

MSW PROJECT OPPORTUNITY COLIHUES-LA YESCA LANDFILL REQUINOA, CHILE REGION VI MUNICIPALITIES CONVENTION

OVERVIEW OF MSW PROJECT

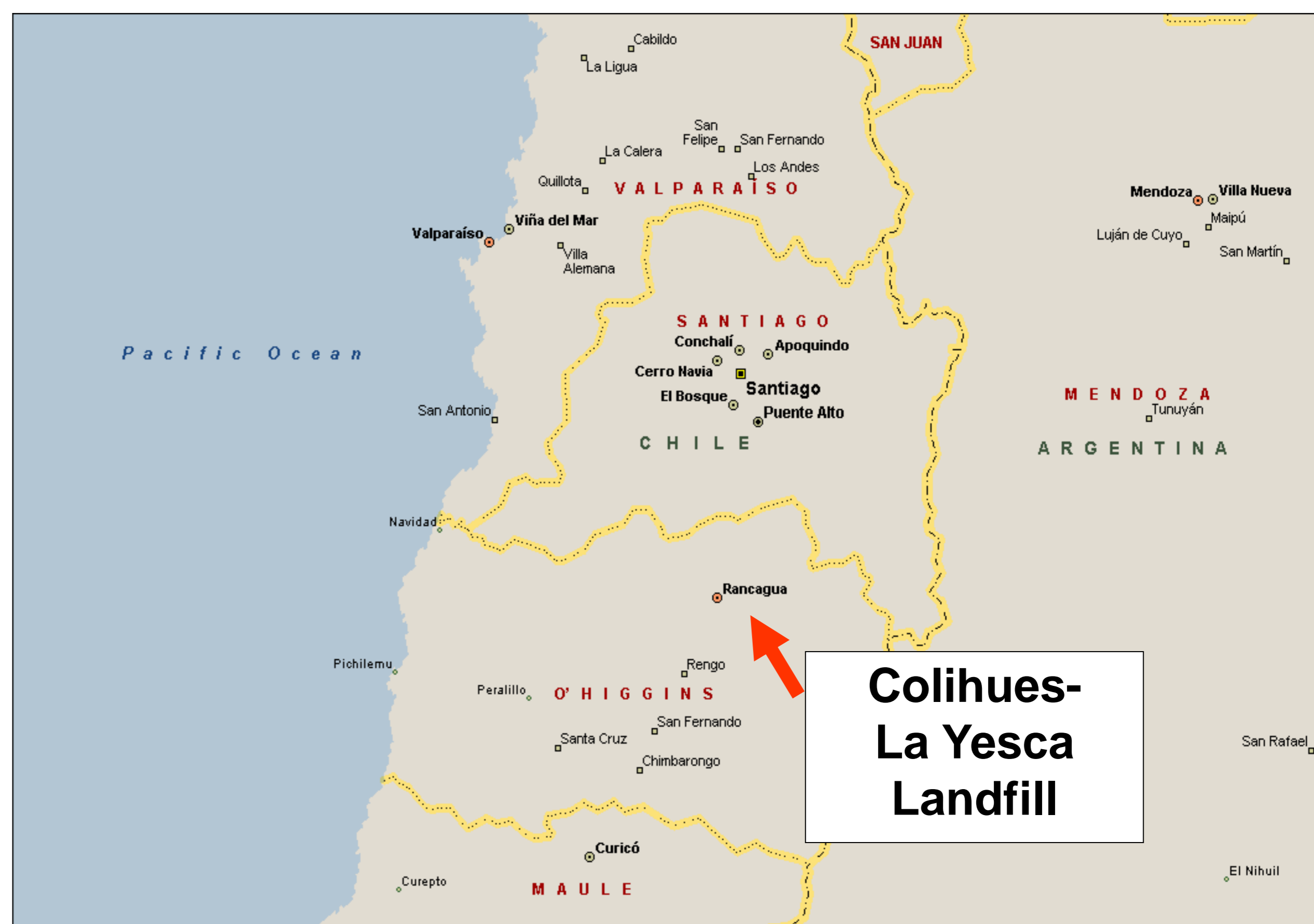
The Colihues-La Yesca Landfill began operations in 1997. It is owned by an association of Region VI municipalities, represented by the Municipality of Rancagua, and is operated by the private company Proactiva Servicios Urbanos S.A. (Proactiva). This landfill is a sanitary landfill with a designed waste footprint of 30 hectares (ha), a total design capacity of just over six million cubic meters, and is expected to close in 2030. Currently, there are about 2.3 million tonnes of waste in place.

PROJECT TYPE: Landfill gas (LFG) projections indicate that the Colihues-La Yesca Landfill could have a couple LFG utilization project options. These options include electricity generation and flaring only. Assuming start-up and testing of a power plant in 2015, sufficient gas is assumed to be available to support a power plant of at least 2MW from 2018 to 2026, then it can support a power plant of at least 1MW from 2027 to 2032 and a power plant of at least 0.5MW from 2033 to 2042. The Landfill is located in a rural area outside of Requinoa where there are diverse types of industries. The implementation of a direct use LFG project may be possible if any of these industries have thermal energy needs and can use the LFG directly.

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 the location of potential LFG energy end-users near the landfill and their interest in pursuing a LFG energy project.

ESTIMATED PROJECT LIFETIME EMISSION REDUCTIONS: 1.0 MMTCO₂E

LANDFILL LOCATION AND ASSISTANCE REQUESTS



The Association of Region VI Municipalities seeks specific cooperation to advance the development of this 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 Colihues-La Yesca Landfill using EPA models. Model input data for the preliminary assessment of the LFG capture and use project were obtained from Proactiva during an EPA site visit in December 2012.

Other Landfill Physical/Operational Data

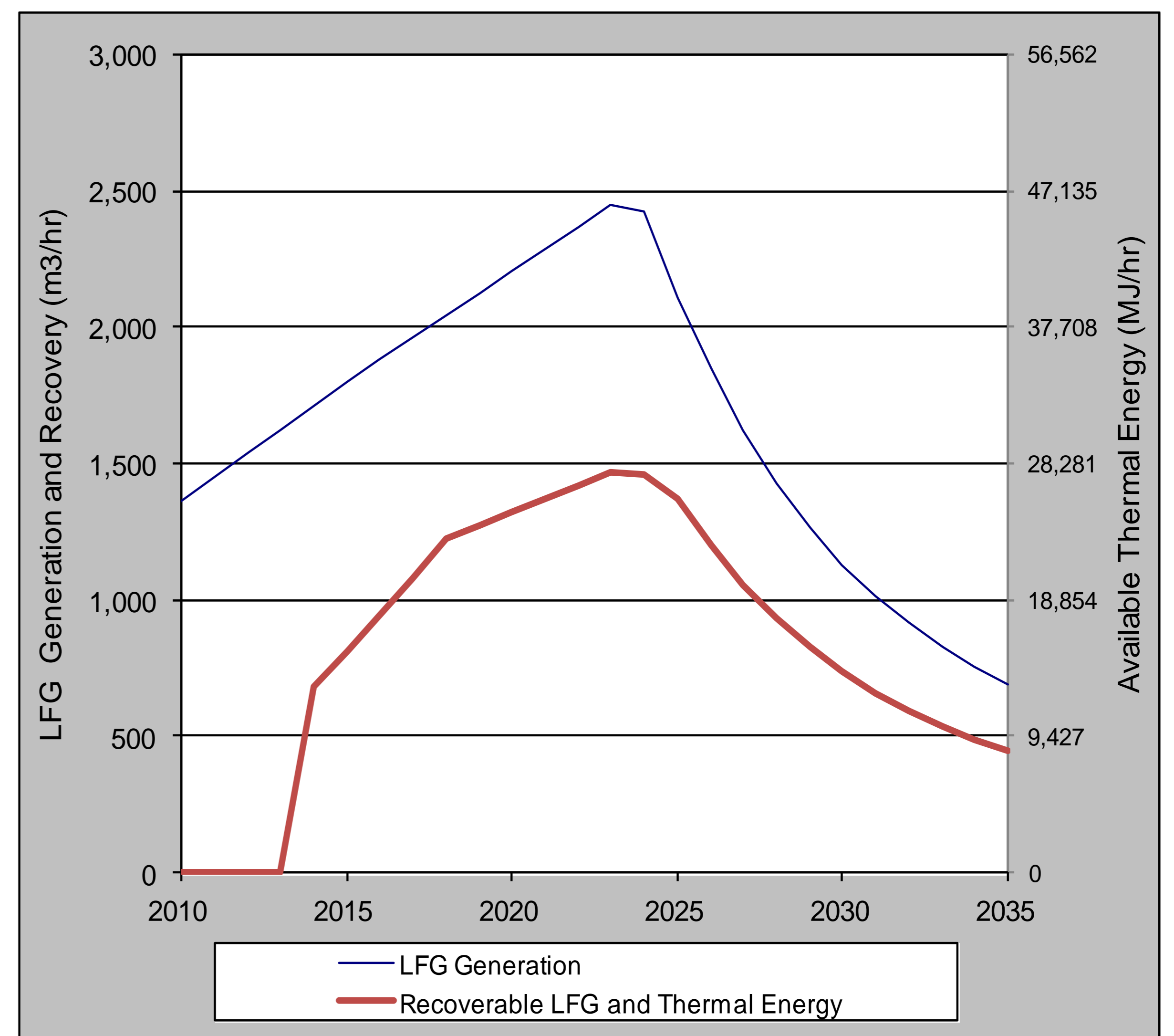
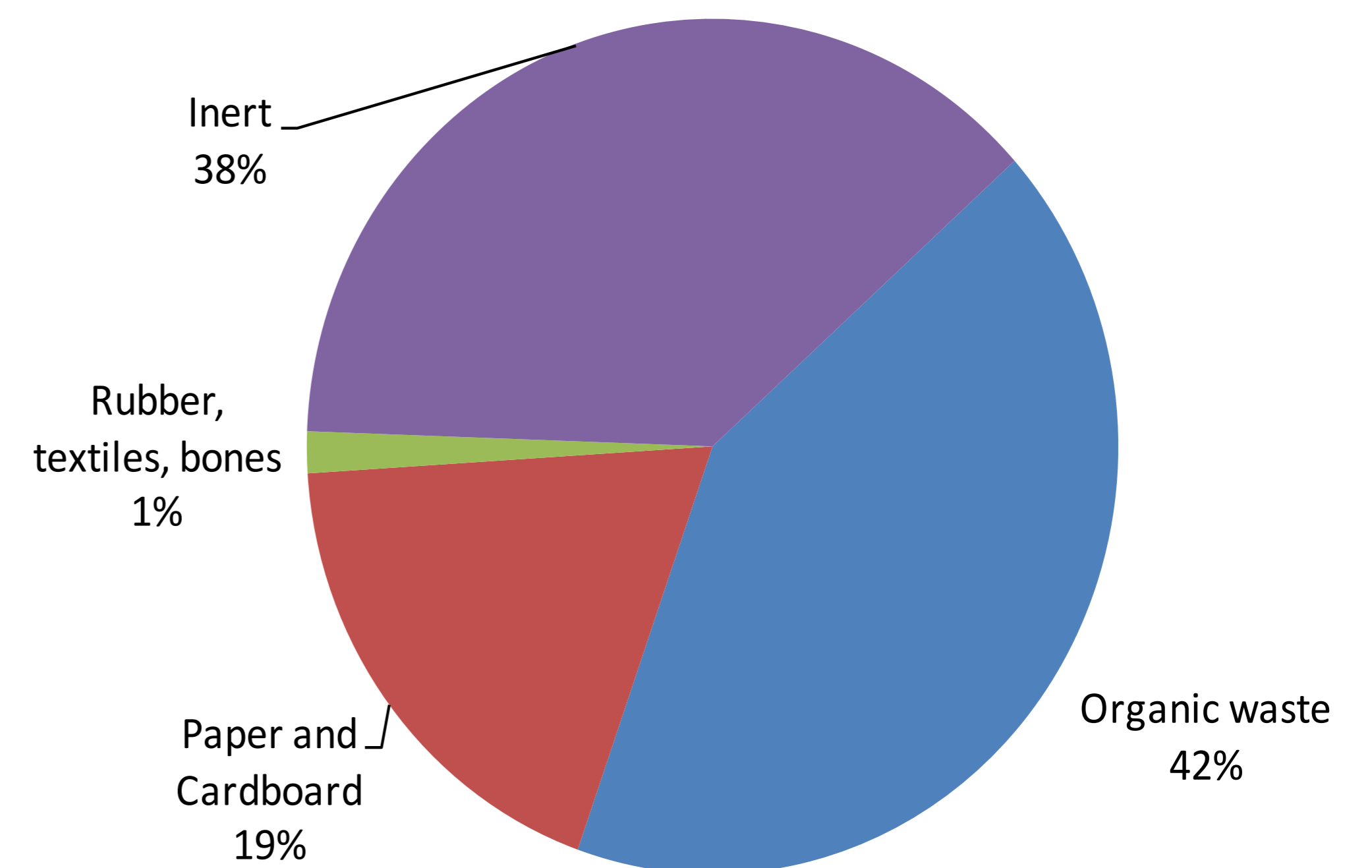
- Estimated annual MSW acceptance rates for 1997 to 2023: ranges from 36,400 to 266,600 tonnes/yr
- Landfill is lined with a composite liner
- Waste compaction is performed with a bulldozer and a compactor
- Leachate management: accumulating in standing pools, evaporation in shallow pools and some recirculation
- LFG collection and control system: passive venting wells installed.

Landfill Gas Modeling Inputs:

- CH₄ generation potential (Lo):
70 m³/Mg for very fast-decay organic waste
121 m³/Mg for moderately-fast decay organic waste
145 m³/Mg for moderately-slow decay organic waste
200 m³/Mg for slow-decay organic waste
- CH₄ generation rate constant (k):
0.18 for fast-decay organic waste
0.09 for medium-fast decay organic waste
0.036 for medium-slow decay organic waste
0.018 for slow-decay organic waste
- Percent methane: 50%

Values for these modeling variables have been developed based on the waste composition data and average annual precipitation at the Colihues-La Yesca 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 69% Gas Collection Efficiency = 62%

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 5.2 million cubic meters of methane annually over the next 13 years. This is equivalent to emission reductions of more than 1.0 million metric tonnes of CO₂eq over the life of the project.

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Tonnes CO ₂ eq from Flaring Activities	45,101	53,242	61,884	71,031	80,690	83,881	87,076	90,284	93,517	96,784	95,886	90,379	78,985

FOR MORE INFORMATION

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