



CIEN SMART GREEN GAS PROJECT



Centro para el
Desarrollo
Tecnológico
Industrial



UNIÓN EUROPEA
Fondo Europeo de
Desarrollo Regional (FEDER)
Una manera de hacer Europa

Waste Energy Recovery

Project Description

Over the next four years, the SMART Green Gas project will research energy recovery by obtaining biomethane from wastewater and effluents.

This locally generated renewable fuel will then be used in vehicles or for injection into the natural gas distribution grid.

To achieve this goal, new systems for the production of biogas and bio-methane will be developed together with procedures for bio-methane refining, control and intelligent distribution.

For that purpose, the project has been structured into three lines of operation:

1. Development of new systems for maximising biogas production efficiency.
2. Development of novel techniques for processing, refining and producing biomethane.

3. Development of innovative systems for the control and intelligent distribution of bio-methane (SMART GRID GAS intelligent and specialised distribution system).

Objective of Aqualia

A medium-sized (population of 50,000) waste water treatment plant can potentially produce about 1,000m³ of biogas per day. It is estimated that the energy stored in this waste water would power more than 100 vehicles.

One of the areas of research in the project concerns refining technology and biogas cleaning using a patent developed by Aqualia (application EP15382087.3). Thanks to this technology, it is possible to transform biogas into bio-methane (by selectively removing CO₂ and H₂S) to reach the quality standard for automotive fuel.

The project will consolidate the connection between "water and energy" to obtain biofuel from waste water and will significantly reduce the carbon footprint.



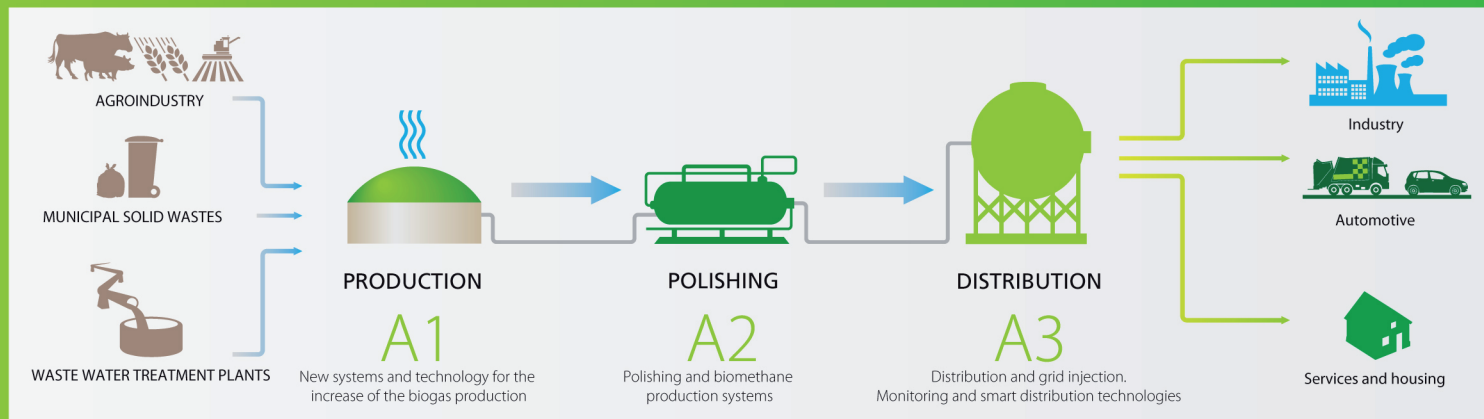
SMART green gas



Location: Plurirregional

Duration: From the 1st of October 2014 to the 30th of September 2018

Total Budget in Euro: 8,365,890 € **Aqualia:** 3,645,062 €



Expected Results

Key targets summarized in the following points:

- Significant increase in performance rates of biogas production.
- Increased reliability and efficiency, as well as lower operating and maintenance costs, of biomethane production.
- Development of an intelligent monitoring system that allows for continuous control of biomethane quality.
- Integration of biomethane in the smart energy grid (electricity and gas) that will enable the supply system to be optimized and made more flexible.
- A strengthening of Spain's industrial base, thus generating growth and employment in the country, by developing competitive refining technology (In Europe there are close to 13,000 biogas plants, while only less than 2% produce biomethane (Source Fraunhofer, 2014)).
- Contribute to requirements of the policies of environment (climate change, Directives 2003/87/EC and 2009/29/EC) and energy (Directives 2009/28/EC, 2014/94/EU that encourage the use of renewable sources to generate electricity and to be used in the transport sector).
- An improvement in EU energy security by producing a renewable and locally generated fuel.



PROJECT PARTICIPANTS

- FCC Aqualia S.A. (leader)
- Gas Natural Fenosa
- EDP Naturgas Energía
- DIMASA
- DIAGNOSTIQA
- BIOGAS FUEL CELL
- ECOBIOGAS



COLLABORATING PUBLIC ORGANISMS

- LEQUIA/ U. de Girona
- ICRA
- U. Valladolid
- U. Santiago de Compostela



DETAILS OF FUNDING

- Funding:** CIEN Programme (National Business Investigation Consortium).
- Organism:** Centro de Desarrollo Tecnológico Industrial (CDTI).
- Project:** IDI-20141342 IDI-20141344
- Funding:** Preferential loan of 80.7% of the budget with a 30% non refundable.

Funding Received
Total budget in Euro: 6,751,273 €
Aqualia: 882,468 €