



Pacific Ethanol, Inc.

November 13, 2013

Re: Pacific Ethanol Stockton Waste Wine Ethanol Method 2B Application – Life Cycle Analysis- **Excluding Confidential Business Information**

California Air Resources Board
Industrial Strategies Division, Transportation Fuels Branch, Fuels Evaluation Section
1001 I Street
Sacramento, CA 95812

To: The Executive Officer

Herewith, please find our application and supporting documents for a new fuel lifecycle GHG emissions pathway using the Method 2A/2B application process described in “Establishing New Fuel Pathways under the California Low Carbon Fuel Standard (LCFS) Procedures and Guidelines for Regulated Parties” report by ARB (California Air Resources Board) as updated on January 3, 2013, as well as the recently revised LCFS Regulations.

We seek a new pathway for our Pacific Ethanol Inc. (“Stockton”) ethanol plant located near Stockton, California using waste wine as feedstock. The waste wine is trucked from wineries xxx. The waste wine contains xxx volume ethanol xxx. In our Stockton dry mill corn ethanol plant, the waste wine is xxx. The waste wine is considered a waste stream and has no other value because xxx, making the alternative value essentially zero, or negative if it were processed as a hazardous waste. As such, there is no indirect land use change or upstream agriculture segments to the waste wine ethanol pathway.

At our Stockton facility, normally we produce ethanol from Midwest corn xxx.

We have used the CA-GREET Model 1.8b to calculate the lifecycle greenhouse gas emissions of this pathway. The carbon intensity value based on the input changes to the model described in the attachments is **18.70 gCO₂e/MJ**.

The following sections to this application provide the details and documentation of our application for new pathways under Method 2B. Portions of the following information are considered confidential business information and each page with “Contains Confidential Information” in the page header should be considered to contain confidential business information. Pages that have been redacted to remove confidential business information have “Non-Confidential, Redacted Version” in the header. Where redaction has occurs in the text, it is marked with one or more “x” symbols. The number of “x” symbols has no meaning. Each electronic file that includes the word “CONFIDENTIAL” in the file name should be considered to contain confidential business information. If the electronic file does not contain any confidential business information, the file name includes the word “PUBLIC”.

We request your approval and would be glad to answer any questions you may have about our application. Below, please find the names and contact information of the persons who are available to answer any questions about our application. Please note that Houston BioFuels Consultants, LLC are assisting us with the application and may be contacted if you have questions or comments about our application

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Respectfully,



Paul Koehler
Vice President

Attachments

Attachments

Section Number and Contents

- I. WTW Diagram of Stockton Waste Wine and Corn Ethanol Pathways
- II. Stockton Plant Information
- III. Table of CA-GREET Model Inputs for Stockton Pathways
- IV. Basis for the Input Values
- V. CA-GREET Model Output and Analysis of Results
- VI. Production Range of Stockton Pathway
- VII. Sustainability of Stockton Pathway
- VIII. Impact on Land Use

I. WTW Diagram of Stockton Sub-Pathway of the Stockton Waste Wine Ethanol Pathway

Figure 1: WTW Diagram of Stockton Corn Ethanol Pathway

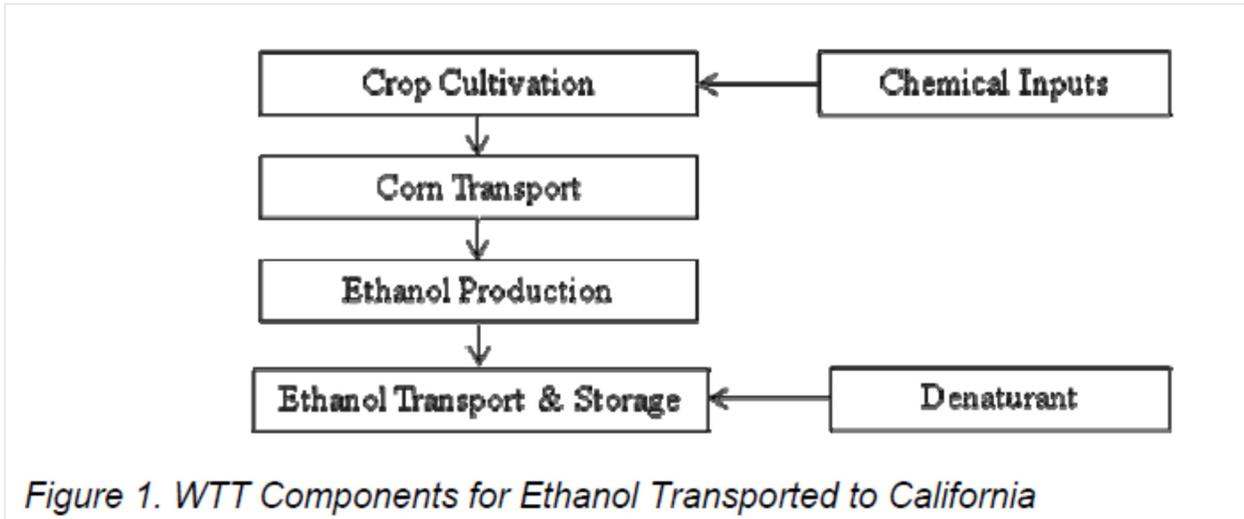
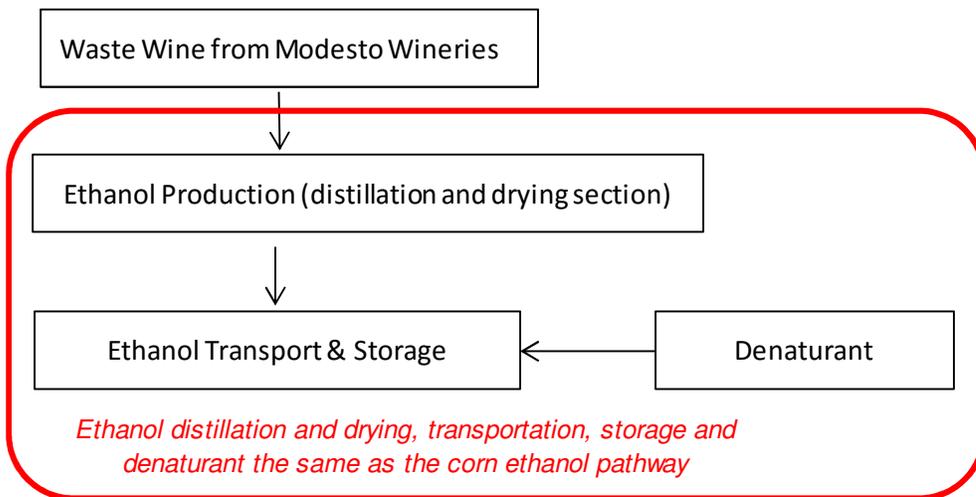


Figure 2: Ethanol Distillation, Drying and Distribution Components of the Stockton Waste Wine Feedstock Pathway are the Same as the Stockton Corn Ethanol Pathway



II. Stockton Plant Information

Stockton Plant Info

1. EPA Facility ID Number - 70319
2. Plant Location – Stockton CA
3. History – The Pacific Ethanol Stockton production facility began operations in September 2008, shut down in February of 2009, and reopened in December of 2010.
4. Capacity Notes – Permitted for 60,000,000 million gallons annual production.
5. Technology – Delta T
6. Feedstock Type – Corn, Milo and waste wine. xxx
7. Product – Ethanol
8. Fuel – Natural Gas
9. Power – From the grid

III. Table of CA-GREET Model Inputs for Stockton Pathways

Ethanol Production, Transportation and Distribution

The following table depicts the inputs to the CA-GREET Model for the Stockton ethanol plant with waste wine feedstock using natural gas and power from the grid.

Table 1: CA-GREET Model Inputs for the Stockton Waste Wine Pathway Ethanol Production, Transportation and Distribution Segment

XXX

CA-GREET Model Sheet Name	Cell number	California Dry Mill, NG, 100% WDGS Pathway Value	Pacific Stockton Waste Wine Pathway Value	Units	Description	Comments
Regional LT	C2	Midwest- CA Marginal	CA Marginal	n/a	Region for Analysis	CA-Marginal for waste wine processing at Stockton ethanol plant
Fuel_Prod_TS	L277	22,140	Business Confidential	btu/gal	Plant Thermal and Electrical Energy Use	process energy and power for waste wine distillation and drying
Inputs	C247	10.172%	Business Confidential	%	Share of process energy for Electricity	power used in distillation and drying section of Stockton ethanol plant
T&D	l193	n/a	Business Confidential	miles	added column ll in T&D for waste wine	Trucking distance from winery to Stockton

Transportation of Waste Wine to Stockton Ethanol Plant

xxx

Table 2: CA-GREET T&D Tab, Energy and Emissions per Ton of Waste Wine

This table is considered Confidential Business Information and is not included in this non-confidential, redacted version of the application.

IV. Basis for the Input Values

Transportation of Waste Wine to Stockton Ethanol Plant

The calculation of the carbon intensity of transporting waste wine from the Modesto to the Stockton ethanol plant is based on xxx

Table 3: Calculation of the Short Tons of Waste Wine Feedstock per MMBTU of Ethanol

This table is considered Confidential Business Information and is not included in this non-confidential, redacted version of the application.

xxx, xxx

Table 4: Calculation of the Stockton Energy and Emissions per Short Ton of Waste Wine
And per MMBTU of Ethanol

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Ethanol Production, Transportation and Distribution

The energy input values used for calculating the carbon intensity of ethanol produced from waste wine is xxx

- The same thermal energy used for producing corn ethanol has been assumed for producing ethanol from waste wine. Since there the fermentation section is bypassed, the actual thermal energy needed will be less. xxx
- The electrical load of the distillation and drying equipment of the Stockton ethanol plant has been determined to be xxx

xxx

xxx

V. CA-GREET Model Output and Analysis of Results

The following table shows the calculation of the Stockton waste wine ethanol pathway carbon intensity value of 18.70 gCO_{2e}/MJ. This is based on the output from the CA GREET model for the waste wine transportation and the ethanol production (including transportation and distribution) segments of the pathway. Due to the wine feedstock being a waste stream, there is no indirect land use change and no upstream agriculture carbon intensity.

Table 5: Calculation of the Stockton Waste Wine Ethanol Fuel Pathway CI

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VI. Production Range of Stockton Pathway

As stated in the Method 2B application form, the new pathway is applicable to the Stockton facilities for at least xxx of waste wine ethanol production.

VII. Sustainability of Stockton Pathway

The Stockton facility was designed and constructed using well-established modern designs and equipment and is managed by professional staff well-qualified to assure that over time the energy efficiency of and emissions from the facility do not deteriorate. Any deterioration would result in a less profitable business. Thus the sustainability of the plant is well aligned with the business objectives of the owners.

VIII. Impact on Land Use

This pathway has no impact on land use.