

## Biomethane for everyone



# WAGA ENERGY: A GLOBAL LEADER IN BIOMETHANE PRODUCTION FROM LANDFILLS

Waga Energy is dedicated to tackling global warming and advancing a sustainable energy transition. Less known than carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) 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 we consume for heating and transport. The company provides an innovative solution to reduce methane emissions by purifying landfill gas into biomethane, a renewable substitute for fossil natural gas. Biomethane is injected directly into the gas networks that supply homes and businesses.

It uses a breakthrough technology called WAGABOX®. This process curbs a significant source of atmospheric pollution, turning it into a source of clean, local and renewable energy that fuels homes, industries and transportation and 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 biomethane. Waga stands for 'waste gas'. Headquartered in Grenoble, France, Waga Energy has established a strong presence in Europe in four countries, France, Spain, Italy and UK, and in Canada, Brazil and in the USA. It employs over 250 people worldwide.

100% of Waga Energy's business activities are focused on replacing fossil fuels with biomethane and combating climate change.

Will Llewellyn, CEO of Waga Energy UK, says: "The biomethane produced using our WAGABOX® technology is helping to strengthen countries' energy independence and accelerate the decarbonisation of the economy. Our goal is to reach a global production capacity of 4 TWh of renewable gas by 2030 to have a significant impact on reducing greenhouse gas emissions."



**250** 

€55.7 M

# REVOLUTIONISING LANDFILL GAS UPGRADING THROUGH CRYOGENIC DISTILLATION

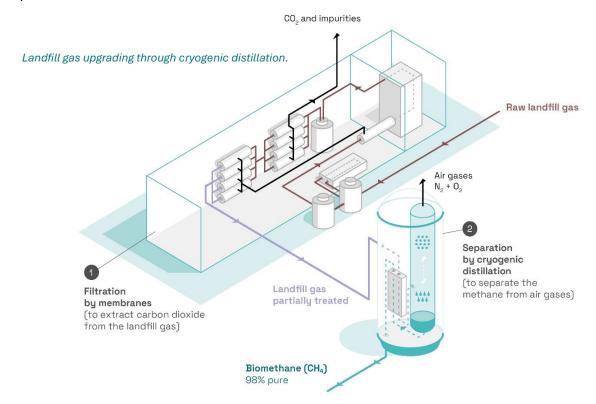
As a result of 15 years of research and development, the WAGABOX® technology makes it possible to produce grid-compliant biomethane from most landfills, regardless of the landfill gas concentration in oxygen and nitrogen. It overcomes challenges that have previously hindered the recovery of landfill gas into biomethane.

The 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 biomethane can be directly injected into the gas grid," explains Will Llewellyn, Director of Waga Energy Ltd.

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 biomethane 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 TURNKEY SOLUTION FOR LANDFILL GAS UPGRADING

Waga Energy deploys the WAGABOX® technology using a developer, investor and operator model: the company finances the construction of WAGABOX® units itself under long-term contracts with landfills' operators for the supply of raw gas, and generates revenue by selling the biomethane to energy providers.

By converting a by-product of waste processing, Waga Energy is able to produce biomethane at a competitive price.

# LANDFILLS: AN UNTAPPED SOURCE OF BIOMETHANE TO HARNESS

There are about 350 landfills in the United Kingdom: about 280 landfills in England, 40 in Scotland, 20 in Wales and 14 in Northern Ireland. The largest 100 landfill sites present an opportunity to recover up to 5.5 TWh of biomethane in the short-term.

The gas recovered is made up of methane, carbon dioxide, oxygen, nitrogen and various pollutants. Its exact composition and flow rate are variable and unpredictable, making it very difficult to recover. The biomethane production with a WAGABOX® unit allows maximising the renewable energy exported to the grids.

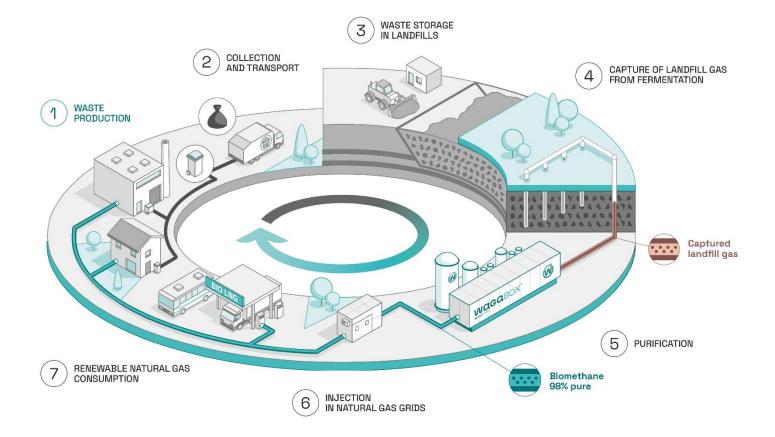
The Environment Agency published in 2023 the UK's biomass strategy, which purpose is to set out the role biomass can play in reaching net zero, what government is doing to enable that objective and where further action is needed. Landfill biomethane is included in 2023 biomass strategy, repeatedly highlighted as a key opportunity.

Despite policy changes to ban organic waste from landfills (planned from 2028), landfills will still produce high volumes of landfill gas for the next 20-30 years, presenting the potential is to install several WAGABOX® projects in the UK.

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

The United Kingdom has a well-developed infrastructure for biogas and biomethane, with 1,233 biogas plants producing approximately 21 TWh energy annually 120 biomethane plants generating around 7.5 TWh in 2023. While the biogas sector has seen significant growth, landfill biomethane remains an underutilised resource, with untapped potential across the UK. (Source: "Tracking biogas and biomethane deployment across Europe", Statistical Report, EBA, 2024, from REA data)

Currently, of the 756 anaerobic digestion (AD) plants in operation in the UK, only 20% are upgrading biogas to biomethane.



## **TIMELINE**

The first North The first The first South Creation Waga Energy **WAGABOX®** WAGABOX® unit America WAGABOX® unit of listed on America the French Waga Energy commissioned market commissioned market project in France expansion in North America stock market in Italia expansion & Spain 2015 2024 2025 2021

## **GLOSSARY**

### **BIOMETHANE**

Biomethane, also known as "renewable natural gas" (RNG), is a renewable alternative to fossil natural gas. Primarily composed of methane (CH<sub>4</sub>), RNG is produced by upgrading biogas generated through the fermentation of organic matter.

### **BIOGAS**

Biogas is a mixture of methane (CH<sub>4</sub>) and carbon dioxide (CO<sub>2</sub>) 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.

### **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).

**30** 

**1.4 TWh** 

240,000 Tons

LANDFILL GAS
UPGRADING UNITS IN
OPERATION WORLDWIDE

RENEWABLE ENERGY
INSTALLED CAPACITY OF
PRODUCTION PER YEAR

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



Waga Energy produces biomethane at a competitive price by recovering gas from landfill sites using a patented purification technology called WAGABOX®. The biomethane produced is injected directly into the gas distribution networks that supply homes and businesses, replacing fossil natural gas. Waga Energy finances, builds and operates its WAGABOX® units under long-term contracts with storage site operators for the supply of raw gas, and generates revenue by reselling the biomethane or providing a purification service.

At the date of this document, it operates 30 biomethane production units in the USA, Canada, France and Spain, representing an installed capacity of 1.4 TWh/year. It employs over 250 people worldwide. The company is listed on Euronext Paris (EPA: WAGA).

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

## **IDENTITY CARD**

Head office: 30 Old Bailey, London EC4M 7AU

Group headquarters: 5, avenue Raymond-Chanas 38320 Eybens France

Subsidiaries: SPAIN (Barcelona) - ITALIA (Milano) - CANADA (Québec) - UNITED

STATES (Philadelphia) – BRAZIL (São Paulo)

Employees: 250 worldwide

Location of RNG production units (as of March 1st 2025): 30 units in operation

23 in France (+ 3 under construction) 1 in Spain (+1 under construction) 3 in Canada (+ 2 under construction)

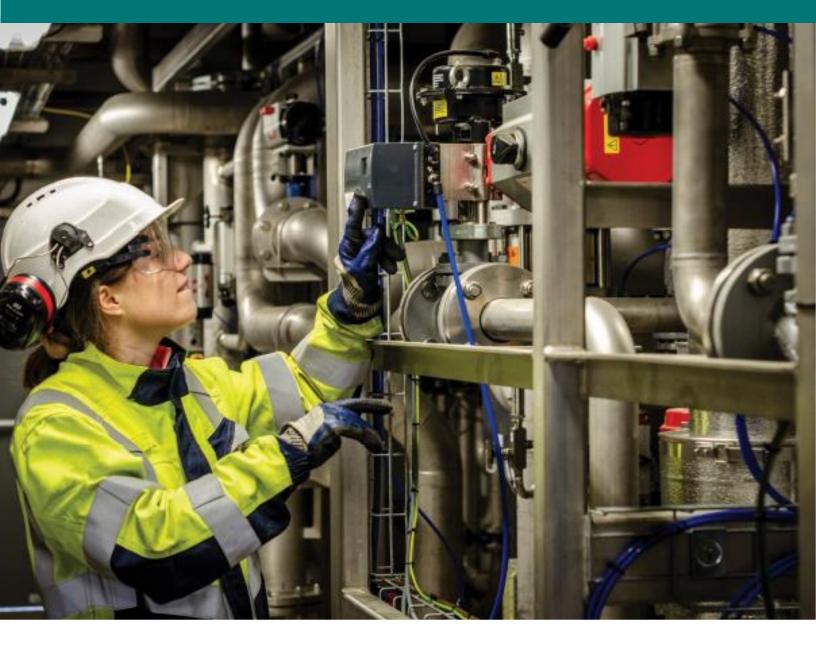
3 in USA (+ 12 under construction)

1 under construction in Italy

Consolidated revenue 2024: €55.7M as of 31/12/2024

Listing: Euronext Paris (FR0012532810 – EPA: WAGA)





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