HYFUELUP

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HYFUELUP project: shaping a better tomorrow with renewable natural gas

This recently launched EU project will demonstrate an innovative pathway for biomethane production at scale, based on the integration of sorption-enhanced gasification, methanation via catalytic fluidised-bed and high-temperature electrolysis, with the aim to contribute to the ambitious objectives of the REPowerEU Plan

An excellence multi-disciplinary and international team, made up of experts from Portugal, Germany, Greece, Switzerland, the United Kingdom and Spain will work together over the next 4 years, with the valuable support of the European Biogas Association

Biomethane is one of Europe's most promising renewable fuels for decarbonizing energy and transport systems. The quick penetration of biomethane into the market is vital for Europe to prepare for the deployment of its renewable gas capacity at scale and establish a competitive European renewable gas industry.

Besides, biomethane will allow the diversification of gas supplies and reduce the EU's dependence on fossil fuels, while simultaneously reducing exposure to volatile natural gas prices. For these reasons, biomethane production needs to reach 35 billion cubic metres (bcm) per year by 2030 as established in the REPowerEU Plan.

This will be possible through innovation and pre-commercial activities that reach above conventional technologies for optimising and enlarging European biomethane production.

HYFUELUP (Hybrid Biomethane Production from Integrated Biomass Conversion) is a new project funded by the European Union's Horizon Europe Research an Innovation Programme (Grant Agreement nº 101084148), launched in November 2022, which aims to develop and advanced technology for biomethane production using gasification and methanation. The biomethane produced will then be liquified and used for the decarbonization of long-distance road freight transport and maritime transportation.

Funded by the European Union

The main goals of the HYFUELUP project are:

1. To demonstrate an innovative pathway for the efficient and cost-effective production of biomethane in an industrial environment through thermochemical technologies combined with renewable hydrogen.

2. To deploy a first-of-its-kind value chain for biomethane production using low-grade biomass residues and sludge digestate from AD plants, including biomethane offtake and distribution, for contributing to the penetration of biomethane in the transport and energy systems.

HYFUELUP will validate an innovative, competitive, and clean biomethane production technology based on local renewable resources -crops, wastes, and by-products- (only low-cost biogenic wastes are used). This will allow accelerate the energy transition in the EU and increase sustainability in the transport and energy sector (replication is expected Europe-wide) and reduce greenhouse gas emissions (GHG) and improve competitive sustainable growth (higher than 90% GHG reduction, compared to use natural gas).

The consortium consists of two small and medium-sized enterprises, one large enterprise, two higher education institutions, three national laboratories/organizations, and two research and technology organisations; which demonstrates a well-balanced combination of relevant industry supported by research and scale-up experts. The European Biogas Association (EBA) will collaborate in getting the most out of the knowledge and benefits of HYFUELUP for adding value to the European biogas sector.

Picture of the HYFUELUP kick-off meeting in Matosinhos (Porto), on 24th November 2022.

Partners from Portugal (BIOREF -project coordinator-, LNEG, Instituto Politécnico de Portalegre, Dourogás Renovável, Circle Molecule), Spain (BIOPLAT), Germany (USTUTT), Greece (CRES), Switzerland (PSI, AlphaSYNT GmbH) and the United Kingdom (Johnson Matthey PLC) reflect the true integration of Europe regarding the need of demonstrating novel biomethane production pathways and scale up the European renewable gas capacity.

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