

MSW PROJECT OPPORTUNITY

SAN NICOLAS SANITARY LANDFILL

SAN NICOLAS, BUENOS AIRES PROV, ARGENTINA

MUNICIPALITY OF SAN NICOLAS DE LOS ARROYOS

OVERVIEW OF MSW PROJECT

The San Nicolas Landfill began operations in 1997. It is owned by the Municipality of San Nicolas and is operated by Entre S.R.L. This landfill is a sanitary landfill with a designed waste footprint of 36 hectares (ha), a total design capacity of 3 million tonnes, and is expected to close in 2053. Currently, there are 650,000 tonnes of waste in place with an average waste depth of 10 meters.

PROJECT TYPE: Landfill gas (LFG) projections indicate that the San Nicolas Landfill could have several LFG utilization project options. These options include electricity generation, direct use, and flaring only. Assuming start-up of a power plant in 2015, sufficient gas is assumed to be available to support a power plant of 500 kW from 2015 to 2040, and power plant of 1MW from 2041 to 2055. A direct use project is possible depending on the availability of potential end-users near the landfill. An option for the direct utilization of the LFG could be use at the nearby steel manufacturing center, which is located about 6 miles from the Landfill.

The feasibility of any of these projects would require additional information from the Landfill and surrounding area, such as exact locations of electricity distribution and transmission lines, and nearby industrial facilities' energy requirements and interest in pursuing a LFG energy project.

ESTIMATED PROJECT LIFETIME EMISSION REDUCTIONS: 0.3 MMTCO₂E

LANDFILL LOCATION AND ASSISTANCE REQUESTS



The Municipality of San Nicolas seeks specific cooperation to advance the development of this project:

- A partner to build, own, and operate a project.

The project owner does not have a contract to sell its carbon credits.

DISCLAIMER: The information and predictions contained within this poster are based on the data provided by the site owners and operators and site visits conducted by U.S. EPA. The Global Methane Initiative (GMI) cannot take responsibility for the accuracy of these data. It should be noted that conditions on landfills will vary with changes in waste input, management practices, engineering practices, and environmental conditions (particularly rainfall and temperature). GMI does not guarantee the quantity or quality of available landfill gas from the landfill site, which may vary from the values predicted in this report.

LANDFILL GAS AND ENERGY POTENTIAL

Under contract to the U.S. EPA, SCS Engineers estimated the amount of LFG generated by the San Nicolas Landfill using the EPA and SCS models. Model input data for the preliminary assessment of the LFG capture and use project were obtained from Entre S.R.L. and collected during an EPA site visit in December 2006. The assessment report is available online at the GMI website: www.globalmethane.org.

Other Landfill Physical/Operational Data

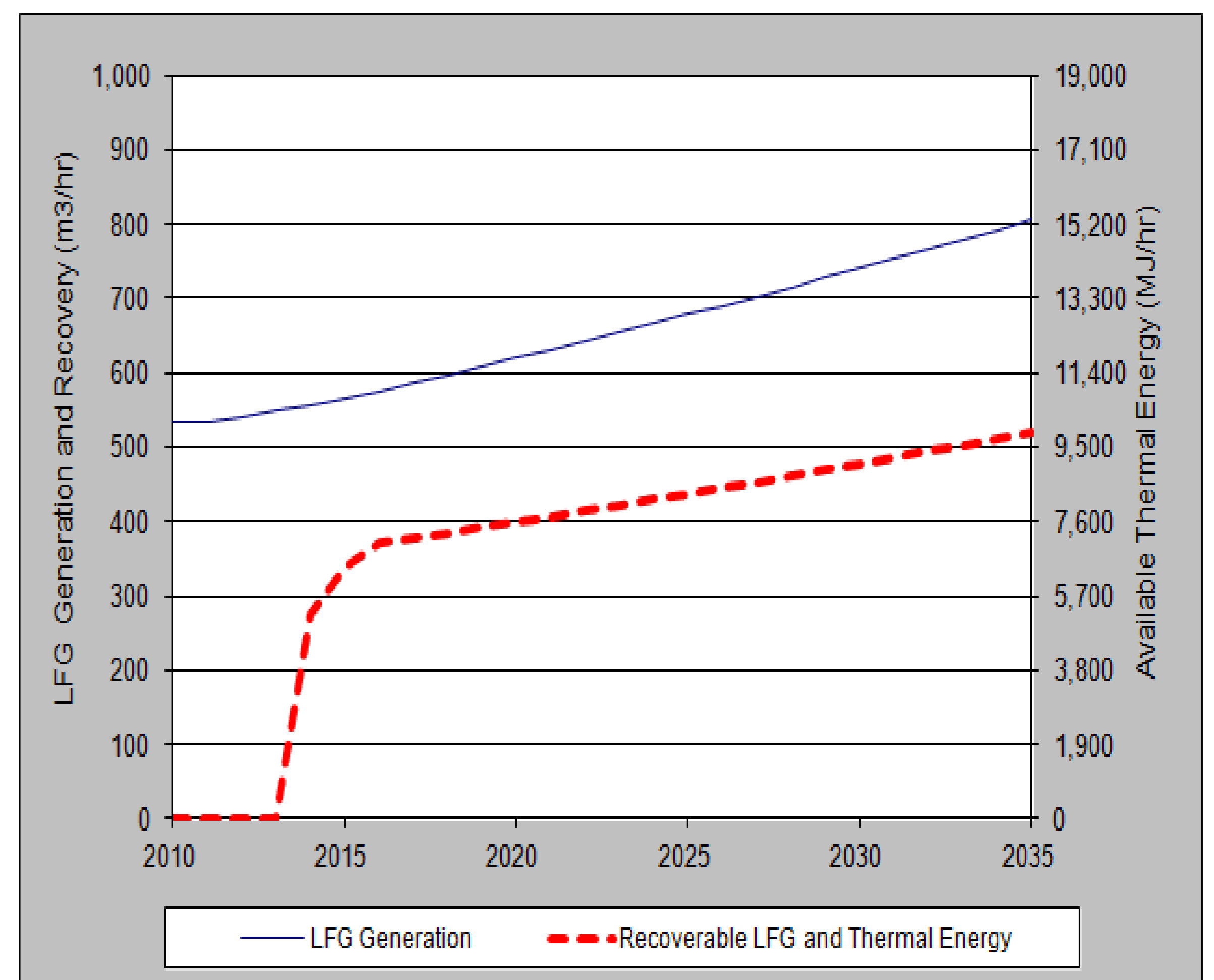
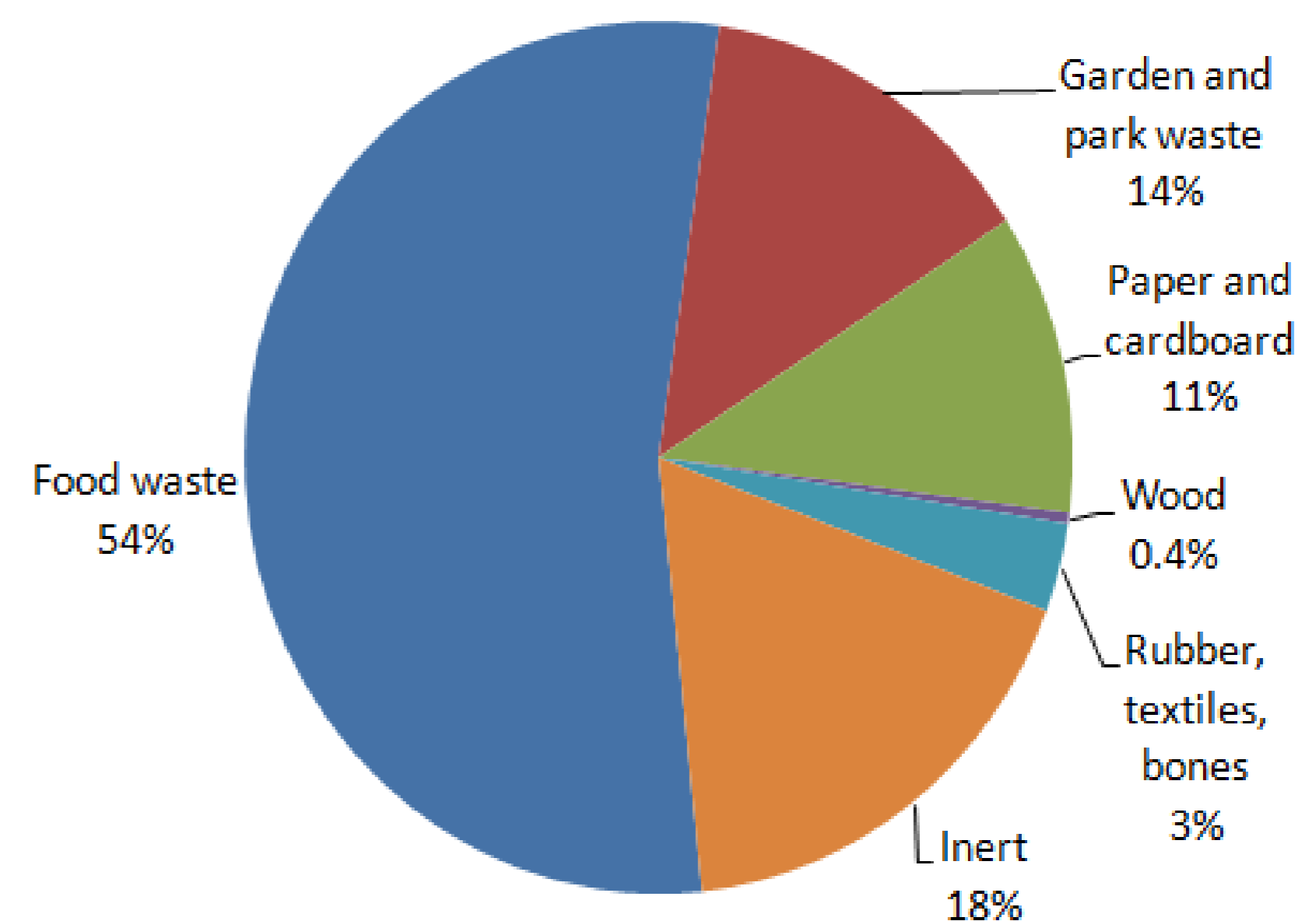
- Estimated annual MSW acceptance rates for 1997 to 2053: ranges from 40,000 to 76,600 tonnes/yr
- Landfill is lined with an HDPE geomembrane and clay
- Waste compaction is performed.
- Leachate management: accumulating and treated in standing pools
- LFG collection and control system: passive

Landfill Gas Modeling Inputs:

- CH₄ generation potential (Lo): 78 m³/Mg
- CH₄ generation rate constant (k):
0.26 for fast-decay organic waste (e.g., food)
0.052 for medium-decay organic waste (e.g., paper)
0.013 for slow-decay organic waste (e.g., rubber)
- Percent methane: 50%

Values for these modeling variables have been developed based on the waste composition data and average annual precipitation at San Nicolas Landfill. It is not feasible to collect all the gas generated at the site for flaring or energy recovery, given site conditions and collection system limitations. Therefore, the amount of recoverable LFG was estimated by applying a gas availability factor to the results of the LFG generation model.

Waste Characterization



Recoverable LFG = 90% Landfill Area Available for Gas Collection x 72% Gas Collection Efficiency = 65%

ENVIRONMENTAL BENEFITS

Assuming that an active gas collection and flaring system is installed in 2014, this LFG capture project has the opportunity to collect and destroy an average of 1.7 million cubic meters of methane annually over the next 12 years. This is equivalent to emission reductions of more than 308,900 tonnes of CO₂eq over the project lifetime..

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Tonnes CO ₂ eq from Flaring Activities	18,352	22,387	24,668	25,111	25,574	26,053	26,543	27,041	27,545	28,053	28,563	29,076

FOR MORE INFORMATION

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