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Biogas Upgrading - Landfill

WAGABOX® Project in Liéoux



PROJECT INTRODUCTION

Sivom SGMAM is a local authority that brings together 78 municipalities in the South of France. It operates the Pihourc landfill site, located in Liéoux, which receives 85,000 tons of waste per year. Since 2006, the landfill gas was recovered by two power engines, which was a challenging and unprofitable operation.

EQUIPMENT PROVIDED

At the end of 2018, Sivom SGMAM signed a contract with Waga Energy to upgrade the landfill gas into renewable natural gas (RNG), thanks to the patented WAGABOX® technology. This breakthrough technology combines membrane filtration and cryogenic distillation which allows the production of a grid compliant RNG, however high the air concentration (oxygen and nitrogen). It offers higher energy yield than CHP engines by recovering up to 90% of the methane contained in landfill gas.

Waga Energy offered Sivom SGMAM a turn-key solution to deploy this technology. The company funded the WAGABOX® unit and operates it under a 15-year contract with Sivom SGMAM for landfill gas supplying. Waga Energy generates revenue by selling RNG to an energy supplier. Sivom SGMAM only had to fund the connection of the Pihourc landfill to the gas grid of the French operator GRDF, 7.2 kilometers away.

RESULT

The WAGABOX® unit was commissioned in January 2020. It treats about 500 m³/h (311 scfm) of landfill gas and injects 18 GWh of RNG (61,000 MMBtu) per year, avoiding 3,200 tons of CO₂ emissions each year. It generates additional revenue for Sivom SGMAM with minimum investment, no operational concern, and no constraints on the landfill site operation.

PROJECT DATA

- Location: Liéoux, France
- Commissioning: January 16, 2020
- RNG production: 18 GWh/year (injected directly into the grid)
- Biogas composition: CH₄: ≈ 48%; O₂: ≈ 2%; N₂: ≈ 20%; CO₂: ≈ 30 %; H₂S: 4,000 ppmv
- Distance of the gas grid: 7.2 km

UNIQUENESS OF THE PROJECT

- The WAGABOX® unit in Liéoux landfill injects RNG from landfill gas containing over 20% air (oxygen and nitrogen)

For more information:

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