

Application No. B0060

Staff Summary

AMP Americas, LLC
Renewable Dairy Fuels, Fair Oaks, Indiana
Dairy Manure Biomethane

Deemed Complete: 11/13/2019
Posted for Comment: 12/24/2019
Certified and Posted: 2/24/2020
CI Effective: 10/1/2019
Fuel Pathway Code: See below

Pathway Summary

AMP Americas, LLC seeks provisional certification of a Tier 2 pathway for biomethane production at Renewable Dairy Fuels (RDF), from anaerobic digestion of dairy manure at Fair Oaks 2 (Site 2). Biomethane is pipeline injected and supplied to CNG vehicles in California as bio-CNG using book-and-claim accounting for biomethane.¹

The RDF facility processes biogas from two digesters: Site 3, which is co-located with the RDF upgrading facility, and RDF Site 2, which is located within 3 miles of the upgrading facility. Each of the participating farms manage dairy manure using a heated mesophilic mixed plug-flow anaerobic digester and biogas control system that captures methane that would otherwise be emitted to the atmosphere under baseline manure treatment in anaerobic lagoons. Biogas from each digester is supplied to the RDF upgrading facility via dedicated biogas pipeline. The Site 2 digester has previously generated Offset credits under the Compliance Offset Protocol:

- Fair Oaks Dairy Farm LLC Cyclus-Designed Digester (RDF Site 2, F00050) (CAR1121; Crediting Period Expires: 7/22/2024; Project Status: Terminated)

Carbon Intensity of Dairy Manure Biomethane 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.² The Tier 1 calculator was modified to account for fugitive emissions in excess of the default (2%) as determined by energy balance at the upgrading facility. 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

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](#).

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).

has provided operational data and supporting documentation for the digester, gas cleanup, and pipeline injection of biomethane for a period of 8 months, from January 2019 to August 2019. 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	CNG026B00600100	Renewable Natural Gas (RNG) produced from Dairy Manure of Fair Oaks Dairy Farm Site 2, Fair Oaks, Indiana; RNG pipelined to Bakersfield, California for transportation use	-255.74

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:

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)(1)(B)(3). The LCFS places no restriction on the use of any 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 biogas (quarterly frequency) is approved for certification of this pathway. No later than October 1, 2020, 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 fields 2.5, 2.7 and 2.22 (if applicable) in the Annual Fuel Pathway Report submitted to CARB for third-party verification of the operational CI.
7. The fuel pathway holder must include the total upgrading facility energy use and biogas flows, and the calculations used to allocate these parameters to each digester pathway based on its monthly share of total biogas measured at inlet to upgrading, in its Annual Fuel Pathway Report submitted to CARB for third-party verification of the operational CI.

Staff Analysis and Recommendation

Staff has reviewed the AMP Americas-RDF (Site 2) application and has replicated, using the Tier 2 modified version of the Simplified CI Calculator for Biomethane from Anaerobic Digestion of Dairy and Swine Manure, the CI values calculated by the applicant. 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.