

ARB Staff Summary:

Green Plains Central City LLC, Central City, Nebraska Corn Ethanol Dry Mill LCFS Pathway ETHC023 Carbon Intensity Adjustment

May 17, 2013

Pathway Summary

Green Plains Central City, LLC (Central City) operates a corn ethanol plant in Central City, Nebraska. The plant, which has a capacity of 48 million gallons per year, is a dry mill, natural-gas-fired facility which produces a single co-product: modified distiller's grains with solubles (MDGS). MDGS is a livestock feed product that is dried to an average moisture content of between 50 and 55 percent. Central City applied for a Method 2A fuel pathway under the California Low Carbon Fuel Standard (LCFS) in October of 2010. In December of 2010, staff assigned Central City's pathway an LCFS identification code of ETHC023, and recommended it for approval at a carbon intensity (CI) of 84.29 gCO₂e/MJ.¹

In April of 2013, Central City requested that its pathway CI be reduced to 82.17 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 Central City's CI to 82.17 gCO₂e/MJ. This ARB Staff Summary updates the original Green Plains Central City 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 82.14 gCO₂e/MJ for pathway ETHC023.

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. Central City 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 Central City plant in the original ETHC023 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 Central City to the production of DGS with a maximum moisture content of 55 percent for the ethanol sold into the California market (drying a higher proportion 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	ETHC023	2A Application (Specific Conditions Apply): Midwest; Dry Mill; Modified DGS; NG; Plant energy use not to exceed a value the applicant classifies as confidential	52.17	30	82.17

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.

Staff Analysis and Recommendation

Staff has replicated, using the CA-GREET 1.8b spreadsheet, the reduced carbon intensity of 82.17 gCO₂e/MJ requested by Central City for Pathway ETHC023. Central City 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 Central City's application for a CI of 82.17 gCO₂e/MJ for pathway ETHC023 be approved. Staff further recommends that this adjusted CI 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.