

**Staff Summary
Method 2A Application
Dakota Ethanol, LLC
Corn Ethanol
(Pathway Code: ETHC102 and ETHC103)**

Deemed Complete Date: December 8, 2014
Posted for Comment Date: February 5, 2015
Certified Date: February 16, 2015

Plant Summary

Dakota Ethanol, LLC (Dakota Ethanol) produces ethanol from corn at a dry mill plant located in Wentworth, South Dakota. Dakota Ethanol has applied for two Method 2A pathways for its plant under the California Low Carbon Fuel Standard (LCFS). The first is a prospective pathway that reflects a planned plant expansion and upgrade, and the second pathway reflects current operating conditions. The prospective pathway will cover an expansion from 40 to 60 million gallons per year of undenatured ethanol. However, the plant currently produces about 40 million gallons per year of undenatured ethanol. This plant simultaneously produces a combination of wet distiller's grains with solubles (WDGS), modified distiller's grains with solubles (MDGS), and dried distiller's grains with solubles (DDGS). Dakota Ethanol also produces corn oil as both a livestock feed supplement and a biodiesel feedstock. The CIs of both pathways, however, reflect plant-specific energy use for all levels of DGS drying. The GHG emissions associated with the electricity used at the plant were estimated using the midwest grid electricity energy mix from CA-GREET 1.8b. Ethanol from the Dakota plant is shipped by rail to California.

Carbon Intensity of Ethanol Produced

As shown in the table below, the applicant is applying for two pathway CIs. As long as these CI values are not exceeded, they may be used to report transactions involving volumes from Dakota Ethanol, regardless of the proportions of WDGS, MDGS, and DDGS being produced. 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 the reference pathway.¹ The reference pathway for Dakota Ethanol's proposed Method 2A pathway is the Midwest dry mill, dry DGS, natural gas pathway (ETHC004) with a CI value of 98.4 gCO₂e/MJ. This reference value also applies to MDGS pathways. The Dakota Ethanol pathway improves upon its reference pathway CI by more than the requisite five grams of CO₂e/MJ.

¹ In the LCFS regulation, this 5 gCO₂e/MJ threshold is referred to as the "substantiality requirement."

Proposed Lookup Table Entries

Fuel	Pathway Identifier	Pathway Description	Carbon Intensity Values (gCO ₂ e/MJ)		
			Direct Emissions	Land Use or Other Indirect Effects	Total
Ethanol from Corn	ETHC102	2A Application*: Midwest; Dry Mill; Mixed DGS (Wet, Modified, and Dry); With Efficiency Upgrade; No Lime; NG	50.21	30	80.21
	ETHC103	2A Application*: Midwest; Dry Mill; Mixed DGS (Wet, Modified, and Dry); Without Efficiency Upgrade; No Lime; NG	55.96	30	85.96

* Specific Conditions Apply.

Operating Conditions

Operations at the plant will be subject to the following conditions designed to ensure that the CI of the of the Dakota Ethanol pathway will remain at or below the values appearing in the table above. These conditions must be met for every gallon sold in California:

1. No conditions are placed on the amounts of electricity and natural gas consumed and the ethanol yield at the Dakota ethanol plant, so long as the CIs reported in the above table are not exceeded. For purposes of determining compliance with this operating condition, the plant's CI will be calculated based on data from the most recent 12 months of operation, excluding periods of abnormal operations, such as planned maintenance or unpredictable, unavoidable, and uncontrollable force majeure events. The plant's thermal and electrical energy use, and ethanol yield values are classified by the applicant as confidential business information.
2. As long as both pathway CIs (80.21 and 85.96 gCO₂e/MJ) are not exceeded, fuel pathway codes (FPCs) ETHC102 and ETHC103 may be used to report transactions involving volumes from Dakota Ethanol, regardless of the proportions of WDGS, MDGS, and DDGS the plant produces.
3. No more than two percent of the feedstock corn used to produce ethanol at the Dakota plant can be grown on fields on which lime (or other pH-management soil conditioner) has been applied. This operating condition applies to all gallons produced at the Dakota Ethanol plant, regardless of where those gallons are sold. Corn grown in the counties in the immediate vicinity of the Dakota Ethanol plant can be used to produce ethanol under the ETHC102 and ETHC103 FPCs, so long as it is grown on soils with pH values equal to or greater than 5.0. The names of the counties in which these fields occur are classified by the applicant as confidential business information.

4. The CI appearing in the above table (FPC ETHC102) was based on projected, post-expansion plant energy consumption levels. Thermal and electrical energy consumption records covering a total of two years are required for LCFS Method 2 pathway application. Staff is able to prospectively certify the FPC ETHC102 pathway, however, on the condition that the applicant submit a full two-year data record covering all production and all operations at the plant. Dakota Ethanol will, therefore, submit energy consumption records no less frequently than every three months (quarterly) starting on the certification date of these pathways, until staff is in receipt of records covering a full two years of operations at its plant. If these records indicate that one or both of the certified CIs shown in the above table is lower or higher than the actual CI, staff may adjust the certified CI to reflect actual operations at the Dakota Ethanol plant.

Staff Analysis and Recommendations

Staff has reviewed the Dakota Ethanol Method 2A application and finds the following:

- Staff has replicated, using the CA-GREET1.8b spreadsheet, the carbon intensity values calculated by the applicant;
- Staff has concluded that the plant's actual energy consumption is not likely to exceed the energy consumption level specified in Dakota Ethanol's Method 2A application; and
- Staff has concluded that Dakota Ethanol is capable of operating the plant in a manner such that the ethanol yields are equal to or greater than the corresponding values specified in Dakota Ethanol's Method 2A application, and that compliance with the operating conditions above can be maintained.

On the basis of these findings, staff recommends that Dakota Ethanol application for a Method 2A pathways be certified.