STAFF SUMMARY
Method 2A Application
Corn Ethanol from Dry Mill and Grain Sorghum Ethanol from Dry Mill Pathways
White Energy Hereford, LLC.
Hereford Texas
(Fuel Pathway Codes: ETHC078_1, ETHG008_1, ETHG017)

Date Deemed Complete: December 4, 2015
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Pathway Summary

White Energy Hereford, LLC (WEH) produces ethanol from corn and grain sorghum at a dry mill plant in Hereford, Texas. The plant has applied for three Method 2A pathways (one corn and two grain sorghum pathways) under the California Low Carbon Fuel Standard (LCFS). Two of the applications are revisions from prior applications (ETCH078 and ETHG008). WEH intends to update existent applications to reflect revisions to the lifecycle analysis. WEH also intends to add a new grain sorghum pathway application for grain sorghum grown with no added lime.

The WEH plant is an ICM-designed facility with a nameplate capacity of 100 million gallons per year of denatured ethanol. According to the Operating Permit (permit #75702) renewed October 27, 2015 by the Texas Commission on Environmental Quality, the plant can produce up to 120 million gallons of denatured ethanol per rolling twelve-month period. The plant is a dry mill, natural-gas-fired facility producing wet (65% moisture) distillers grains solubles (WDGS). As shown in Table 1, the three pathways proposed by WEH are differentiated by feedstock and the use of lime for grain sorghum farming.

Carbon Intensity (CI) of WEH Ethanol Pathways

As shown in Table 1, WEH is applying for three Method 2A ethanol pathways: the first from corn, the second from grain sorghum sourced from fields which use lime in cultivation, and the third from grain sorghum with no lime applied during cultivation. The applicant provided two years of natural gas and electricity invoices covering the months of January 2012 through August 2014. Using average energy consumption values calculated from these invoices and other facility-specific CA-GREET1.8b inputs, the applicant calculated a CI of 82.21 gCO2e/MJ, 81.01 gCO2e/MJ, and 79.79 gCO_2e/MJ for corn, grain sorghum with default lime, and grain sorghum grown with no lime, respectively. Two of the WEH pathways improve upon its reference pathway CI by more than the requisite five gCO_2e/MJ and therefore eligible to be certified as Method 2A pathways. WEH's grain sorghum with no lime application does not have a reference pathway.

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 the reference pathway.[1] The reference pathways for WEH's corn pathway is pathway ETHC004 (Midwest dry mill, natural gas, wet DGS pathway). The reference pathway for WEH's sorghum pathway is ETHG002 (Midwest dry mill, natural gas, wet DGS pathway).

Table 1: Proposed Lookup Table Entries

Fuel	Pathway Identifier	Pathway Description	Carbon Intensity Values (gCO_2e/MJ)		
			Direct Emissions	Land Use and Other Indirect Effects	Total
Ethanol from Corn	ETHC078_1	2A Application*: Midwest; Dry Mill; Wet DGS; NG	52.21	30	82.21
Ethanol from Grain sorghum	ETHG008_1	2A Application*: Midwest; Dry Mill; Wet DGS; NG	51.01	30	81.01
Ethanol from Grain sorghum	ETHG017	2A Application*: Midwest; Dry Mill; Wet DGS; NG; No Lime	49.79	30	79.79

*Specific Conditions Apply

Operating Conditions

Operations at the plant will be subject to the following operating conditions designed to ensure that the CI of the corn ethanol, grain sorghum ethanol with lime, and the grain sorghum ethanol without lime application produced at the Hereford plant will remain at or below the values appearing in Table 1 above.

- No conditions are placed on the amounts of electricity and natural gas consumed, the ethanol yield, or the type and yield of DGS produced at the Hereford plant, so long as the CI reported in the above table is 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,

[1] In the LCFS regulation, this 5 gCO_2e/MJ threshold is referred to as the "substantiality requirement."
[2] Note the nameplate capacity of the plant is on a denatured ethanol basis. The current permitted capacity is on an undenatured ethanol basis.

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.

- As long as each of the pathway CIs (Table 1) are not exceeded, fuel pathway codes (FPCs) ETHC078_1, ETHG008_1, ETHG017 may be used to report transactions involving volumes from the Hereford plant, regardless of the proportions of WDGS the plant produces.

- The commingled feedstock accounting method will be used to determine the CIs of mixed feedstock for Midwest corn and grain sorghum. Producers and regulated parties should use this approach to calculate the volumes based on weighted average of ethanol associated with each feedstock present in the finished fuel storage tank at any given time. Producers should be able to provide records that unequivocally associate specific quantities of feedstock with specific volumes of fuel produced. As volumes are added to and withdrawn from the tank, the volume of each feedstock-related CI will be adjusted to account for those additions and withdrawals. Commingled feedstock CI accounts for mixed-feedstock corn and grain sorghum must be directly determined over an accounting period of no more than a calendar quarter. That is, all volumes of fuel produced must be associated with a specific feedstock within a calendar quarter. Gallons will be associated with feedstocks based on the accepted yields for each fuel.

Staff Analysis and Recommendations

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

- Staff has replicated, using the CA-GREET1.8b spreadsheet, the carbon intensity value calculated by the applicant; and

- Staff has concluded that Hereford is capable of operating its plant in a manner such that the ethanol yield is equal to or greater than the corresponding value specified for each of the pathways in the Hereford Method 2A application, and that compliance with the operating conditions above can be maintained.

On the basis of these findings, ARB staff recommends that the White Energy Hereford (WEH) Method 2A LCFS application for one corn and two grain sorghum ethanol pathways be certified.