

## Fuel Pathway Summary

### Louis Dreyfus Commodities Grand Junction, IA Plant Summary

Louis Dreyfus Commodities (Louis Dreyfus) produces corn ethanol at a dry mill plant located in Grand Junction, Iowa. According to the air permit issued by the Iowa Department of Natural Resources, the plant's maximum production capacity is 125 million gallons of ethanol annually. Much of the ethanol from this plant is shipped to California. The plant is a dry mill, ICM-designed, natural gas-fired plant producing distillers grains with solubles (DGS). DGS is a corn ethanol co-product which primarily replaces corn in livestock rations. Of the DGS produced at the Dreyfus plant, 97 percent is fully dried. DGS with a moisture content of about 10 percent is considered to be fully dried.

### Carbon Intensity of the Fuel Produced

Louis Dreyfus is seeking ARB Method 2A approval for a single fuel pathway. Although it produces both dry and a small amount of wet DGS, Dreyfus has chosen to use a dry DGS carbon intensity value to cover all of the ethanol it produces. The carbon intensity of the Grand Junction plant, as calculated by Louis Dreyfus Commodities, is 61.24 gCO<sub>2</sub>e/MJ of ethanol produced, excluding the carbon intensity from land use change emissions. Including the land use change carbon intensity value of 30 gCO<sub>2</sub>e/MJ, the carbon intensity of the Grand Junction plant is 91.24 gCO<sub>2</sub>e/MJ. The reference carbon intensity from the LCFS Lookup Table is 98.4 gCO<sub>2</sub>e/MJ for Midwestern gas-fired plants producing dry DGS. Because the proposed carbon intensity is five or more gCO<sub>2</sub>e/MJ below the reference pathway carbon intensity, the proposed pathway meets the LCFS substantiality requirement. Table 1 shows the carbon intensity value for the Louis Dreyfus Grand Junction Plant.

**Table 1: Proposed Lookup Table Entries**

| <b>Fuel/Feedstock</b> | <b>Proposed Lookup Table Pathway Description</b> | <b>Carbon Intensity in gCO<sub>2</sub>e/MJ (Including Indirect Effects)</b> | <b>Do Special Conditions Apply? (Y/N)<sup>1</sup></b> |
|-----------------------|--|---|---|
| Ethanol/Corn          | Midwest, Dry-Mill, dry DGS, Natural Gas          | 91.24   | Y   |

<sup>1</sup> The special conditions to which this column refers are discussed in the "Carbon Intensity of the Fuel Produced" section of this summary

The Louis Dreyfus Grand Junction plant achieves a lower carbon intensity value relative to the reference pathway through two principal means. First, the plant was built from a modern design developed by ICM. That design reduces overall plant energy use. Energy use at the Grand Junction plant is below the 36,000 BTU per gallon energy use

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value that forms the basis of the carbon intensity for the reference dry DGS pathway. Second, electricity use at the Grand Junction plant is below the 1.08 kw-hr per gallon that is assumed for the reference pathway.<sup>1</sup> The energy and electricity use values appearing in the Louis Dreyfus application will become operating conditions upon approval of that application by the Executive Officer<sup>2</sup>. Until the Executive Officer acts on the Louis Dreyfus application, the plant's energy use and electricity use values shall not exceed the values reported in the application. These values are classified by the applicant as confidential business information.

Staff Analysis and Recommendation

ARB staff has reviewed the Grand Junction plant's application and has replicated, using the CA-GREET model, the carbon intensity value calculated by the applicant. Louis Dreyfus provided documentation for the plant's energy usage and ethanol production. Staff is satisfied that the energy consumption values in the application accurately represent the Grand Junction plant's actual energy usage. Staff believes that the carbon intensity value reported by Louis Dreyfus can be sustained. Consequently, staff believes that the carbon intensity value of 91.24 gCO<sub>2</sub>e/MJ for corn ethanol proposed by Louis Dreyfus accurately represents that plant's carbon intensity. Staff recommends, therefore, that the Grand Junction Plant's application for a Method 2A Ethanol pathway be approved.

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<sup>1</sup> Actual plant energy use values are classified as confidential business information and not reported herein

<sup>2</sup> The energy and electricity use values appearing in the Louis Dreyfus application will become operating conditions upon approval of that application by the Executive Officer unless the Executive Officer modifies those values—in which case the revised values will become operating conditions.