

ARB Staff Summary:

Siouxland Energy and Livestock Cooperative, Sioux Center, Iowa Corn Ethanol Dry Mill LCFS Pathway ETHC066 Carbon Intensity Adjustment

May 17, 2013

Pathway Summary

Siouxland Energy and Livestock Cooperative (Siouxland) operates a corn ethanol plant in Sioux Center, Iowa. The plant, which has a capacity of 60 million gallons per year, is a dry mill, natural-gas-fired facility which produces a single co-product: wet distillers grains with solubles (WDGS). Siouxland applied for a Method 2A fuel pathway under the California Low Carbon Fuel Standard (LCFS) in December of 2010. In January of 2011, staff assigned Siouxland's pathway an LCFS identification code of ETHC066, and recommended it for approval at a carbon intensity (CI) of 82.34 gCO₂e/MJ.¹

In April of 2013, Siouxland requested that its pathway CI be reduced to 80.78 gCO₂e/MJ, citing an error in the natural gas heating value used to calculate the pathway CI. At the time the original application was submitted, the applicant believed that the energy amounts shown on the invoices from the natural gas supplier were lower heating values (LHV). The applicant has since confirmed that they were actually gross or higher heating values (HHV). Recalculating the pathway CI using the LHV reduced Siouxland's CI to 80.78 gCO₂e/MJ. This ARB Staff Summary updates the original Siouxland Energy and Livestock Staff Summary, but incorporates by reference all sections of that Summary except the pathway carbon intensity value sought by the applicant.

Carbon Intensity of Ethanol Produced

The applicant provided a signed letter from its natural gas supplier stating (a) that the heating values shown on its invoices were "gross" heating values, and (b) that the industry-standard method for converting gross heating values to lower heating values is to divide them by 1.11. The applicant used this method to convert the heating value of the natural gas its plant consumed to a LHV basis. Using the resulting LHV to recalculate its pathway CI produced a value of 80.78 gCO₂e/MJ for pathway ETHC066.

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

The use of the correct natural gas heating value has the effect of reducing the amount of natural gas used per gallon of ethanol produced by an amount the applicant specifies as confidential. Siouxland has provided a signed letter confirming that current and anticipated future plant operations are consistent with the operations described in the original application posted on the ARB website (please see footnote 1 for the URL). The operating conditions placed on the Siouxland plant in the original ETHC066 Staff summary will therefore remain in effect. Those conditions are as follows:²

1. Thermal energy and electricity use shall not exceed the current values that are classified by the applicant as confidential business information.
2. Condition 1, above, effectively limits Siouxland to the production of only WDGS for the ethanol sold into the California market (drying any of its DGS co-product will increase energy consumption and carbon intensity beyond the values specified in the company's Method 2A application).

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	ETHC066	2A Application (Specific Conditions Apply): Midwest; Dry Mill; Wet DGS; NG	50.78	30	80.78

Staff Analysis and Recommendation

Staff has replicated, using the CA-GREET 1.8b spreadsheet, the reduced carbon intensity of 80.78 gCO₂e/MJ requested by Siouxland for Pathway ETHC066. Siouxland has confirmed that its plant is capable of continuing to operate at that CI. On the basis of these findings, and subject to the conditions in this summary, staff recommends that Siouxland's application for a CI of 80.78 gCO₂e/MJ for pathway ETHC066 be approved. Staff further recommends that this adjusted CI

² 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.

take effect on the date it is posted to the public LCFS Method 2 web site, and apply solely to fuel volumes sold on and after that date.