



RETOS RENOVAGAS PROJECT



Process for producing renewable natural gas



Project Description

This project aims to generate fully sustainable natural gas by using surplus renewable electricity and biogas produced in waste treatment processes. To achieve that, green electrical energy is stored in the form of hydrogen, which in turn reacts with the CO₂ in the biogas to create methane. In that way, the biogas produced by anaerobic digestion is enriched in methane until it meets the required standard to be injected into the natural gas grid. As a result, management of both energy sources - renewable electricity and biogas from treatment processes - is more efficient and sustainable, as it can be stored when there is a surplus and supplied in times of shortage. To demonstrate the feasibility of this process, the consortium of companies and organisations involved in the project develop together a pilot plant capable of generating a 2 m³/h stream of fully renewable natural gas. This plant will use the biogas produced in a facility managed by Aqualia. This project is expected to have the following results:

- Demonstration of the renewable natural gas generation process under real conditions in a WWTP.

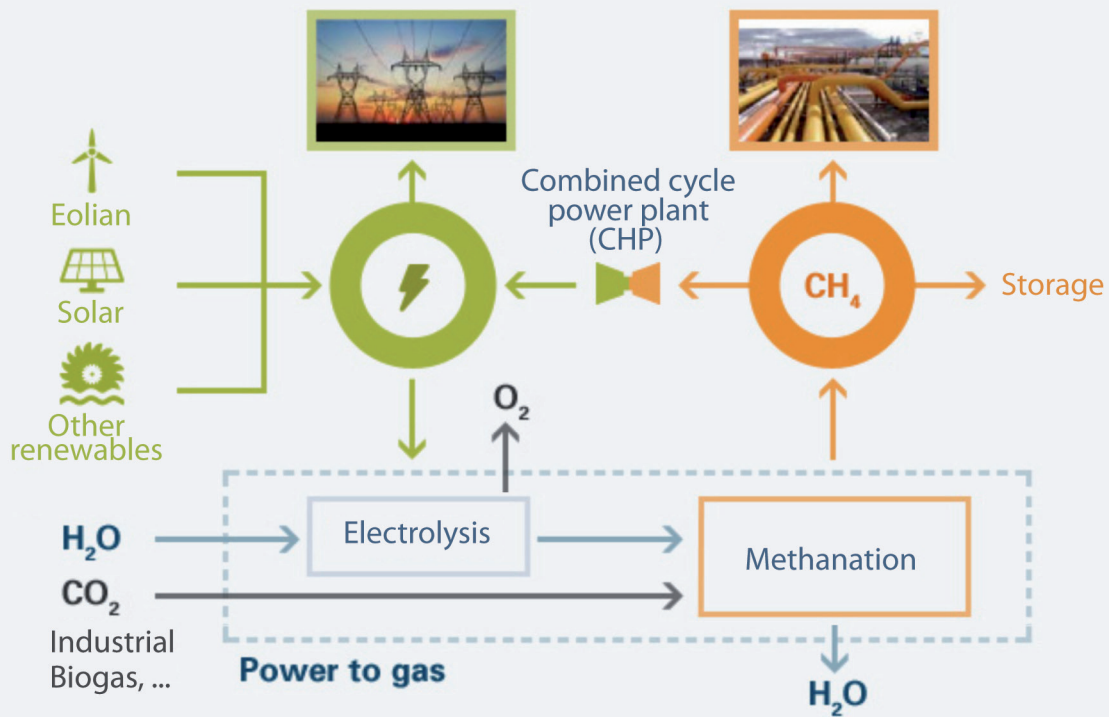
- Assessment of the feasibility of the process, integration capability and market potential of Power to Gas technology.
- Collaboration and knowledge exchange between companies managing energy resources such as biogas and renewable fuels.
- Integration of the gas network in intelligent grids that will allow for a more flexible and optimized energy system.
- Technological development by companies and research centres to install and operate plants with this technology in Spain to improve sustainability and energy self-sufficiency



Location: EDAR Guadalete (Jerez de la Frontera)

Duration: From the 1st of July 2014 to the 31st of December 2016

Total Budget in Euro: 2,162,699.00 € **Aqualia:** 243,192.00 €



Objective for Aqualia

Biogas energy produced in sewage treatment plants can be integrated in the distribution of natural gas. Power to Gas technology is a subject of growing interest today in countries with high levels of renewable energies, creating a bond of collaboration with energy companies and encouraging the integrated management of resources. In the WWTPs managed by Aqualia, co-generation

is still limited to large facilities. The main objective is to increase performance and benefits for the company and the environment. Moreover, the generation of synthetic natural gas can have greater added value and a low impact on the carbon footprint, compared to the release of CO₂.

PROJECT PARTICIPANTS

- Enagás (Leader)
- FCC aqualia S.A.
- Gas Natural Fenosa
- ICP-CSIC
- Tecnia
- Abengoa Hidrógeno
- Centro Nacional del Hidrógeno



DETAILS OF FUNDING

- Funding:** Convocatoria RETOS-Colaboración.
Organism: Ministerio de Economía y Competitividad, MINECO.
Project: RTC-2014-2975-3
Grant: Preferential loan of 78% of the budget.

Funding Received
Total Budget in Euro: 1,681,705.47 €
Aqualia: 189,689.76 €