ca-greet.htm>

LCFS Fuel Pathways webpage:

<http://www.arb.ca.gov/fuels/lcfs/fuelpathways/fuelpathways.htm>

Critical Dates for Regulation, Re-certification, New Pathway Applications, and Sunset of CIs established under the original LCFS Regulation

Effective Date	Description
January 01, 2016	The re-adopted Low Carbon Fuel Standard Regulation Order goes into effect.
January 31, 2016	When requests for re-certification of all Method 2A and 2B pathways certified during the period when the original LCFS regulation order was in effect must be received by the close of business. All new applications must also be submitted by this date to ensure a certified CI will be available prior to December 31, 2016.
December 31, 2016	All remaining Method 1, Method 2A- and 2B pathways certified under the original LCFS Regulation Order will sunset.

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Does an entity need to register in the LCFS program before beginning the process of obtaining a fuel pathway and certification?

Yes. The first step for registering a pathway in the LCFS program is using the Alternative Fuels Portal (AFP) to submit an "AFP ACCOUNT ADMINISTRATOR DESIGNATION," through which the fuel producer may directly input information, or can give their representative consultant the authority to act on their behalf.

When will re-certification and new pathway applications be accepted under the new LCFS regulation?

Requests to re-certify existing fuel pathways and new pathway applications for certifications will be accepted beginning November 10, 2015. Once the application for a new Tier 1 or Tier 2 pathway has been deemed by staff to be administratively complete, staff will process the application for pathway certification, and verify the applicant's pathway carbon intensity. Applications deemed incomplete will not be evaluated until the applicant has provided the additional information requested by staff.

How will the re-adoption of the LCFS Regulation affect fuel producers who have existing LCFS pathways?

The re-adoption of the LCFS Regulation sunsets existing fuel pathways (with certified CIs under the current regulation) on December 31, 2016.

Fuel producers using existing Method 1 Pathway certified CIs should apply for a new pathway using the CA-GREET 2.0 model to estimate their pathway CI.

Fuel producers who were certified as Method 2A or Method 2B pathways have the option to request that ARB re-certify their pathways. If they choose to do so, they must make an official request to the ARB through the Alternative Fuels Portal (AFP). Alternatively, fuel producers may choose to submit new applications to request new fuel pathway CI certifications.

In the case of re-certification, the legacy CI value will sunset when the new value is available so that there is no loss of continuity or the ability to generate credits.

Do I need to supply new information to have my pathway re-certified under the re-adopted LCFS?

LCFS regulation § 95488(a)(2)(B) states that "Re-certification will be processed by the Executive Officer using information previously supplied to the Executive Officer under the provisions of the former LCFS regulation order, provided such information was complete pursuant to the former LCFS regulation's requirements." ARB staff will contact you if additional information is needed.

When will these new pathway applications and re-certifications be processed and certified considering all of the workload ARB staff must undertake to complete these pathways?

ARB staff will ensure that any re-certification requests and new pathway applications submitted on or prior to January 31, 2016 will be certified by December 31, 2016 (and many will likely be certified well before then). For competitive reasons, both re-certification request and new pathway applications received by this deadline will be processed in batches based on fuel type in the following order: ethanol, biodiesel, renewable diesel, compressed natural gas, liquefied natural gas, followed by all others.

What is likely to happen if a pathway holder is unable to submit a request for pathway re-certification or a new pathway by January 31, 2016?

Re-certification requests and new pathway applications will continue to be accepted after January 31, 2016, although there is no guarantee that staff can complete evaluation and activate the updated CIs for these submissions by the end of 2016.

Will applicants requesting re-certification need to submit a new CA-GREET 2.0 model with their application?

No. Only applicants requesting new certifications need to submit a new CA-GREET 2.0 model.

For re-certification pathways, will the applicant have a chance to review the re-certified CI scores before CIs go into effect?

Re-certification applicants will have an opportunity to review the proposed CI score before it goes into effect. If the applicant is dissatisfied with the ARB Staff modeled results being proposed for re-certification, the applicant has the discretion to withdraw the re-certification request and submit an entirely new application.

Where is the correct version of the CA-GREET 2.0 life cycle analysis model?

The new CA-GREET 2.0 model with the Tier 1 and Tier 2 Calculators are available from the CA-GREET website¹. All regulated parties and other entities affected by the re-adopted LCFS regulation must base their revised life cycle analyses using the CA-GREET 2.0 model.

¹ CA-GREET 2.0 model: (<http://www.arb.ca.gov/fuels/lcfs/ca-greet/ca-greet.htm>).

How will the ARB process the data required for re-certification?

Staff will use existing data in CA-GREET 1.8b (and default input values from CA-GREET 2.0 where and when necessary) to re-certify legacy pathways.

If the original information submitted in the pathway has changed, may an applicant update the information at the time ARB re-certifies the legacy pathway?

If any information that needs to be changed by the applicant this will constitute a new pathway application.

What is redaction, and how should an applicant seeking LCFS pathway certification protect sensitive or confidential business information from the public view?

The LCFS pathway certification process requires that certain documents associated with the LCFS pathway application process be posted on the LCFS website and available for public comment or inspection. The applicant may request that confidential business information be redacted from those documents prior to posting at the public ARB website. The applicant is given an opportunity to create a second, public copy by redacting confidential business information by blackening out (“”) or by replacing the sensitive information with the phrase “confidential business information.” Often, the applicant may redact information which can nevertheless be revealed by copy – paste functions. Therefore, staff requests that the applicant ensure that all redacted information not be shown in documents to be posted publicly. Staff is not responsible for data that could be revealed in the documents posted publicly as part of the certification process.

How do I obtain third-party certification in-lieu of energy receipts and other data required by ARB? What are the third-party verifiers/certifiers that ARB will accept?

The LCFS regulation § 95488(C)(3)(a)3 states, “In lieu of receipts or invoices for energy consumption, fuel sales, feedstock purchases, or co-product sales, the applicant may seek Executive Officer approval to submit audit reports prepared by independent, third-party auditors that document energy consumption, fuel sales, feedstock purchases, or co-product sales.

ARB does not currently maintain a list of qualified verifiers. Independent, third-party auditors are routinely engaged by companies to prepare and attest to annual financial statements required by the corporation to be filed with the federal and state tax agencies. ARB has envisioned something similar for the LCFS program to assist in the pathway verification process. These auditors may

be publicly licensed professionals or firms such as CPAs and Professional Engineers registered with State Boards, etc.

While invoices show the amount of chemicals, enzymes, and yeast purchased or sold by the ethanol producer during a given period, they do not indicate how much was used. To get an accurate estimate of the amount used, the starting and ending inventory of these items would be needed such that the amount used could be calculated. What documentation would be acceptable for the starting and ending inventory?

Staff would prefer that the life cycle analysis be based upon process design considerations, and the fuel pathway applicant merely use purchase invoices to corroborate that the actual usage in practice at any operating level does not exceed the design case. Over a period of two years, there should be adequate information to provide average inventory (starting and ending by month or quarter).

Can a facility that was given a certified pathway under the original LCFS regulation be re-certified as a legacy pathway if the facility is not expected to have one-quarter of commercial or operational data after the re-adopted LCFS goes into effect on January 1, 2016?

Yes. A facility may request re-certification of their certified prospective pathway and may receive a re-certified, provisional CI without the operational data that would otherwise be required for new pathway applicants. However, commercial operational data for each quarter must be submitted as soon as it is available. Staff has the authority to adjust the provisional CI based on these data if necessary as detailed in § 95488(d)(2). The provisional nature of the CI will be removed after a full two years of operating data is submitted.

For provisional pathways, will the CI adjustment be based upon accumulated commercial operational data?

Yes.

Is there a threshold for CI adjustment?

No. Staff has the discretion to adjust provisional CIs as necessary but may choose not to do so for extremely minor quarterly variations.

If a fuel producer with existing legacy pathway requests ARB to re-certify their pathway, in general, how will their CI score change?

In most cases, the re-certified CIs are expected to be lower than the existing CIs. This is largely due to reductions in the indirect land use change (iLUC) estimate for most crop-based biofuels. However, some WTW re-assessments for Tier 1 fuels may result in higher CI estimates.

An ethanol fuel producer holds three certified CIs for ethanol produced from corn with three different levels of distiller’s grains with solubles (DGS) co-product credit: dry DGS, modified DGS, and wet DGS. Will ARB issue new pathway certifications for all three pathways?

No. A single pathway CI score will be certified based upon the average DGS drying level using data for two years that was originally submitted. Pathway re-certification will be performed by using the average energy use by the facility over the two years. If the applicant desires a separate pathway for each co-product and drying level, new Tier 1 pathway applications submission will be required for each co-product drying level.

Will ARB post a Staff Summary for each re-certified legacy pathway?

No. Staff will post only a new re-certified CI on the Pathway website².

How will the pathways for dry mill, corn ethanol producers be re-certified if their initial certification was based upon the factor method to estimate natural gas use in dryers?

The “9,900 Btu per gallon of ethanol produced” factor method provided in CA-GREET 1.8b is no longer available to estimate energy used by natural gas-fired DGS dryers. Applicants will have to provide actual energy use for drying to apply for such pathways.

Can a new “Feedstock Only” pathway application be evaluated by the ARB?

No. Under the re-adopted LCFS regulation, “Feedstock-Only” pathway applications will not be accepted by the ARB.

Will ARB re-certify existing “Feedstock-Only” pathway CI under CA-GREET 2.0?

No. At this time the re-adopted LCFS regulation does not allow re-certification of a “Feedstock-Only” pathway CI.

Can ARB accept feedstock production data from one company, and fuel production data from another company? If yes, who can use the pathway?

A feedstock producer and fuel producer must submit a joint application, or recommend the fuel producer to make a pathway application using their feedstock. If the pathway application is certified, it would belong to the fuel producer, although LCFS credits may be shared based on mutually agreed-upon

² LCFS Fuel Pathways: <http://www.arb.ca.gov/fuels/lcfs/fuelpathways/fuelpathways.htm>

arrangements between the two parties.

Under Method 2A requirements, what does the 20 percent threshold (substantiality) refer to, the total CI or a portion thereof?

The substantiality requirements specify that to qualify for a Tier 2 pathway based on process innovation, the production efficiency must result in a minimum 20 percent reduction in the fuel CI. The 20 percent threshold applies to the “source-to-tank” (a.k.a. “well-to-tank”) portion of the CI which does not include GHG emissions associated with the use of the fuel in a vehicle, nor does it include iLUC emissions.

How do Method 2A applicants demonstrate substantiality?

To demonstrate that the innovative process yields a minimum 20 percent reduction, the reference CI should be calculated using the Tier 1 calculator, using all the same inputs as would be appropriate for the proposed Tier 2 pathway, without the innovative process.

Can applicants obtain a certified pathway based on a temporary Fuel Pathway Code (FPC) application simultaneously with a detailed application to lower the CI value?

Yes, applicants can obtain a Temporary Fuel Pathway Code (FPC) CI while applying for either a Tier 1 or Tier 2 pathway certification (including applications for provisional pathways). Since the use of Temporary FPCs for Fuels with Indeterminate CIs is limited to two quarters, applicants must ensure all necessary data and information required for the appropriate Tier classification is provided with enough lead time to allow staff to certify the pathway CI prior to expiration of the temporary FPC CI score.

If an applicant’s fuel pathway is not represented by any of the pathways under the temporary fuel pathway codes (FPC) table (Table 7), can they use any value in that table?

No. If a prospective applicant’s pathway is not represented by a temporary FPC, then the applicant has to apply for either a Tier 1 or Tier 2 pathway.

Can a small-volume producer use Tier 2, Method 2A? The fuel producer has been in commercial production for two calendar quarters and has been collecting operational data. The fuel production facility is however, designed to produce only eight million gasoline-gallon equivalents (GGE) of fuel per year.

No. The fuel producer does not qualify to receive an LCFS fuel pathway since the applicant’s proposed pathway will not supply the California market with at

least ten million gasoline-gallon equivalents (1.1583×10^9 mega Joules) of that fuel (see § 95488(c)(4)(G)2.b.). The fuel producer may apply under the provisions for Tier 2 -Method 2B pathway where there is no minimum fuel production quantity required to qualify for a fuel pathway. All other requirements for Tier 2-Method 2B however, must be satisfied to qualify the application for a certified CI.

What is the Tier 2 Lookup Table?

The Tier 2 Lookup Table (Table 6 in section 95488(c)(4)(F)) applies to Tier 2 Method 1 pathways for the following fuels: average California electricity, five hydrogen pathways, and three anaerobic digestion-based biomethane (CNG) pathways. An applicant may apply for a fuel pathway using the Tier 2 Lookup Table if it contains a fuel pathway that closely corresponds to the applicant's actual physical fuel production pathway.

A Tier 1 corn ethanol pathway applicant operates a combined heat and power plant onsite as the sole source for thermal energy and electricity. The applicant does not know how to account for the co-product credit when surplus power is sold to the public grid. While this functionality is available for the sugarcane-based pathways in the Tier 1 Calculator, it is not available in the Tier 1 Calculator for corn ethanol. What must the applicant do?

The applicant can choose to apply under Tier 2 for this pathway.

Does an applicant need to consult with ARB staff prior to submitting paperwork to establish a new fuel pathway?

No. We believe that the online guidance is explicit in terms of what information and supporting documentation is required from each applicant to submit. Therefore, it is not necessary to contact ARB staff unless they perceive a problem with the Alternative Fuels Portal (AFP) website, or experience trouble uploading documents through the online web portal. Applicants are always welcome to consult with ARB staff prior to or after submitting their applications and are especially encouraged to do so for Tier 2 Method 2B applications.

As an alternative to documentation of the actual distances, can the ethanol producers use the CA-GREET 2.0 default values for transportation and distribution parameters, and attest that the default values are reasonable estimates of actual distances?

Default distances in the CA-GREET 2.0 model are to be used in computing the pathway CI. If transport distances are larger than the default, then the applicant has to declare as such and compute pathway CI to reflect the larger value. For pathway re-certifications however, applicant-specific information such as

transportation distances will be extracted from CA-GREET 1.8b input file previously submitted by the applicant and transferred to CA-GREET 2.0.

Will applicants be allowed to use default transportation distances? Can staff use application-specific locations and evidence of fuel transport mode to define actual distances? Should default upstream fuel-production distances be used, along with specific Transportation & Distribution (T&D) for fuel-transport?

Generally, no. Applicants will be expected to provide actual transport and distribution distances associated with transport and distribution of fuel and feedstock everywhere a yellow-shaded input cell exists in the Tier 1 and Tier 2 worksheet. If a yellow-shaded input cell is not an option, then applicants may not change default T&D values embedded in the worksheet.

For re-certification pathways, the CI of the pathway will be determined using the T&D inputs for feedstock and fuel provided by the applicant in the original application prior to the LCFS re-adoption, except in the case where a new default T&D assumption replaces an older default T&D assumption. Applicants are advised that if the T&D distances (or modes) are unknown, then conservative values should be used (i.e., the maximum distance and the mode which results in a higher CI).

Will an update to the CA-GREET model or LCI data be provided regularly?

Staff will make updates to the CA-GREET model on a periodic and planned basis as advances in life cycle analysis and refined information become available. Any changes beyond fixing non-substantial errors will be made as part of a formal rulemaking.

To offer investment certainty staff has no plans to change the model during the 2016-2018 compliance years. An update to the CA-GREET model may be considered as part of the LCFS program review process (currently planned for 2018).

If a pathway (feedstock and fuel combination) that can otherwise be modeled in the Tier 1 Calculator has a different co-product that is not modeled in the Tier 1 Calculator, what is the applicant to do?

The applicant should submit a request to the Executive Officer to be classified as a Tier 2 pathway rather than a Tier 1 pathway. If the impact of the co-product credit does not result in a 20 percent reduction in the CI, the pathway must be modeled using the Tier 1 calculator and forgo the co-product credit. Applicants may consult with ARB staff to explore if alternate options are available.

Can an applicant specify an electric energy mix based upon the renewable electric generating assets owned by the utility that provides electrical energy to the applicant's process?

No, for all applicants in regions covered by the eGRID values included in CA-GREET 2.0. The "User-Defined" option for electricity was included in the CA-GREET 2.0 model to allow for defining electricity mixes for regions outside the U.S. that are not included in the eGRID tool.

Can an applicant request the inclusion of electricity purchased or generated from solar or windfarms?

Electricity from a renewable energy source utilized in a fuel pathway may only be included in the CI determination if the energy from that source is directly consumed in the production process. No indirect accounting mechanisms, such as the use of Renewable Energy Certificates (RECs), can be used in determining the CI from electricity consumption. The applicant must provide evidence that the generation source is dedicated, generally by showing that the source is on-site/co-located, or was developed by the fuel producer with the sole intention of providing renewable power to the fuel pathway.

If the regulated party or entity seeking a new fuel pathway certification is registered in the USEPA RFS2 program, will the accreditation substitute for the LCFS pathway certification process?

No. The LCFS regulation is a California State regulation, and is not affiliated with U.S. EPA's RFS2 program. The information submitted to the US EPA in support of the RFS2 registration is not sufficient for new fuel pathway certification under provisions of the re-adopted LCFS, although it may provide a significant start in gathering information for the LCFS.

How is a pathway application determined to be deemed complete and what is the "deemed complete" date?

A pathway application that is "deemed complete" contains all relevant information that is required for staff to process the application and certify a pathway CI. The date staff is able to deem an application complete is termed "deemed complete" date.

Fuel production facilities that have been in operation for less than two years may apply for pathway certification provided they have been in full commercial production for at least one full calendar quarter. Does this allow use of any three consecutive calendar months of operation?

The intent of the regulation is to obtain a quarter of commercial operating data (implying any three consecutive months, regardless whether they coincide with a traditional fiscal quarter). Quarterly operating data should be submitted

regardless of how well it supports or conforms to the input parameters submitted in the provisional application. ARB will take into consideration non-standard situations (e.g., unplanned plant shutdown) during the first two calendar years of operation, and the applicant may submit data generated during the shutdown period along with an explanation of the event (and any supporting data or information they wish to supply in support of the claim), and then continue to supply quarterly operational data beyond two calendar years, until ARB has received two years operational data representing normal, steady-state operation. In order to continue to earn LCFS credits, the applicant has to continue to submit operational data until the two years requirement has been satisfied.

What are the criteria for determining that a fuel production method is innovative enough to qualify it as a Tier 2 pathway? Some “innovative” inputs such as using LFG as a process fuel are already in the Tier 1 calculator.

The use of LFG as a process fuel was included in the Tier 1 calculator because some current pathways have incorporated LFG as a process fuel and utilizing this option in the Tier 1 classification expedites pathway processing.

Generally, to qualify for Tier 2 treatment the applicant must demonstrate process innovations that improve efficiency such that the resulting CI is at least 20 percent lower due to the innovation. Further, in order to qualify as an innovative, low-CI process energy source, energy from that source must be directly consumed in the production process.

Are custom, market-specific DGS displacement ratios permissible for use in the lifecycle analysis of corn ethanol pathway CI determination?

CA-GREET 2.0 life cycle analysis model does not permit the modification of the default DGS displacement ratio to compute the co-product credit in the corn ethanol pathway.

Will the DGS co-product credit be changed over time to account for actual agricultural practices?

Agricultural products and prices for livestock feed tend to vary over time. It is particularly important to be able to verify the DGS co-product credit is valid over time. If there is evidence that the DGS co-product displacement ratios have changed over time, then an update to the co-product credit may be considered in future updates to the CA-GREET 2.0 model.

The lime use in the agricultural fertilizer inputs for the corn ethanol pathway cannot be changed in the Tier 1 Calculator from the default application rate. What should the applicant do if the region where the corn was grown did not demand lime application?

Until such time a complete protocol for verification of agricultural phase parameters has been developed, formally adopted, and goes into effect, the applicant must accept the CA-GREET 2.0 default lime application rate for their corn and any other feedstock pathway CI determination.

For the transport of ethanol from the blending terminal to the retail outlet, the CA-GREET 2.0 uses a default value. Why is an input (yellow) cell not permissible for this parameter?

The final distribution of finished gasoline to the retail outlet is a default parameter that cannot be modified in CA-GREET 2.0. This design choice was made because the added complexity of tracking this parameter would have been counterproductive to the desired streamlining of the pathway process accomplished through the re-adoption rulemaking that concluded in September of 2015.

If an existing commercially producing fuel processor with a certified LCFS pathway makes major process changes or additions to facility that may consequentially result in a change in the fuel CI, does the fuel producer need one quarter of commercial operating data in order to apply for a new pathway?

Yes. The applicant should submit a new provisional pathway application with one-quarter of commercial operating plant data. Similar to other provisional pathways, the applicant is obligated to provide data quarterly until the two-year data requirement is satisfied.

A fuel producer produces renewable diesel from algal oil at a pilot facility that is designed to produce 2 million gallons of fuel a year. The fuel producer has obtained permits to build a 50 million gallon fuel production facility, and would like to start the pathway application process shortly after commencing construction. This would enable the fuel producer to have their fuel pathway certified before start-up and commencement of commercial production. Is that permissible under the re-adopted LCFS?

No, the regulation requires that all pathway applicants have at least one quarter of commercial production operational data in order to apply for an LCFS fuel pathway. Therefore, the fuel producer may not apply until one calendar quarter of production operating data is available. However, staff encourages such facilities to enter into a dialogue with ARB about how such applications should be prepared at any time.

A potential applicant for pathway certification uses a unique feedstock to produce fuel which does not have an iLUC defined in the LCFS regulation (for example, Jatropha, Miscanthus, Switchgrass, Poplar trees, etc.). How quickly can the ARB assign an iLUC estimate for such pathways?

The iLUC development for individual crops is an elaborate process. ARB recommends that applicants with unique feedstocks begin their application process early, and work with staff to estimate iLUC impacts. Until staff modeling and research is complete, a temporary iLUC may be assigned to such feedstocks. The temporary iLUC will be based on a similar crop with comparable global displacement and substitution impacts.

May a fuel producer earn credits from the federal RFS2 program while also claiming LCFS credits?

Yes. A fuel producer is entitled to credits in both RFS and LCFS if it adheres to individual regulatory requirements.

May a participant in the LCFS program also participate in other programs such as California's Renewable Portfolio Standard, or Cap and Trade?

Credits generated in the LCFS program cannot be directly transferred to (or meet obligations of) the California Cap and Trade regulation, the Renewable Portfolio Standard or any other program. A facility also may not claim credit for the same emission reduction in LCFS and any other programs except the RFS2; however, there may be situations in which a single fuel producer may be eligible to claim credit in a separate program and in the LCFS for two separate but related abatement actions.

For example, a dairy digester operation may export some portion of biomethane to generate grid electricity and use some biomethane for onsite vehicle fuel: those distinct volumes may be separately registered in each program. This is permissible so long as the producer can provide evidence that the same volume was not double counted.

As another example, credits for avoided methane emissions from a dairy digester can either be claimed separately as part of a Cap and Trade offset credit application, or as part of an LCFS pathway. Regardless of what route the project developer selects for this avoided methane portion of the lifecycle, they may also claim credit in the LCFS for avoided diesel emissions if the biomethane is used as a vehicle fuel.

What documentation will be required to establish the DGS yield per gallon of ethanol produced? Since the calculation of DGS yield requires an accurate measure of the moisture in the DGS to calculate the bone dry yield, what documentation requirements will there be, if any, for

permissible moisture levels?

If the fuel pathway applicant is seeking a Tier 1 ethanol pathway certification, the same criteria will be necessary as that applicable to energy use in the fuel production phase (i.e., two years of production records verifying the amount of DGS and ethanol produced during each of the calendar years). The DGS yield must be adjusted for dry basis (solids less moisture). Such measurements are typically made by the fuel producer's quality and laboratory analysis group and these must be provided with the application.

Most Brazilian sugarcane-based ethanol producers produce ethanol to some extent from sugarcane molasses, a by-product of the sugar production process. At what threshold of production should sugarcane molasses be considered as a separate feedstock for LCFS purposes?

Research papers previously suggested that by-product molasses is a minority feedstock for ethanol production in Brazilian sugarcane mills. The amount of by-product molasses contributing to ethanol is assumed to be insignificant unless it is self-declared by the applicant as a major feedstock.

While there is no official threshold to determine if a separate pathway is required for by-product molasses feedstock, staff recommends that if the amount of byproduct molasses used to produce ethanol is not "insignificant," then a separate pathway application for by-product molasses feedstock should be made. Staff will be available to assist applicants to make this determination.

For a fuel producer that utilizes two (or multiple) feedstocks at their facility, and whose accounting system permits the producer to associate all volumes of biodiesel/renewable diesel produced with specific individual feedstocks, can the producer selectively sell fuel in California associated with a particular feedstock only?

A fuel producer who can account for fuel yields from two (or multiple) feedstocks would be able to sell specific volumes of fuel associated with each individual feedstock using the CI associated with the respective feedstocks. This policy reflects mixed feedstocks such as corn and sorghum used for ethanol production, as well as different oilseeds used for biodiesel and renewable diesel production.

Will ARB require that the fuels produced with different feedstocks be kept physically separated?

A mass balance accounting approach may be utilized for mixed feedstock fuel pathways. As long as the fuel producer's inventory accounting system allows it to track a certain volume of fuel produced with a specific feedstock, the fuels produced may be co-mingled in storage tanks, as well as transported and distributed in similar vessels. Producers should be able to provide records that

unequivocally associate specific quantities of feedstock with specific volumes of fuel produced. As volumes are added to and withdrawn from the tank, the volume at each feedstock-related CI will be adjusted to account for those additions and withdrawals.

What if the fuel producer’s accounting system does not permit the producer to track the fuel produced with the feedstock utilized?

Producers whose accounting processes do not enable them to track the fuel volume produced in terms of the feedstocks used must label all gallons of fuel produced with the carbon intensity (CI) associated with the feedstock having the highest CI.

A biodiesel producer sources UCO feedstock from several different regions of the world. How is the fuel producer to report biodiesel sales during an average calendar quarter?

The quantity of fuel sold each quarter must be reported using the CI corresponding to the region from where the UCO feedstock was procured for biodiesel production. In the event that feedstocks are purchased in the open market and applicants are not able to determine where the feedstock for their process comes from, the pathway application (CI determination) should be based on worst-case procurement, transportation and distribution assumptions. For producers who have multiple fuel pathway codes for feedstock sourced from different regions, then fuel volumes reported should correspond to all gallons of fuel produced with the carbon intensity (CI) associated with the feedstock having the highest CI.

Will staff add “no cook” used cooking oil (UCO) as a pathway in the Tier 1 Calculator of the CA-GREET 2.0 model? May producers of bio- or renewable diesel from “no cook” UCO feedstock request Tier 2 classification?

No. The fuel producer may request an application via the Tier 2 process if the requirements are met for “Tier 1 fuels produced using one or more innovative production methods” (see § 95488(b)(2)(F)). If it qualifies for Tier 2 on that basis, information is required to demonstrate that the feedstock uses the “no-cook” process.

Why is the co-product credit for surplus cogenerated electricity sales to the public grid much lower in the Tier 1 Calculator of the CA-GREET 2.0 model compared to the co-product credit determined in CA-GREETv1.8b?

The co-generated electricity co-product credit is much lower in the CA-GREET 2.0 model is because the model uses an average electrical mix for displaced electricity GHG impacts. Previously, the CA-GREET 1.8b model assumed

displacement of marginal electricity for determining the co-product credit. As an example, co-product credit for Brazilian sugarcane ethanol is now based largely on hydro-electric power which makes up more than two-thirds of Brazilian average electrical energy mix compared to the marginal mix which was based on natural-gas-based generation.

Are minor changes to the Tier 1 Calculator permissible? For example, an applicant would like to assess the impact of running 10 percent of their fleet on LNG fuel. The inputs in the Tier 1 Calculator only assess the GHG impacts of petroleum-based diesel fuel used in transportation.

No. The Tier 1 Calculator was designed to assess GHG impacts for the most common pathway processes with the most commonly used parameters, and simplified pathway assumptions. Specialized transportation and distribution (T&D) GHG impacts (such as the use of LNG-fueled vehicles) must be assessed outside of the Tier 1 Calculator. It is recommended that applicants consult with staff prior to submitting such a pathway application.

What are the different ways to estimate GHG emissions from co-products? When can an applicant use the displacement (system expansion) approach, rather than physical-property based allocation method (e.g. mass, energy allocation, or market value allocation)?

There are essentially two strategies for treating co-products; the substitution method and the allocation method. In the substitution method, the first order market effects of producing co-products by subtracting impacts presumed to be avoided by substituting the co-products for other products that provide the same function. For example, DGS and cogenerated electricity produced by ethanol producers are assumed to displace corn feed for livestock and grid-based electricity, respectively.

Physical-property based allocation methods apportion the inputs and emissions from a process amongst the various co-produced outputs based on some characteristic of the process inputs, outputs, or operation. The allocation method is further divided into three groups; the price or market allocation, the energy allocation, and the mass allocation methods.

Applicants should first follow the methodology which is used for co-product accounting in CA-GREET 2.0. For pathways and co-products which are not included in CA-GREET 2.0, the applicant may propose to use any relevant methods mentioned above; however, applicants will be required to perform a sensitivity analysis showing the results of the alternative methods in order to demonstrate that the proposed method results in the most conservative emissions (lowest credit, therefore highest CI for the fuel pathway), or is not significantly different from the outcome of selecting another relevant method. This is consistent with the methods used in CA-GREET 2.0 (e.g., the use of the

displacement approach for DGS which replaces corn grown for animal feed results in a higher CI (lower credit) than mass, energy, or market value allocation.

How is an applicant to determine the applicable eGRID zone for choosing the Feedstock and Fuel Phase electrical energy mixes in the Tier 1 Calculator?

If the location of the facility is not obvious, then the applicant may use a zip code locator for finding the correct regional eGRID mix. Applicants may use the e-grid locator³ to match their zip code to the appropriate eGRID mix.

Are foreign-based regulated parties or entities disadvantaged with regards to the amount of time it would take to process their fuel pathway applications?

No. Staff experience suggests that processing fuel pathway applications after the application is deemed administratively complete takes an equal amount of time regardless of whether the regulated party is based domestically or abroad. Differences in processing time occur in instances when staff must verify pathway-specific information that is unique to the pathway itself.

What is a Tier 1 or Tier 2 facility? Can they be the same facility, but have different pathways, perhaps one Tier 1 pathway and another Tier 2 pathway?

“Tier 1” and “Tier 2” designations apply to individual pathways, not fuels or facilities. Commonly a given facility will make a fuel using one Tier classification. There may be a few instances where a facility produces fuels using both Tier 1 and Tier 2 pathways (e.g., a first-generation corn ethanol facility that may also produce cellulosic ethanol).

Ethanol plants typically load the ethanol onto railcars at the production facility. There is normally no trucking of ethanol from the ethanol facility to the rail loading location. What documentation will be needed to demonstrate to ARB that it is zero?

The applicant should attest to the information regarding specific modes of transport utilized by the fuel producer. Alternatively, the applicant could submit a Google Earth satellite image of the ethanol production facility showing the rail tracks leading to the ethanol loading zone of the plant.

Ethanol plants typically ship to multiple locations in California. Each will have a different distance. The physical pathway demonstration requires only one supply route. Can the ethanol producer use the same distance as in the physical transport demonstration, and can that documentation be sufficient for documenting this distance?

³ eGRID zip code locator: <http://www.arb.ca.gov/fuels/lcfs/egrid-locator.xlsx>

Yes. For life cycle analysis purposes, prudence dictates that the application be based upon the worst-case transport distance parameter value. If that value is used in the life cycle analysis, the CI certified for the fuel would never be violated.

How will ARB ensure that crop residues such as corn stover, wheat straw, and sugarcane straw are sustainably harvested for the production of cellulosic ethanol?

Cellulosic ethanol pathways certified in the past by ARB are contingent upon removal of no more than 50 percent of the residue left on the ground after the crop harvest, or until research informs what constitutes a reasonable and sustainable rate of crop residue removal. The burden is upon the fuel producer to source their feedstocks from farms that have implemented sustainable residue removal practices. The enforcement and verification protocols currently under development are likely to address best management practices for cellulosic harvesting in the future.

Can the carbon dioxide sequestered during the corn-ethanol fermentation process be credited to the corn ethanol pathway?

No. Until such time a complete protocol for Carbon Capture and Sequestration (CCS) has been developed, formally adopted, and goes into effect, no credit will be assessed for carbon sequestration. Such a protocol is under development and expected to be presented to the Board by 2018.

In the Tier 1 Calculator for sugarcane-based ethanol pathways, how is the mechanized harvesting fraction and credit determined?

The applicant must furnish GIS-based shape files of sugarcane harvest areas (maps) from where cane is procured for sugar and ethanol production, along with a self-declaration of harvest practices at each farm. The self-declaration should disclose the harvest practice, as well as the name and arable acreage of each sugarcane farm. Staff will then obtain remotely-sensed, satellite-based burn-area imagery for the past two harvest cycles, and overlap the imagery with the harvest maps to determine what fraction of the sugarcane fields were harvested manually with burning. The results of this evaluation are shared with the applicant. This fraction partially offsets the GHG impacts assessed with straw burning.