

**Method 2B Application**  
**Johnstown Regional Energy**  
**Landfill Gas from Pennsylvania to CNG**

Plant Summary

Johnstown Regional Energy LLC (JRE) operates landfill gas (LFG) processing facilities at three Eastern Pennsylvania landfills: Raeger Mountain Landfill, Southern Alleghenies Landfill, and Shade Landfill. All are operated by Waste Management Inc. The combined current production rate of the three facilities is up to 2,500 million Btu/day (750,000 million Btu/year). The processed LFG is injected into a pipeline system operated by Dominion Transmission Inc. This system primarily collects natural gas from North American wells in the region. The processed LFG is then pipelined 3,000 miles to California, where it is sold as compressed natural gas (CNG) transportation fuel.

Carbon Intensity of CNG Produced

Each facility separately collects, processes, and compresses LFG to pipeline quality biomethane. The resulting biomethane is transmitted by pipeline from each landfill to a central collection point, from which it is injected into a primary interstate pipeline for transport to California. In California, the gas is compressed for dispensing at vehicle CNG refueling stations. The carbon intensity (CI) of the LFG extraction, processing, and pipeline injection phases of this pathway were calculated using the U. S. EPA's eGRID electrical energy generation database. The Johnstown operations are located within the RFC East eGRID region, which includes eastern Pennsylvania. The eGRID database reports average electrical energy generation mixes. In order to convert these energy mixes into marginal mixes, all electricity generated from hydroelectric and nuclear sources is reallocated to natural-gas-powered generation.

The CI of this pathway, as calculated by Element Markets (JRE's consultant), is 17.41 gCO<sub>2e</sub>/MJ of CNG produced. This CI is based on energy consumption records covering the last 8-months of 2011 and all of 2012. By comparison, the Lookup Table CI for North American LFG compressed in California (which was calculated using relatively high-CI inputs) is 33.02 gCO<sub>2e</sub>/MJ. Better LFG collection and processing efficiency along with a cleaner regional electricity mix are primarily responsible for the difference between the applicant's CI and this Lookup Table value.

**Table 1: Proposed Lookup Table Entry**

<b>Fuel/Feedstock</b>	<b>Pathway Identifier</b>	<b>Pathway Description</b>	<b>Carbon Intensity in gCO<sub>2</sub>e/MJ (Including Indirect Effects)</b>
Landfill Gas to Compressed Natural Gas	CNG007	Pennsylvania Landfill gas to biomethane, delivered to California via pipeline and compressed in California	17.41

Operating Conditions

1. ARB requires that the CIs appearing in Method 2 applications be based on operational data covering two years whenever possible. The JRE CI is based on data covering only one year and eight months. Following the posting of this pathway on the LCFS Method 2 web page, JRE will submit energy consumption data covering the next four months of operations. If that data indicates that JRE's actual CI is higher than the CI posted on the Method 2 web site, staff may increase the applicant's pathway CI to reflect that new information.
2. Actual plant performance (including energy consumption) shall remain within the bounds established in JRE application. The plant's energy and electricity usage values are classified by the applicant as confidential business information.

Staff Analysis and Recommendation

Staff has reviewed the JRE application for the Pennsylvania LFG plants and has replicated, using the CA-GREET spreadsheet, the CI value calculated by JRE (17.41g/MJ). JRE has provided documentation of the plant's energy use, LFG production, and LFG transportation for 8-months of 2011 and all of 2012. Staff therefore recommends that JRE's application for a Method 2B LNG pathway be approved, subject to the operating conditions stipulated above.