

## Production of green gas from urban waste in Lorient

by Ludovic GUTIERREZ / 2021-03-18 20:27:53 / France / 4412 / FR



**Year of commitment** : 2019

**CO2 Impact** : The biogas deposit at the Kermat site enables Lorient Agglomeration to produce 7 GWh of renewable gas per year, thus supplying 70% of the annual gas consumption of the municipality of Inzinzac Lochrist and avoiding the emission of 1 500 tons of CO2.



**3 000 000 €**

**Builder**

Waga Energy

**Manager / Dealer**

Lorient Agglomeration

### GENERAL INFORMATION

#### Progress Status

Delivered

#### Data Reliability

Self-declared

#### Funding Type

Public

#### Sustainable Development

## Well Being :

**Odors:** The biogas purification installation does not generate any odor nuisance and has little effect on the odors generated by the operation of the ISDND

**Noise:** The purification installation does not generate any additional noise or emergence likely to affect the noise emissions perceived in the environment of the ICPE.

**Health:** The risk-tracing pollutants present in the discharges will be similar to the current situation and the conclusions of the health risk assessment are not called into question.

## Preservation / Environmental Improvement :

### ◦ Reduce our carbon footprint by recovering our waste

Even at the end of the waste management chain, the ISDND is now, by upgrading biogas into biomethane, in a logic of circular economy and reduction of the carbon impact. Consuming green gas produced from ISDND emits 14 times less GHGs than fossil natural gas and more than 20 times less than diesel.

The biogas field at the Kermat site enables Lorient Agglomeration to produce 7 GWh of renewable gas per year, thus supplying 70% of the annual gas consumption of the municipality of Inzinzac-Lochrist and avoiding the emission of 1,500 tonnes of CO<sub>2</sub> each year - the equivalent of 200 Lorient - Sydney return trips by plane.

### ◦ Solar panels to operate the installation

To power the compressors, motors, etc., which keep the Wagabox running in a sustainable manner, the Kermat site has installed photovoltaic panels. An extension of the installation of solar panels was also carried out to supply the electricity network with renewable energies. A solar farm project to cover the entire site is underway.

## Resilience :

### Responsible use of resources :

The feasibility of injecting biomethane into French gas networks is part of the continuity of ISDND's adaptation processes to the times and to ever-increasing constraints for more sustainable waste management.

With its 232 Non-Hazardous Waste Storage Facilities or "NDWD" in France, 18 million tonnes of non-hazardous and non-recyclable final household and industrial waste are stored in these facilities. This storage makes it possible to trap the fossil carbon of the non-recyclable waste in a sealed place and allows the recovery and recovery of the biogas resulting from the fermentation of the organic matter contained in the waste. The ISDND operated in the rules of the art therefore have a double interest for the community (storage of material and production of renewable energy).

As of November 1, 2020, 11 ISDNDs are injecting biomethane into the distribution gas network operated by GRDF, for a total installed capacity of 180 GWh / year.

To find out more, see [GRDF's REX ISDND](#) .

## Testimony / Feedback

### **Testimony of Laurent LE DEVEDEC, Energy Manager for the LORIENT AGGLOMERATION community**

*"The scarcity of outlets in the Breton regional territory makes the Kermat ISDND an essential treatment tool for so-called "ultimate" waste that we could not avoid. The prioritization of waste treatment methods towards energy recovery, however, will not be able to divert all deposits. It is certain that a residual part will remain intended for landfill. Thanks to its operating life, Kermat's ISDND will make it possible to respond effectively to this challenge. "*

*"The Kermat ISDND biogas project for biomethane was the subject of a broad consensus within the city during its presentations because the project was of interest for the preservation of the environment but also economic with the revenues linked to the sale of biomethane and the reduction of the TGAP. Upgrading our biogas into biomethane improves our energy mix and the reduction of our greenhouse gas emissions. The production covers 80% of the consumption of the municipality of Inzinzac Lochrist or 80% of the consumption of our bus fleet. It should be noted that this project also made it possible to initiate the vehicle gas reflection in our territory, a public distribution station will also see the light of day and will make it possible to supply the carriers but also our household refuse dumpsters. A reflection is also underway concerning our bus fleet. "*

Source: GRDF REX ISDND

## Governance

Lorient Agglomeration

**Holder Type :** Regional Authority

Waga Energy

Lorient Agglomeration

**Manager / Dealer Type :** Public

This project is supported by Lorient Agglomeration, with the support of the Regional Council of Brittany and ADEME. Lorient Agglomeration is one of the only communities to perform its own recovery of this non-hazardous waste.

### **Business Model :**

This project represents an investment of 3,000,000 €, financed by Lorient Agglomeration, with the help of the Brittany Region and ADEME. Ultimately and for a

period of 15 years, the sale of bio-methane will generate revenue for the community estimated at 700,000 euros per year, to which is added an annual valuation premium of 50,000 euros.  
In addition to being virtuous, this innovative and ambitious solution is also economically very profitable for Lorient Agglomération. In addition to the sale of the gas produced to GRDF, it involves the reduction of the general tax on polluting activities (TGAP) which should make it possible to reimburse the initial investment in three years.  
The cost of producing biomethane from ISDND is one of the lowest production costs in the sector.

## Sustainable Solutions

WAGABOX®

### Description :

The buried waste decomposes and ferments, producing a biogas rich in methane, but also composed of carbon dioxide, nitrogen, oxygen and impurities which make its reuse very difficult.

The result of ten years of development, WAGABOX® is a breakthrough technology for the recovery of biogas from landfill waste. It combines two purification processes: membrane filtration and cryogenic distillation. Membrane filtration removes carbon dioxide (CO<sub>2</sub>) and impurities contained in the biogas from the waste. The gas is then cooled to cryogenic temperature to separate the methane (CH<sub>4</sub>) from the oxygen (O<sub>2</sub>) and from the nitrogen (N<sub>2</sub>).

Whatever the composition of the raw biogas, WAGABOX® provides 98% pure biomethane, compatible with the injection criteria of network operators. WAGABOX® recovers 90% of the methane contained in the waste biogas, guaranteeing an energy yield three times higher than solutions consisting of burning gas to produce electricity. Biomethane is easily stored and transported using existing gas infrastructure.

Exclusive to Waga Energy, WAGABOX® technology, patented worldwide, is today the benchmark solution for the recovery of biogas from landfill sites.



Key figures on the Kermat (Lorient-Agglomération) site in Inzinzac-Lochrist (Morbihan):

- 60,000 tonnes of waste stored per year
- Biogas: 45-50% CH<sub>4</sub> | 0-3% O<sub>2</sub> | 4000 ppmv H<sub>2</sub>S
- Distance from the network before works: 6 kilometers
- Existing recovery solution: evaporation of leachate
- Unit capacity: 15 GWh / year

**Waga Energy currently operates this unit on behalf of Lorient Agglomération. The Waga Energy solution is used in 10 of the 11 ISDNDs that inject biomethane in France.**

More information: <https://waga-energy.com/>

- Energy/climate :
- Circular economy
- Waste management
- Renewable energies

<https://waga-energy.com/technologie/>

Company (es) Website :

Company (es) Website :

## Photo credit

Waga Energy

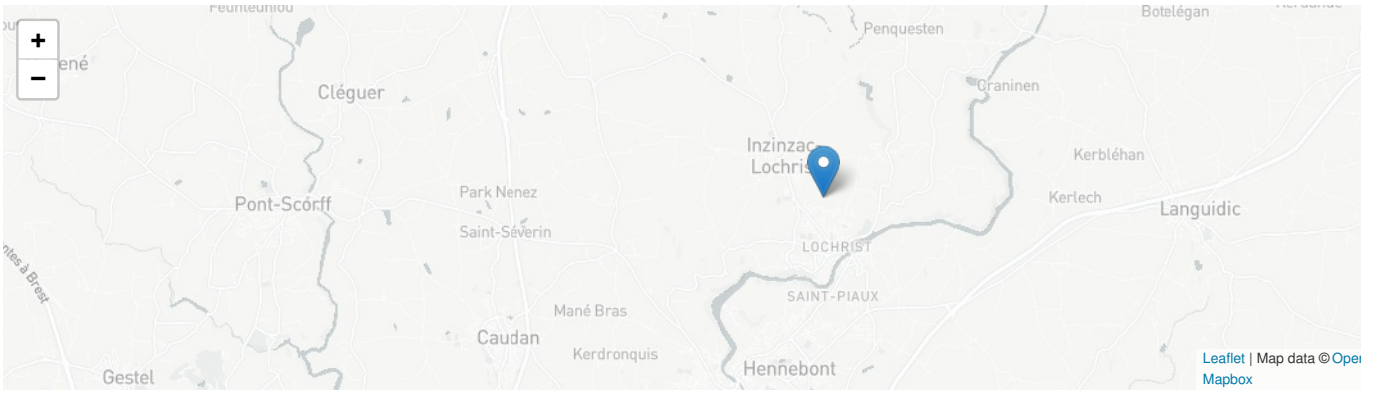
## Contest

### Reasons for participating in the competition(s)

La valorisation du biogaz de l'installation de stockage de déchets urbains de Lorient-Inzinzac-lochrist en biométhane permet de produire l'équivalent de 7 GWh/an de gaz renouvelable. Aujourd'hui, cela permet à Lorient Agglomération de verdir près de 70% de la consommation en gaz de la commune d'Inzinzac Lochrist. Le biogaz épuré produit par les casiers de stockage de déchets en biométhane avec WAGA ENERGY est injecté dans le réseau de la collectivité par GRDF. Ce projet a permis d'initier la réflexion gaz véhicule sur le territoire de Lorient, une station de distribution publique va à ce titre prochainement voir le jour pour accroître la mobilité durable.

### Building candidate in the category





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