

**STAFF SUMMARY**  
**Application for Certification of**  
**Corn Ethanol Dry Mill with DGS Co-Product Credit LCFS Pathways**  
**Bushmills Ethanol, Inc.**  
**Atwater, Minnesota**  
**(ETHC112 and ETHC113)**

Date Deemed Complete: September 9, 2015

Date Posted: November 5, 2015

Date Certified: November 16, 2015

### **Pathway Summary**

Bushmills Ethanol operates a corn ethanol plant in Atwater, Minnesota. Bushmills Ethanol has applied for two Method 2A pathways for this plant under the California Low Carbon Fuel Standard (LCFS). The plant is a dry mill, natural-gas-fired facility capable of producing 65 million gallons per year of corn ethanol. The plant obtains at least 95 percent of its feedstock from neighboring counties in Minnesota and produces both dry distiller's grains with solubles (DDGS) and modified distiller's grains with solubles (MDGS) as co-products from the ethanol production process.

Because much of the corn grown in Minnesota requires no lime ( $\text{CaCO}_3$ ) use due to high soil pH levels as attested to by analysis from the University of Minnesota, Bushmills is requesting pathways for DDGS and MDGS that require no lime use.

### **Carbon Intensity (CI) of the Bushmills Pathway**

The applicant has requested two corn ethanol pathways. These include one with a DDGS co-product (ETHC112) and one with an MDGS co-product (ETHC113). Both pathways specify that no more than two percent of the corn used would be sourced from fields that require the use of lime. The applicant provided two years of natural gas and electricity invoices covering the months of February 2013 through January 2015. Using average energy consumption values calculated from these invoices and other facility-specific CA-GREET inputs, the applicant calculated a CI of 83.42  $\text{gCO}_2\text{e}/\text{MJ}$  for the DDGS pathway and 79.18  $\text{gCO}_2\text{e}/\text{MJ}$  for the MDGS pathway. Bushmills pathways improve upon its reference pathway CI by more than the requisite five  $\text{gCO}_2\text{e}/\text{MJ}$ .

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  $\text{CO}_2\text{e}/\text{MJ}$  CI improvement over

the reference pathway.<sup>1</sup> The reference pathway for the proposed Bushmills DDGS method 2A pathway is the Midwest dry mill, dry DGS, natural gas pathway (ETHC004) with a CI of 98.4 gCO<sub>2</sub>e/MJ. Bushmills Ethanol's pathway improves upon the reference pathway CI by more than the requisite five grams of gCO<sub>2</sub>e/MJ for the DDGS pathway submitted. There is no ARB reference pathway that applies to the MDGS pathway.

### Proposed Lookup Table Entries

Fuel	Pathway Identifier	Pathway Description	Carbon Intensity Values (gCO <sub>2</sub> e/MJ)		
			Direct Emissions	Land Use and Other Indirect Effects	Total
Ethanol from Corn	ETHC112	2A Application*: Midwest; Dry Mill; Dry DGS; NG; No Lime	53.42	30	83.42
	ETHC113	2A Application*: Midwest; Dry Mill; Modified DGS; NG; No Lime	49.18	30	79.18

\*Specific Conditions Apply

### Applicable Operating Conditions

Operations at the plant will be subject to the following operating conditions designed to ensure that the CI of the corn ethanol produced at the Bushmills' plant will remain at or below the values appearing in table above.

- No conditions are placed on the amounts of electricity and natural gas consumed and the ethanol yield at the Bushmills 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.
- No more than two percent of the corn used as a feedstock at the Bushmills plant shall be grown on fields, which lime (CaCO<sub>3</sub>) has been applied. This condition applies to all gallons produced at the Bushmills plant regardless of where those gallons are sold.

<sup>1</sup> In the LCFS regulation, this 5 gCO<sub>2</sub>e/MJ threshold is referred to as the "substantiality requirement."

- As long as both pathway CIs (83.42 and 79.18 gCO<sub>2</sub>e/MJ) are not exceeded, fuel pathway codes (FPCs) ETHC112 and ETHC113 may be used to report transactions involving volumes from the Bushmills plant, regardless of the proportions of DDGS and MDGS the plant produces.

### **Staff Analysis and Recommendations**

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

- Staff has replicated, using the CA-GREET spreadsheet, the carbon intensity value calculated by the applicant;
- Staff has concluded that the plant's actual thermal and electrical energy consumption are not likely to exceed the thermal and electrical energy consumption levels specified in Bushmills Method 2A application; and
- Staff has concluded that Bushmills is capable of operating its plant in a manner such that the ethanol yield is equal to or greater than the corresponding value specified in Bushmills Method 2A application, and that compliance with the operating conditions above can be maintained.

On the basis of these findings, ARB staff recommends that Bushmills application for the above Method 2A LCFS pathways be certified.