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: Green Plains Shenandoah LLC

b. Mailing Address: (headquarters)/(plant address)

Address Line 1	9420 Underwood Ave. (headquarters) 4124 Airport Road (plant)	
Address Line 2		
City	Omaha	Shenandoah
State/Province	Nebraska	Iowa
Zip/Postal Code	68114	51601

c. Main Company Phone Number: 402.884.8700

d. Secondary Company Phone Number: n/a

e. Fax number: 402.884.8776

f. Company Web Site URL: www.gpreinc.com

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

*Name:*Michelle Mapes Michelle Mapes

*Position/Title:*EVP-General Counsel & Corp Secretary

*Email Address:*michelle.mapes@gpreinc.com

*Office Phone Number:*402.315.1629

*Mobile Phone Number:*402.301.8698

*Fax Number:*402.884.8776

h. Consultant/Third Party Application Preparer:

Name: Mr. Logan Caldwell

Position/Title: President

Affiliation/Firm: Houston BioFuels Consultants LLC

Email Address: lc@hbioc.net

Office Phone Number: 281-360-8515

Mobile Phone Number:

Fax Number:

Consulting entity's web site URL: http://houstonbiofuelsconsultants.com/

i. LCFS Reporting Tool Organization ID code (if known):

j. U.S. Environmental Protection Agency (U.S. EPA) Company ID (if known): **5073**

k. U.S. EPA Facility ID (if known): 70149

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

The fuel lifecycle pathway of our Shenandoah ethanol plant is the same as the referenced existing pathway except for lower power and energy consumption due to our modern plant design and production of modified distillers grain solubles (Modified DGS or MDGS) at an average moisture content of 53%wt. as well as nominal 10%wt. moisture dry distillers grains solubles (Dry DGS or DDGS).

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 gCO_2e/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: Ethanol

   Pathway Description: Midwest; Dry Mill; Dry DGS, NG

   Carbon Intensity Values (gCO_2e/MJ):

   Direct Emissions: 68.40 gCO_2e/MJ

   Land Use or Other Indirect Effect: 30 gCO_2e/MJ

   Total: 98.40 gCO_2e/MJ

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

None.

d. Final carbon Intensity of the proposed pathway or sub-pathway:
88.14 gCO_2e/MJ

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

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

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

   Immediately. Already in operation.

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

   X☐ 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): **Ethanol: 76,330 btu/gal x 1055 MJ/btu = 80,528,150 MJ/gal**

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	32,000,000	gallons
Upper bound of production volume range	75,000,000	Gallons

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.

Any difference between the land use of this sub-pathway and that of the existing Midwest Dry Mill Corn Ethanol Pathways is negligible.

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.

X☐ Pathway life cycle analysis report (required).

X☐ *Includes trade secrets*

X☐ CA-GREET model results (please submit the full CA-GREET spreadsheet) (required).

X☐ *Includes trade secrets*

X☐ All operating permits issued by the local air pollution control authority (required)

X☐ 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).

X☐ *Includes trade secrets*

X☐ 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)

X☐ *Includes trade secrets*

X☐ Equipment technical specifications

X☐ *Includes trade secrets*

X☐ Production process schematics, technical drawings flow diagrams, maps, or other graphical representations (other than/in addition to the required process flow diagram)

X☐ *Includes trade secrets*

X☐ Engineering reports

X☐ *Includes trade secrets*

☐ Technical papers or journal articles

☐ *Includes trade secrets*

X☐ Emissions monitoring data or emissions modeling results

X☐ *Includes trade secrets*

X☐ Spreadsheets, data files, and similar files documenting the calculations behind the fuel life cycle analysis

X☐ *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*

I. WTW Diagram of GPRE Ord Ethanol Plant Sub-Pathway
   Including:
   - Energy and Material Balance for the Plant Design- including Confidential Business Information
   - Current State of Nebraska Air Permit and Air Permit Application

II. GPRE Ord Ethanol Plant Pathway Description/Background formation – including Confidential Business Information

III. Table of CA-GREET Model Inputs for GPRE Ord Ethanol Plant Pathway

IV. Basis for the GPRE Ord Ethanol Plant CA-GREET Input Values – including Confidential Business Information

V. CA-GREET Model Output and Analysis of Results

VI. Production Range of GPRE Ord Ethanol Plant Pathway – including Confidential Business Information

VII. Sustainability of GPRE Ord Ethanol Plant Pathway

VIII. Impact on Land Use

IX.. Documents supporting Production Period Quantities – including Confidential Business Information

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