CALIFORNIA AIR RESOURCES BOARD

Low Carbon Fuel Standard
Tier 2 Pathway Application

Application No. B0771 Updated: 3/27/2025 (See Underlined Text)

Staff Summary

Anew RNG, LLC
Grady Swine Facility, Turkey, North Carolina
Compressed Natural Gas (CNG) from Swine Manure

Intermediate Facility:
Kilpatrick Farm (F00712), Magnolia, North Carolina
Goodson Farm (F00713), Turkey, North Carolina
M&M-Waters Farm (F00714), Magnolia, North Carolina
Dell Farm (F00715), Magnolia, North Carolina
DM Section 2 (73661), Magnolia, North Carolina
DM Farm Section 3 (F00716), Magnolia, North Carolina

Deemed Complete Date: 12/5/2024
Posted for Comment Date: 3/7/2025
Carbon Intensity (CI) Certified Date: 3/27/2025
CI Start Date: 10/1/2024

Pathway Summary

Anew RNG, LLC seeks provisional certification of a Tier 2 pathway for biomethane (Bio-CNG)[1] production at Grady Swine Facility (Grady) in Turkey, North Carolina. Biogas is produced from anaerobic digestion of swine manure sourced from six farms: Kilpatrick Farm, Goodson Farm, M&M-Waters Farm, Dell Farm, DM Section 2, and DM Farm Section 3. All farms are in Magnolia, North Carolina except Goodson Farm which is located in Turkey, North Carolina. Biogas is purified and upgraded to biomethane to meet common carrier pipeline specifications, injected into the Piedmont Natural Gas Gathering line and ultimately dispensed for transportation use in CNG vehicles in California as bio-CNG using book-and-claim accounting.[2]

Anew RNG, LLC owns the environmental attributes associated with the biomethane and sells these attributes using book-and-claim accounting through its contracted California transportation fuel dispensers. This project participates in the federal

[1] "Bio-CNG" means biomethane which has been compressed to CNG. Also referred to herein as biomethane or renewable natural gas (RNG).
[2] All citations to the LCFS Regulation are found in Title 17, California Code of Regulations (CCR), section 95480-95503. Book-and-claim accounting for biomethane is primarily addressed in section 95488.8(i) of the LCFS Regulation.

Renewable Fuel Standard Program but has never participated in the California Cap-and-Trade Offset Program.

The table below summarizes the participating farms' information including year the lagoons and digesters were constructed, approximate livestock population and the driving distance to the fuel upgrading facility.

Farm Name	Year Farm was Stablished	Year(s) Anaerobic Lagoons were Installed	Date Digester(s) was Installed	Approximate Livestock Population	Approximate Driving Distance between Farm and Facility (mile)
Kilpatrick Farm	1985	1995,1996	8/2021	10,710	12.1
Goodson Farm	1987	1987, 1994	9/2021	10,050	4.5
M&M-Waters Farm	1989	1989, 1995	8/2021	8,230	9.7
Dell Farm	1984 and 1994	1984, 1994, 1995	4/2022	21,010	12
DM Section 2	1994	1994	10/2023, 2/2024	22,680	13
DM Farm Section 3	1994-1995	1994, 1995	5/2022	14,110	11.6

Under the baseline condition at all farms, the swine manure fell through slatted floors, where the recycled water was periodically used to flush through the sub-floor gutter, and direct manure flow to anaerobic lagoons. Under the project condition, manure is collected the same way as baseline, however, the manure then flows through a gravity pipe to reach the digesters. The effluent from the digesters is pumped to secondary storage lagoons. Some of this wastewater is used to flush through the barns, while the remaining wastewater is stored in open lagoons and ultimately land applied. The covered lagoon digesters capture methane that would otherwise be emitted to the atmosphere under baseline manure treatment in the anaerobic lagoons.

Grady collects biogas produced at all six farms via underground piping. The biogas upgrading system separates the raw biogas into pipeline grade RNG and tail-gas, utilizing an Amine upgrading system. The produced RNG is then pipelined and injected into a nearby (approximately 3 miles away) Piedmont Natural Gas Gathering line. Pipeline-injected RNG is delivered to CNG vehicle fueling stations in California using indirect ("book-and-claim") accounting.

Carbon Intensity of Fuel Type Pathways

The CI is determined from life cycle analysis conducted using a modified version of the Board-approved Tier 1 Simplified CI Calculator for Biomethane from Anaerobic

Digestion of Dairy and Swine Manure.[3] The calculator was modified to explain calculation changes, specifically new process units/life cycle stages or inputs. The modified calculator has been determined to be equivalent to CA-GREET3.0 pursuant to section 95488.7(a)(1) of the LCFS regulation. The applicant has provided operational data and supporting documentation for the listed life cycle stages, including unit operations and transport of feedstock and/or fuel (e.g., digester, gas cleanup, and pipeline injection of biomethane), for a period of 5 months, from April 2024 to August 2024.

The CI score listed in the table below reflects the CI calculated using the modified version of the Board-approved Tier 1 Simplified CI Calculator for Biomethane from Anaerobic Digestion of Dairy and Swine Manure, along with a conservative margin of safety added by the applicant.

Proposed Pathway CI				
Pathway Number	**Fuel & Feedstock**	**Pathway FPC**	**Pathway Description**	**Carbon Intensity (gCO2e/MJ)**
B077101	CNG from Swine Manure	CNG044B07710100	Biogas from swine manure at Kilpatrick Farm, Goodson Farm, M&M-Waters Farm, Dell Farm, DM Section 2, and DM Farm Section 3 in NC; upgraded to pipeline quality at Grady Swine Facility; pipelined to California for transportation use	-373.63

Operating Conditions

The certified CI value in the above table may be used to report and generate credits for fuel quantities that are produced at the facility in the manner described in the applicant's Life Cycle Analysis (LCA) report, and dispensed for transportation use in California, subject to the following requirements and conditions:

[3] The Tier 1 Simplified CI Calculator for Biomethane from Anaerobic Digestion of Dairy and Swine Manure (August 13, 2018), incorporated by reference in the LCFS Regulation, section 95488.3(b).

1. Fuel pathway holders are subject to the requirements of the California Air Resources Board's (CARB) Low Carbon Fuel Standard (LCFS) regulation, which appears at sections 95480 to 95503 of title 17, California Code of Regulations. Requirements include ongoing monitoring, reporting, recordkeeping, and third-party verification of operational CI and a controlled process for providing product transfer documents or other similar records to counterparties or CARB.

2. CARB has reviewed the contractual agreements between the pathway holder/biogas upgrader, and marketer(s). All unredacted contract agreements relevant to this biomethane fuel pathway were submitted to CARB as part of the application, pursuant to section 95488.8(i)(2)(B). To confirm compliance with Annual Fuel Pathway Report requirements, the pathway holder shall notify CARB of any change in existing contracts that were submitted to CARB with the fuel pathway application, including any new contracts and termination of existing contracts, with any entity engaged in the transfer, purchase, or sale of biomethane and its environmental attributes. Failure to notify CARB of such a change could result in enforcement action and could invalidate this fuel pathway.

   Fuel pathway holders must update the list of Bio-CNG dispensing entities and any biomethane end users at the time of Annual Fuel Pathway Report submission. Contractual agreements from the fuel dispensing entities do not need to be submitted in the original fuel pathway application or the Annual Fuel Pathway Reports; instead, they must be verified as part of the annual verification of the Quarterly Fuel Transactions Reports

3. The biomethane and its environmental attributes claimed under this pathway shall not be claimed by any entity for any other purpose, nor under any other program notwithstanding the exceptions listed in LCFS Regulation section 95488.8(i)(2). The LCFS places no restriction on the use of any emission reduction credits generated by the project for emission reductions that are demonstrated to be additional to reductions claimed under the LCFS.

4. The fuel pathway holder must include the assumptions and calculations used to establish the fraction of solids input to each manure management system in its Annual Fuel Pathway Report submitted to CARB for third-party verification of the operational CI.

5. Any quantity of biomethane metered at the inlet to the upgrading facility that cannot be demonstrated by meter records to have been pipeline injected or destroyed, must be calculated by energy balance and accounted for in the CI as a fugitive methane emission if the calculated value exceeds the default 2% fugitive emission.

6. Each dairy/swine farm supplying manure to a digester will be subject to third-party verification to support the fraction of volatile solids inputs to the modified Simplified CI Calculator for Biomethane from Anaerobic Digestion of Dairy and

Swine Manure for baseline and project modeling (Manure-to-Biogas (LOP Inputs) tab). CARB must be immediately notified through the AFP of any changes to dairy/swine manure suppliers and sources (e.g., additional suppliers or manure from different types of livestock) are made from the certified pathway. Modifications to the dairy/swine manure suppliers and sources may require submission of a new pathway for review, validation, and certification. Failure to notify CARB of such a change may result in the invalidation of the fuel pathway, invalidation of associated LCFS credits, and enforcement action.

7. The fuel production facility houses a generator set (genset) that generates electricity from the onsite produced biogas. The quantity of biogas diverted to the electricity generation and the presence of the electricity meters tied to genset are subject to third-party verification.

Staff Analysis and Recommendation

Staff has reviewed the application and has replicated, using the Tier 1 modified version of the Simplified CI Calculator, the CI values calculated by the applicant. EcoEngineers (H3-20-008) submitted a Qualified Positive validation statement. Staff recommends this application be certified on a provisional basis after all the comments received during the 10-day comment period are addressed satisfactorily by the applicant. The certification is subject to the operating conditions set forth in this document.

Comments and Certification

CARB has reviewed the applicant's response to comments received during the 10-day comment period, determined that these adequately address factual and methodological errors, and certified the pathway.