



## Repsol produces renewable hydrogen with biomethane for the first time

- Renewable hydrogen has been used to manufacture fuels with a low carbon footprint, such as gasoline, diesel, and kerosene for aviation, thus avoiding the emission of about 90 t of CO<sub>2</sub>.
- The biomethane used as raw material was obtained from urban solid waste. This is an example of Repsol's commitment to the circular economy and state-of-the-art technologies that transform waste into high value-added products with a low carbon footprint.
- This new process for production of renewable hydrogen is further evidence of the transformation of Repsol's industrial complexes into multi-energy hubs capable of manufacturing decarbonized products. It also supports the company's commitment to achieving zero net emissions by 2050.
- Energy efficiency, circular economy, renewable hydrogen, and CO<sub>2</sub> capture and use technologies are the four main pillars on which Repsol is based to place its industrial complexes at the forefront of the energy transition.

Repsol has produced renewable hydrogen using biomethane as raw material for the first time. This renewable hydrogen was used to manufacture fuels with a low carbon footprint, such as gasoline, diesel, or kerosene for aviation. This milestone took place at Repsol's Cartagena Industrial Complex, where 10 tons of renewable hydrogen were produced from 500 MWh of biomethane, thus avoiding the emission of about 90 tons of CO<sub>2</sub>.

In this way, Repsol replaces conventional natural gas with biomethane of sustainable origin to produce renewable hydrogen in its industrial complexes and thus decarbonize its processes and products.

The biomethane used as raw material was obtained from urban solid waste. This is an example of Repsol's commitment to the circular economy and state-of-the-art technologies that transform waste into high value-added products with a low carbon footprint.

This first industrial tests carried out by Repsol will also serve as an example for developing the system of guarantees of origin for renewable gases to be implemented in Spain. Moreover, the Ministry of Ecological Transition and the Demographic Challenge has recently released a draft royal decree for public information.



## The evolution of the industrial complexes

Repsol is transforming its industrial complexes into multi-energy hubs capable of transforming waste and other renewable raw materials into products with a low, zero, or even a negative carbon footprint. Repsol uses energy efficiency, the circular economy, renewable hydrogen, and CO<sub>2</sub> capture and use technologies to achieve this.

Repsol has a circular economy strategy in place since 2018. It has resulted in more than 230 initiatives and the ambition to use four million tons of waste annually by 2030 as raw material for its products. In October 2020, the company announced the construction of Spain's first advanced biofuels plant to be commissioned in 2023. It will be located in Cartagena and will have an annual capacity of 250,000 tons of biofuels produced from waste for use in cars, trucks, and airplanes. In the port of Bilbao, near the Petronor Industrial Complex, Repsol plans to build a plant to generate biogas from urban waste.

As for renewable hydrogen, Repsol has already announced its intention to become a market leader in the Iberian Peninsula by installing a capacity of 552 MW equivalent in 2025 and 1.9 GW in 2030. Repsol is currently the leading producer and consumer of hydrogen in Spain, and it uses this gas regularly as a raw material in its industrial processes. The company is already deploying a multitude of projects throughout the renewable hydrogen value chain. It is promoting the creation of large regional consortiums to promote major industrial projects, such as the Basque Hydrogen Corridor, the Hydrogen Valley in Catalonia, the Hydrogen cluster in Castilla-La Mancha, and the renewable hydrogen hub around the Escombreras Valley in Cartagena. On September 20, Repsol announced that it will start up its first electrolyzer in Petronor, with a capacity of 2.5 MW, in 2022. In 2024, a 10 MW electrolyzer is scheduled to start up, also in the vicinity of Petronor, to serve the synthetic fuels plant that the company will build together with Saudi Aramco. In addition, Repsol plans to construct other electrolyzers at Petronor and Cartagena, each with a capacity of 100 MW, to supply its industrial complexes with renewable hydrogen.

