Renewable energy initiative moving to turn wastewater into fuel

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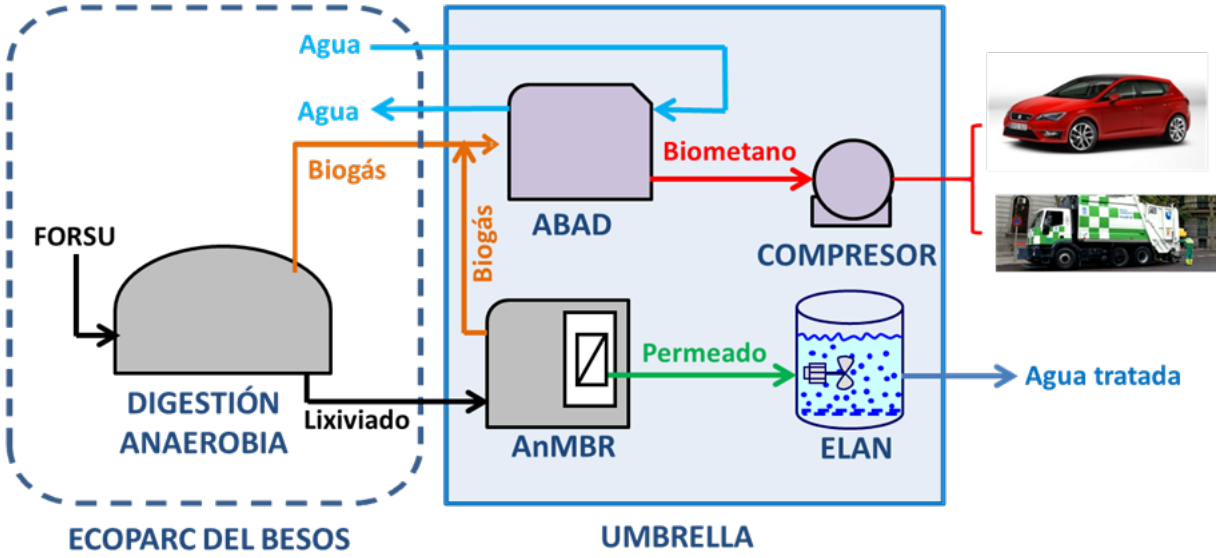

Credit: LIFE+ Methamorphosis

(Tech Xplore)—Environment watchers in Europe are looking at activities surrounding the LIFE+ Methamorphosis project funded by the European Commission.

Participating companies include Fomento de Construcciones y Contratas (FCC), Gas Natural (GN), SEAT, the Barcelona Metropolitan Area (AMB) and the Catalan Institute for Energy (ICAEN).

They have two projects that look promising in efforts toward climate change mitigation through the use of renewable energy—as in the production of biomethane from waste treatment plants.

The project aims to show two innovative waste treatment systems, said a project description: the UMBRELA system in urban waste plants, which combines a new anaerobic membrane process (AnMBR) with autotrophic nitrogen removal (Annamox ELAN); and the METHAGRO system in agro-industrial and other organic waste treatment plants (for mainly slurry), a system that combines pre-treatment processes.

The fuel has a lower greenhouse effect gas emission rate compared to other fuels and is the focus of the two projects; two facilities are being built.

Michael Irving in *New Atlas* commented that a "water management company and a car manufacturer normally might not have much to say to each other, but in Spain, Aqualia and SEAT are teaming up to develop a sustainable fuel from wastewater."

The UMBRELLA prototype will be installed at the municipal waste treatment plant ECOPARC. The idea is to get sustainable fuel.

Credit: SEAT

Talking about the approach, the organic fraction treatment is optimized by using "anaerobic and atotrophic" processes, said the project page. The resulting biogas is treated with a cleaning and refining system so that the resulting biomethane can be used in vehicles.

SEAT, a company that designs, develops, manufactures and markets cars in Spain, said that "a physical decanting process in tanks separates the water from the sludge, which is then converted into gas following a fermentation treatment. After a process of purification and enrichment, the biogas is ready to be used as fuel."

A video on the topic said that "A car can circle the globe 100 times with the biogas produced in a year in one treatment plant."

SEAT also said that this renewable biofuel can be used to power compressed natural gas (CNG) cars, reducing emissions by 80% compared to a petrol vehicle.

The METHAGRO prototype will demonstrate the production of biomethane from biogas with a membrane-based upgrading system. It will be installed in a facility owned by Ecobiogas. Its goal is to mitigate problems from the uncontrolled production of manure. The biogas can be used in vehicles, or it can be injected into the natural gas distribution network.

Turning wastewater into sustainable fuel answers two environmental challenges, reusing an increasingly scarce resource, water, and finding alternative energies to counter episodes of severe pollution that impose traffic restrictions in cities, said SEAT.

Finally, an interesting factoid from SEAT: "Every day, a medium sized plant can treat around 10,000 cubic metres of water and generate 1,000 cubic metres of biomethane, enough for more than 150 vehicles to drive 100 kilometres per day."

More information: www.life-methamorphosis.eu/en/el-projecte