

**Method 2 Application for the Establishment of a New  
Fuel Pathway under the California Low Carbon Fuel  
Standard (LCFS)**



**Release Date: April 5, 2013  
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**California Environmental Protection Agency**



**Air Resources Board**

# LCFS Method 2 Pathway Application

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Please feel free to contact the California Air Resources Board (ARB) staff if you have any questions concerning the application process.

*LCFS Method 2 Contact E-mail: [lcfs.method2@arb.ca.gov](mailto:lcfs.method2@arb.ca.gov)*

*California Air Resources Board Main Website: <http://www.arb.ca.gov>*

*Low Carbon Fuel Standard Website: <http://www.arb.ca.gov/fuels/lcfs/lcfs.htm>*

## I. LCFS APPLICATION METHOD 2 SUBMITTAL REQUIREMENTS

As specified in the LCFS regulation (Title 17, CCR, §§ 95480 through 95490) an application package must contain the following items in order for ARB staff to complete a preliminary evaluation within 30 days of submittal:

| Required Documents   | Submittal Details   |
|--|---|
| <p>1. A completed Method 2A-2B application form.</p>   | <p>The application form can be downloaded from <a href="http://www.arb.ca.gov/fuels/guidancedocs.htm">http://www.arb.ca.gov/fuels/guidancedocs.htm</a> (2<sup>nd</sup> bullet under "Low Carbon Fuel Standard). In addition, review the Method 2A-2B guidance document available by clicking the 1<sup>st</sup> bullet.</p>                           |
| <p>2. For an application containing confidential business information (CBI) (as defined in Title 17, CCR, § 95486(f)(3)(B)1) please submit the following <i>two</i> versions of each document:</p> <ul style="list-style-type: none"> <li>• A full version containing CBI.</li> <li>• A full non-confidential version, suitable for posting to the LCFS public website.</li> </ul> | <p><b><u>Example:</u></b></p> <p>Existing non-confidential pathway reports along with other required documentation for all 2A-2B applications are available at <a href="http://www.arb.ca.gov/fuels/lcfs/2a2b/2a-2b-apps.htm">http://www.arb.ca.gov/fuels/lcfs/2a2b/2a-2b-apps.htm</a>.</p>   |
| <p>3. Recent utility invoices covering the <i>two</i> most recent representative years of operation at the facility:</p> <ul style="list-style-type: none"> <li>• Natural Gas usage</li> <li>• Electricity usage</li> <li>• Petroleum usage</li> <li>• Coal usage</li> <li>• Other process fuel usage</li> </ul>   | <p>All original invoices must be scanned and submitted electronically for verification. In addition, details from each invoice must be itemized in a spreadsheet. Please see Title 17, CCR, § 95486(f)(3)(C)3.</p>  |
| <p>4. Fuel production records covering the same two-year period as the invoices described in item #3 above.</p>  | <p>Provide copies of sales receipts or internal production or sales records. Records should also be itemized in a spreadsheet in a manner similar to the utility invoice itemization. Please explain if the plant was shut down at any point during the two years covered by the production records. Please see Title 17, CCR, § 95486(f)(3)(C)3.</p> |

| Required Documents   | Submittal Details  |
|--|--|
| 5. Trucking/transport invoices (if non-default transportation values are claimed).   | Scan and electronically submit invoices and include spreadsheet itemizing all invoices. This spreadsheet should be structured like the utility invoice spreadsheet described in item #3 above. Please see Title 17, CCR, § 95486(f)(3)(C)3.                          |
| 6. A copy of the CA-GREET 1.8b spreadsheet that was used to calculate the final pathway CI. A separate table must itemize, describe, and provide spreadsheet and cell locations of all inputs used and modifications made. | Using the input values and modification information provided by the applicant, staff must be able to replicate the applicant's pathway CI results.   |
| 7. List of combustion-powered equipment.   | The list should describe the equipment and specify the fuel used.  |
| 8. One or more process flow diagrams (PDFs).   | The PDFs must be current, accurate, and must fully describe the fuel production process.   |
| 9. Air pollution control permits.  | As issued by the local jurisdiction. This would normally be a state environmental regulatory agency, but could be an air quality management district. Outside the U.S., equivalent permits are issued by the national government, or a more local regulatory entity. |
| 10. The third-party engineering report prepared for compliance with the Federal Renewable Fuels Standard (RFS2).   | The RFS2 program requires an independent third-party engineering review report. A copy of this report is also required by ARB. Please see Title 17, CCR, § 95486(f)(3)(C)9.  |

## II. BIOFUEL PRODUCER REGISTRATION REQUIREMENTS

Following ARB approval of a Method 2 Application, the applicant is invited to participate in the voluntary LCFS Biofuel Producer Registration Program. The benefits of participation are summarized below. Registration is accomplished by submitting the following two items:

| Required Documents   | Submittal Details   |
|--|---|
| 1. ARB voluntary biofuel producer registration information, if any.  | The registration form can be found at:<br><a href="http://www.arb.ca.gov/fuels/lcfs/reportingtool/biofuelregistration.htm">http://www.arb.ca.gov/fuels/lcfs/reportingtool/biofuelregistration.htm</a> . |
| 2. A transmittal signed by the company's CEO, or the CEO's designee. | The letter affirms that the pathway description and CI appearing in the registration form accurately reflect the registrant's actual pathway and CI.  |

### III. INSTRUCTIONS

The California Low Carbon Fuel Standard (LCFS) (Title 17, CCR, §§ 95480 through 95490) requires regulated parties to report the carbon intensity (CI) of all fuels sold in California to the Air Resources Board (ARB).<sup>1</sup> Fuel CIs may be obtained in one of two ways:

- **Method 1:** Regulated parties may use a CI from the LCFS Lookup Table<sup>2</sup>, as long as their fuels were produced using a production pathway that is consistent with the production pathway behind the CI they wish to use. The website links of the LCFS pathways are provided at the end of this section.
- **Method 2:** Regulated parties may apply for a new fuel pathway that reflects their specific fuel production processes. Completing this application form is the first step in the method 2 application process.

Users of either Method 1 or Method 2 are encouraged to register their CIs through the LCFS Biofuel Producer Registration Program. Registration is a voluntary process that helps fuel buyers find the fuels they need for LCFS compliance, and it facilitates the compliance reporting process. Registered producers and the fuels they offer are listed on the Registration website, and are included in a drop-down list of sellers in the LCFS Reporting Tool (LRT). To register, a producer:

- Fills out a brief form requesting information about the producer and the fuel produced;
- Signs a statement affirming the accuracy of the information provided in the form, and;
- Provides evidence of the existence of a physical pathway by which the fuel can be transported from its point of production to California.

Applicants for a Method 2 pathway must complete the application form that begins on page 8 of this document. Submittal of this form initiates the formal pathway evaluation process. Prospective applicants are encouraged to discuss their proposals with ARB staff prior to submitting a completed application form. The documentation that must be submitted along with this form is specified in Title 17, CCR, § 95486(f)(3)(C)1. Submission of an incomplete application packet will result in delays, which could lead to denial. A general list of the types of supporting information that must be submitted with a 2A-2B application appears in Section I of this application form.

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<sup>1</sup> As specified in Title 17, CCR, § 95480.1, the LCFS applies to most transportation fuels sold in California. Some fuels are deemed to have already complied with the regulation, but may "opt in" to earn credits. A few others are specifically exempted.

<sup>2</sup> As specified in Title 17, CCR, § 95486 (b)(1). "Table 6. Carbon Intensity Lookup Table for Gasoline and Fuels that Substitute for Gasoline"; and "Table 7. Carbon Intensity Lookup Table for Diesel and Fuels that Substitute for Diesel."

The full Method 2 application process is described in detail in a document entitled *Establishing New Fuel Pathways under the California Low Carbon Fuels Standard*. It is available on the LCFS website:

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

The life cycle 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/2a2b/2a-2b-apps.htm>

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

Applicants may designate portions of their submittals as confidential business information (CBI). All information so designated will be treated in accordance with Title 17, CCR, §§ 91000-91022 and the California Public Records Act. The decision to designate portions of a packet as CBI should take into consideration 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.

#### IV. COMPANY INFORMATION

|  |  |
|--|--|
| <b>Application Submission Date: June 17, 2013</b>  |  |
| Company Name:<br>Clean Energy Renewable Fuels, LLC   |  |
| Mailing Address:<br>3020 Old Ranch Parkway, Suite 400  |  |
| City:<br>Seal Beach  |  |
| State / Province:<br>CA  | Postal/Zip Code:<br>90740                    |
| Country (if outside of the U.S.):  |  |
| Contact Person:<br>Harrison Clay   |  |
| Title:<br>President, Clean Energy Renewable Fuels  |  |
| Phone:<br>562-493-7231   | Fax:<br>562-430-8594                         |
| Mobile Phone:  | Email Address:<br>hclay@cleanenergyfuels.com |
| Company Website URL:<br><a href="http://www.cleanenergyfuels.com">www.cleanenergyfuels.com</a> |  |
| U.S. EPA Company ID:<br>NA   |  |

## V. FACILITY INFORMATION

| Facility No | Facility Name                         | Facility Address                         | City         | Zip Code | State or Province | Country |
|-------------|---------------------------------------|--|--------------|----------|-------------------|---------|
| 1           | Cedar Hills Landfill, Bio-Energy, LLC | 16650 228 <sup>th</sup> Avenue Southeast | Maple Valley | 98038    | WA                | USA     |
| 2           | Boron LNG Plant                       | 14436 Contractor Rd.                     | Boron        | 93516    | CA                | USA     |
| 3           | Clean Energy CNG Fueling Stations     | See Attached Appendix                    |              |          |                   | USA     |

## V. FACILITY INFORMATION (Cont'd)

| Facility No | Contact Person Name | Title                            | Phone/Fax      | Mobile Phone   | Email                          | US/EPA Facility ID | Nameplate Capacity (MGY) |
|-------------|---------------------|----------------------------------|----------------|----------------|--------------------------------|--------------------|--------------------------|
| 1           | Ron Earnest         | Plant Manager                    |                | (425) 577-8153 | rearnest@bioenergy-wa.com      | NA                 | 15.5                     |
| 2           | Tim Montalbano      | Plant Manager                    | (760) 762-5179 | (619) 517-1080 | tmontalbano@cleanenergyfuels.c | NA                 | 58.4                     |
| 3           | Nicholas Lumpkin    | Director of Business Development |                | (562) 343-0719 | nlumpkin@cleanenergyfuels.com  | NA                 |                          |

**Note:** If you have more than three facilities, please attach extra sheets.

## VI. CONSULTANT INFORMATION

|  |   |
|--|---|
| <b>Consultant's Name:</b><br>Jeffrey Rosenfeld           |   |
| <b>Position/Title:</b><br>Manager                        |   |
| <b>Consultant Company Address:</b><br>ICF International  |   |
| <b>City:</b><br>San Jose                                 |   |
| <b>State / Province:</b><br>CA                           | <b>Postal/Zip Code:</b><br>95115                    |
| <b>Phone:</b><br>(408) 216-2818                          | <b>Fax:</b>   |
| <b>Mobile Phone:</b><br>(408) 813-6734                   | <b>Email Address:</b><br>jeffrey.rosenfeld@icfi.com |
| <b>Consultant's Company Website URL:</b><br>www.icfi.com |   |

## VII. PATHWAY INFORMATION

|  |  |
|--|--|
| a. Enter pathway application type. Applicants are encouraged to discuss their pathway application types with ARB staff before completing this section. Please check one box only.  |  |
| <input type="checkbox"/> Method 2A: Pathway  | <input checked="" type="checkbox"/> Method 2B: New Pathway |
| b. Please provide a brief description of the proposed pathways, emphasizing the important innovations and/or distinctive characteristics associated with the proposed pathway or sub-pathway. All proposed Method 2A or 2B pathways must be listed in part VIII.   |  |
| BioEnergy Washington converts landfill gas into pipeline quality natural gas, injects the gas into the pipeline, transports the gas to California where it is converted to CNG and LNG (at Clean Energy's Boron LNG plant). The process uses pressure swing adsorption commonly used in the U.S. Sulfur waste products to remove carbon dioxide. |  |

### VIII. METHOD 2 PATHWAY INFORMATION

1. For Method 2A applications, enter all reference pathway information. The "reference pathway" is the existing fuel pathway to which the proposed new sub-pathway is most closely related. The carbon intensity (CI) of the proposed pathway described in this application must be lower by at least 5 gCO<sub>2</sub>e/MJ than the carbon intensity of the reference pathway. Show all pathway information exactly as it appears in the LCFS Lookup Table. If you have more than five reference or proposed pathways, please attach extra sheets.

**Reference Pathway(s):**

| Fuel Type | Pathway ID | Brief Pathway Description | Carbon Intensity (CI) Values (gCO <sub>2</sub> e/MJ) |                                   |                 |
|-----------|------------|---------------------------|--|-----------------------------------|-----------------|
|           |            |                           | Direct Emissions                                     | Land Use or Other Indirect Effect | Total CI Values |
|           |            |                           |  |                                   |                 |
|           |            |                           |  |                                   |                 |
|           |            |                           |  |                                   |                 |
|           |            |                           |  |                                   |                 |
|           |            |                           |  |                                   |                 |

**VIII. METHOD 2 PATHWAY INFORMATION (Cont'd)**

2. Enter the proposed fuel pathway information in the following table. The carbon intensity (CI) of the proposed pathway described in this Method 2A or 2B application must be lower by at least 5 gCO<sub>2</sub>e/MJ than the carbon intensity of the reference pathway identified in item 1 above.

**Proposed Pathway(s):**

| Fuel Type  | Brief Pathway Description  | Carbon Intensity (CI) Values (gCO <sub>2</sub> e/MJ) |                                   |                 |
|------------|--|--|-----------------------------------|-----------------|
|            |  | Direct Emissions                                     | Land Use or Other Indirect Effect | Total CI Values |
| LFG to LNG | LFG will be processed, cleaned and pressurized into the pipeline, transported the Boron LNG Plant, liquefied and distributed within California.  | 18.14  | -                                 | 18.04           |
| LFG to CNG | LFG will be processed, cleaned and pressurized into the pipeline, transported California and compressed for distribution at existing CNG fueling stations. (See Fueling Stations Appendix) | 13.67  |                                   | 13.67           |
| LFG to LNG | LFG will be processed, cleaned and pressurized into the pipeline, transported to the Boron LNG Plant, liquefied and distributed within California but dispensed as vaporized CNG           | 20.23  |                                   | 20.23           |
|            |  |  |                                   |                 |
|            |  |  |                                   |                 |

3. Compositional differences (if any) between the fuel produced by the new proposed pathway or sub-pathway and the reference pathway identified in item 1 above.

There will be no difference in the composition between CNG/LNG made from LFG and CNG/LNG made from NAM pipeline gas.

**IX. PATHWAY SUPPLEMENTAL QUESTIONS**

| Annual volume of fuel produced using the proposed new pathway that would enter the California market (MGY):<br>23.2 million gallons/yr of LNG produced at Boron and/or 15 million GGEs/year  |  |                                |                          |                    |                  |                    |                  |                       |                  |
|--|--|--------------------------------|--------------------------|--------------------|------------------|--------------------|------------------|-----------------------|------------------|
| If the facility is not currently operating at full production capacity, when is full operational capacity expected?  |  |                                |                          |                    |                  |                    |                  |                       |                  |
| Does the applicant expect this volume to be achieved by a single or by multiple facilities?  |  |                                |                          |                    |                  |                    |                  |                       |                  |
| <input checked="" type="checkbox"/> A Single Facility  | <input type="checkbox"/> Multiple Facilities |                                |                          |                    |                  |                    |                  |                       |                  |
| If the applicant expects this volume to be achieved by multiple facilities, would all facilities be owned by a single firm?  |  |                                |                          |                    |                  |                    |                  |                       |                  |
| <input type="checkbox"/> A Single Firm   | <input type="checkbox"/> Multiple Firms      |                                |                          |                    |                  |                    |                  |                       |                  |
| Lower Heating Value (LHV) of the fuel to be produced from the new pathway (MJ/gal):<br>74,720 Btu/LNG gallon at Boron; 116,090 Btu/CNG Gasoline Gallon Equivalents (GGEs)  |  |                                |                          |                    |                  |                    |                  |                       |                  |
| 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.   |  |                                |                          |                    |                  |                    |                  |                       |                  |
| <table border="1" style="margin: auto; border-collapse: collapse;"> <thead> <tr style="background-color: #add8e6;"> <th style="padding: 5px;"><i>Production Volume Range</i></th> <th style="padding: 5px;"><i>Fuel Volume (MGY)</i></th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;"><i>Lower Bound</i></td> <td style="padding: 5px;">10.0 million G/Y</td> </tr> <tr> <td style="padding: 5px;"><i>Upper Bound</i></td> <td style="padding: 5px;">23.2 million G/Y</td> </tr> <tr> <td style="padding: 5px;"><i>Average Volume</i></td> <td style="padding: 5px;">16.5 million G/Y</td> </tr> </tbody> </table> |  | <i>Production Volume Range</i> | <i>Fuel Volume (MGY)</i> | <i>Lower Bound</i> | 10.0 million G/Y | <i>Upper Bound</i> | 23.2 million G/Y | <i>Average Volume</i> | 16.5 million G/Y |
| <i>Production Volume Range</i>   | <i>Fuel Volume (MGY)</i>                     |                                |                          |                    |                  |                    |                  |                       |                  |
| <i>Lower Bound</i>   | 10.0 million G/Y                             |                                |                          |                    |                  |                    |                  |                       |                  |
| <i>Upper Bound</i>   | 23.2 million G/Y                             |                                |                          |                    |                  |                    |                  |                       |                  |
| <i>Average Volume</i>  | 16.5 million G/Y                             |                                |                          |                    |                  |                    |                  |                       |                  |
| 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.   |  |                                |                          |                    |                  |                    |                  |                       |                  |
| This facility is located on an existing landfill site in Washington. No LUC is calculated in this submittal  |  |                                |                          |                    |                  |                    |                  |                       |                  |
|  |  |                                |                          |                    |                  |                    |                  |                       |                  |

## X. APPLICANT SUBMITTAL CHECKLIST

|  |   |
|--|---|
| <p>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 confidential business information (Title 17, CCR, § 95486(f)(3)(B)1). Check that box if the submittal category contains any information the applicant considered to be a trade secret. In the actual submittal, the specific information falling into the confidential business information category must be clearly marked. Additional information regarding the submission of trade secrets can be found in the Instructions above.</p> |   |
| <input checked="" type="checkbox"/>  | Pathway life cycle analysis report (required).<br><br><input checked="" type="checkbox"/> <i>Includes confidential business information</i>   |
| <input checked="" type="checkbox"/>  | CA-GREET model results (please submit the CA-GREET spreadsheet) (required).<br><br><input checked="" type="checkbox"/> <i>Includes confidential business information</i>  |
| <input checked="" type="checkbox"/>  | All operating permits issued by the local air pollution control authority (required).   |
| <input checked="" type="checkbox"/>  | 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).<br><br><input type="checkbox"/> <i>Includes confidential business information</i>  |
| <input checked="" type="checkbox"/>  | 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).<br><br><input checked="" type="checkbox"/> <i>Includes confidential business information</i> |
| <input checked="" type="checkbox"/>  | Equipment technical specifications.<br><br><input checked="" type="checkbox"/> <i>Includes confidential business information</i>  |
| <input checked="" type="checkbox"/>  | Production process schematics, technical drawings flow diagrams, maps, or other graphical representations (other than/in addition to the required process flow diagram).<br><br><input checked="" type="checkbox"/> <i>Includes confidential business information</i>   |
| <input checked="" type="checkbox"/>  | Engineering reports.<br><br><input checked="" type="checkbox"/> <i>Includes confidential business information</i>   |
| <input type="checkbox"/>   | Technical papers or journal articles<br><br><input type="checkbox"/> <i>Includes confidential business information</i>  |

**X. APPLICANT SUBMITTAL CHECKLIST (Cont'd)**

|   |   |
|---|---|
| <input type="checkbox"/>                                    | Emissions monitoring data or emissions modeling results.<br><br><input type="checkbox"/> <i>Includes confidential business information</i>  |
| <input checked="" type="checkbox"/>                         | Spreadsheets, data files, and similar files documenting the calculations behind the fuel life cycle analysis.<br><br><input checked="" type="checkbox"/> <i>Includes confidential business information</i>                      |
| <input checked="" type="checkbox"/>                         | All operating permits issued by the local air pollution control authority (required).   |
| <input checked="" type="checkbox"/>                         | Other: In the space below, describe any additional submittals. Rationales for documents submitted or omitted may also be provided.<br><br><input checked="" type="checkbox"/> <i>Includes confidential business information</i> |
| LNG plant production data for Boron LNG plant - spreadsheet |   |

**XI. APPLICANT DISCLOSURE**

|  |   |
|--|---|
| <p>By my signature below, I confirm that, to the best of my knowledge, the fuel pathway CI for which I am applying accurately reflects the actual pathway CI for that fuel, and that I will only label fuel volumes with this CI when the actual CI is equal to or less than the approved LCFS pathway CI.</p> <p><b><i>Instructions:</i></b> Please complete the "Name," "Title," and "Date" fields below. Then print, sign, and scan only this page. The completed application form and separate signed "Applicant Disclosure" page can then be submitted electronically to ARB.</p> |   |
| Name: Harrison Clay  | Title: President, Clean Energy Renewable Fuel |
| Signature:    | Date: June 17, 2013                           |