

# MICRO4BIOGAS:

European research for sustainable power



## Abandoning old energies

Fossil fuels pollute our planet and are finite. The world is heading towards a global **energy and climate crisis** that can only be solved by looking towards new, sustainable, energy sources.



## Empowering substitutes

We must **promote renewable energies**, develop them and increase their competence. This means achieving a **continuous power supply** that is affordable despite changing environmental conditions.



## Biogas, but better

At MICRO4BIOGAS, we will **boost the efficiency of biogas production** by harnessing the microbes that create this sustainable fuel. Our goal is to make biogas a **competitive energy source**.

## The project in numbers

4   
Years

14   
Partners

6   
Countries

5,7 <sup>M</sup>  
Funding

## Find out more!

 [www.micro4biogas.eu](http://www.micro4biogas.eu)

 @Micro4Biogas

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## Partners



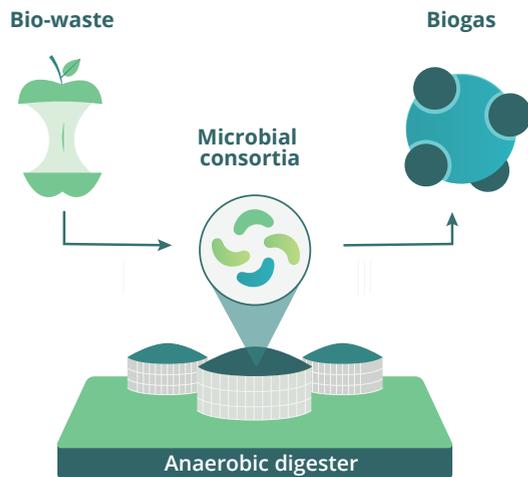
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000470



A research and innovation project to optimise biogas production

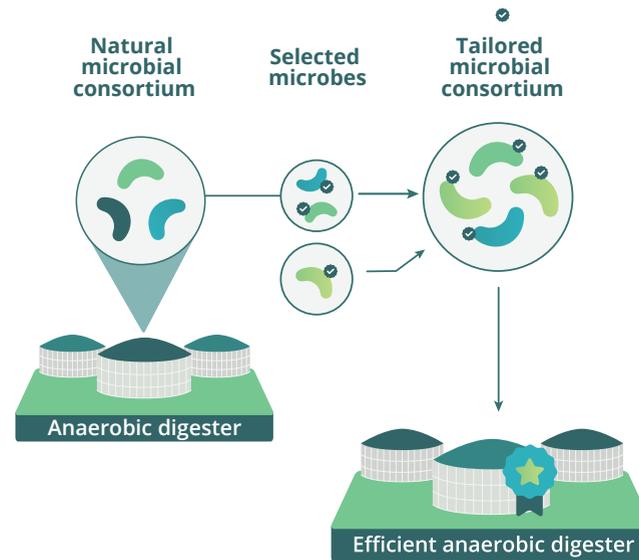
# Biogas is renewable and storable. Now let's make it efficient

## Microbial biogas production: a black box



Biogas is a **sustainable fuel** made up mostly of methane ( $\text{CH}_4$ ; 55-70%) and carbon dioxide ( $\text{CO}_2$ ; 30-40%). It is produced when **organic matter is decomposed** by microorganisms (bacteria and archaea) in the absence of oxygen. Despite being a long-known process, these groups of microbes are not well studied, so industrial biogas production faces **efficiency issues**.

## Developing the best microbes for the job



To improve production, we will optimise the microorganisms in biogas tanks. This has two steps: first, analysing and **selecting the most efficient decomposers** which are already present in anaerobic digesters, and second, using directed evolution in the laboratory to create **tailored microbial communities** for digesting waste. This is called bioaugmentation.

## Testing MICRO4BIOGAS in the real world

Our improved microbial communities will be tested in a **new biogas power plant** of 925m<sup>3</sup> in Aras de los Olmos. This small town in Spain will become one of the **first in Europe** to rely 100% on renewable energy!

Aras de los Olmos  
Pilot plant

## Boosting the pillars of biogas production



### Speed

Quicken the process of waste degradation



### Yield

Obtain more biogas out of the organic waste



### Quality

A more refined biogas with higher methane content



### Reproducibility

Solid protocols that can be implemented in other plants

Our project aims to improve **every relevant aspect** of biogas production to make it truly competitive.

## Supporting the European energy transition

The chance of **transforming waste into electricity, heat and fuel** is a priceless strategy to build a strong European bioeconomy. That is the reason our project is focused on optimising biogas production: creating a **reliable power source** that contributes to deliver the European **Green Deal**.