Fuel Pathway Staff Summary
Nebraska Corn Processing, LLC at Cambridge, Nebraska

May 17, 2013

Plant Summary

Nebraska Corn Processing, LLC (NCP) produces ethanol from corn and a small amount of wheat flour (about 0.02% of total feedstock) at a dry mill plant in Cambridge, Nebraska. The flour, which was used on a trial basis, has a negligible effect on the pathway CI and is ignored in the application. The plant has applied for a Method 2A pathway under the California Low Carbon Fuel Standard (LCFS). The Cambridge plant is an ICM-designed facility with a nameplate capacity of 44 million gallons per year of denatured ethanol. The plant is a natural gas-fired facility producing only wet distiller's grains with solubles (DGS). No energy is therefore used to dry the DGS produced.

Carbon Intensity of Ethanol Produced

As shown in Table 1, the applicant is applying for an LCFS Method 2A pathway with a carbon intensity (CI) of 83.64 gCO_2e/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 CO_2e/MJ CI improvement over that pathway.[1] The reference pathway for NCP's proposed pathway is the Midwest dry mill, natural gas, wet DGS pathway, having a CI of 90.1 gCO_2e/MJ. The NCP pathway improves upon the reference pathway CI by more than the requisite five grams of CO_2e/MJ.

This CI improvement was made possible by the plant's efficient design. ICM Inc. designed the Cambridge plant to achieve reductions in both thermal and electrical energy consumption. As a result, it improves upon both the thermal and electrical energy consumption levels assumed for the reference pathway (22,430 BTU per gallon thermal energy use and 1.08 kW-hr per gallon for the wet DGS pathway).[2]

[1] In the LCFS regulation, this 5 gCO_2e/MJ threshold is referred to as a "substantiality requirement."
[2] Actual plant energy use values are classified as confidential business information and not reported herein.

Table 1: Proposed Lookup Table Entries

Fuel	Pathway Identifier	Pathway Description	Carbon Intensity in gCO_2e/MJ (Including Indirect Effects)		
			Direct Emission	Land Use or Other Indirect Effect	Total
Ethanol	ETHC080	2A Application (Specific Conditions Apply): Midwest; Dry Mill; Wet DGS; NG	53.64	30	83.64

Operating Conditions– Nebraska Corn Processing, LLC (Cambridge, NE)

Staff recommends approval of the NCP application subject the following operating conditions:

- Because no LCFS pathway for wheat flour-based ethanol has been approved, NCP shall not increase the proportion of wheat flour in its feedstock stream above the 0.02% as specified in the application. Should the proportion of wheat flour processed rise above this level, NCP shall not sell the ethanol associated with those changed feedstock proportions in California using the pathway described in the NCP Method 2A application.
- The total pathway-specific thermal and electrical energy use (BTU/gal) values reported in the NCP Method 2A application shall not be exceeded[3]. 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.
- Nebraska Corn Processing, LLC shall only sell ethanol to California buyers under this pathway if that ethanol is associated with 100 percent wet DGS. Any volumes associated with any level of DGS drying shall not be sold under this pathway in California.

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

Staff Analysis and Recommendation

Staff has reviewed the Nebraska Corn Processing, LLC application and has replicated, using the CA-GREET spreadsheet, the carbon intensity value calculated by NCP. NCP has provided documentation verifying the plant's thermal and electrical energy use. Staff is satisfied that the energy values presented in the application accurately represent

[3] Compliance with the "not-to-exceed" values 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, and the facility may use grid electricity during such periods.

the plant's actual thermal and electrical energy consumption. Staff believes that NCP-Cambridge will be capable of maintaining the carbon intensity values appearing in Table 1. Consequently, staff believes that the carbon intensity value of 83.64 gCO_2e/MJ accurately represents the carbon intensity value of ethanol volumes associated with wet DGS produced at the Cambridge plant. Therefore, staff recommends that the NCP's application for a Method 2A corn ethanol pathway be approved.