waga energy

Press Kit

February 2025

From Landfill Gas to Renewable Natural Gas (RNG)

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30
RNG PROJECTS OPERATIONAL WORLDWIDE

+1 TWh
RENEWABLE ENERGY PRODUCED SINCE 2017

+190,000 TONS
OF CO2 EQUIVALENT AVOIDED SINCE 2017

WAGA ENERGY, A GLOBAL LEADER IN RENEWABLE NATURAL GAS PRODUCTION FROM LANDFILLS

Headquartered in Philadelphia, Waga Energy Inc. is a US-based company dedicated to upgrading landfill gas into pipeline compliant Renewable Natural Gas (RNG), using a breakthrough technology called the WAGABOX®. This innovative solution turns atmospheric pollution into a source of energy that supplies local communities and contributes to the energy transition.

The company made a major breakthrough in 2024 with the commissioning of a WAGABOX® unit in Steuben County, New York: the first RNG facility in the US utilizing 1000scfm of LFG in an economically viable manner. This unit delivers up to 207,000 MMBtu of RNG annually and supplies around 4,000 households with clean, local, and renewable energy, avoiding an estimated 13,500 tons of carbon dioxide equivalent emissions per year based on the United States Environmental Protection Agency (EPA) calculation methodology.

As of February 2025, Waga Energy operates 30 RNG production units in the US, Canada, France and Spain, and employs over 250 people worldwide. The company is listed on Euronext Paris (EPA: WAGA).

A TURNKEY SOLUTION FOR LANDFILL GAS UPGRADING

Waga Energy offers landfill owners a standardized, turnkey solution. Waga Energy builds, owns, operates, and maintains the WAGABOX® units through long-term contracts, and generates revenue by selling RNG to offtakers, such as energy utilities or private companies. It creates new opportunities for local authorities and landfill owners with a new source of revenue. The WAGABOX® technology supports the circular economy through renewable energy production and improved environmental compliance.

250 EMPLOYEES WORLDWIDE

INCLUDING **60** IN NORTH AMERICA

1 OPERATIONAL WAGABOX® UNIT IN THE US

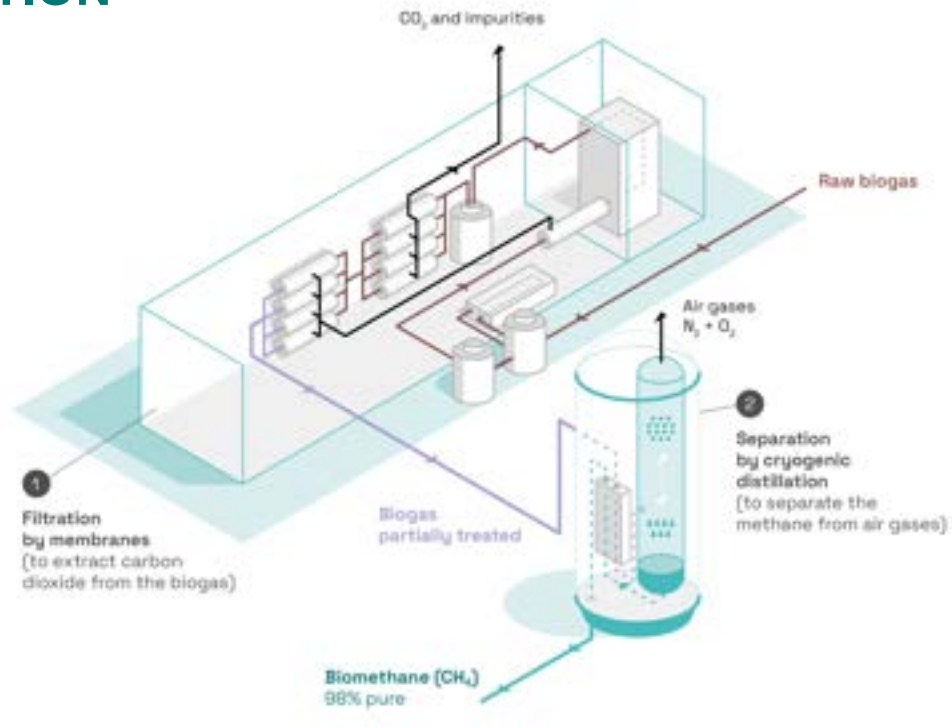
12 MORE UNDER CONSTRUCTION IN THE US

> 3,400,000

WORLDWIDE PRODUCTION CAPACITY PER YEAR (MMBtu)

REVOLUTIONIZING LANDFILL GAS UPGRADING THROUGH CRYOGENIC DISTILLATION

As a result of 15 years of research and development within Waga Energy and Air Liquide group, a world leader in gas engineering, the WAGABOX® technology makes it possible to produce network-compliant RNG from most landfills, regardless of the landfill gas concentration in oxygen and nitrogen. It overcomes challenges that have previously hindered the recovery of landfill gas into RNG. WAGABOX® technology combines membrane filtration and cryogenic distillation to upgrade landfill gas.



"The treatment is a two-step process: the raw gas is first filtered through membranes to extract the carbon dioxide and impurities. Then, it is distilled at a cryogenic temperature to isolate the methane from the nitrogen and the oxygen. At the end of the treatment, the high-quality RNG can be directly injected into the gas networks," explains Guénaël Prince, CEO of Waga Energy Inc.

The patented WAGABOX® technology recovers 90% of the methane contained in the landfill gas even with up to 30% air concentration (oxygen and nitrogen). It guarantees the delivery of RNG containing at least 98% methane, which can be injected directly into the local distribution gas network. The 10% remaining methane is used on site to burn any volatile organic compound contained in landfill gas.

A SOLUTION ADAPTED TO ALL SIZES OF LANDFILLS

The WAGABOX® is a modular, scalable, and standardized technology that can adapt to landfills of all sizes, including small and medium ones, where profitability was previously difficult to achieve.

15
YEARS OF R&D
AT AIR LIQUIDE AND
WAGA ENERGY

>90%
OF METHANE RECOVERED

UP TO 30%
OF NITROGEN ACCEPTABLE

>98%
METHANE CONCENTRATION
IN RNG (PIPELINE
COMPLIANT)

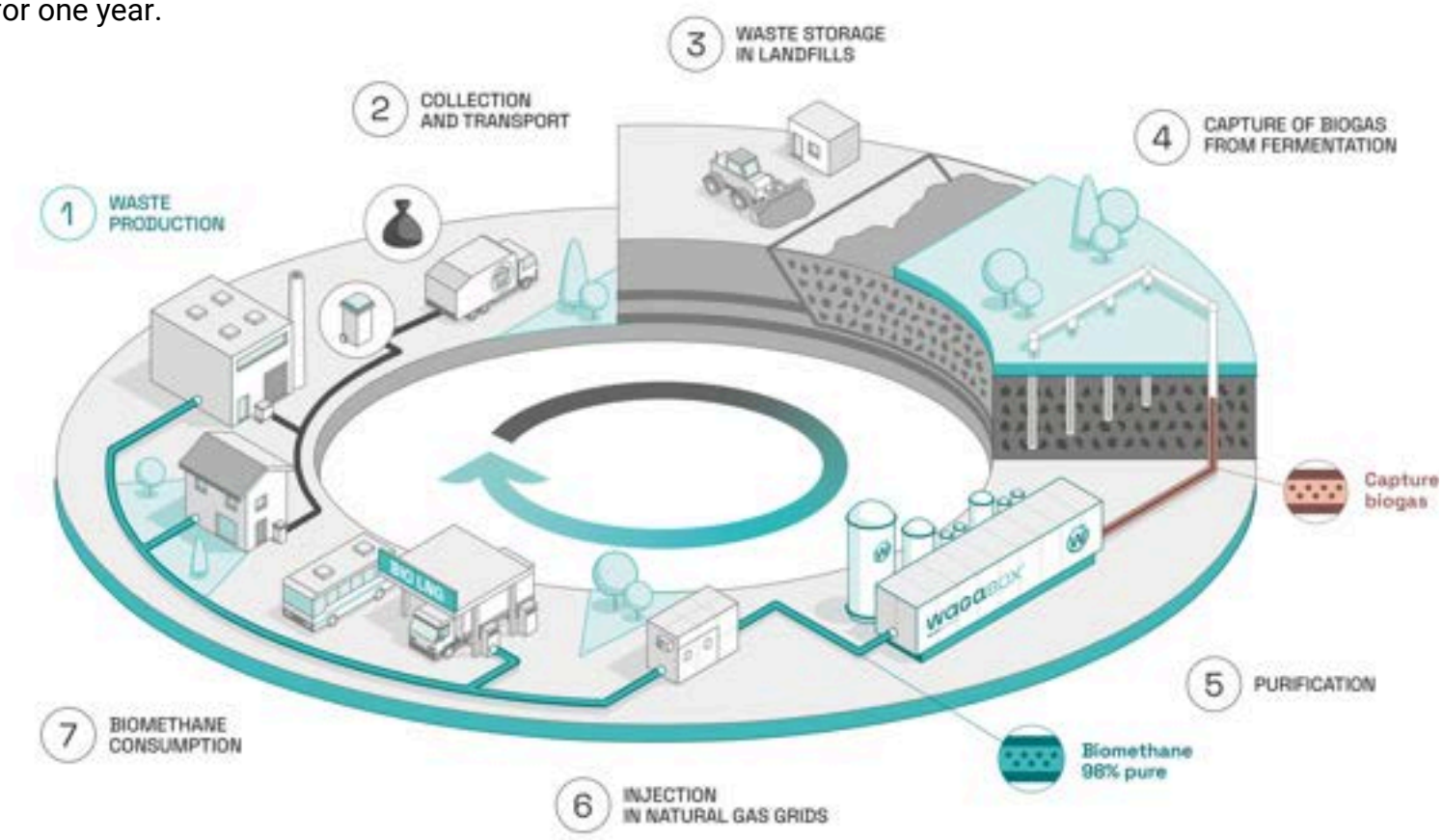
LANDFILLS: AN UNTAPPED SOURCE OF RNG TO HARNESS

Around 380 million tons of municipal solid waste (MSW) are landfilled every year in the United States. Once landfilled, the organic material breaks down, generating a methane-rich gas known as landfill gas (LFG).

Methane is a potent greenhouse gas (GHG) at least 84 times more effective than carbon dioxide (CO_2) at trapping heat in the atmosphere over a 20-year period, based on recent Intergovernmental Panel on Climate Change (IPCC) reports. Landfills are the third-largest source of human-induced methane emissions in the United States, accounting for approximately 14% of these emissions. The methane emissions from MSW landfills in 2022 were approximately equivalent to the GHG emissions from more than 24.0 million gasoline-powered passenger vehicles driven for one year or the CO_2 emissions from more than 13.1 million homes' energy use for one year.

Although a potent greenhouse gas, methane is also an energetic gas. LFG can be upgraded to RNG by increasing its methane content and, conversely, reducing its CO_2, nitrogen, and oxygen contents. RNG can be used in place of fossil natural gas as pipeline-quality gas, compressed natural gas (CNG), or liquefied natural gas (LNG). Upgrading LFG into RNG is a great opportunity to move towards the energy transition, while developing circular economy projects and supporting local communities.

There are over 2,600 landfills in the United States, according to the Landfill Methane Outreach Program (LMOP) conducted by the United States Environmental Protection Agency (EPA). Only 4% of them are producing RNG. These landfills represent an untapped source of RNG estimated at 334,000,000 MMBtu each year (assuming an average gas production rate of 500 scfm per landfill).



THE WAGABOX® TECHNOLOGY: PROJECT HIGHLIGHTS

STEUBEN COUNTY, NY

- 220,000 MMBtu of installed capacity
- 13,500 tons of CO2 equivalent emissions avoided annually

CLAYE-SOUILLY, FRANCE

- 410,000 MMBtu of installed capacity
- 20,000 tons of CO2 equivalent emissions avoided annually

SAINT-ÉTIENNE-DES-GRÉS CANADA

- 443,00 MMBtu of installed capacity
- 16,000 tons of CO2 equivalent emissions avoided annually

ELS HOSTALETS DE PIEROLA, SPAIN

- 240,000 MMBtu of installed capacity
- 12,000 tons of CO2 equivalent emissions avoided annually

12 PROJECTS UNDER CONSTRUCTION (US)

- **3 Casella Waste System Sites**, Northeast US
- **Scott County Landfill,** Davenport, IA
- **Chester County Landfill,** Narvon, PA
- **Decatur Hills Landfill,** Greensburg, IN
- **Rockingham County Landfill**, Madison, NC
- **Beaumont Landfill,** Beaumont, TX
- **Recology Hay Road Landfill**, Vacaville, CA
- **Recology Ostrom Road Landfill,** Wheatland, CA
- **SECCRA Landfill,** West Grove, PA
- **Bena Landfill**, Bakersfield, CA

WAGA ENERGY TIMELINE

2015 — Waga Energy was founded in Grenoble, France

2019 — Expansion into North America

2021 — Waga Energy launched IPO on the French stock market

2022 — Commissioned key technology to Air Liquide (Wisconsin)

2023 — The first WAGABOX® unit commissioned in Canada (Quebec)

2024 — The first WAGABOX® unit commissioned in the US (New York)

GLOSSARY

RENEWABLE NATURAL GAS (RNG)

Renewable Natural Gas (RNG), also known as “biomethane,” is a renewable alternative to fossil natural gas. Primarily composed of methane (CH_4), RNG is produced by upgrading biogas generated through the fermentation of organic matter.

BIOGAS

Biogas is a mixture of methane (CH_4) and carbon dioxide (CO_2) produced by the fermentation of organic matter in an anaerobic environment. To convert it into Renewable Natural Gas (RNG), the methane must be separated from the carbon dioxide.

LANDFILL GAS

Landfill gas is generated naturally as organic matter breaks down at landfill sites. It consists of biogas, air (oxygen and nitrogen), and various other pollutants in varying proportions.

METHANE

Methane is a highly combustible gas found in both natural gas and RNG. It is also a potent greenhouse gas, with atmospheric concentrations more than doubling over the past two centuries.

(Source: U.S. Environmental Protection Agency)

NATURAL GAS

A fossil-based hydrocarbon gas mixture consisting primarily of methane. Extracted by drilling, this fossil gas is used as a source of energy (primarily for heating or as fuel for vehicles).

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