

**Staff Summary
Method 2B Application**

**San Diego Metropolitan Transit System
Monroeville Landfill Gas (Monroeville, Pennsylvania) to CNG
(Pathway Code: CNG047)**

Deemed Complete Date: October 4, 2015
Posted for Comments Date: November 20, 2015
Certified Date: December 1, 2015

Pathway Summary

San Diego Metropolitan Transit (SD Metro) has applied for a landfill-gas-to-biomethane fuel pathway. The landfill gas (LFG) is extracted from the Monroeville Landfill in Monroeville, Pennsylvania. The Monroeville Landfill is owned by Waste Management and LFG Recovery Facility is owned by Montauk Energy Holdings, LLC. LCFS credit-rights for all biomethane from the Monroeville landfill are received by SD Metro and gas delivery is tracked to SD Metro CNG stations in San Diego, California. The capacity of the Monroeville landfill is about 3.5 million gallons of renewable fuel per year.

LFG from the Monroeville Landfill is cleaned up using grid electricity and natural gas. Fossil natural gas is used in the compressor and thermal oxidizer. Small amount of propane is used in the flare pilot. The thermal oxidizer and flare are used to destroy LFG when the processing plant is not fully operational. The cleanup plant provides following data from May 2013 to May 2015:

- inlet biogas at average 50% methane content,
- a cleaned biomethane at about 97% methane content
- grid electricity use
- pipelined NG for thermal oxidizer pilot and compression

The SD Metro pathway utilizes the CA-GREET1.8b default values for LFG recovery and CNG conversion. To determine combustion emissions from the consumed natural gas, the flare and the thermal oxidizer, the CA-GREET1.8b default values for natural gas combustion in a turbine were used. These emissions factors are more representative of operations at the Monroeville landfill plant than are the emission factors for a compressor powered by a natural gas engine.

The biomethane SD Metro purchases from the Monroeville LFG processing plant is injected into the interstate pipeline system and equivalent amounts removed at CNG stations in San Diego California. The pipeline transport distance is 2,426 miles from Monroeville, Pennsylvania to San Diego CA. As such, SD Metro will be obligated to retain records that unequivocally demonstrate that the credits it earns under the pathways described in this Summary correspond directly with

the volumes of biomethane it purchases from the Monroeville Landfill in Monroeville, Pennsylvania.

Carbon Intensity of CNG Produced

As shown in the Table below, the applicant has calculated the CI of its CNG pathway to be 33.30 gCO₂e/MJ, respectively.

Proposed Lookup Table Entries

Fuel	Pathway Identifier	Pathway Description	Carbon Intensity Values (gCO ₂ e/MJ)		
			Direct Emissions	Land Use or Other Indirect Effects	Total
CNG from LFG	CNG047	2B Application*: PA landfill gas to pipeline-quality biomethane, delivered via pipeline, compressed to CNG in California	33.30	0	33.30

* Specific Conditions Apply.

Operating Conditions

1. Actual pathway energy consumption values shall remain at or below the levels specified in SD Metro application. The pathway CI was calculated using LFG production data and CNG compression and energy use at the refueling stations for a period from May 2013 through May 2015. The recovery and processing efficiency levels at the Monroeville landfill in Monroeville, Pennsylvania shall remain at or above the levels specified in the SD Metro application. In addition, the compression efficiency at the CNG stations shall remain at or above the levels specified in the application.
2. Because the biomethane supplied under this pathway is commingled with fossil natural gas both when it enters the interstate pipeline system and when it enters SD Metro pipeline system to CNG stations, SD Metro must maintain an accounting system that will enable it to demonstrate unequivocally at any time that every unit of biomethane-based transportation fuel sold and reported under the LCFS can be associated with an equal unit of biomethane purchased from the Monroeville landfill.
3. SD Metro must provide signed statements for the biomethane volumes extracted from the Monroeville Landfill attesting under penalty of perjury under California law that all environmental attributes, including the right to generate credits under the LCFS, are exclusively reserved to SD Metro, and that no party will claim or has claimed credit for volumes reported in

California's LCFS program under any other governmental program except the federal RFS.

4. SD Metro shall provide signed statements from any party to whom it conveys the biomethane from Monroeville Landfill attesting under penalty of perjury under California law that all environmental attributes pursuant to this pathway, including the right to generate credits under the LCFS, are exclusively reserved to SD Metro, and the party will not claim or has not claimed credit for volumes reported in California's LCFS program under any other governmental program except the federal RFS.

Staff Analysis and Recommendations

Staff has reviewed SD Metro application for the production of CNG from LFG originating in Monroeville Landfill, Monroeville, Pennsylvania. Staff has replicated, using the CA-GREET1.8b spreadsheet, the CI value calculated by SD Metro. SD Metro has provided documentation in support of the key components of its pathways: energy consumption at the Pennsylvania LFG processing plant and at the CNG stations in California. It has also provided the volumes of biomethane production and CNG produced. Staff is satisfied that the energy consumption levels reported in SD Metro application accurately represent actual usage for the time period for which records were submitted, and that SD Metro is capable of maintaining CIs that are at or below those shown in the table above. Therefore, staff recommends that SD Metro Method 2B application for LFG-to-CNG pathways be certified, subject to the operating conditions set forth in this staff summary.