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

March 15, 2022

OFFICE OF
AIR AND RADIATION

Mr. Ronald Miller
President
Agresti Energy, LLC
8888 Keystone Crossing, Suite 1300
Indianapolis, Indiana 46240

Dear Mr. Miller:

You petitioned the Agency on August 5, 2019, on behalf of Agresti Energy to approve a pathway for the generation of cellulosic biofuel (D-code 3) renewable identification numbers (RINs) for renewable compressed natural gas (CNG) produced from biogas from an agricultural digester, through a proprietary process that uses hydrolysis and anaerobic digestion (the "Agresti Energy AD Pathway").

Through the petition process provided under 40 CFR 80.1416, Agresti Energy submitted data to EPA to perform a lifecycle greenhouse gas analysis of CNG from biogas from an agricultural digester that processes cellulosic sugars produced through a pressure hydrolysis process from agricultural digester digestate, crop reside, separated yard waste, and manure. This analysis used the same methodology and much of the same modeling from the March 2010 RFS2 rule (75 FR 14670) and the July 2014 Pathways II rule (79 FR 42128) but includes new analysis to introduce the pressure hydrolysis process that was not previously analyzed. This analysis also included the evaluation of Agresti Energy's proposed facilities in Stevens and Swift County, Minnesota and Jasper County, Indiana, and consideration of more recent data.

Based on our assessment, CNG produced through the Agresti Energy AD Pathway qualifies under the Clean Air Act (CAA) for D-code 3 RINs, provided the fuel meets all of the conditions specified in this document and all other applicable statutory and regulatory requirements, including the definitional 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).

This approval applies specifically to Agresti Energy's facilities in Stevens County, Minnesota, Jasper County, Indiana, and Swift County, Minnesota, and to the process, materials used, fuels produced, and process energy types and amounts outlined and described in the August 2019 petition request submitted by Agresti Energy.

The Renewable Fuel Standard registration and RIN tracking systems will be modified to allow Agresti Energy to register these three specific facilities and then generate cellulosic RINs for CNG produced through the Agresti Energy AD Pathway.

Sincerely,

Sarah Dunham, Director
Office of Transportation and Air Quality

Enclosure

Agresti Energy Fuel Pathway Determination under the RFS Program
Office of Transportation and Air Quality

Summary: Agresti Energy petitioned the Agency under the Renewable Fuel Standard (RFS) program to approve a pathway that would allow them to generate cellulosic biofuel (D-code 3) renewable identification numbers (RINs) for compressed natural gas (CNG) produced from biogas from an agricultural digester. Agresti Energy's process utilizes agricultural digester digestate as a feedstock, which is digestate resulting from anaerobic digestion of crop residue, separated yard waste and/or animal manure. The digestate feedstock is subjected to pressure hydrolysis, which uses wet oxidation and weak acid hydrolysis under high temperature and pressure to break down lignin and convert hemicellulose and cellulose into sugar. This process takes place in a vertical reactor vessel that extends deep into the ground and uses gravity to create high pressure at the bottom of the vessel. The resulting cellulosic sugar solution is then injected into an anaerobic digester, where the sugar is converted to biogas. The biogas is then purified, compressed, and injected into a common carrier natural gas pipeline. Ultimately, the gas is removed from the pipeline at a refueling station, compressed, and sold as CNG. We refer to this entire set of steps including all of the feedstocks, processes, and conditions specified below as the "Agresti Energy AD Pathway."

The difference between this analysis and the analyses completed for these previous assessments was the evaluation of Agresti Energy's facility-specific process data, transport of the feedstock to the facility, and evaluation of tailpipe emissions from CNG. The fuel pathway for which Agresti Energy requested our evaluation is the type of new pathway that EPA described in the preamble to the March 2010 RFS rule as capable of being evaluated by comparing the applicant's fuel pathway to pathways that have already been analyzed. This analysis involved a straightforward application of the same methodology and modeling used for the March 2010 RFS2 rule (75 FR 14670) and the July 2014 Pathways II rule (79 FR 42128). Based on our analysis, we have determined that CNG produced from the Agresti Energy AD Pathway meets the 60% lifecycle greenhouse gas reduction requirement for cellulosic biofuel.

This document is organized as follows:

- *Section I. Required Information and Criteria for Petition Requests*: Information on the background and purpose of the petition process, the criteria EPA uses to evaluate petitions and the information that is required to be provided under the petition process as outlined in 40 CFR 80.1416. This section applies to all petitions submitted pursuant to 40 CFR 80.1416.
- *Section II. Available Information*: Background information on Agresti Energy, the information that they provided and how it complies with the petition requirements outlined in Section I.

- *Section III. Analysis and Discussion*: Description of the lifecycle analysis done for this determination and how it differs from the analyses done for previous assessments. This section also describes how we have applied the lifecycle results to determine the appropriate D-code for CNG produced through the Agresti Energy AD Pathway.
- *Section IV. Conditions and Associated Regulatory Provisions:* Registration, reporting, and recordkeeping requirements for CNG produced through the Agresti Energy AD Pathway.
- *Section V. Public Participation*: Description of how this petition is an extension of the analyses done as part of prior notice and public comment processes.
- *Section VI. Conclusion*: Summary of our conclusions regarding the Agresti Energy petition.

I. Required Information and Criteria for Petition Requests

A. Background and Purpose of Petition Process

In 2010, EPA revised the RFS regulations at 40 CFR part 80 as a result of the 2007 Energy Independence and Security Act's (EISA) amendments to Clean Air Act section 211(o). The RFS regulations 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 RINs for the qualifying renewable fuels they produce through approved fuel pathways.[1]

Pursuant to 40 CFR 80.1426(f)(1):

> *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 40 CFR 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 comprises a fuel pathway and is assigned a D-code. EPA may also approve additional generally applicable fuel pathways into Table 1 for participation in the RFS program, or a third party may petition for EPA to evaluate a new, facility-specific fuel pathway in accordance with 40 CFR 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]

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[1] See EPA's website for information about the RFS regulations and associated rulemakings: https://www.epa.gov/renewable-fuel-standard-program

[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

The petition process under 40 CFR 80.1416 allows parties to request that EPA evaluate a potential new fuel pathway's lifecycle GHG emissions 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 for new renewable fuel pathways 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 (Contents of registration for EPA's fuels programs).
- 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.
- 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.
- 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 Agresti Energy

Agresti Energy petitioned the Agency to approve a pathway that would allow them to generate cellulosic biofuel (D-code 3) RINs for CNG produced through the Agresti Energy AD Pathway. This pathway includes a pressure hydrolysis process that EPA had not previously evaluated under the RFS program.

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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.

B. Information Available Through Existing Modeling

The pathway described in the Agresti Energy petition would produce CNG from biogas from an agricultural digester that processes cellulosic sugars produced through a pressure hydrolysis process from agricultural digester digestate, crop reside, separated yard waste and manure. EPA previously evaluated biofuel produced from biogas from an agricultural digester in the March 2010 RFS2 rule (75 FR 14670) and July 2014 Pathways II rule (79 FR 42128) (see Table 1). We relied on the existing agricultural digester modeling approach in our evaluation of the Agresti Energy AD Pathway. Differences between this analysis and the analyses completed for previous assessments include the use of digestate from agricultural digester as a feedstock, facility-specific data on Agresti Energy's agricultural digester process as well as the evaluation of process data from Agresti Energy on the pressure hydrolysis process, transport, and distances of the feedstocks to the Agresti Energy facility. The analysis completed for this petition utilized the same fundamental modeling approach as was used in previous rulemakings for the RFS program.

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

Row	Fuel Type	Feedstock	Production Process Requirements	D-Code
Q	**Renewable Compressed Natural Gas**, **Renewable Liquefied Natural Gas**, Renewable Electricity	Biogas from landfills, municipal wastewater treatment facility digesters, **agricultural digesters**, and separated MSW digesters; and biogas from the cellulosic components of biomass processed in other waste digesters	Any	**3 (Cellulosic biofuel)**

C. Information Submitted by Agresti Energy

Agresti Energy supplied all the information as required in 40 CFR 80.1416 that EPA needed to analyze the lifecycle GHG emissions associated with the CNG produced through the Agresti Energy AD Pathway. The information submitted included a technical justification describing the requested pathway, modeling flow charts, a detailed mass and energy balance of the processes involved with information on co-products as applicable, and other additional information as needed to complete the lifecycle GHG assessment. The process modeling flow charts, mass and energy balance data and other details about the production process were submitted under claims of confidential business information.

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. As mandated by CAA 211(o), the lifecycle 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 and other 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 CNG produced through the Agresti Energy AD Pathway under this petition request is consistent with the CAA's applicable requirements, including the definition of lifecycle GHG emissions and threshold evaluation requirements. In general, the analysis described below is based on "conservative" assumptions (i.e., assumptions that results in higher estimated lifecycle GHG emissions). 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. 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 – As part of the proposed pathway, Agresti Energy would produce biogas from an agricultural digester that processes cellulosic sugars produced through a pressure hydrolysis process from agricultural digester digestate, crop reside, separated yard waste and manure. Digestate is the material that is left over following the anaerobic digestion process. It is the result of conventional digesters being unable to completely convert the cellulosic,

hemicellulosic, and sludge leftovers to biogas. Digestate is a mixture that is usually separated into a solid and a liquid. The digestate that would be used in the pathway would come from an anaerobic digester and would therefore be derived from crop residue, separated yard waste or animal manure renewable biomass.

As a conservative assumption for lifecycle analysis, we evaluated a scenario where digestate is collected from multiple agricultural digesters and transported to Agresti Energy's facility for processing through the pressure hydrolysis process.[3] Based on information from the petitioner, we assumed that average hauling distance of the digestate feedstock will be up to 120 miles per day, at six miles per gallon diesel fuel, leading to a diesel fuel use of 20 gallons per day. Diesel loaders for moving and processing the digestate feedstock are assumed to use another 80 gallons of diesel fuel use per day.

Digestate resulting from the agricultural digester process has multiple potential fates or end uses. In addition to being processed through the pressure hydrolysis process, digestate has the potential to be used as bedding for livestock, flower potting, soil amendment, or fertilizer. The fate of the digestate depends on multiple factors including management practices and digestate volumes and need within a given area. Digestate can act as a soil amendment and crop nutrient resource that can replace some chemical fertilizers for crops. Agresti Energy states that phosphorous, nitrogen, and inorganic salts that could be used as inputs to fertilizers are discharged effluents from the pressure hydrolysis process and agricultural digester used in their pathway and could be recoverable but are not currently. Based on a lack of data, we did not include potential avoided methane emissions from stored digestate, increased emissions from chemical fertilizer production to replace digestate spreading, and energy associated with spreading and injecting digestate to fields. We would expect these emissions to be minor and largely offset each other.

Fuel Production – Most unique to this pathway, as compared to Pathway Q from Table 1 to 40 CFR 80.1426, is Agresti Energy's inclusion of a pressure hydrolysis process (using a gravity pressure vessel to perform wet oxidation and acid hydrolysis under high pressure) to convert hemicellulose and cellulose found in digestate into a sugar solution that is then fed into an agricultural digester and more readily converted to biogas. Agresti may add additional feedstocks to the pressure hydrolysis process that are conventionally used in an agricultural digester such as crop residue, separated yard waste or manure. The resulting raw biogas will then be cleaned up and upgraded to remove contaminants and unwanted gases such as water vapor, sulfur, oxygen, CO_2, nitrogen, and VOCs to reach a high purity of methane. Our lifecycle analysis assumed the resulting renewable biogas would meet pipeline quality specifications.

[3] See Section IV.D (Requirements for Feedstock Sourcing) of this document for conditions related to the use of digestate sourced from another facility.

Agresti Energy provided mass and energy balance data for biogas production at their facility. These data are claimed as confidential business information. For chemical inputs, we used emission factors from the GREET model to estimate the upstream emissions associated with producing major inputs such as electricity, diesel fuel, natural gas, and oxygen.[4]

For electricity inputs, we used the latest emission factors from the GREET model representing the average GHGs for the U.S. electricity grid. GREET's electricity estimates rely on data from EIA and U.S. EPA regarding the sources of U.S. electricity generation, including the newest available eGRID database.[5]

Methane leakage is an important factor regarding biogas and methane production due to its relatively high global warming potential (GWP) relative to carbon dioxide. We account for potential methane leakage using GREET assumptions based on studies that evaluated large-scale natural gas production and smaller scale biogas production. We assume that two percent of the methane gas leaks from the agricultural digester, clean-up, compression, and pipeline injection stages. Consistent with the most recent publish data, this analysis uses 100-year global warming potential (GWP) values IPCC's *Fifth Assessment Report (AR5)*.[6]

Fuel Transport and Use – For this analysis we used factors from GREET to calculate the emissions associated with transporting methane gas by pipeline injection and compressing the gas to CNG, as well as the non-CO_2 tailpipe emissions from using renewable CNG as transportation fuel.

We assumed the methane gas is compressed and injected into a common carrier natural gas pipeline to be transported for 50 miles.[7] Based on GREET, we assumed that 46 Btu of natural gas energy is used for pipeline operation per million British thermal unit (mmBtu) mile of gas transport, and 0.12 grams of methane leakage from the pipeline network per mmBtu-mile of gas transport. Once the gas reaches the vehicle refueling location it is compressed again to allow for fast refueling of CNG vehicles. Based on GREET, we assumed 21,820 Btu of grid electricity is used for compression per mmBtu of CNG produced. Emissions from vehicle combustion of CNG were based on the GREET non-CO_2 GHG emissions factors for a dedicated CNG vehicle.

Coproducts – Based on their petition, Agresti Energy is planning to recover carbon dioxide, lignin, and materials that could be used as fertilizer, such as phosphorus and nitrogen, from their process. Depending on the ultimate use of these coproducts, their production and use could displace the need to produce other products and thus reduce GHG emissions. However, there is uncertainty

[4] Material and electricity input emissions factors were based on values from GREET-2021.
[5] Emissions & Generation Resource Integrated Database (eGRID). Available at: https://www.epa.gov/egrid
[6] IPCC AR5 Climate Change Synthesis Report. Available at: https://www.ipcc.ch/report/ar5/
[7] GREET assumes natural gas CNG is pipelined 750 miles, but that landfill biogas is pipelined only 50 miles.

regarding the ultimate use of these products. As a conservative approach, we did not assume that these recovered materials would displace the production of other products.

Lifecycle GHG Results – Based on our analysis described above, we estimated the lifecycle GHG emissions associated with CNG produced through the Agresti Energy AD Pathway using as feedstock biogas from agricultural digesters that receive crop residues, separated yard waste, manure, and digestate. Table 3 shows the lifecycle GHG emissions associated with the CNG produced through this pathway. In general, this estimate is based on "conservative" assumptions (i.e., assumptions that results in higher estimated lifecycle GHG emissions).

As shown in Table 3, CNG produced through the Agresti Energy AD Pathway exceeds the CAA's 60% GHG reduction threshold for cellulosic biofuel. The CAA stipulates that the percent reduction is determined based on a comparison with the average 2005 diesel or gasoline, depending on which one is replaced by the biofuel in question. We compared CNG with baseline diesel because CNG transportation fuel is most commonly used in transit buses, fleet vehicles, and medium and heavy-duty vehicles that would be more likely to use diesel than gasoline in the baseline scenario.

Table 3: Lifecycle GHG Emissions for CNG Produced Through the Agresti Energy AD Pathway (kgCO2e/mmBtu)[8]

Lifecycle Stage	Agresti Energy AD Pathway	2005 Diesel Baseline
Feedstock Transport		79
Feedstock Trucking	0.3	
Fuel Production		
Feedstock Separation and Loading	5.6	
Pressure Hydrolysis Process	4.3	
Agricultural Digester	4.8	
Biogas Upgrading and Leakage	19.5	
Downstream		
Distribution	3.1	
Tailpipe	1.0	18
Net Emissions	**38.6**	**97**
Percent Reduction Relative to Baseline	**60.2%**	**--**

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

B. Application of the Criteria for Petition Approval

The Agresti Energy petition request included a feedstock category and fuel product already considered as part of the March 2010 RFS rule (75 FR 14670) and the July 2014 RFS rule (79 FR 42128) however Agresti Energy intends to use a pressure hydrolysis process that was not considered as part of those previously evaluated production processes. Agresti Energy provided all necessary information that was required to evaluate that production process 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 the CNG produced through the Agresti Energy AD Pathway meets the 60 percent lifecycle GHG threshold requirement specified in the CAA for cellulosic biofuel.

The lifecycle GHG results presented above justify authorizing the generation of D-code 3 RINs for CNG produced through the Agresti Energy AD Pathway, assuming that the fuel satisfies the definitional and other requirements 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

The authority for Agresti Energy to generate RINs for CNG produced through the Agresti Energy AD Pathway is expressly conditioned on Agresti Energy satisfying all of the following conditions as detailed in this section, in addition to the other applicable requirements for renewable fuel producers set forth in the RFS regulations. The conditions in this section are enforceable under the CAA. They are established pursuant to the informal adjudication reflected in this decision document, and also pursuant to any regulations cited below and 40 CFR 80.1426(a)(1)(iii), 40 CFR 80.1416(b)(1)(vii), 80.1450(i), and 80.1451(b)(1)(ii)(W). In addition or in the alternative to bringing an enforcement action under the CAA, EPA may revoke this pathway approval if it determines that Agresti Energy has failed to comply with any of the conditions specified herein. EPA has authority to bring enforcement action of these conditions under 40 CFR 80.1460(a), which prohibits producing or importing a renewable fuel without complying with the RIN generation and assignment requirements. These conditions are also enforceable under 40 CFR 80.1460(b)(2), which prohibits creating a RIN that is invalid; a RIN is invalid if it was improperly generated. Additionally, pursuant to 40 CFR 80.1460(b)(7) generating a RIN for fuel that fails to meet all of the conditions set forth in this petition determination is a prohibited act. In other words, unless all of the conditions specified in this section are satisfied, fuel cannot be validly produced through the pathway approved in this document.

This pathway determination does not impose additional constraints or conditions (e.g., electricity usage per mmBtu of produced biofuel) as the pathway was able to meet the required GHG threshold using conservative LCA assumptions.

EPA may modify the conditions specified, as it deems necessary and appropriate to ensure that fuel produced pursuant to the Agresti Energy AD Pathway 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 Agresti Energy AD Pathway, 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.

A. RIN Generation, Registration, Reporting and Recordkeeping Requirements

Agresti Energy must adhere to the general RIN generation, registration, recordkeeping, and reporting requirements in 40 CFR Part 80 that apply to renewable fuel producers, including the requirements for cellulosic feedstocks and resulting cellulosic biofuels. These requirements are found at 40 CFR 80.1426 for RIN generation, 40 CFR 80.1450 for registration, 40 CFR 80.1451 for reporting, and 40 CFR 80.1454 for recordkeeping. This condition applies to all pathways approved through the petition process provided at 40 CFR 80.1416, but we restate it here for clarity and emphasis.

B. Requirements for CNG Sold for Use as Transportation Fuel

The RFS regulations include requirements for CNG produced from biogas. For example, these sections of the regulations include the requirement that the quantity of CNG for which RINs were generated was sold for use as transportation fuel and for no other purposes. The regulations include but are not limited to the RIN generation requirements at 40 CFR 80.1426(f)(10)(ii) or (11)(ii) as applicable, the registration requirements at 40 CFR 80.1450(b)(1)(v)(D), and the recordkeeping requirements at 40 CFR 80.1454(k)(1). If the RFS regulatory requirements at 40 CFR Part 80 related to CNG and are supplemented or revised in the future, Agresti Energy must continue to satisfy all of the relevant new or revised regulatory requirements that apply to CNG.

C. Requirements for Allowable Feedstocks

Under the Agresti Energy AD Pathway, Agresti Energy must only use animal manure, crop residues, separated yard waste, or digestate from an agricultural digester, as described in this pathway determination, as allowable feedstocks.

Digestate as a feedstock under the Agresti Energy AD Pathway may only come from an agricultural digester. The RFS regulations at 40 CFR 80.1401 define an agricultural digester as "an anaerobic digester that processes predominantly cellulosic materials, including animal manure, crop residues, and/or separated yard waste." EPA determined that animal manure, separated yard waste and crop residues were each composed predominantly (75% or more) of cellulosic material, and on that basis determined that fuel derived from agricultural digester biogas would appropriately be considered

cellulosic biofuel (assuming that renewable biomass requirements are satisfied).[9,10] Separated yard waste is defined at 40 CFR 80.1426(f)(5)(i)(A), and crop residue is defined at 40 CFR 80.1401.

D. Requirements for Feedstock Sourcing

Digestate delivered from an agricultural digester not located within Agresti Energy's facility boundaries would be considered to be partially processed and is no longer recognizable as crop residue, separated yard waste, or manure. For example, digestate produced at one of Agresti Energy's facilities and sent to another facility owned by Agresti Energy would be considered partially processed. However, as noted in the biointermediates section of the RFS Annual Rules notice of proposed rulemaking, EPA designed the existing regulations with the expectation that renewable biomass would be converted into renewable fuel at a single facility, and regulatory changes are necessary to both generally allow such practices, and to provide the necessary registration, reporting, and recordkeeping requirements that will facilitate appropriate oversight by the EPA.[11]

As of the publication of this determination document, there are a number of technical, regulatory, and implementation issues that the agency has decided need to be addressed before facilities can produce renewable fuel that is eligible to generate RINs using "biointermediates," or renewable biomass that has been partially processed, as a feedstock under the RFS program. EPA is re-proposing biointermediates provisions as part of the RFS Annual Rules notice of proposed rulemaking (NPRM) signed December 7, 2021. These proposed changes impact what biointermediates would be allowed under the program and what parties that produce, transfer, and use biointermediates would need to do to demonstrate compliance. This rule is not yet finalized at the time of this determination document. Therefore, digestate produced outside of Agresti Energy's facility boundaries is not permissible as a feedstock under this pathway determination until EPA promulgates regulations for the use of biointermediates which would include any appropriate registration, recordkeeping, and reporting in place, and specifically designates digestate from agricultural digesters as an approved biointermediate. Based on these considerations, until such time that EPA promulgates regulations that would allow the use of digestate as a biointermediate, Agresti Energy must not use digestate obtained from outside a specific Agresti Energy facility's boundary as feedstock to generate RINs.[12]

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[9] 79 FR 42128, 42140 (July 18, 2014).

[10] See id; see also Memo to the docket: "Support for Classification of Biofuel Produced from Waste Derived Biogas as Cellulosic Biofuel and Summary of Lifecycle Analysis Assumptions and Calculations for Biofuels Produced from Waste Derived Biogas," available at www.regulations.gov at docket reference EPA-HQ-OAR-2012-0401-0243

[11] 86 FR 72436 (December 21, 2021).

[12] Also note, should EPA promulgate regulations that allows for the use of digestate obtained from outside of Agresti Energy's facility boundaries as a biointermediate, Agresti Energy would need to comply with any and all applicable registration, reporting, and recordkeeping requirements prior to using the biointermediate to produce biogas.

For the purposes of calculating lifecycle GHG emissions, this pathway determination has conservatively assumed that digestate is transported from other locations to Agresti Energy's fuel processing facility and still meets the required 60% GHG reduction threshold necessary to generate cellulosic biofuel (D-code 3) RINs. Therefore, should EPA promulgate regulations that allows for the use of biointermediates, EPA does not anticipate that an update to this pathway determination for the use of digestate transported from other locations to Agresti Energy's fuel processing facility would be necessary.

V. Public Participation

The definition of cellulosic biofuel in CAA 211(o)(1) specifies that the term means renewable fuel that is "derived from any cellulose, hemicellulose, or lignin that is derived from renewable biomass and that has lifecycle greenhouse gas emissions, as determined by the Administrator, that are at least 60 percent less than the baseline lifecycle greenhouse gas emissions." As part of the March 2010 RFS2 rule (75 FR 14670) and the July 2014 Pathways II rule (79 FR 42128), we took public comment on our lifecycle assessment of pathways involving the production of CNG, the use of crop residue and separated yard waste as feedstocks, and the use of anaerobic digestion, including all models used and all modeling inputs and evaluative approaches.

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 75 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 RFS2 rule and the July 2014 Pathways II rule and have adjusted the analysis to account for Agresti Energy's process data, transport of the feedstocks to the facility, and evaluation of tailpipe emissions from CNG. This includes use of the same 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 "cellulosic biofuel." Our approach today is also consistent with our description of the petition process in the preamble to the March 2010 RFS 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

Based on our assessment, CNG produced through the Agresti Energy AD Pathway, as defined in the upfront summary of this determination document, qualifies for D-code 3 RINs, provided all the conditions and associated regulatory provisions specified in Section IV of this document are satisfied, and the fuel meets the other definitional 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 Agresti Energy facilities in Stevens County, Minnesota, Jasper County, Indiana, and Swift County, Minnesota, and to the process, materials used, fuels produced, and process energy types and amounts outlined and described in the petition request submitted by Agresti Energy.[13] This approval is effective as of signature date. RINs may only be generated for CNG produced through the Agresti Energy AD Pathway[14] that is produced after the date of activation of Agresti Energy's registration for the new pathway.[15]

The OTAQ Reg: Fuels Programs Registration and OTAQ EMTS Application will be modified to allow Agresti Energy to register and generate RINs for compressed natural gas produced from biogas produced from the Agresti Agricultural Digester (AD) Process using a production process of "Agresti Energy AD Pathway."

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

[14] A fuel pathway is activated under the RFS program when EPA accepts the registration application for the pathway, allowing it to be used in EMTS for RIN generation. When 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." After the Agresti Energy AD Pathway has been activated, Agresti Energy may use biogas produced from an agricultural digester via a proprietary process that includes a pressure hydrolysis process using digestate and may include crop residue, separated yard waste, or manure to generate D-code 3 RINs for fuel produced through the Agresti Energy AD Pathway.

[15] As referenced in the Requirements for Feedstock Sourcing section of this document, until EPA approves the use of digestate as a biointermediate, Agresti Energy may not use digestate obtained from outside a specific Agresti Energy facility's boundary as feedstock to generate RINs.