
Application No. B0072

Updated: 10/16/2020 (See underlined text)

Staff Summary

IOGEN D3 BIOFUEL PARTNERS II LLC WOF PNW Threemile Project Boardman, Oregon

Compressed Natural Gas (CNG) from Dairy Manure

Intermediate Facility: Columbia River Dairy and Six Mile Dairy, Boardman, Oregon

Deemed Complete: 04/17/2020

Posted for Comment: 09/10/2020

Certified: 09/30/2020

CI Effective: 04/01/2020

Fuel Pathway Code: CNG026B00720100

Pathway Summary

IOGEN D3 BIOFUEL PARTNERS II LLC (Iogen) seeks certification of a Tier 2 pathway for biomethane (Bio-CNG) from anaerobic digestion of dairy manure produced by the the Columbia River Dairy and Six Mile Dairy, located in Boardman, Oregon. Threemile Canyon Farms owns and operates the dairy farms. WOF PNW Threemile Project LLC owns and operates the biogas collection and processing equipment (i.e. biogas upgrading facility) at the site. Iogen supplies the pipeline-injected biomethane for use in California as CNG transportation fuel using book-and-claim accounting for biomethane (RNG)¹ through its contracted California dispensers.

The WOF PNW Threemile Project is registered with the Climate Action Reserve (CAR1169/CALS5169; listed: 03/03/2015; crediting period expiration: 03/01/2025) and has previously generated ARB Offset Credits under California's Cap & Trade program (CALS5169).

The dairies have an average livestock population in the range of 26,000 to 39,000. The dairy manure is digested in a series of digesters where the effluent (digestate) from the first digester goes to the second digester and so on. The digesters capture methane that would otherwise be vented to the atmosphere. There is a plan to add an additional

¹ All citations to the LCFS Regulation are found in Title 17, California Code of Regulations (CCR), section 95480-95503. Book-and-claim accounting is primarily addressed in section 95488.8(i) of the [LCFS Regulation](#).

digester in a series and the applicant has elected to add a conservative margin of safety to account for the expected energy use and additional biogas production from the new digester. The biogas from all digesters is collected and sent to the upgrading unit. The raw biogas is cleaned to remove H₂S, CO₂ and moisture using scrubbers, absorption and stripper columns and a dryer. The tail gas produced by the stripper is vented to the atmosphere. The upgraded biomethane is blended with propane to meet commercial pipeline specifications before injecting into the pipeline. The facility uses propane, natural gas and grid electricity for digester and upgrading facility operations.

For the digester project, the majority of the fresh manure is flushed and sent to the digester to produce biogas whereas the rest goes to dry lot. The effluent produced by the digester is subjected to solid-liquid separation through a series of screens, screw presses, and conveyor belt feeders. The separated solids are recovered and used as animal bedding whereas the liquid stream goes to an effluent pond from where it is sent to land application as fertilizer.

In the baseline, prior to installation of the digesters, the majority of manure from barns and less than half of manure from open corrals was flushed with water. The flushed manure was sent to roller drum screens and clarifiers to remove solids prior to treatment in an anaerobic lagoon system comprised of 13 holding ponds of varying size with at least one meter in depth. The recovered solids were composted in windrows and used as bedding material. The remaining manure was scraped and sent to dry lot.

Carbon Intensities of Dairy Manure to RNG Pathways

The carbon intensity (CI) value is calculated based on life cycle analysis using a modified version of the board-approved Tier 1 Simplified CI Calculator for Biomethane from Anaerobic Digestion of Dairy and Swine Manure² as described in the applicant's Life Cycle Analysis (LCA) Report. The modified calculator has been determined to be equivalent or superior to CA-GREET3.0 as per section 95488.3(a).

The applicant has supplied three months of operational data and supporting information (August - October 2019) to determine CI. The calculator is modified to account for fugitive emissions in excess of the default (2%) as determined by energy balance at the upgrading facility. The calculator is modified to account for the use of propane for digester heating. The applicant has also supplied supporting calculations for volatile solid (VS) fractions input to each manure treatment system. The amount of VS removed by separators is determined by measuring total solid and VS content of the digester effluent before and after separation. This value is used in calculating adjusted VS fractions entering the effluent pond (section L4) and non-anaerobic treatment (section L5) in the Simplified CI Calculator for Biomethane from Anaerobic Digestion of Dairy and Swine Manure.

² 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).

The following table lists the proposed CI for this pathway.

Proposed Pathway CI

Fuel & Feedstock	Pathway FPC	Pathway Description	Carbon Intensity (gCO ₂ e/MJ)
Compressed Natural Gas (CNG) from Dairy Manure	<u>CNG026B00720100</u>	Renewable Natural Gas (RNG) from Dairy Manure at Columbia River Dairy and Six Mile Farms, upgraded in Boardman, Oregon; RNG pipelined to California for transportation use	-188.78

Operating Conditions

The certified CI values 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 LCA report, and dispensed for transportation use in California, subject to the following requirements and conditions:

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, upgrader, marketer, and natural gas fuel dispensing entities. 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.
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 voluntary emission reduction credits generated by the project for emissions 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 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. The request for alternate method for reporting methane concentration in flared biogas is approved for certification of this pathway. Equipment to continuously measure and record methane concentration in biogas at least every 15 minutes must be installed to report the monthly weighted average methane concentration in field 2.22 in the Annual Fuel Pathway Report submitted to CARB for third-party verification of the operational CI.

Staff Analysis and Recommendation

Staff has reviewed the application and has replicated, using the Tier 2 modified version of the Simplified CI Calculator, the CI values calculated by the applicant. First Environment, Inc. (H3-20-009) submitted a positive validation statement.

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.