



# Renewable Natural Gas for all



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### A WORLD LEADER IN PRODUCTION OF RENEWABLE NATURAL GAS FROM WASTE

Less known than carbon dioxide  $(CO_2)$ , methane  $(CH_4)$  is a powerful greenhouse gas. Waste treatment is one of the main sources of emissions. But methane is also an energy gas: it is the fuel element in the natural gas used for heating, industry and transport.

Waga Energy has designed an innovative solution to reduce methane emissions by purifying gases from landfill sites to produce renewable natural gas (RNG), a renewable substitute for fossil natural gas. RNG is injected directly into the gas networks that supply homes and businesses.

It uses a breakthrough technology, unique in the world, called WAGABOX<sup>®</sup>. This process combines membrane filtration and cryogenic distillation to separate methane from other gases emitted by landfills.

The WAGABOX<sup>®</sup> technology transforms a major source of air pollution into a clean, local and renewable source of energy that contributes to the energy transition.

#### **Our mission**

To make clean, local, and renewable energy accessible to as many people as possible. Waga Energy was created in 2015 by Mathieu Lefebvre, Nicolas Paget and Guénaël Prince, three engineers from the Air Liquide Group, committed to the fight against climate change through the development of RNG. "Waga" is an acronym for 'wasted gas'.

Based in Grenoble, France, Waga Energy has subsidiaries in Europe, Spain, Italy and the UK, as well as in the USA, Canada (Shawinigan, Quebec) and Brazil. It employs over 250 people worldwide.

100% of Waga Energy's activities are focused on replacing fossil fuels with RNG. The company is dedicated to the fight against global warming and is actively contributing to the sustainable energy transition.

Julie Flynn, CEO of Waga Energy Canada, comments: "Renewable natural gas produced using our WAGABOX<sup>®</sup> technology helps to strengthen countries' energy independence and accelerate the decarbonization of the economy. Our aim is to deploy our innovation on a large scale to have a significant impact on reducing greenhouse gas emissions".







SALES IN 2024

COUNTRIES

France, Spain, Italy, USA, UK, Canada, Brazil

## LANDFILL SITES: AN UNTAPPED SOURCE **OF RNG TO HARNESS**

Humanity produces over two billion metric tons of waste per year. This figure is set to rise to 3.4 billion by 2050 due to population growth and urbanization (World Bank: "What a Waste 2.0"). Around 70% of this waste ends up in landfill sites, sometimes also referred to as "controlled landfills".

Underground, the organic matter contained in waste decomposes, spontaneously producing a biogas made up of methane and carbon dioxide. Methane is a highly a powerful greenhouse gas: it must be captured to prevent atmospheric pollution.

The capture begins in the extraction wells, where landfill gas is extracted from the waste mass and enters the gas collection and control system. The blower and flare skid is a critical part of the GCCS. The blower provides the vacuum used to collect landfill gas from the waste mass. It also provides the necessary pressure to push the landfill gas to the flare or to the WAGABOX<sup>®</sup>.

These networks also extract air (oxygen nitrogen) and volatile and organic compounds (VOCs) from the waste. The gas recovered is thus composed of methane, carbon dioxide, oxygen, nitrogen pollutants. and various Its exact composition and flow rate are variable and unpredictable, making it very difficult to recycle.

That's why most landfill operators flare it, while others simply let it escape into the atmosphere, contributing to global warming.

#### **Biomethane: A readily available source** to decarbonise the industry

Millions of cubic meters of methane are lost every hour on the world's 20,000 or so landfill sites.

This energy potential is estimated by Waga Energy at 1,100 terawatt-hours per year (TWh/yr), or 3.96 billion gigajoules per vear (GJ/yr).



#### Waga Energy's circular, local and renewable production of RNG from a landfill site

### **REVOLUTIONIZING LANDFILL GAS UPGRADING** THROUGH CRYOGENIC DISTILLATION

As a result of 15 years of research and development, the WAGABOX<sup>®</sup> technology enables renewable natural gas to be produced from landfill gas, whatever the oxygen and nitrogen concentrations, in compliance with gas network injection criteria. It addresses the challenges that have previously prevented the recovery of landfill gas as renewable natural gas (RNG).

The WAGABOX<sup>®</sup> technology combines membrane filtration and cryogenic distillation.

"The treatment is a two-step process. The raw gas is first filtered by membranes to

extract carbon dioxide and impurities. Then, it is distilled at cryogenic temperature to separate methane from nitrogen and oxygen. At the end of the process, we obtain a high-quality renewable natural gas, that can be directly injected into the gas grid," explains Julie Flynn, CEO of Waga Energy Canada.

The patented WAGABOX<sup>®</sup> technology recovers up to 90% of the methane contained in landfill gases, even with air concentrations (oxygen and nitrogen) of up to 30%. This guarantees the production of high-quality RNG that can be injected directly into the local gas distribution network.

Fully automated, WAGABOX® units are remotely controlled from Waga Energy's by our operational control center based in our headquarter in France. WAGABOX<sup>®</sup> technology is protected by five patents worldwide.



The patented WAGABOX® technology combines membrane filtration and cryogenic distillation to produce high-quality, renewable natural gas.

#### A TURNKEY SOLUTION FOR WASTE BIOGAS RECOVERY

Waga Energy deploys the WAGABOX<sup>®</sup> technology using a developer, investor and operator model: the company finances the construction of WAGABOX<sup>®</sup> units itself through long-term contracts with landfills' operators for the supply of raw gas, and generates revenues by selling the renewable natural gas or charging a purification service.

By converting a waste treatment by-product, Waga Energy is able to produce RNG at a competitive price.

## TIMELINE



## **GLOSSARY**

#### **RENEWABLE NATURAL GAS**

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 flammable gas present in both natural gas and renewable natural gas (RNG). It is also a powerful greenhouse gas, with atmospheric levels having more than doubled over the past two centuries

#### **NATURAL GAS**

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

## 31

LANDFILL GAS UPGRADING UNITS IN OPERATION WORLDWIDE

## 1.4 TWh

5 million of gigajoules RENEWABLE ENERGY INSTALLED CAPACITY OF PRODUCTION PER YEAR

## 240,000 tons

CO<sub>2</sub> EQ. EMISSIONS AVOIDED WORLDWIDE SINCE 2017



Founded in 2015, Waga Energy produces competitively priced renewable natural gas (RNG, also known as biomethane) by upgrading landfill gas using a patented purification technology called WAGABOX<sup>®</sup>. The RNG produced is injected directly into the gas distribution networks that supply individuals, businesses and transport, providing a substitute for fossil natural gas. Waga Energy finances, builds and operates its WAGABOX<sup>®</sup> units under long-term contracts with landfill operators for the supply of raw gas, and generates revenues by reselling the RNG or providing a purification service.

As of May 20, 2025, Waga Energy operates 31 RNG production units in France, Spain, United States and Canada, representing an installed capacity of more than 1.4 TWh/year (5 million GJ/year). Waga Energy has 19 RNG production units under construction in France, Italy, Spain, Canada, and United States.

Each project undertaken by Waga Energy contributes to the fight against global warming and helps the energy transition.

Waga Energy is listed on Euronext Paris (EPA: WAGA).

### **IDENTITY CARD**

Waga Energy Canada: 1265, rue Trudel local 4, Shawinigan (Québec) G9N 8T3

**Group Headquarters**: 5, avenue Raymond-Chanas 38320 Eybens France **Subsidiaries**: SPAIN (Barcelona) – ITALIA (Milano) – CANADA (Shawinigan) – UNITED STATES (Philadelphia) – BRAZIL (São Paulo)

Employees : 250 worldwide

Location of RNG production units (as of May 20, 2025): 31 units in operation 23 in France (+ 3 under construction) 1 in Spain (+1 under construction) 4 in Canada (+ 1 under construction) 3 in USA (+ 12 under construction) 2 under construction in Italy

Consolidated revenue 2024 : €55,7M as of 2024/12/31

Listing: Euronext Paris (FR0012532810 – EPA : WAGA)





## **CONTACT US**

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