

## **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:** January 27, 2011, Revised February 7, 2011

**II. Company Contact Information**

a. Company Name: Siouxland Ethanol, LLC

b. Mailing Address:

Address Line 1	1501 Knox Boulevard
Address Line 2	
City	Jackson
State/Province	NE
Zip/Postal Code	68743

c. Main Company Phone Number: (402) 632-2676

d. Secondary Company Phone Number:

e. Fax number:

f. Company Web Site URL: [www.sioxlandethanol.com](http://www.sioxlandethanol.com)

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

*Name:* Chuck Hofland

*Position/Title:* General Manager

*Email Address:* [chofland@siouxlandethanol.com](mailto:chofland@siouxlandethanol.com)

*Office Phone Number:* (402) 632-2676

*Mobile Phone Number:*

*Fax Number:*

h. Consultant/Third Party Application Preparer:

*Name:* William Roddy

*Position/Title:* Environmental Affairs Corporate Manager

*Affiliation/Firm:* ICM, Inc.

*Email Address:* [William.Roddy@icminc.com](mailto:William.Roddy@icminc.com)

*Office Phone Number:* (316) 977-6232

*Mobile Phone Number:*

*Fax Number:*

*Consulting entity's web site URL:* www.icminc.com

- i. LCFS Reporting Tool Organization ID code (if known):
- j. U.S. Environmental Protection Agency (U.S. EPA) Company ID (if known):
- k. U.S. EPA Facility ID (if known):

### **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

Siouxland Ethanol, LLC (Siouxland) is proposing 14 sub-pathways as described below:

<b>100% DDGS</b>		<b>100% MDGS</b>	
<b>% LFG</b>	<b>% Natural Gas</b>	<b>% LFG</b>	<b>% Natural Gas</b>
0%	100%	0%	100%
6%	94%	8%	92%
8%	92%	11%	89%
10%	90%	13%	87%
12%	88%	16%	84%
14%	86%	18%	82%
16%	84%	20%	80%

Siouxland’s proposed pathways are based on a standard corn ethanol dry mill, and propose modifications to the existing “Midwest, Dry Mill, Dry DGS, NG” pathway. First, the plant uses a mixture of natural gas and landfill gas (LFG) to generate process steam. The availability of LFG is variable, and thus a number of different pathways are required. Secondly, the plant produces both dried distiller’s grains and solubles (DDGS) and a modified distiller’s grains and solubles (MDGS) co-product at 50% moisture. The proportion of MDGS produced directly impacts the plant’s thermal energy load and thus the demand for natural gas and LFG. Siouxland aims to utilize 100% of the available LFG and therefore the share of LFG in the process fuel use is higher when producing MDGS; when the total plant thermal load is lower. For this reason, the % LFG is different for the two co-product cases at the same Btu/gallon LFG availability. Again, the co-products are produced in varying quantities, so the 100% DDGS pathway will be used for the dry fraction of ethanol and the 100% MDGS pathway will be used for the modified fraction of ethanol.

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<sub>2</sub>e/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 from Corn

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

**Carbon Intensity Values (gCO<sub>2</sub>e/MJ):**

**Direct Emissions:** 68.40

**Land Use or Other Indirect Effect:** 30

**Total:** 98.40

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

There are no compositional differences between the fuel produced by the new sub-pathway and the fuel produced by the reference pathway.

- d. Final carbon Intensity of the proposed pathway or sub-pathway: The Direct Emissions and Total Emissions are presented in the table below for each of the 14 proposed sub-pathways.

<b>Sub-Pathway Description</b>	<b>Direct Emissions (gCO<sub>2</sub>e/MJ)</b>	<b>Total including indirect LUC (gCO<sub>2</sub>e/MJ)</b>
Midwest, Dry Mill, 100% DDGS, 0% LFG, 100% NG	58.1	88.14
Midwest, Dry Mill, 100% DDGS, 6% LFG, 94% NG	55.9	85.91
Midwest, Dry Mill, 100% DDGS, 8% LFG, 92% NG	55.2	85.16
Midwest, Dry Mill, 100% DDGS, 10% LFG, 90% NG	54.4	84.41
Midwest, Dry Mill, 100% DDGS, 12% LFG, 88% NG	53.7	83.74
Midwest, Dry Mill, 100% DDGS, 14% LFG, 86% NG	53.1	83.06
Midwest, Dry Mill, 100% DDGS, 16% LFG, 84% NG	52.4	82.38
Midwest, Dry Mill, 100% MDGS, 0% LFG, 100% NG	53.6	83.64
Midwest, Dry Mill, 100% MDGS, 8% LFG, 92% NG	51.4	81.41
Midwest, Dry Mill, 100% MDGS, 10% LFG, 90% NG	50.7	80.66
Midwest, Dry Mill, 100% MDGS, 13% LFG, 87% NG	49.9	79.91
Midwest, Dry Mill, 100% MDGS, 15% LFG, 85% NG	49.2	79.23
Midwest, Dry Mill, 100% MDGS, 18% LFG, 82% NG	48.6	78.56
Midwest, Dry Mill, 100% MDGS, 20% LFG, 80% NG	47.9	77.88

- e. Annual volume of fuel that would be produced using the proposed new pathway (millions of gallons per year [MGY]): 55 MGY

- f. Annual volume of fuel produced using the proposed new pathway that would enter the California market: 55 MGY
1. This production volume is expected to be achieved within how many years from the start of production? Production volume can be achieved upon CARB's acceptance of proposed sub-pathway.
  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): Default GREET value of 80.5 MJ/gal will be used for ethanol.
- 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.)
<b>Lower bound of production volume range</b>	10,000,000	gallons
<b>Upper bound of production volume range</b>	55,000,000	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.

The proposed sub-pathways will not impact land use change differently than the reference pathway.

**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) **This list is included within the air permit.**
  - 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**

<b>Name</b>	<b>Phone Number</b>	<b>E-mail Address</b>
John Courtis	916-323-2661	<a href="mailto:jcourtis@arb.ca.gov">jcourtis@arb.ca.gov</a>
Wes Ingram	916-327-2965	<a href="mailto:wingram@arb.ca.gov">wingram@arb.ca.gov</a>
Chan Pham	916-323-1069	<a href="mailto:cpham@arb.ca.gov">cpham@arb.ca.gov</a>
Kevin Cleary	916-323-1009	<a href="mailto:kcleary@arb.ca.gov">kcleary@arb.ca.gov</a>
Alan Glabe	916-323-2416	<a href="mailto:aqlabe@arb.ca.gov">aqlabe@arb.ca.gov</a>