



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OCT 28 2013

OFFICE OF
AIR AND RADIATION

Mr. Martin Parrish
VP Alternative Energy & Project Development
Diamond Green Diesel, LLC
One Valero Way
Mail Station C2C-141
San Antonio, Texas 78249

Dear Mr. Parrish:

You petitioned the Agency on behalf of Diamond Green Diesel, LLC ("DGD"), to approve a pathway for the generation of advanced biofuel RINs for renewable gasoline blendstock (also known as naphtha) made from soybean oil, canola oil, biogenic waste oils/fats/greases and/or non-food grade corn oil ("NFG corn oil") feedstocks through a hydrotreating production process. Based on discussions with DGD, the U.S. Environmental Protection Agency also evaluated the generation of advanced biofuel RINs for liquid petroleum gas ("LPG") produced from the same hydrotreating production process. DGD's hydrotreating process uses electricity purchased from the grid, natural gas, propane (often called fuel gas) and hydrogen for process energy, with the hydrogen produced from natural gas via steam methane reforming ("SMR"), to produce renewable diesel, naphtha and LPG fuel products (the "DGD Process"). This determination only addresses the production of renewable naphtha and LPG from NFG corn oil feedstock using the DGD Process. The EPA intends to review the other components of DGD's petition after gathering more data.

Through the petition process described under 40 CFR 80.1416, DGD submitted data to the EPA to perform a lifecycle GHG analysis of the DGD Process. This analysis involved a straightforward application of the same methodology and much of the same modeling used for the final rule published on March 26, 2010 ("the March 2010 RFS rule") and the final rule published on March 5, 2013 ("the March 2013 RFS rule"). The difference between this analysis and the modeling completed for the March 2010 and 2013 RFS rules is the evaluation of a modified fuel production process.

The attached document "Diamond Green Diesel Request for Fuel Pathway Determination under the RFS Program" describes the data submitted by DGD, the analysis conducted by the EPA, and our determination of the lifecycle greenhouse gas emissions associated with the fuel production pathway described in DGD's petition.

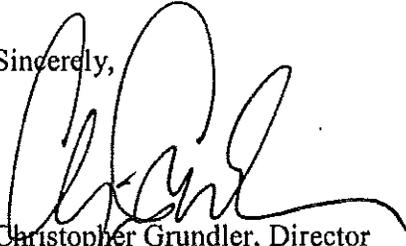
Based on our assessment, naphtha and LPG produced with the DGD Process from NFG corn oil feedstock qualifies for advanced biofuel (D-Code 5) RINs, assuming that the fuel meets the other definitional criteria for renewable fuel (e.g., produced from renewable biomass, and used to reduce or replace petroleum-based transportation fuel, heating oil or jet fuel) specified in the CAA and EPA implementing regulations.

This approval applies specifically to Diamond Green Diesel, LLC, and to the process, materials used, fuel produced, and process energy sources as outlined and described in the petition request submitted by DGD.

The OTAQ Reg: Fuels Programs Registration and OTAQEMTS: OTAQ EMTS Application will be modified to allow DGD to register and generate RINs for the production of ethanol from corn feedstock using a production process of "DGD Process."

If you have additional questions about this or related issues, please contact Aaron Levy of my staff at 734-214-4586.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Grundler", written over the word "Sincerely,".

Christopher Grundler, Director
Office of Transportation and Air Quality

Enclosure

Diamond Green Diesel Request for Fuel Pathway Determination under the RFS Program
Office of Transportation and Air Quality

Summary: Diamond Green Diesel, LLC (“DGD”) petitioned the Agency under the Renewable Fuel Standard (“RFS”) program to generate advanced biofuel RINs for renewable gasoline blendstock (also known as naphtha) made from soybean oil, canola oil, biogenic waste oils/fats/greases and/or non-food grade corn oil (“NFG corn oil”) feedstocks through a hydrotreating production process. Based on discussions with the petitioner, EPA also evaluated the generation of advanced biofuel RINs for liquid petroleum gas (“LPG”) produced from the same hydrotreating production process. This determination only addresses the production of renewable naphtha and LPG from NFG corn oil feedstock using DGD’s hydrotreating process. EPA intends to review the other components of DGD’s petition after gathering more data.

DGD’s hydrotreating process uses electricity purchased from the grid, natural gas, propane (often called fuel gas) and hydrogen for process energy, with the hydrogen produced from natural gas via steam methane reforming (“SMR”), to produce renewable diesel, naphtha and LPG fuel products (the “DGD Process”). The DGD Process utilizes a known renewable fuel production process called hydrotreating, which EPA has previously evaluated in the March 2010 RFS final rule (75 FR 14670) and modeled in more detail in the final rule published on March 5, 2013 (78 FR 14190) (“March 2013 RFS rule”). Based on the data submitted by DGD, the evaluation of NFG corn oil feedstock in the March 2010 RFS final rule and the hydrotreating process modeling in the March 2013 RFS rule, EPA conducted a lifecycle assessment estimating that renewable naphtha and LPG produced using the DGD Process reduces lifecycle greenhouse gas (“GHG”) emissions compared to the statutory petroleum baseline by 71% when NFG corn oil is used as feedstock. Based on the results of our lifecycle GHG assessment, naphtha and LPG produced with the DGD Process from NFG corn oil feedstock (the “DGD Pathways”) qualifies for advanced biofuel (D-Code 5) RINs.

Through the petition process described under 40 CFR 80.1416, DGD submitted data to EPA to perform a lifecycle GHG analysis of the DGD Pathways. This analysis involved a straightforward application of the same methodology and much of the same modeling used for the March 2010 RFS rule and the March 2013 RFS rule. The difference between this analysis and the modeling completed for the March 2010 and 2013 RFS rules is the evaluation of a modified fuel production process.

The DGD Pathways are the type of new pathways that EPA described in the preamble to the March 2010 RFS rule as capable of being evaluated by comparing the applicant’s fuel pathways to the pathways that have already been analyzed. In the March 2010 RFS rule, EPA analyzed and approved a pathway for renewable diesel produced with a hydrotreating process using NFG corn oil feedstock. In the March 2013 RFS rule EPA conducted more detailed process modeling using data representing an industry average hydrotreating production process maximized for diesel fuel output and the same

process maximized for jet fuel output.¹ Based on this analysis, EPA approved a pathway for the use of camelina oil feedstock to produce renewable diesel, jet fuel, naphtha and LPG with a hydrotreating process. (In the March 2013 RFS rule EPA also approved pathways for jet fuel and heating oil produced with a hydrotreating process using NFG corn oil feedstock.) The GHG impacts related to the DGD Process are similar to the corresponding impacts from the industry average processes that EPA modeled in the March 2013 RFS rule. Based on EPA's assessment, the DGD Process has greater GHG emissions than the industry average hydrotreating process maximized for diesel fuel, but lower corresponding emissions than the industry average process maximized for jet fuel output. Based on the data submitted and the existing evaluation of NFG corn oil feedstock and the hydrotreating production process, EPA conducted a lifecycle assessment and determined that the DGD Pathways achieve a 71% reduction in GHG emissions compared to the statutory petroleum baseline. Based on our assessment, the naphtha and LPG fuel produced through the DGD Pathways qualify for generating RINs for advanced biofuel (D-Code 5).

This document is organized as follows:

- *Section I. Required Information and Criteria for Petition Requests:* This section contains information on the background and purpose of the petition process, the criteria EPA uses to evaluate the petitions and the information that is required to be provided under the petition process as outlined in 40 CFR 80.1416. This section is not specific to DGD's request and applies to all petitions submitted pursuant to 40 CFR 80.1416.
- *Section II. Available Information:* This section contains background information on DGD and describes the information that DGD provided and how it complies with the petition requirements outlined in Section I.
- *Section III. Analysis and Discussion:* This section describes the lifecycle analysis done for today's determination and identifies how it differs from the analyses done for the March 2010 RFS rule and the March 2013 RFS rule. This section also describes how we have applied the lifecycle results to determine the appropriate D-Code for the DGD Pathways.
- *Section IV. Public Participation:* This section describes how this petition is an extension of the analysis done as part of the March 2010 RFS rule and the March 2013 RFS rule.
- *Section V. Conclusion:* This section summarizes our conclusions regarding DGD's petition, including the D-code DGD may use in generating RINs for fuel produced using the DGD Pathways.

I. Required Information and Criteria for Petition Requests

A. Background and Purpose of Petition Process

¹ Pearlson, M., Wollersheim, C., Hileman, J. (2013). "A techno-economic review of hydroprocessed renewable esters and fatty acids for jet fuel production." *Biofuels, Bioproducts & Biorefining*, 7:89-96

As a result of changes to the Renewable Fuel Standard program in Clean Air Act (“CAA”) Section 211(o) required by the Energy Independence and Security Act of 2007 (“EISA”), EPA adopted new regulations, published at 40 CFR 80.1400 et. seq. that specify the types of renewable fuels eligible to participate in the RFS program and the procedures by which renewable fuel producers and importers may generate Renewable Identification Numbers (“RINs”) for the qualifying renewable fuels they produce through approved fuel pathways. See 75 FR 14670 (March 26, 2010); 75 FR 26026 (May 10, 2010); 75 FR 37733 (June 30, 2010); 75 FR 59622 (September 28, 2010); 75 FR 76790 (December 9, 2010); 75 FR 79964 (December 21, 2010); 77 FR 1320 (January 9, 2012); 77 FR 74592 (December 17, 2012); and 78 FR 14190 (March 5, 2013).

Pursuant to § 80.1426(f) (1) of the regulations:

Applicable pathways. D codes shall be used in RINs generated by producers or importers of renewable fuel according to the pathways listed in Table 1 to this section, subparagraph 6 of this section, or as approved by the Administrator.

Table 1 to § 80.1426 lists the three critical components of a fuel pathway: (1) fuel type, (2) feedstock, and (3) production process. Each specific combination of the three components, or fuel pathway, is assigned a D code. EPA may also independently approve additional fuel pathways not currently listed in Table 1 for participation in the RFS program, or a third party may petition for EPA to evaluate a new fuel pathway in accordance with § 80.1416. In addition, producers of facilities identified in 40 CFR 80.1403(c) and (d) that are exempt from the 20% GHG emissions reduction requirement of the Act may generate RINs with a D code of 6 pursuant to § 80.1426(f)(6) for a specified baseline volume of fuel.

The petition process under § 80.1416 allows parties to request that EPA evaluate a new fuel pathway’s lifecycle GHG reduction and provide a determination of the D code for which the new pathway may be eligible. EPA will consider extending a similar approval to other petitioners utilizing the same fuel pathway as DGD upon verification that the pathway is indeed the same, and assuming all other requirements are met.

B. Required Information in Petitions

As specified in 40 CFR 80.1416(b)(1), petitions must include all of the following information, and should also include as appropriate supporting documents such as independent studies, engineering estimates, industry survey data, and reports or other documents supporting any claims:

- The information specified under § 80.76 (Registration of refiners, importers or oxygenate blenders).
- A technical justification that includes a description of the renewable fuel, feedstock(s), and production process. The justification must include process modeling flow charts.
- A mass balance for the pathway, including feedstocks, fuels produced, co-products, and waste materials production.

- Information on co-products, including their expected use and market value.
- An energy balance for the pathway, including a list of any energy and process heat inputs and outputs used in the pathway, including such sources produced off site or by another entity.
- Any other relevant information, including information pertaining to energy saving technologies or other process improvements.
- Other additional information as requested by the Administrator to complete the lifecycle greenhouse gas assessment of the new fuel pathway.

In addition to the requirements stated above, parties who use a feedstock not previously evaluated by EPA must also include the following, and should also include as appropriate supporting information such as state, county, or regional crop data, commodity reports, independent studies, industry or farm survey data, and reports or other documents supporting any claims:

- Type of feedstock and description of how it meets the definition of renewable biomass.
- Market value of the feedstock.
- List of other uses for the feedstock.
- List of chemical inputs needed to produce the renewable biomass source of the feedstock and prepare the renewable biomass for processing into feedstock.
- Energy needed to obtain the feedstock and deliver it to the facility. If applicable, identify energy needed to plant and harvest the source of the feedstock and modify the source to create the feedstock.
- Current and projected yields of the feedstock that will be used to produce the fuels.
- Other additional information as requested by the Administrator to complete the lifecycle greenhouse gas assessment of the new fuel pathway.

II. Available Information

A. Background on Diamond Green Diesel, LLC

DGD petitioned the Agency under the RFS program to generate advanced biofuel RINs for naphtha made from soybean oil, canola oil, biogenic waste oils/fats/greases and/or NFG corn oil feedstocks through a hydrotreating production process. Based on discussions with the petitioner, EPA also evaluated the generation of advanced biofuel RINs for liquid petroleum gas (“LPG”) produced from the same hydrotreating production process. This determination only addresses the production of renewable naphtha and LPG from NFG corn oil feedstock using DGD’s hydrotreating process. EPA intends to review the other components of DGD’s petition after gathering more data.

A petition is required because this is not an approved pathway in Table 1 to §80.1426. The proposed DGD Pathways differ from those EPA has modeled previously in that they involve use of NFG corn

oil feedstock to produce naphtha and LPG fuel products from the previously modeled hydrotreating fuel production process.

B. Information Available Through Existing Modeling

A fuel pathway under the RFS regulations is defined by three components: (1) fuel type, (2) feedstock, and (3) production process. The pathway addressed in DGD's petition would produce renewable diesel, naphtha, and LPG using feedstocks that have already been evaluated as part of the March 2010 RFS rule and the March 2013 RFS rule (see Table 1). Therefore, no new feedstock modeling was required. Similarly, no new modeling of the emissions associated with the combustion of naphtha or LPG was required because combustion of naphtha and LPG was already modeled as part of the March 2010 and 2013 RFS rules. This petition only requires EPA to evaluate a modified fuel production process.

In the March 2010 RFS rule, EPA analyzed and approved a pathway for renewable diesel produced with a hydrotreating process using NFG corn oil feedstock. In the March 2013 RFS rule EPA conducted more detailed process modeling using data representing an industry average hydrotreating production process maximized for diesel fuel output and the same process maximized for jet fuel output.² Our analysis of the DGD Pathways used the same analytical approach that was used to evaluate the lifecycle GHG emissions associated with the renewable fuel pathways using a hydrotreating process, as shown in Table 1. In addition to producing renewable diesel from NFG corn oil feedstock, which is an existing pathway, DGD also plans to produce naphtha and LPG fuel products from this feedstock. The DGD Pathways use the same type of hydrotreating process previously studied by EPA in the March 2013 RFS rule, with the difference being that the DGD Process uses different amounts of process energy and does not produce jet fuel co-product.

EPA performed a comparison with the hydrotreating process modeling done for the March 2013 RFS rule. To do this comparison the following changes to the modeling were made to reflect the DGD Process: The amount of energy use and associated emissions were changed based on the data submitted by DGD.

This was a straightforward analysis based on existing modeling done for the March 2010 RFS rule and the March 2013 RFS rule and substituting DGD's process data, which only altered the amounts of inputs and outputs. The analysis completed for this petition utilized the same fundamental modeling approach as was used in previous rulemakings for the RFS program.

² Pearlson, M., Wollersheim, C., Hileman, J. (2013). "A techno-economic review of hydroprocessed renewable esters and fatty acids for jet fuel production." *Biofuels, Bioproducts & Biorefining*, 7:89-96

Table 1: Excerpts of Existing Fuel Pathways from Table 1 to 40 CFR 80.1426

Fuel Type	Feedstock	Production Process Requirements	D-Code
Renewable diesel, jet fuel and heating oil	Non-food grade corn oil; <i>Camelina sativa</i> oil	Hydrotreating (Excluding processes that co-process renewable biomass and petroleum)	4 (Biomass-based diesel)
Renewable diesel, jet fuel and heating oil	Non-food grade corn oil; <i>Camelina sativa</i> oil	Hydrotreating (Includes only processes that co-process renewable biomass and petroleum)	5 (Advanced)
Naphtha, LPG	<i>Camelina sativa</i> oil	Hydrotreating	5 (Advanced)

C. Information Submitted by Diamond Green Diesel, LLC

DGD has supplied all the information as required in 40 CFR 80.1416 that EPA needs to analyze the lifecycle GHG emissions associated with the DGD Pathways. The information submitted includes a technical justification that has a description of the fuel, feedstocks used, and DGD’s proprietary production process with modeling flow charts, a detailed mass and energy balance of the process with information on co-products as applicable, and other additional information as needed to complete the lifecycle GHG assessment.

III. Analysis and Discussion

A. Lifecycle Analysis

Determining a fuel pathway’s compliance with the lifecycle GHG reduction thresholds specified in the CAA 211(o) for different types of renewable fuel requires a comprehensive evaluation of the renewable fuel, as compared to the gasoline or diesel that it replaces, on the basis of its lifecycle GHG emissions. As mandated by the CAA 211(o), the GHG emissions assessments must evaluate the aggregate quantity of GHG emissions (including direct emissions and significant indirect emissions such as significant emissions from land use changes) related to the full lifecycle, including all stages of fuel and feedstock production, distribution, and use by the ultimate consumer.

In examining the full lifecycle GHG impacts of renewable fuels for the RFS program, EPA considers the following:

- Feedstock production – based on agricultural sector models that include direct and indirect impacts of feedstock production.
- Fuel production – including process energy requirements, impacts of any raw materials used in the process, and benefits from co-products produced.

- Fuel and feedstock distribution – including impacts of transporting feedstock from production to use, and transport of the final fuel to the consumer.
- Use of the fuel – including combustion emissions from use of the fuel in a vehicle.

EPA's evaluation of the lifecycle GHG emissions related to the DGD Pathways under this petition request is consistent with the CAA's applicable requirements, including the definition of lifecycle GHG emissions and threshold evaluation requirements. It was based on previous lifecycle analysis modeling that EPA completed for the March 2010 and 2013 RFS rules as well as information regarding DGD's pathways that was submitted under a claim of CBI by DGD on November 8, 2011. The information provided included the mass and energy balances necessary for EPA to evaluate the lifecycle GHG emissions of the proposed DGD Pathways. As described above, the proposed DGD Pathways involve feedstock types and finished fuels that have already been evaluated as part of rulemakings for the RFS program, so no new modeling of these components was necessary for today's decision.

Feedstock Production – The DGD Pathways use NFG corn oil as feedstock, which was already been evaluated as part of the March 2010 RFS rule and, therefore, no new feedstock production modeling was required. DGD provided, as part of the information claimed as CBI, their process yields in terms of pounds of feedstock used per pound of finished fuel product (renewable diesel, naphtha and LPG). Upstream feedstock GHG emissions were adjusted considering the specific data provided by DGD related to the yield of fuel products per pound of feedstock using the DGD Process.

Feedstock Transport – DGD's petition included data about the distance and mode of transport to collect and move NFG corn oil to DGD's hydrotreating facility in Norco, LN. Based on the same analytical approach used in the March 2010 RFS rule, this data was considered in our lifecycle GHG assessment of the DGD Pathways.

Feedstock Pretreatment – After the NFG corn oil feedstock is trucked to the DGD production facility and loaded into storage tanks it is pretreated to remove naturally occurring minerals which are known to deactivate the downstream hydrotreating catalyst. DGD uses electricity and natural gas for process energy to pre-treat and the NFG corn oil feedstock. Based on the same analytical approach used in the March 2010 RFS rule, this data was considered in our lifecycle GHG assessment of the DGD Pathways.

Fuel Distribution – As part of the March 2010 RFS rule EPA estimated the lifecycle GHG emissions associated with the petroleum gasoline and diesel baselines, including the lifecycle GHG emissions associated with transporting the finished petroleum products from domestic refineries to bulk storage terminals, and then distributing the products from the terminals to consumers. As a conservative approach our assessment of the DGD Pathway assumed the same modes of transport and distances as the petroleum gasoline and diesel baselines evaluated in the March 2010 RFS rule. This was a conservative assumption because the DGD Pathway will produce naphtha and LPG in very close

proximity to existing domestic refineries for blending with conventional fuel products. The only difference was that the fuel distribution lifecycle GHG emissions were adjusted to account for the differing energy densities of renewable naphtha and LPG compared to gasoline and diesel fuel.

Fuel Use –The lifecycle GHG emissions associated with using renewable naphtha fuels was evaluated as part of the March 2010 RFS rule. The GHG emissions associated with using renewable LPG fuel product were considered as part of the March 2013 RFS rule. The fuel use emissions calculated as part of these previous rules were applied in our analysis of the DGD Pathways.

Fuel Production – DGD’s fuel production method fits in the category of a hydrotreating process already analyzed for the March 2010 and 2013 RFS rules. As discussed above, there are existing approved pathways for renewable diesel, jet fuel and heating oil produced from NFG corn oil using a hydrotreating production process, and there are also approved pathways for renewable diesel, jet fuel, heating oil, naphtha and LPG produced from camelina oil feedstock using a hydrotreating process. EPA’s most detailed hydrotreating process analysis was conducted for the March 2013 RFS rule using data representing an industry average hydrotreating process maximized for diesel fuel output and a hydrotreating process maximized for jet fuel output. The DGD Pathways use the same type of hydrotreating process previously studied by EPA in the March 2013 RFS rule, with the difference being that the DGD Process uses different amounts of process energy and does not produce jet fuel co-product.

DGD plans to use a hydrotreating process to convert NFG corn oil feedstock into renewable diesel, naphtha and LPG fuel products. According to their petition, DGD is interested in generating RINs for the renewable diesel and naphtha, and potentially the LPG products coming from their process. Propane co-product will be combusted within the facility for process energy. The LPG could also be used for process energy or sold as transportation fuel or for other purposes.

As discussed in the March 2010 and 2013 RFS rules, EPA’s lifecycle analyses account for the various uses of the co-products. In previous analyses, we have used two general approaches to account for co-products: the allocation approach and the displacement approach. In the allocation approach all the emissions from the hydrotreating process are allocated across all co-products. There are a number of ways to do the allocation. For this analysis of the DGD Process we allocated emissions to the renewable diesel, naphtha and LPG co-products based on the energy content (using lower-heating values) of the products produced. Using the allocation approach, emissions from the process were allocated equally to all the Btus produced. Therefore, on a per Btu basis all of the primary products coming from the process have the same emissions from the fuel production stage of the lifecycle. To evaluate the DGD Pathways we used the displacement approach to account for propane co-product which is combusted within the facility for process energy. We assigned credit for propane displacing natural gas on a per Btu basis, on the assumption that the combustion of the propane co-product in the process makes unnecessary the use of additional natural gas for process heat and energy.

Table 2 compares our lifecycle GHG analysis of the DGD Process with the hydrotreating modeling completed for the March 2013 RFS rule with the same treatment of co-products. The only difference in co-product treatment is that the energy allocation approach was also used to account for the jet fuel co-product, which is not produced by the DGD Process. In the table, the hydrotreating process maximized for diesel fuel and jet fuel are labeled as “industry average” hydrotreating processes, because the data used to model them was intended as a generic process based on data available in the literature and standard petrochemical support processes such as storage tanks, hydrogen gas production, cooling water towers, etc.³ Consistent with analyses for previous RFS rulemakings, results are presented in terms of kilograms of carbon-dioxide equivalent emissions per million British thermal unit of fuel product outputs (kgCO₂e/mmBtu). As shown in the table, the DGD Process evaluated results in lifecycle GHG emissions that are within the range of the hydrotreating processes that EPA evaluated in the March 2013 RFS rule.

Table 2: Hydrotreating Process Lifecycle GHG Emissions (kgCO₂e/mmBtu)

Hydrotreating Process Modeled	Fuel Production Lifecycle GHG Emissions	Fuel Products
DGD Process	12	Renewable diesel, naphtha, LPG
Industry Average Hydrotreating Process Maximized for Diesel Fuel	8	Renewable diesel, naphtha, jet fuel, LPG
Industry Average Hydrotreating Process Maximized for Jet Fuel	13	Renewable diesel, naphtha, jet fuel, LPG

Lifecycle GHG Results – Based on our analysis of the full fuel lifecycle for the DGD Pathways, described above, we estimated the lifecycle GHG emissions associated with naphtha and LPG produced with the DGD Process using NFG corn oil feedstock. Table 3 shows the lifecycle GHG emissions related to the DGD Pathways. To evaluate the DGD Pathways we compared the lifecycle GHG emissions from DGD’s naphtha product to the 2005 gasoline baseline because renewable naphtha is a gasoline blendstock replacement. Since LPG can be used in a range of applications, including heating oil, it was less clear which baseline to compare it too. As a conservative approach, in this case we compared DGD’s renewable LPG product to the diesel baseline because it is a slightly more difficult threshold to meet. As shown in the table, the results are not significantly different between naphtha and LPG produced through the DGD Pathways.

³ Pearlson et al., 2013

Table 3: Lifecycle GHG Emissions from the DGD Pathways (kgCO₂e/mmBtu)⁴

Feedstock	NFG Corn Oil	NFG Corn Oil
Fuel Products	Naphtha	LPG
Feedstock Upstream	13	13
Fuel Production	12	12
Fuel Distribution	1	1
Tailpipe	2	2
Net Emissions	28	28
Baseline	Gasoline Baseline	Diesel Baseline
Percent GHG Reduction Relative to Baseline	71%	71%

B. Application of the Criteria for Petition Approval

DGD’s petition request involved a production process, feedstock and fuel products already considered as part of the March 2010 and 2013 RFS rules. DGD provided all necessary information that was required for this type of petition request.

Based on the data submitted and information already available through analyses conducted for previous RFS rulemakings, EPA conducted a lifecycle assessment and determined that renewable naphtha and LPG produced pursuant to the DGD Pathways meets the 50% lifecycle GHG threshold requirement specified in the CAA for advanced biofuel RINs (D-Code 5).

Compared to the statutory petroleum baseline, naphtha and LPG produced pursuant to the DGD Pathways results in a 71% reduction in lifecycle GHG emissions when NFG corn oil is used as feedstock. These results justify authorizing the generation of advance biofuel RINs for renewable naphtha and LPG produced through the DGD Pathways, assuming that the fuel meets the other definitional criteria for renewable fuel (e.g., produced from renewable biomass, and used to reduce or replace petroleum-based transportation fuel, heating oil or jet fuel) specified in the CAA and EPA implementing regulations. Furthermore, EPA sees no reason to restrict DGD from continuing to use the existing pathways for biomass-based diesel and advanced biofuel RINs in Table 1 to §80.1426 for

⁴ Lifecycle GHG emissions are normalized per mmBtu of RIN-generating fuel produced. Totals may not be the sum of the rows due to rounding.

renewable diesel and jet fuel produced with a hydrotreating process using NFG corn oil feedstock, because the renewable diesel and jet fuel still meet the required 50% GHG reduction threshold when RINs are also generated for the naphtha and LPG co-products considered in this document.

IV. Public Participation

The definition of advanced biofuel in CAA 211(o)(1) specifies that the term means renewable fuel that has “ lifecycle greenhouse gas emissions, as determined by the Administrator, after notice and opportunity for comment, that are at least 50 percent less than the baseline lifecycle greenhouse gas emissions...” As part of the March 2010 and 2013 RFS rules, we took public comment on our lifecycle assessment of pathways involving the production of renewable diesel from NFG corn oil using a hydrotreating process, including all models used and all modeling inputs and evaluative approaches. We also took comment on pathways that involved the production of naphtha and LPG including an assessment of lifecycle emissions associated with the distribution and tailpipe emissions from these fuels. In the March 2010 RFS rule we acknowledged that it was unlikely that our final regulations would address all possible qualifying fuel production pathways, and we took comment on allowing the generation of RINs using a temporary D code in certain circumstances while EPA was evaluating such new pathways and updating its regulations. After considering comments, we finalized the current petition process, where we allow for EPA approval of certain petitions without going through additional rulemaking if we can do so as a reasonably straightforward extension of previous assessments, whereas rulemaking would typically be conducted to respond to petitions requiring new modeling. See 58 FR 14797 (March 26, 2010).

In responding to this petition, we have largely relied on the same modeling that we conducted for the March 2010 and 2013 RFS rules, and have simply adjusted the analysis to account for DGD’s process data. This includes use of the same emission factors and types of emission sources that were used in the March 2010 and 2013 RFS rules. Thus, the fundamental analyses relied on for this decision have been made available for public comment as part of previous rulemakings, consistent with the reference to notice and comment in the statutory definitions of “advanced biofuel.” Our approach today is also consistent with our description of the petition process in the preamble to the March 2010 RFS Rule, as our work in responding to the petition was a logical extension of analyses already conducted.

V. Conclusion

Based on our assessment, renewable naphtha and LPG produced using NFG corn oil through the DGD Pathways qualifies under the CAA for advanced biofuel (D-code 5) RINs, assuming that the fuel meets the other definitional criteria for renewable fuel (e.g., produced from renewable biomass, and used to reduce or replace petroleum-based transportation fuel, heating oil or jet fuel) specified in the CAA and EPA implementing regulations.

This approval applies specifically to Diamond Green Diesel, LLC, and to the process, materials used, fuels produced, and process energy sources as outlined and described in the petition request

submitted by DGD. This approval is effective as of signature date. EPA will consider extending a similar approval to other petitioners utilizing the same fuel pathways as DGD upon verification that the pathways are indeed the same, and assuming all other requirements are met.

The DGD Pathway does not meet the requirements for delayed RINs outlined in 80.1426(g) because the complete petition was not received by EPA by January 31, 2011, as required by 80.1426(g)(1)(i)(A).

The OTAQ Reg: Fuels Programs Registration and OTAQEMTS: OTAQ EMTS Application will be modified to allow DGD to register and generate RINs for renewable naphtha and LPG produced from NFG corn oil feedstock through the DGD Pathway using a production process of “DGD Process.”