ARB Staff Summary

San Diego Metro

Method 2B Application: Landfill Gas from Cedar Hills, Washington to Compressed Natural Gas

Deemed Complete Date: August 20, 2013
Certified and Posted Date: August 30, 2013

Pathway Summary

San Diego Metropolitan Transit System (SDMTS) has applied for a landfill-gas-to-biomethane pathway. The feedstock landfill gas (LFG) for this pathway is extracted from the Cedar Hills (CH) landfill in Maple Valley, Washington, processed to pipeline quality, and injected into the interstate pipeline system. SDMTS extracts this biomethane from the pipeline and dispenses it in the form of CNG to power a portion of its transit fleet.

Bio Energy Washington (BEW) owns and operates the CH landfill, the equipment used to extract the LFG from the landfill, and the plant that processes the extracted LFG into pipeline-quality bio methane. Puget Sound Energy (PSE) purchases the resulting biomethane and stores it in tanks adjacent to the Cedar Hills landfill for resale to BP Energy Company (BPEC). BPEC subsequently resells the biomethane to SDMTS. BPEC supplies biomethane to SDMTS via the interstate pipeline system. SDMTS compresses the biomethane it purchases for dispensing in the form of CNG to its fleet of public transportation vehicles.

The biomethane SDMTS purchases from BPEC is commingled with fossil natural gas both when it enters BP's storage tanks and when it enters the interstate pipeline system. As such, SDMTS will be obligated to retain records that unequivocally demonstrate that the credits it earns under the pathway described in this summary correspond directly with the volumes of biomethane BPEC purchased from PSE and subsequently sold to SDMTS.

Carbon Intensity of CNG Produced

As shown in Table 1, the applicant has calculated the CI of its LFG-to-CNG pathway to be 13.36 gCO_2e/MJ. For comparison, the CI of the existing LCFS pathway for the production of CNG from California LFG (CNG003) is 11.26gCO_2e/MJ. The CI of SDMTS's CH pathway is higher than the CI of the corresponding California pathway for the following reasons:

- The CH plant consumes electricity generated from a Northwest energy mix (as defined in the U. S. Environmental Protection Agency's eGRID

system[1]). LFG processing plants operating under CNG003 consume California marginal electricity.

- Pipeline transportation Distance: Biomethane from the CH plant is transported 1,250 miles by pipeline to CNG stations in Southern California, while biomethane from California processing plants moves only 50 miles by pipeline.
- Compression efficiency: The efficiency of the compressors SDMTS uses to produce CNG is lower than the default efficiency used in the CNG003 pathway.

These three factors are slightly offset by the efficiency of the LFG processing equipment at CH. A lower processing efficiency was assumed in the CNG003 pathway.

Operating Conditions

1. In support of the pathway application, BEW provided electricity consumption and LFG production records covering the three months of operation at the CH processing plant (January 2013 to March 2013). Records covering a total of two years are required for LCFS Method 2 pathway applications. Staff is able to prospectively certify applications, however, if the applicant can submit a full two-year data record as it becomes available. BEW will therefore submit electricity consumption and LFG production records no less frequently than quarterly, until staff is in receipt of records covering a full two years of operations at the CH LFG processing plant. If these records indicate that the certified pathway CI is lower than the actual CI, staff may adjust the certified CI to reflect actual electricity consumption and LFG production at the CH plant.
2. Actual pathway energy consumption and efficiency values shall remain at or below the levels specified in SDMTS's application. This condition applies to the Cedar Hills landfill gas processing and compression plant in Washington, and the SDMTS-owned CNG dispensing stations in California. Energy consumption values for these facilities are classified by the applicant as confidential business information.
3. Because the biomethane supplied under this pathway is commingled with fossil NG both when it enters storage at PSE's facility, and when it enters the interstate pipeline system, SDMTS 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 and injected into the interstate pipeline system.

[1] The U.S. Environmental Protection Agency's Emissions and Generation Resource Integrated Database (eGRID) can be found at: http://www.epa.gov/cleanenergy/documents/egridzips/eGRID2012V1_0_year09_SummaryTables.pdf. The CH plant falls within the eGRID WECC region.

Table 1: Proposed Lookup Table Entries

Fuel	Pathway Identifier	Pathway Description	Carbon Intensity in gCO_2e/MJ (Including Indirect Effects)		
			Direct Emission	Land Use or Other Indirect Effect	Total
CNG from LFG	CNG010	2B Application*: Washington landfill gas to biomethane; delivered via pipeline; compressed in California	13.36	0	13.36

*Specific Conditions Apply

Staff Analysis and Recommendation

Staff has reviewed SDMTS's application for the production of CNG from LFG originating in Washington State. Staff has replicated, using the CA-GREET spreadsheet, the CI values calculated by SDMTS. SDMTS has provided documentation of the energy use at both the Washington and California facilities, as well as the volume of CNG produced under this pathway. Staff is satisfied that the energy consumption levels reported in the application accurately represent the plant's actual usage for the time period for which records were submitted, and that SDMTS is capable of maintaining CIs that are at or below 13.36 gCO_2e/MJ for its Cedar Hills LFG-to-CNG. Therefore, staff recommends that SDMTS's application for Method 2B LFG-to-CNG pathway be approved.