

ARB Staff Summary:

Archer Daniels Midland Columbus, Nebraska Corn Ethanol Dry Mill LCFS Pathway ETHC018 Carbon Intensity Reduction

April 09, 2013

Pathway Status Summary

The Archer Daniels Midland Company (ADM) operates a dry mill corn ethanol plant in Columbus, Nebraska. A portion of the approximately 400 million gallons per year of the plant's permitted capacity is sold in California under California's Low Carbon Fuel Standard (LCFS) Pathway ETHC018. Pathway ETHC018 was originally posted to the LCFS Method 2 web page with a carbon intensity (CI) of 90.11 gCO₂e/MJ in December of 2010. ADM subsequently requested a CI reduction to 89.80 gCO₂e/MJ based upon accumulated operational data (the Columbus plant began operations in mid-2010). That request was subsequently approved, resulting in the current CI of 89.80 gCO₂e/MJ for pathway ETHC018¹.

ADM submitted a second CI reduction request for pathway ETHC018 in August of 2012. ADM is requesting a CI of 87.11 gCO₂e/MJ based on better-than-expected operating efficiency. ARB staff has reviewed ADM's request and conditionally recommends that it be approved, as discussed in this summary.

Carbon Intensity of Ethanol Produced

The proposed reduced CI for Pathway ETHC018 is based upon lower energy use per gallon of ethanol produced. The total energy use was reduced per gallon of ethanol produced by amounts specified as confidential by the applicant, which resulted in the fuel ethanol obtaining a CI of 87.11 gCO₂e/MJ. Approval of ADM's current request would augment rather than replace the operating conditions currently established for Pathway ETHC018.¹ The augmented operating conditions² are listed below:

1. Plant energy use not to exceed a value the applicant classifies as confidential
2. No grid electricity use
3. Coal use not to exceed 70.57% of fuel use (by energy)

¹ <http://www.arb.ca.gov/fuels/lcfs/2a2b/apps/adm-col-15day-022112.pdf>

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, and the facility may use grid electricity during such periods.

4. Coal carbon content not to exceed a value the applicant classifies as confidential
5. All other factors affecting the ethanol CI must be maintained such that the CI remains less than or equal to 87.11 gCO₂e/MJ

In addition to these operational conditions staff verification of the proposed reduction is required. Following verification, staff will unconditionally recommend ADM's reduced CI for Executive Officer approval. ADM will assist staff in the verification process by providing the following information:

1. The applicant will supply all data required for staff verification of energy use by the dry mill plant using Pathway ETHC018 and the co-located cogeneration plant associated with that pathway. The cogeneration plant supplies process steam and electric power to both the dry mill plant and to facilities unrelated to pathway ETHC018. As a result, energy use under this pathway cannot be verified by analyzing energy use receipts as is done for the more typical dry mill corn ethanol case. The data required for this verification includes, but is not limited to, natural gas receipts, coal receipts, and steam and electrical power metered to the dry mill plant. If verification is not possible based solely on these data, the applicant will work with staff to identify and provide additional information, as necessary.
2. The DGS yield used by the applicant is higher than the calculated CA-GREET v1.8b³ value. The DGS yield that will be substantiated by the applicant, and the CA-GREET v1.8b calculated DGS yield are classified as confidential by the applicant. ADM will substantiate the claimed yield.
3. ADM will provide purchase receipts for the coal used to produce the fuel sold under ETHC018. Those receipts must verify the coal properties used to calculate the CI reduction for ETHC018.

If these conditions are met and ADM's proposed CI is verified, staff will unconditionally recommend for Executive Officer approval a CI of 87.11 gCO₂e/MJ for Pathway ETHC018. Upon Executive Officer approval, that CI will be incorporated into the Lookup Table in the LCFS Regulation.

Staff Analysis and Recommendation

- Staff has replicated, using the CA-GREET 1.8b spreadsheet, the carbon intensity values calculated by ADM for the reduced CI of Pathway ETHC018.
- ADM has agreed to provide data to verify the Columbus plant's energy use. As described in this document, this data consists of purchased energy receipts, metered flows to the dry mill plant and other information

³ http://www.arb.ca.gov/fuels/lcfs/ca_greet1.8b_dec09.xls

- necessary for an energy balance, considering the configuration of the co-located ADM facilities.
- ADM has agreed to provide substantiation for the higher DGS yield used to determine the CI of Pathway ETHC018. ARB staff will accept ADMs substantiation, but reserves the ability to request DGS receipts to verify the DGS yield regardless of any proposed substantiation method by ADM.
 - ADM has provided information that is sufficient to allow ARB staff to conditionally recommend for approval a CI of 87.11 gCO₂e/MJ for Pathway ETHC018.

On the basis of these findings, and subject to the conditions in this summary, staff recommends that ADM's application for the reduced CI of Pathway ETHC018 be conditionally approved.