

Application for the Establishment of a New Fuel Pathway under the California Low Carbon Fuel Standard

Instructions

Use the form below to apply for a new or modified fuel pathway under the Method 2A and 2B provisions of the California Low Carbon Fuel Standard (LCFS). Submittal of this form initiates the formal pathway evaluation process. Because that process is subject to strict time constraints, prospective applicants should discuss their proposals with Air Resources Board (ARB) staff prior to submitting a completed application form. Staff will advise potential applicants on the documentation that must be submitted along with this form. A list of LCFS Method 2A/2B staff contacts appears in the final section of this document. Submission of an incomplete application packet will result in delays, which could in turn lead to denial. This application form is to be submitted as a cover sheet to the full Method 2A or 2B application packet. A general list of the types of supporting information that must be submitted with a 2A/2B application appears in Section IV, of the application form.

The full method 2A/2B application process is described in detail in a document entitled *Establishing New Fuel Pathways under the California Low Carbon Fuels Standard*. This is available at:

<http://www.arb.ca.gov/fuels/lcfs/012010newguideline.pdf>

Lifecycle analysis reports included with Method 2A/2B application packets should be similar in format, content, and scope to those already approved under the LCFS. Examples of approved life cycle analyses can be found at

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

Applicants may designate portions of their submittals as trade secrets. All information so designated will be treated in accordance with 17 CCR §§ 91000-91022 and the California Public Records Act. In deciding on what information to designate as secret, applicants must consider the public nature of the rulemaking process. New and modified pathways can be approved only if enough information is available publicly to justify that approval.

Method 2A and 2B Application Form

I. Application Submission Date:

II. Company Contact Information

a. Company Name: Diamond Green Diesel

b. Mailing Address:

Address Line 1	One Valero Way
Address Line 2	
City	San Antonio
State/Province	Texas
Zip/Postal Code	78249-1616

c. Main Company Phone Number: 210-345-3117

d. Secondary Company Phone Number: 210-345-2922

e. Fax number: 210-345-4715

f. Company Web Site URL:

g. Primary Method 2A/2B Contact Person:

Name: John Braeutigam

Position/Title: VP Technology

Email Address: John.Braeutigam@valero.com

Office Phone Number: 210-345-2922

Mobile Phone Number: -

Fax Number: 210-345-4715

h. Consultant/Third Party Application Preparer:

Name: Bill Roddy

Position/Title: Director Environmental Compliance

Affiliation/Firm: ERI Solutions Inc 125 N. First street, Colwich, KS, 67030

Email Address: Bill.Roddy@erisolutions.com

Office Phone Number: 316.927.4268

Mobile Phone Number: 316.706.7677

Fax Number: 316-927-4299

Consulting entity's web site URL:

- i. LCFS Reporting Tool Organization ID code (if known): N/A , this will be available after start-up in early 2013
- j. U.S. Environmental Protection Agency (U.S. EPA) Company ID (if known): N/A , this will be available after start-up in early 2013
- k. U.S. EPA Facility ID (if known): N/A , this will be available after start-up in early 2013

III. Pathway Information

- a. Pathway application type. Applicants are encouraged to discuss their pathway application types with ARB staff before proceeding. Please check one box only.

Method 2A: Sub-pathway Method 2B: New Pathway

- b. Brief description of proposed pathway. Please emphasize the important innovations and/or distinctive characteristics associated with the proposed pathway or sub-pathway

This application relates to new pathways for production of renewable diesel using the UOP Econofining Process to meet the increasing demand for a sustainable high quality renewable diesel. The Econofining Process hydrogenates triglycerides and the free fatty acid feedstocks (soy oil, corn oil, used cooking oil, and animal fat). The resulting paraffins are then isomerized to create a high quality hydrocarbon known as green diesel (i.e., renewable diesel). The benefits of the Econofining process includes low capital and operating costs allowing licensees to produce a low cost renewable diesel fuel that will help California meet its fuel carbon intensity goals.

This pathway application covers 14 distinct fuel production pathways for production or renewable diesel comprising four feedstocks, two transportation and distribution methods, and in some cases high or low feedstock process energy requirements. Used cooking oil, tallow, and corn oil each have four pathway options since there is a low and high energy use in production option.

With the exception of the soy oil to renewable diesel pathways, none of the other feedstocks considered have existing approved pathways for the production of renewable diesel using the UOP process. All of the proposed pathways, including soy oil to RD, differ from the current soy to RD pathway because the refining operation is located outside of California (in Louisiana) and use US Average production energy. For these reasons, a Method 2B application was necessary.

- c. For Method 2A Applications only:

1. Reference pathway (Existing fuel pathway to which the proposed new sub-pathway is most closely related). The carbon intensity of the reference pathway must be higher by at least 5 gCO₂e/MJ than the carbon intensity of the proposed pathway described in this application. Show all pathway information exactly as it appears in the LCFS Lookup Table:

Fuel:

Pathway Description:

Carbon Intensity Values (gCO₂e/MJ):

Direct Emissions:

Land Use or Other Indirect Effect:

Total:

2. Compositional differences (if any) between the fuel produced by the new sub-pathway and the reference pathway identified in item c, 1, above).



- d. Final carbon Intensity of the proposed pathway or sub-pathway:

The applicants have prepared three modified CA-GREET models to estimate the carbon intensity of the individual fuel production pathways and these are summarized in the table below showing each feedstock and T&D shipment combination considered.

Proposed DGD Pathway	Scenario	CI Estimated using CA-GREET (RD transported by rail)	CI Estimated using CA-GREET (RD transported by ocean tanker)
MW Soy Oil to RD	Soy Oil collected in the MW; shipped 1,100 miles by rail to RD plants in Louisiana (LA). Finished RD transported 1,187 mi by rail (or 5,500 miles by ship) to California (CA) blending terminals; 80% of the RD then transported 50 mi to blending terminals and 90 mi to stations by HDT. 20% offloaded to blending terminal adjacent to rail yard.	83.70	83.48
MW Corn Oil from Dry DGS to RD	Corn Oil from Dry DGS collected in MW, shipped 800 miles to LA by rail, and then transported 50 mi by HDT to nearby RD plants. RD made in LA, transported and 1,187 mi by rail from LA to CA (or 5,500 miles by ship); 80% of the RD then transported 50 mi to blending terminals and 90 mi to stations by HDT. 20% offloaded to blending terminal adjacent to rail yard.	6.00	5.56
MW Corn Oil from Wet DGS to RD	Corn Oil from Wet DGS collected in MW, shipped 800 miles to LA by rail, and then transported 50 mi by HDT to nearby RD plants. RD made in LA, transported and 1,187 mi by rail from LA to CA (or 5,500 miles by ship); 80% of the RD then transported 50 mi to blending terminals and 90 mi to stations by HDT. 20% offloaded to blending terminal adjacent to rail yard.	35.85	35.41
MW UCO to RD, Cooking Required	UCO collected and rendered in other states, transported 700 mi by rail to RD plant in LA. RD made in LA, transported 1,187 mi by rail from LA to CA (or 5,500 miles by ship); 80% of the RD then transported 50 mi to blending terminals and 90 mi to stations by HDT. 20% offloaded to blending terminal adjacent to rail yard.	18.40	18.18
MW UCO to RD, No Cooking	Same as above with no cooking required.	13.85	13.63
US Animal Fat to US RD, High Energy Rendering	Tallow collected and rendered in other states and transported 600 mi by rail to RD plant in LA. RD made in LA, transported 1,187 mi by rail from LA to CA (or 5,500 miles by ship); 80% of the RD then transported 50 mi to blending terminals and 90 mi to stations by HDT. 20% offloaded to blending terminal adjacent to rail yard.	40.34	40.12
US Animal Fat to US RD, Low Energy Rendering	Same as above with no cooking required.	19.91	19.70

- e. Annual volume of fuel that would be produced using the proposed new pathway (millions of gallons per year [MGY]):

The Diamond Green Diesel renewable diesel plant is under construction with a nameplate production capacity of 143 MGY.

- f. Annual volume of fuel produced using the proposed new pathway that would enter the California market:

It is expected the DGD facility will ship 10% of its fuel output to the California market, or 14.3 MGY.

1. This production volume is expected to be achieved within how many years from the start of production?

The DGG plant is expected to begin commercial operations on April 15 2013, so it is expected that volumes delivered to California in 2013 will be 10 MGY, and during 2014 and in subsequent years this will be increased to 15 MGY.

2. Does the applicant expect this volume to be achieved by a single or by multiple facilities?

A single facility Multiple facilities

3. If the applicant expects this volume to be achieved by multiple facilities, would all facilities be owned by a single firm?

Single firm Multiple firms

- g. Lower Heating Value of the fuel to be produced from the new pathway (megajoules per gallon):

Diamond Green Diesel will be produced using the UOP Ecofining process and fuel testing will be performed after startup. The CA-GREET currently estimates this fuel to have a LHV heating value of 129.7 MJ/gal (122,887 Btu/gal) and this has been used to estimate CI value for the DGD products.

- h. The range of production volumes over which the proposed pathway carbon intensity value is valid. The values reported below must be supported in the documentation accompanying this application.

	Fuel Volume	Units (gallons; litres; joules,etc.)
Lower bound of production volume range	100.00	MGY
Upper bound of production volume range	200.00	MGY

- i. Please provide any information that may be helpful in determining the land use change impacts (if any) of the proposed pathway. Although it is ARB's responsibility to perform all land use change impact analyses, the applicant may provide any information that may be useful to the ARB in completing that analysis.

Since ARB has already considered each feedstock for biodiesel production pathways, there is no additional need to assess land use change potential for this application. Soy oil RD pathways use the value of 62 gmCO₂e/MJ and the other feedstocks are assumed to be waste feedstocks without linkages to the global agricultural commodities markets and as a result have no associated land use change impacts.

IV. Application Submittal Checklist. Listed below are the documents and files that may be submitted in support of a method 2A/2B application. Check the box to the left of each document or file type included in your submittal. After each submittal category is a check box labeled "includes trade secrets." Check that box if the submittal category contains any information the applicant considers to be a trade secret. In the actual submittal, the specific information falling into the trade secret category must be clearly marked. Additional information regarding the submission of trade secrets can be found in the Instructions above.

- Pathway life cycle analysis report (required).
 - Includes trade secrets*
- CA-GREET model results (please submit the full CA-GREET spreadsheet) (required).
 - Includes trade secrets*
- All operating permits issued by the local air pollution control authority (required)
- One or more process flow diagrams covering the complete production process, including all inputs (feedstocks, process energy, etc.) and outputs (finished fuel, co-products, wastes, etc.) (required).
 - Includes trade secrets*
- A comprehensive list of all stationary combustion-powered equipment associated with the production facility. List entries should name the equipment, briefly describe its function, identify

the fuel or fuels used, and quantify fuel use on a per-gallon-of-finished-fuel-produced basis (required)

- Includes trade secrets*
- Equipment technical specifications
 - Includes trade secrets*
- Production process schematics, technical drawings flow diagrams, maps, or other graphical representations (other than/in addition to the required process flow diagram)
 - Includes trade secrets*
- Engineering reports
 - Includes trade secrets*
- Technical papers or journal articles
 - Includes trade secrets*
- Emissions monitoring data or emissions modeling results
 - Includes trade secrets*
- Spreadsheets, data files, and similar files documenting the calculations behind the fuel life cycle analysis
 - Includes trade secrets*
- Other: In the space below, describe any additional submittals. Rationales for documents submitted or omitted may also be provided.
 - Includes trade secrets*

V. ARB Method 2A and 2B Application Process Contacts

Name	Phone Number	E-mail Address
John Courtis	916-323-2661	jcourtis@arb.ca.gov
Wes Ingram	916-327-2965	wingram@arb.ca.gov
Chan Pham	916-323-1069	cpham@arb.ca.gov
Kevin Cleary	916-323-1009	kcleary@arb.ca.gov
Alan Glabe	916-323-2416	aglabe@arb.ca.gov