

IREC validates a new technology to produce renewable natural gas in rural environments

Barcelona, 28 nov 2023 (EFE).- The Catalonia Institute for Energy Research (IREC) has validated a new low-cost technology for the production of renewable natural gas from organic waste and green hydrogen in Mas de Barberans, Terres de l'Ebre (Tarragona).

The project, called RuralGas, has validated a device developed by IREC that combines biogas (from a landfill) with hydrogen, resulting in green methane, which is a renewable natural gas with the same composition as the fossil natural gas we regularly use.

The difference with existing massive and complex industrial treatment plants is that this technology is specifically designed for rural environments and with "more modest" investment capacities.

"The device, which is a catalytic reactor, allows combining two strategic plans that have advanced in parallel: implementation of biomethane technologies and developing hydrogen technologies," explained Jordi Guilera, researcher in synthetic fuels at IREC and head of the project, to EFE.

Positive externalities for the rural environment

IREC asserts that this innovation, with simpler and decentralized devices, reduces costs to expand it to other territories where it is necessary to manage waste, whether organic or urban, and transform it into a "valuable product," such as natural gas.

"In Spain in general and, for example, in the rural areas of Catalonia, we have great potential for biogas production given our agri-food capacity. This would allow attracting personnel to the territory with highly qualified positions," detailed Guilera.

The catalytic reactor designed by IREC and manufactured by MMM Energy is thermally maintained with the heat generated by the reaction itself, without the need for additional heating or cooling equipment.

This technology demonstration took place in the public facilities of the landfill treatment station in Mas Barberans, provided by COPATE, and is funded by Operation 01.02.01 of the Technological Transfer Program of the Rural Development Program of Catalonia 2014-2022 of the Department of Climate and Rural Agenda of the Catalan government, with the support of the energy company Naturgy.

Biogas as an underutilized energy resource

The researcher believes that biogas is a "forgotten" resource in Spain, as the origin of the natural gas consumed is primarily fossil. For example, in Denmark, 25% of the gas they use is already renewable, with the goal of reaching 100% by 2045. In Spain, it is estimated that only 11 biomethane plants are in operation, with 7 of them located in Catalonia. According to the European Biogas Association (EBA), the number of such installations on the continent reached a total of 1,322 in April 2023, a 30% increase from those reported in 2021.

Challenges for implementation

Currently, the context for biomethane has improved its prospects due to the increase in the cost of natural gas on the international stage and companies' interest in decarbonizing their economic activities. IREC has emphasized the need to facilitate administrative procedures to promote the implementation of new biomethane plants, ensuring that the benefits impact the local territory.

"Reports suggest that we could achieve between 25% to 50% of all the gas we consume being renewable natural gas; our potential is enormous," highlighted Guilera.

About IREC

The Catalonia Institute for Energy Research (IREC) is a public research center ascribed to the Department of Climate Action, Food and Rural Agenda of the *Generalitat de Catalunya*, in which the Department of Research and Universities and the Catalan Energy Institute (ICAEN) also participate. IREC is a CERCA center and accredited as a TECNIO center. Created in 2008, it aims to contribute to the sustainable development of society and to increase the competitiveness of industry in the energy sector. The center develops research of excellence in the medium and long term, innovation and the development of new technological products and the dissemination of relevant knowledge by the public.

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