

**Louis Dreyfus Commodities
Elkhorn Valley Ethanol, LLC; Norfolk, Nebraska
LCFS Method 2A Application Pathway Summary**

*Deemed complete Date: May 29, 2013
Certified and Posted Date: August 1, 2013*

Plant Summary

Elkhorn Valley Ethanol, LLC (EVE) operates a corn ethanol plant in Norfolk, Nebraska. The EVE plant has applied for two Method 2A fuel pathways under the California Low Carbon Fuel Standard (LCFS). The EVE plant began operations in 2007. It is an ICM-designed facility with a nameplate capacity of 53 million gallons per year (MGY) of denatured ethanol. The plant is a Midwest, dry mill, natural gas-fired facility producing dry distillers' grains with solubles (DDGS) and modified distillers' grains with solubles (MDGS). Approximately 15 percent of the DGS produced is DDGS, while the remaining 85 percent is MDGS. EVE applied for a Method 2A fuel pathway under the LCFS in November of 2010. In December of 2010, staff assigned the EVE pathway an LCFS identification code of ETHC022, and recommended it for approval at a carbon intensity (CI) of 87.16 gCO₂e/MJ.¹ In April of 2013, EVE applied for two new pathways—one associated with its DDGS production and one associated with its MDGS production. Upon approval of these pathways, the existing pathway ETHC022 will be discontinued. These new pathways are described below.

Carbon Intensity of Ethanol Produced

As shown in Table 1, the applicant is applying for two new pathways with carbon intensities (CIs) of 90.86 gCO₂e/MJ and 83.87 gCO₂e/MJ. These CIs reflect the energy consumed for the production of ethanol associated with dry and modified DGS respectively. Proposed method 2A pathways must be evaluated against a reference pathway from the LCFS Lookup table. Under the LCFS, the reference pathway for corn ethanol associated with any level of DGS drying is the most similar dry DGS pathway. The reference pathway for both EVE pathways, therefore, is the Midwestern, dry mill, gas-fired, dry DGS pathway, which has a CI of 98.40 gCO₂e/MJ. The production process for the proposed pathways must not differ significantly from the production process specified for the reference pathway. The proposed Method 2A pathway CIs must also improve upon the reference pathway CI by five or more gCO₂e/MJ.²

EVE achieves lower carbon intensity values relative to the reference pathways through efficiently designed production processes which reduce energy consumption. Thermal energy use at the EVE plant is below the 32,330 Btu per

¹ This and all staff-approved LCFS pathways are posted to <http://www.arb.ca.gov/fuels/lcfs/2a2b/2a-2b-apps.htm>

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

gallon energy use value that forms the basis of the carbon intensity for the reference pathway. Electricity use at the EVE plant is also below the level assumed for the reference pathway (1.08 kW-hr per gallon).³

Staff recommends approval of the EVE application subject to the following operating conditions:

- The total pathway-specific thermal energy consumption and electrical process energy consumption shall not exceed the values reported in the EVE Method 2A application.⁴ These 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.
- The total ethanol yield shall not be less than the value reported in the EVE Method 2A application. These values are classified by the applicant as confidential business information. Pathway specific ethanol yield values may be calculated using any accounting period up to and including one year.
- Louis Dreyfus Elk Horn Valley shall only sell ethanol to California buyers under this pathway if that ethanol is associated with either 100 percent dry DGS, or 100 percent modified DGS.

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

Table 1. Proposed Lookup Table Entries for the Elkhorn Valley Ethanol Plant

Fuel	Pathway Identifier	Pathway Description	Carbon Intensity Values (gCO ₂ e/MJ)		
			Direct Emissions	Land Use or Other Indirect Effect	Total
Ethanol from corn	ETHC076	2A Application*: Midwest; Dry Mill; Dry DGS; NG	60.86	30	90.86
	ETHC077	2A Application*: Midwest Dry Mill; Modified DGS; NG	53.87	30	83.87

*Specific conditions apply.

Staff Analysis and Recommendation

Staff has reviewed the EVE application and has replicated, using the CA-GREET spreadsheet, the carbon intensity values calculated by EVE. EVE has provided documentation of the plant’s thermal and electrical energy use. Staff is satisfied

³ Actual plant energy use values are classified as confidential business information and not reported herein.

⁴ Compliance with values not to be exceeded or not to be less than will be based on monthly, quarterly, or annual average values as determined by operational conditions. Calculation of the average values can exclude periods of abnormal operations, such as planned maintenance or force majeure events.

that the energy values presented in the application accurately represent the plant's actual thermal and electrical energy consumption. Staff believes that EVE is capable of maintaining operations at or below these CI levels. Consequently, Staff believes that the carbon intensity values of 90.86 gCO₂e/MJ for the dry DGS and 83.87 gCO₂e/MJ for the modified DGS pathways accurately represent the carbon intensity values of the ethanol produced at the EVE plant. Therefore, staff recommends that the EVE application for Method 2A corn ethanol pathways be approved. Staff further recommends that both the new pathways (ETHC076 and ETHC077) take effect on the date they are posted to the public LCFS Method 2 website, and apply solely to fuel volumes sold on and after that date.