

Staff Summary
Method 2A Application
Heron Lake BioEnergy, LLC
Corn Ethanol (ETHC091)

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Certified Date: January 9, 2014

Pathway Summary

Heron Lake BioEnergy, LLC (HLBE) produces ethanol from corn at a dry mill plant in Heron Lake, Minnesota. The HLBE plant has a nameplate capacity of 50 million gallons per year of denatured ethanol. The plant was originally fueled by coal but was converted to natural gas in 2010. The natural gas combustor is equipped with a Heat Recovery Steam Generator (HRSG) supplies steam to support ethanol production. Currently, the applicant reports that the majority of the DGS it produces is dry DGS. Some small amount of corn oil (about 3 percent of total co-product) is also produced. However, HLBE is applying for a Method 2A corn-based ethanol fuel pathway with a 100 percent dry DGS pathway with a moisture content of approximately 12 percent¹.

Carbon Intensity of Ethanol Produced

As shown in Table 1, the applicant has calculated the CI of its corn ethanol pathway to be 88.69 gCO₂e/MJ. Proposed Method 2A pathways must be evaluated against reference pathways from the LCFS Lookup table. Although a Method 2A pathway must be very similar to its reference pathway, it must achieve at least a five gram CO₂e/MJ CI improvement over that pathway.² The reference pathway for HLBE's corn pathways is ETHC004 at 98.4gCO₂e/MJ (Midwest dry mill, natural gas, dry DGS corn pathway, respectively). The HLBE corn ethanol pathway improves upon their reference pathway CI by more than the requisite five grams of CO₂e/MJ.

¹ Applicant stated that it produces mostly Dry DGS and the dryers continuously are in operation. The energy data from invoices reflects this operation.

² In the LCFS regulation, this 5 gCO₂e/MJ threshold is referred to as the "substantiality requirement."

Table 1: Proposed Lookup Table Entries

Fuel	Pathway Identifier	Pathway Description	Carbon Intensity in gCO ₂ e/MJ (Including Indirect Effects)		
			Direct Emission	Land Use or Other Indirect Effect	Total
Ethanol from Corn	ETHC091	2A Application: (Specific Conditions Apply) Midwest; Dry Mill; Dry DGS; NG	58.69	30	88.69

Operating Conditions

Certification of the pathway described herein will be subject to the following operating conditions:

- All gallons produced under all certified LCFS Method 2 pathways shall inherit the same CI increment from the consumption of process energy at the plant. The applicants may not allocate process energy CIs so as to reduce the total life cycle CI of some subset of the gallons produced (e.g., those being shipped to California) and increase the CI of the remaining gallons. An example of such a reallocation would be associating California-bound gallons with the consumption of biogas and non-California-bound gallons with the consumption of natural gas.
- HLBE’s pathway CIs are based on ethanol production yield and DGS yield that are different from the default yield value on which the LCFS reference pathways are based.³ These yields must be maintained such that the pathway CI remains at or below the CI certified under this pathway. Yields may be calculated using any accounting period up to and including one year, and may exclude periods of abnormal operations, such as planned maintenance or unpredictable, unavoidable, and uncontrollable *force majeure* events. Should one or both of these yields change significantly, HLBE shall not sell the volumes associated with those changed yields to California under the pathways described in this Staff summary.
- Total pathway-specific thermal or electrical energy use values, as reported in the HLBE Method 2A application, may be exceeded only if the actual production CI remains at or below the LCFS-certified CI. These process energy consumption values are classified by the applicant as confidential business information. Pathway-specific energy use values may be calculated using any accounting period up to and including one year, and may exclude uncontrollable *force majeure* events.

In order for HLBE to sell ethanol in California under the CI appearing in Table 1, these three conditions must be met for every gallon sold.

³ HLBE’s ethanol and DGS yields values are classified as confidential business information and not reported herein.

Staff Analysis and Recommendation

Staff has reviewed the HLBE application and has replicated, using the CA-GREET spreadsheet, the carbon intensity values calculated by HLBE. HLBE has provided documentation verifying the plant's thermal and electrical energy use. The operational information provided by the applicant indicates that the plant is capable of reliably producing ethanol at or below the CIs appearing in Table 1. Therefore, staff recommends that the HLBE application for a Method 2A corn ethanol pathway be approved, subject to the operating conditions established in this Staff summary.