OFFICE OF AIR AND RADIATION
WASHINGTON, D.C. 20460

March 25, 2025

Mr. Brad Adams
Plant Manager, Biodiesel Refinery
Scott Petroleum, Inc.
942 North Broadway
Greenville, MS 38701

Dear Mr. Adams:

Scott Petroleum petitioned the Agency to approve pathways for the generation of biomass-based diesel (D code 4) renewable identification number (RINs) for biodiesel and heating oil produced from cottonseed oil feedstock at their facility in Greenville, MS (the "Scott Petroleum Pathways").

In July 2015, we published a Federal Register Notice inviting comment on our analysis of the lifecycle greenhouse gas (GHG) emissions attributable to the production and transport of Gossypium spp. seed oil (''cottonseed oil'') feedstock for use in making biofuels such as biodiesel, renewable diesel, and jet fuel (the "July 2015 Cottonseed Oil FRN") (80 FR 41033). The analysis for the 2015 FRN applied our estimate of the upstream GHG emissions associated with soybean oil feedstock production and transport, including indirect agricultural and forestry sector impacts, to cottonseed oil. We also indicated that we would use the analysis in the July 2015 Cottonseed Oil FRN as the basis for future evaluations of facility-specific petitions proposing to use cottonseed oil as a feedstock for biofuel production.

Through the petition process described under 40 CFR 80.1416, Scott Petroleum submitted data to EPA to perform a lifecycle greenhouse gas analysis of biodiesel produced through the Scott Petroleum Pathways. This analysis involved a straightforward application of the same methodology and much of the same modeling of soybean oil biodiesel used for the March 2010 RFS rule (75 FR 14670). The difference between this analysis and the modeling completed for previous assessments was the evaluation of Scott Petroleum's specific biodiesel production facility, including energy use and fuel yield data for this facility.

The attached document, "Scott Petroleum Cottonseed Oil Pathway Determinations under the RFS Program" describes the data submitted by Scott Petroleum, the analysis conducted by the EPA, and our determination of the lifecycle greenhouse gas emissions associated with the fuel production pathways described in Scott Petroleum petition.

Based on our assessment, biodiesel and heating oil produced from cottonseed oil through the Scott Petroleum Greenville Process qualify under the Clean Air Act (CAA) for biomass-based diesel (D code 4) RINs, provided all applicable statutory and regulatory conditions are satisfied including those specified in the CAA and the EPA implementing regulations.

This approval applies only to the Scott Petroleum facility in Greenville, MS, and to the process, materials used, fuels produced, and process energy types and amounts outlined and described in the petition submitted by Scott Petroleum.

The OTAQ Reg: Fuels Programs Registration and OTAQ EMTS Application will be modified to allow Scott Petroleum to register and generate biomass-based diesel RINs for biodiesel and heating produced from cottonseed oil through the "Scott Petroleum Greenville Process."

Sincerely,

Byron J. Bunker, Director
Implementation, Analysis and Compliance Division

Scott Petroleum Greenville Cottonseed Oil Pathways Determination under the RFS Program

Office of Transportation and Air Quality

Summary: Scott Petroleum petitioned the Agency under the Renewable Fuel Standard (RFS) program to generate biomass-based diesel (D code 4) RINs for biodiesel and heating oil produced at a facility located in Greenville, MS (the "Scott Petroleum Greenville Facility"). The biodiesel and heating oil are produced from cottonseed oil through a process of transesterification using natural gas and grid electricity for process energy (the "Scott Petroleum Greenville Process"). We refer to this entire collection of steps, the feedstock, the facility, the process and the fuels produced as the "Scott Petroleum Pathways."

The analysis completed for this determination utilized the same fundamental modeling approach as has been used in previous public notice and comment actions under the RFS program. In July 2015, we published a Federal Register Notice ("FRN") inviting comment on our analysis of the greenhouse gas ("GHG") emissions attributable to the production and transport of Gossypium spp. seed oil (''cottonseed oil'') feedstock for use in making biofuels such as biodiesel, renewable diesel, and jet fuel (the "July 2015 Cottonseed Oil FRN") (80 FR 41033). Based on the analysis in that FRN, we said it would be reasonable to apply our modeling of the upstream GHG emissions associated with soybean oil from the March 2010 RFS2 rule (75 FR 14670) to cottonseed oil. The upstream GHG emissions associated with soybean oil include feedstock production and transport, as well as indirect emissions associated with changes in land use, crop production and livestock production. In the FRN, we also indicated our intent to apply this analysis to future evaluations of facility-specific petitions proposing to use cottonseed oil as a feedstock for biofuel production. After considering all of the comments, for the purposes of this pathway determination we are adopting the approach in the FRN of using the soybean oil upstream GHG emissions modeling from the March 2010 RFS2 rule to estimate the GHG emissions associated with using cottonseed oil as a biodiesel and heating oil feedstock. The comments on the July 2015 Cottonseed Oil FRN that are relevant to this pathway determination are discussed and addressed in Section V (Public Participation) of this document.

Through the petition process described under 40 CFR 80.1416, Scott Petroleum submitted data to the EPA to perform a lifecycle GHG analysis of the Scott Petroleum Pathways. This analysis involved application of the same methodology, and much of the same modeling, used for previous RFS rulemakings, including the March 2010 RFS2 rule (75 FR 14670) and the December 2022 Canola Oil Pathways rule.[1] The feedstock and fuel type components of the Scott Petroleum Pathway have been evaluated through previous RFS rulemakings and notices for public comment. The difference between this analysis and the modeling completed for previous RFS rulemakings and public comment notices is the EPA's evaluation of Scott Petroleum's specific production process and updated background data as described in Section III.

[1] U.S. EPA. (2022). "Renewable Fuel Standard Program: Canola Oil Pathways to Renewable Diesel, Jet Fuel, Naphtha, Liquefied Petroleum Gas, and Heating Oil" December 2, 2022. 87 FR 73956.

Based on the data submitted by Scott Petroleum and the methodology for evaluating cottonseed oil developed in the July 2015 Cottonseed Oil FRN (which in turn relies on the methodology for soybean oil biodiesel developed in the March 2010 RFS2 rule), the EPA conducted a lifecycle assessment for biodiesel and heating oil produced from cottonseed oil through the Scott Petroleum Greenville Process. This assessment indicates that fuel produced through that process reduces lifecycle greenhouse gas (GHG) emissions compared to the statutory diesel baseline by 56 percent. Based on the results of our lifecycle GHG assessment, biodiesel and heating oil produced through the Scott Petroleum Greenville Process qualifies for biomass-based diesel (D code 4) RINs, provided all applicable statutory and regulatory conditions are satisfied.

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 the EPA uses to evaluate petitions, and the information that must be provided under the petition process as outlined in 40 CFR 80.1416. This section includes a general discussion of petitions submitted pursuant to 40 CFR 80.1416.

- *Section II. Available Information*: This section contains background information on the petitioner, the information provided in the petition, 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 this determination and identifies how it was unique compared to analyses performed for previous RFS rules. This section also describes how we have applied the lifecycle results to determine the appropriate D code for fuel produced pursuant to the evaluated pathways.

- *Section IV. Conditions and Associated Regulatory Provisions:* This section describes the conditions and regulatory provisions associated with this petition determination.

- *Section V. Public Participation*: This section describes how this petition is an extension of the analysis done as part of previous actions that underwent a public notice and comment process.

- *Section VI. Conclusion*: This section summarizes our conclusions regarding the petition, including the D codes that the petition may use in generating RINs for fuel produced through the evaluated pathways.

I. Required Information and Criteria for Petition Requests

A. Background and Purpose of Petition Process

The RFS program is set out in CAA 211(o). The EPA's regulations implementing this program are published at 40 CFR part 80. The RFS regulations implement the statutory requirements regarding the types of renewable fuels eligible to participate in the RFS program and specify the procedures by which renewable fuel producers and importers may generate RINs for the qualifying renewable fuels they produce through approved fuel pathways.

Pursuant to § 80.1426(f)(1) of the regulations, D codes must be used in RINs generated by producers or importers of renewable fuel according to approved pathways, which are laid out in Table 1 to § 80.1426. Table 1 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. The EPA may also independently approve additional fuel pathways not currently listed in Table 1 for participation in the RFS program, or a party may petition for the EPA to evaluate a new fuel pathway in accordance with § 80.1416. In addition, renewable fuel producers qualified in accordance with 40 CFR 80.1403(c) and (d) for an exemption from the 20 percent GHG emissions reduction requirement of the Act for a baseline volume of fuel ("grandfathered fuel") may generate RINs with a D code of 6 pursuant to 40 CFR 80.1426(f)(6) for that baseline volume, assuming all other regulatory requirements are satisfied.[2]

The petition process under § 80.1416 allows parties to request that the 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.

B. Required Information in Petitions

As specified in 40 CFR 80.1416(b)(1), petitions must include all of the following information, as well 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 40 CFR 1090.805.
- A technical justification that includes a description of the renewable fuel, feedstock(s), biointermediate(s) use to make it, and production process. The justification must include process modeling flow charts.
- A mass balance for the pathway, including feedstocks and biointermediates, 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.

[2] "Grandfathered fuel" refers to a baseline volume of renewable fuel produced from a facility that commenced construction before December 19, 2007, and which completed construction within 36 months without an 18-month hiatus in construction and is exempt from the minimum 20 percent GHG reduction requirement that applies to general renewable fuel. A baseline volume of ethanol from a facility that commenced construction after December 19, 2007, but prior to December 31, 2009, qualifies for the same exemption if construction is completed within 36 months without an 18-month hiatus in construction and the facility is fired with natural gas, biomass, or any combination thereof. "Baseline volume" is defined in 40 CFR 80.1401.

- Any other relevant information, including information pertaining to energy saving technologies or other process improvements.

- Other additional information as requested by the EPA 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 the EPA must also include additional information pursuant to 40 CFR 80.1416(b)(2). The regulations at 40 CFR 80.1416(c)(2) also require that the petition must be signed and certified as meeting all the applicable requirements of 40 CFR 80.1416 by the responsible corporate officer of the applicant company.

II. Available Information

A. Information Available Through Existing Modeling

The pathways described in the Scott Petroleum petition would produce biodiesel and heating oil from a feedstock, cottonseed oil, that the EPA previously evaluated in the July 2015 Cottonseed Oil FRN. Similarly, the emissions associated with biodiesel production, distribution and use have been evaluated as part of prior RFS rulemakings. Compared to previous rulemakings and Federal Register Notices, this petition only required the EPA to update background data and evaluate the Scott Petroleum Greenville Process. This was a straightforward analysis based on existing modeling done for previous rulemakings for the RFS program. The analysis completed for this petition utilized the same fundamental modeling approach as was used in previous rulemakings for the RFS program.

B. Information Submitted by the Petitioner

Scott Petroleum has supplied all the information as required in 40 CFR 80.1416 that the EPA needs to analyze the lifecycle GHG emissions associated with the Scott Petroleum Pathways. The information submitted includes a technical justification that has a description of the fuel, feedstocks used, and Scott Petroleum's proprietary production process with modeling flow charts, a detailed mass and energy balance of the process, 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 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. 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.[3]

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

- Feedstock production – based on modeling that includes direct and indirect impacts of feedstock production.
- Biointermediate production (when applicable).[4]
- 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.

The EPA's evaluation of the lifecycle GHG emissions related to the Scott Petroleum Pathways is consistent with the CAA's applicable requirements, including the definition of lifecycle GHG emissions and threshold evaluation requirements.

As described above in Section II.A, our lifecycle analysis methodology for this evaluation is based on modeling that the EPA completed for previous RFS rules and notices. Our prior lifecycle analyses of biodiesel relied on the version of the Greenhouse gases, Regulated Emissions, and Energy use in Technologies (GREET) model that was available at those times for numerous emissions factors and assumptions. As a general matter, we have updated the emissions factors for raw materials (e.g., natural gas), electricity, and transportation and distribution based on data from the R&D GREET-2023-Rev1 version of the GREET model (hereafter "the GREET model").[5] Our analysis of each component of the lifecycle, and associated data updates, is described below.

Although this determination applies to both biodiesel and heating oil produced through the Scott Petroleum Greenville Process, we only estimated the lifecycle GHG emissions associated with the

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[3] Clean Air Act section 211(o)(1)(H) (definition of lifecycle GHG emissions).

[4] Provisions covering biointermediates were finalized in the 2020-2022 RFS Standards final rule (87 FR 39600). Revisions to the facility specific petition process defined under 40 CFR 80.1416, finalized under this rule, now require parties to submit for EPA's consideration information related to any biointermediates used in the requested pathways.

[5] Wang, Michael, Elgowainy, Amgad, Lee, Uisung, Baek, Kwang H., Balchandani, Sweta, Benavides, Pahola T., Burnham, Andrew, Cai, Hao, Chen, Peter, Gan, Yu, Gracida-Alvarez, Ulises R., Hawkins, Troy R., Huang, Tai-Yuan, Iyer, Rakesh K., Kar, Saurajyoti, Kelly, Jarod C., Kim, Taemin, Kolodziej, Christopher, Lee, Kyuha, Liu, Xinyu, Lu, Zifeng, Masum, Farhad, Morales, Michele, Ng, Clarence, Ou, Longwen, Poddar, Tuhin, Reddi, Krishna, Shukla, Siddharth, Singh, Udayan, Sun, Lili, Sun, Pingping, Sykora, Tom, Vyawahare, Pradeep, and Zhang, Jingyi. Greenhouse gases, Regulated Emissions, and Energy use in Technologies Model ® (2023 Excel). Computer Software. USDOE Office of Energy Efficiency and Renewable Energy (EERE). 09 Oct. 2023. Web. doi:10.11578/GREET-Excel-2023/dc.20230907.1.

biodiesel. The biodiesel and heating oil produced by Scott Petroleum would be almost identical but for their ultimate end use. Given the purpose of this assessment, the end use emissions for biodiesel and heating oil would be very similar, and as discussed below the biodiesel fuel consumption emissions are a small component of the overall lifecycle GHG emissions. For these reasons, we are confident that a more detailed analysis of heating oil as a separate fuel would not yield meaningfully different estimates or conclusions.

Throughout our evaluation, where there are uncertainties or expert judgments that need to be made between multiple analytical assumptions that are all reasonably accurate based on the best available science and information, we intentionally lean toward choosing assumptions that are conservative (i.e., the assumption that results in greater estimated lifecycle GHG emissions relative to the other reasonable options). The purpose of lifecycle assessment under the RFS program is not to precisely estimate lifecycle GHG emissions associated with particular biofuels, but instead to determine whether or not the fuels satisfy specified lifecycle GHG emissions thresholds to qualify as one or more of the four types of renewable fuel specified in the statute (75 FR 14785). Where there are a range of possible outcomes and the fuel satisfies GHG reduction requirements for the optimum RFS renewable fuel qualification when ''conservative'' assumptions are used, then a more precise quantification of the matter is not required for purposes of a pathway determination.

Feedstock Production/Collection and Transport – The July 2015 Cottonseed Oil FRN invited comment on our analysis of the GHG emissions attributable to the production and transport of cottonseed oil feedstock for use in making biofuels such as biodiesel, renewable diesel, and jet fuel. As part of the analysis in the 2015 FRN, we said it would be reasonable to apply our modeling of the upstream GHG emissions associated with soybean oil from the March 2010 RFS2 rule (75 FR 14670) to cottonseed oil. After considering all of the comments on the FRN, for the purposes of this pathway determination we are adopting the approach in the FRN of using the soybean oil upstream GHG emissions estimate from the March 2010 RFS2 rule to estimate the GHG emissions associated with using cottonseed oil as a biodiesel and heating oil feedstock. The analysis for the March 2010 RFS2 rule estimated GHG emissions of approximately 647 grams carbon dioxide equivalent per pound of soybean oil (gCO_2e/lb) produced and transported to a biodiesel production facility, including the emissions associated with extracting oil from the soybeans. For this analysis of the Scott Petroleum Pathways, we have updated the emissions factors associated with soybean oil production and transport based on estimates from the R&D GREET-2023-Rev1 model. Based on the modeling for the March 2010 RFS2 rule and these emissions factor updates, we estimate GHG emissions of approximately 649 gCO_2e per pound of soybean oil. For the reasons discussed in the 2015 FRN, we view this as a reasonable estimate of the upstream GHG emissions associated with the use of cottonseed oil to produce biodiesel and heating oil.

Biodiesel Production – Scott Petroleum provided mass and energy balance data for biodiesel or heating produced at their Greenville facility. The data provided by Scott Petroleum is for producing biodiesel from multiple feedstocks, including cottonseed oil, soybean oil, used cooking oil and distillers corn oil. Producing biodiesel from high free-fatty acid feedstocks such as used cooking oil requires greater processing than producing biodiesel from vegetables oils such as soybean oil and cottonseed oil. In other words, the data provided by Scott Petroleum includes processing steps that are not undertaken for the biodiesel produced from cottonseed oil. Thus, the data provided by Scott

Petroleum is not appropriate for our analysis for this determination, which is specifically focused on biodiesel produced only from cottonseed oil. Therefore, instead of using the mass and energy balance provided by Scott Petroleum for biodiesel production from multiple feedstocks, we use industry average data for biodiesel produced from soybean oil from the R&D GREET model. We believe this is an appropriate analytical approach as the data provided by Scott Petroleum indicates that this facility closely aligns with industry average biodiesel production operations. In other words, based on our review of the Scott Petroleum facility data, we have high confidence that if this facility only used vegetable oil feedstock, its operations (e.g., fuel yield, quantities of process energy inputs) would closely align with the industry average operational data for biodiesel produced from soybean oil that we are using for this analysis.

The Scott Petroleum Greenville Facility uses natural gas and electricity for process energy and methanol and base catalysts for the transesterification reaction. The outputs from the processes are biodiesel or heating oil, glycerin and a mixture of unreacted fatty acids and other materials called B100 and distillate bottoms (hereafter "biodiesel bottoms"). We evaluated these processes using the same methods used in the soybean oil biodiesel lifecycle analysis for the March 2010 RFS2 rule, but we modified the process input and output data based on the information provided by Scott Petroleum.

For the March 2010 RFS2 rule, we used a displacement approach to account for glycerin produced as a coproduct of the biodiesel production process. For the 2010 analysis, we assumed the glycerin would displace fossil-based residual oil. As a result of this assumption, we estimated the emissions associated with the biodiesel production stage to be negative, i.e., the emissions benefits of displacing fossil-based residual oil with biogenic glycerin were larger than the emissions associated with natural gas, electricity and other material input to the biodiesel production process. In addition to glycerin, the Scott Petroleum Gainesville Process produces B100 bottoms and distillate bottoms as coproducts. The ultimate use of these coproducts is dictated by markets factors that are difficult to predict over the long term. Given these additional coproducts and uncertainties about how they will ultimately be used, we are less confident using the same displacement approach as the March 2010 RFS2 rule. Thus, instead of using the displacement approach, for our analysis of the Scott Petroleum Pathways, we use an energy allocation approach to evaluate all of the outputs and coproducts from the Scott Petroleum Greenville Process, including biodiesel, heating oil, B100 bottoms and distillate bottoms.

Our use of the energy allocation approach for this evaluation is consistent with the approach taken after notice and comment for the December 2022 Canola Oil Pathways rule. As part of that rule, the EPA proposed to the energy allocation approach to account for coproducts from a renewable diesel production process. After considering comments, the EPA determined that is appropriate to use energy allocation for coproducts that could potentially be used in the production of a fuel that generates RINs (87 FR 73958). The same reasons for using the energy allocation approach for that rulemaking also apply for the Scott Petroleum Pathways. Specifically, the lifecycle GHG estimates using the energy allocation approach are not sensitive to the ultimate use of the coproducts, nor are they sensitive to whether some of the coproducts qualify as RIN generating fuels at a future time. Relative to the displacement approach for biodiesel coproducts used for the March 2010 RFS2 rule, the energy allocation approach is a more conservative approach (i.e., it produces greater lifecycle GHG estimates).

In sum, based on operational data provided by Scott Petroleum, emissions factors from the R&D GREET model and the energy allocation approach for coproduct accounting, we estimate lifecycle GHG emissions of 4 gCO_2e per MJ of biodiesel output associated with the Scott Petroleum Greenville Process when cottonseed oil is used as the feedstock.

Biodiesel Transportation and Distribution – We estimated the emissions associated with transporting the finished biodiesel and heating oil to the ultimate consumer using the same methodology developed for the March 2010 RFS2 rule, but with more recent data from the R&D GREET model. Based on the R&D GREET model assumptions for average biodiesel distribution in the U.S., we assume the biodiesel is transported from the Scott Petroleum Greenville Facility to a bulk terminal 49% by barge 200 miles, 47% by pipeline 110 miles and 5% by rail 490 miles. We then assume the biodiesel is transported from the bulk terminal to a refueling station 30 miles by heavy duty truck. Overall, we estimate transportation and distribution emissions of 0.3 gCO_2e per MJ of biodiesel or heating oil. Given the relatively small contribution of distribution emissions to overall lifecycle greenhouse gas emissions, even a significantly large change in this assumption would not impact our determination of whether biodiesel and heating oil produced from cottonseed oil through the Scott Petroleum Greenville Process satisfy the 50 percent GHG reduction requirement for D code 4 RINs.

Fuel Use – The tailpipe GHG emissions associated with using biodiesel fuel in vehicles were evaluated for the March 2010 RFS2 rule. We use the same methodology for this analysis but use the more recent emissions factors from the R&D GREET model. Based on this approach, we estimate biodiesel use emissions of 1 gCO2e per MJ of biodiesel. This estimate does not include CO2 emissions from biodiesel combustion as the carbon in the fuel derived from renewable biomass is treated as biologically derived carbon originating from the atmosphere.[6] Not does this estimate include emissions associated with combustion of the fossil-based methanol portion of the biodiesel, as that portion of the biodiesel is not eligible to generate RINs.

Lifecycle GHG Results – Based on our analysis, described above, we estimated the lifecycle GHG emissions associated with biodiesel and heating oil produced through the Scott Petroleum Pathways. Table 2 summarizes our lifecycle GHG estimates. To determine if these fuels satisfy the GHG reduction requirements, we compared the lifecycle GHG emissions for biodiesel and heating oil to emissions associated with the statutory 2005 average diesel baseline of 92.6 gCO_2e per MJ of diesel. For this analysis, we use the estimates from the March 2010 RFS2 rule of the GHG emissions associated with average diesel fuel consumed in the United States in 2005, but we use global warming potential values from the IPCC Fifth Assessment Report instead of the Second Assessment Report values used for the March 2010 RFS2 rule. For the reasons discussed above, we report one set of results for biodiesel and

[6] Following the methodology developed for the March 2010 RFS2 rule, after notice, public comment, and peer review, the carbon in the fuel derived from renewable biomass is treated as biologically derived carbon originating from the atmosphere. In the context of a full lifecycle analysis, the uptake of this carbon from the atmosphere by the renewable biomass and the CO2 emissions from combusting it cancel each other out. Therefore, instead of presenting both the carbon uptake and CO2 combustion emissions, we leave both out of the results. Note that our analysis also accounts for all significant indirect emissions associated with soybean oil, such as from land use changes, meaning we do not simply assume that biofuels are "carbon neutral."

heating oil produced through the Scott Petroleum Pathways, as the difference in emissions will likely be insignificant for the purposes of this analysis. As shown in Table 2, biodiesel produced through the Scott Petroleum Greenville Cottonseed Oil Biodiesel Pathway exceeds the CAA 50% GHG reduction threshold for biomass-based diesel.

Table 2: Lifecycle GHG Emissions Estimates for Biodiesel and Heating Oil Produced from Cottonseed Oil through the Scott Petroleum Greenville Process (gCO_2e per MJ)[7]

Lifecycle Stage	**GHG Emissions**
Cottonseed Oil Upstream	22
Cottonseed Oil Extraction	15
Biodiesel Production	4
Biodiesel Downstream	1
Total Lifecycle GHG Emissions	**41**
Percent Reduction Relative to 2005 Petroleum Baseline	**56%**

B. Application of the Criteria for Petition Approval

The Scott Petroleum petition included a production process, feedstock and fuel products already considered as part of the March 2010 RFS2 rule and the July 2015 Cottonseed Oil FRN. Scott Petroleum provided all the 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, the EPA conducted a lifecycle assessment and determined that biodiesel and heating oil produced from cottonseed oil through the Scott Petroleum Greenville Process meets the 50 percent lifecycle GHG threshold requirement specified in the CAA for biomass-based diesel. The lifecycle GHG results presented above justify authorizing the generation of D code 4 RINs for biodiesel and heating oil produced through the Scott Petroleum Pathways, assuming that the fuel satisfies the applicable criteria for renewable fuel (e.g., produced from renewable biomass, and used to reduce or replace the quantity of fossil fuel present in transportation fuel, heating oil or jet fuel) specified in the CAA and EPA implementing regulations.

IV. Conditions and Associated Regulatory Provisions

[7] Totals may not be the sum of the rows due to rounding.

The EPA's approval of a pathway for biodiesel and heating oil produced from cottonseed oil through the Scott Petroleum Greenville Process to generate D code 4 RINs is predicated on the circumstances and analysis described in this document. Scott Petroleum must adhere to the general RIN generation, registration, recordkeeping, and reporting requirements in 40 CFR Part 80, Subpart M that apply to renewable fuel producers. We are not specifying any additional special conditions for the pathways approved in this document beyond the requirements that apply to renewable fuel producers under Subpart M. We have determined that the approved pathways are similar to the existing pathways in Row F of Table 1 to 40 CFR 80.1426 for biodiesel and heating oil produced from soybean oil, and thus the regulatory requirements for these pathways shall be similar to those that apply for those existing pathways. Furthermore, as the biodiesel production process used in the Scott Petroleum Pathways is a mature technology modeled, we do not believe that it is necessary to make this facility-specific determination conditional upon ongoing measurement of operational data and calculations of lifecycle emissions. The EPA may add conditions to this pathway determination as it deems necessary and appropriate to ensure that fuel produced pursuant to the Scott Petroleum Pathways achieves the required lifecycle GHG reductions, including to make the conditions align with any future changes to the RFS regulations. If EPA makes any changes to the conditions noted in this document for fuel produced pursuant to the Scott Petroleum Pathways, the Agency will explain such changes in a public determination letter, similar to this one, and specify in that letter the effective date for any such changes.

V. Public Participation

The definition of advanced biofuel in CAA 211(o)(1)(B)(i) 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 RFS2 rule (75 FR 14670), we responded to public comments received on our lifecycle assessment of biodiesel produced from soybean oil feedstock through a transesterification process, including all models used and all modeling inputs and evaluative approaches. In the July 2015 Cottonseed Oil FRN (80 FR 41033) we invited comment on our assessment of the GHG emissions associated with producing and transporting cottonseed oil for use as a biodiesel feedstock.

Additionally, in the March 2010 RFS2 rule we acknowledged that it was unlikely that those final regulations would address all possible qualifying fuel production pathways. Based on our consideration of comments received on our proposed approach of using temporary D codes for new pathways undergoing EPA evaluation, we instead finalized a different approach: the current petition process. This process allows 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 75 FR 14797 (March 26, 2010).

In July 2015, we published a Federal Register Notice inviting comment on our analysis of the GHG emissions attributable to the production and transport of cottonseed oil feedstock for use in making biofuels such as biodiesel, renewable diesel, and jet fuel (80 FR 41033). Based on the analysis in that FRN, we proposed to apply our estimate, from the March 2010 RFS2 rule, of the upstream GHG

emissions associated with soybean oil feedstock production and transport, including indirect agricultural and forestry sector impacts, to future evaluations of petitions proposing to use cottonseed oil as a feedstock for biofuel production. The docket associated with this notice was open for comment for 30 days and closed on August 13, 2015. EPA received three comments in response to the Notice.[8]

All of the comments on the July 2015 Cottonseed Oil FRN on EPA's analysis of the upstream GHG emission associated with using cottonseed oil as biodiesel feedstock were supportive of that analysis. Other comments, besides the statements of support for our analysis, were about the petition process for new renewable fuel pathways under the RFS program at 40 CFR 80.1416. For example, commenters said that EPA should add cottonseed oil to Table 1 of 80.1426 to make it a generally applicable pathway. Other commenters said EPA should clarify certain aspects of its instructions to petitioners about what information is required in facility-specific petitions. If any of the comments had raised any substantive issues related to our analysis of cottonseed oil or the lifecycle GHG emissions associated with cottonseed oil biodiesel we would have addressed them in this determination. However, because all of the comments were about the petition process for new fuel pathways at 40 CFR 80.1416, they are not relevant to the EPA's analysis of upstream GHG emissions associated with the use of cottonseed oil as a biodiesel feedstock or to the facility-specific pathway determinations in this document and we are not responding to them here.

As discussed above in the Biodiesel Production part of Section III.A, our analysis of the Scott Petroleum Pathways uses the energy allocation approach to account for coproducts from the biodiesel production process. As part of the December 2022 Canola Oil Pathways rule the EPA proposed to use the energy allocation approach to account for coproducts from a renewable diesel production process (87 FR 22838). We received two comments on this topic.[9] After considering these comments, the EPA determined that it is appropriate to use energy allocation for coproducts that could potentially be used in the production of a fuel that generates RINs (87 FR 73958), as is the case for the coproducts from the Scott Petroleum Greenville Process.

In responding to this petition, we have largely relied on the same modeling and analysis that we conducted for the March 2010 RFS rule and the July 2015 Cottonseed Oil FRN. This includes use of the same emission factors and types of emission sources that were used in previous 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 RFS2 Rule, the treatment of facility-specific cottonseed oil biodiesel petitions in the July 2015 Cottonseed Oil FRN, our treatment of coproduct accounting for the December 2022 Canola Oil Pathways rule, and our promulgation of 40 CFR 80.1416, as our work in responding to the petition was a logical extension of analyses already conducted.

VI. Conclusion

[8] See docket EPA–HQ–OAR–2015–0092

[9] Docket Item No. EPA-HQ-OAR-2021-0845-0079 and EPA-HQ-OAR-2021-0845-0072.

Based on our assessment, biodiesel and heating oil produced from cottonseed oil through the Scott Petroleum Greensville Process qualifies for D code 4 RINs, provided the fuel meets the applicable criteria for renewable fuel (e.g., produced from renewable biomass, and used to reduce or replace the quantity of fossil fuel present in transportation fuel, heating oil or jet fuel) specified in the CAA and EPA implementing regulations.

This approval applies specifically to the Scott Petroleum Greenville Facility and to the process, materials used, fuels produced, and process energy types and amounts outlined and described in the petition requests submitted by Scott Petroleum.[10] This approval is effective as of signature date. RINs may only be generated for biodiesel and heating oil produced through the Scott Petroleum Pathways that is produced after the date of activation of the registration for this new pathway.[11]

The OTAQ Reg: Fuels Programs Registration and OTAQ EMTS Application will be modified to allow Scott Petroleum to register and generate RINs for biodiesel and heating oil produced from cottonseed oil using a production process of "Scott Petroleum Greensville Process."

[10] As with all pathway determinations, this approval does not convey any property right of any sort, or any exclusive privilege.

[11] A fuel pathway is activated under the RFS program when the EPA accepts the registration application for the pathway, allowing it to be used in EMTS for RIN generation. When the EPA accepts a registration application, an email is automatically sent from otaqfuels@epa.gov to the responsible corporate officer (RCO) of the company that submitted the registration application. The subject line of such an email includes the name of the company and the company request (CR) number corresponding with the registration application submission, and the body of the email says the company request "has been activated."