

Green Plains Shenandoah, LLC (Shenandoah Plant) CA-GREET Model

The applicant has conducted its analysis of direct effects on carbon intensity for this pathway using CA-GREET, v.1.8b (Dec. 2009) (See http://www.arb.ca.gov/fuels/lcfs/ca_greet1.8b_dec09.xls). The standard inputs and parameters specified in CA-GREET remain unchanged except as noted in the input table below. The input table below specifies the spreadsheet location of the CA-GREET inputs and other parameters that were claimed as confidential business information or trade secret by the applicant, but it does not disclose the actual value of such inputs and parameters because they are claimed to be confidential business information or trade secret.

Shenandoah Plant Input data table (Locations of cells containing Confidential Business Information are shown, but the actual values of such confidential information are not disclosed):

III. Table of CA-GREET Model Inputs for GPRE Shenandoah Ethanol Plant Pathway -

Table 1: CA-GREET Model Inputs for the GPRE Shenandoah Ethanol Plant Pathway

| CA-GREET Model Sheet Name | Cell number | Default Pathway Value | GPRE Shenandoah Pathway Value | Units | Description | Comments |
|---------------------------|-------------|-----------------------|-----------------------------------|---------|---|---|
| Regional LT | C2 | U.S. Average | Midwest | n/a | Region for Analysis | Using Midwest corn and Midwest power |
| Fuel_Prod_TS | L277 | 36,000 | Confidential Business Information | btu/gal | Corn Ethanol Plant Energy Use, Dry Mill | With modern plant, lower power use |
| Fuel_Prod_TS | H277 | 2.72 | Confidential Business Information | gal/bu | Ethanol yield of Corn Ethanol Plant, Dry Mill | With modern plant, optimized yield |
| Inputs | C247 | 10.19% | Confidential Business Information | % | Share of process energy for Electricity | With modern plant, lower power use |
| Inputs | C254 | 32,330 | Confidential Business Information | btu/gal | Process fuel | Shown here for reference only. This cell is calculated based on cell L277 in Fuel_Prod_TS and Inputs C247 |
| Inputs | C258 | 1.08 | Confidential Business Information | kwh/gal | Electricity used for ethanol production | Shown here for reference only. This cell is calculated based on cell L277 in Fuel_Prod_TS and Inputs C247 |

IV. Basis for the Input Values

The input values presented in this application are based on the total natural gas and power consumed by the GPRE Shenandoah ethanol plant from November 1, 2009 through October 31, 2010, (the “Production Period”). Since the input values are in terms of per gallon of anhydrous ethanol, the total of each utility value has been divided by the total gallons of anhydrous ethanol produced during the Production Period.

Table 2: Calculation of the Input Values

Table 2 is considered Confidential Business Information and is not included in this non-confidential version of the application.