

**Staff Summary
Method 2B Application**

**San Diego Metropolitan Transit System
McCarty Road Landfill Gas (Houston, Texas) to CNG
(Pathway Code: CNG042)**

Deemed Complete Date: June 18, 2015
Posted for Comments Date: September 18, 2015
Certified Date: September 28, 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 McCarty Road Landfill in Houston, Texas. The McCarty Road Landfill LFG Recovery Facility is owned by GSF Energy, LLC. The pathway covers the compression of the resulting biomethane to CNG for use in the vehicles in California. The capacity of the McCarty Road landfill is about 14 million gallons of renewable fuel per year.

LFG from the McCarty Road Landfill is cleaned up using grid electricity and natural gas. Natural gas is used in the compressor, thermal oxidizer, and 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 April 2012 to March 2014:

- inlet biogas at average 54% methane content,
- a cleaned biomethane at about 96.4% methane content
- grid electricity use
- pipelined NG for thermal oxidizer pilot and compression stage use

The SD Metro pathway utilizes the CA-GREET1.8b default values for LFG recovery and L/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 McCarty Road Landfill plant than are the emission factors for a compressor powered by a natural gas engine.

The biomethane SD Metro purchases from the McCarty LFG processing plant is injected into the interstate pipeline system for conveyance to CNG stations in San Diego California. The pipeline transport distance is 1,468 miles from Houston TX 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 McCarty Road Landfill in Houston, Texas.

Carbon Intensity of CNG Produced

As shown in table below, the applicant has calculated the CI of its CNG pathway to be 19.82 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	CNG042	2B Application*: Texas landfill gas to pipeline-quality biomethane, delivered via pipeline, compressed to CNG in California	19.82	0	19.82

* 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 was calculated using LFG production data and CNG compression and energy use at the refueling stations data covering April 2012 through March 2014. The recovery and processing efficiency levels at the McCarty Road Landfill in Houston, Texas 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 McCarty Road Landfill.

Staff Analysis and Recommendations

Staff has reviewed SD Metro application for the production of CNG from LFG originating in McCarty Landfill Road, Houston, Texas. 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 Texas LFG processing plant and the California CNG stations. 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.