

## Cepsa and the Instituto Tecnológico de Canarias join forces to develop biofuels from microalgae

- **The objective of the joint study is to generate raw materials that can be converted into biofuels and sustainable chemical products at Cepsa's Energy Parks.**
- **Thanks to the use of microalgae, this type of biofuel allows a 90% reduction in CO<sub>2</sub> emissions compared to traditional fuels, from a renewable product that does not compete with water resources or food.**
- **The Canary Islands ensure a stable temperature throughout the year and a high availability of solar radiation, which makes them an optimal place for the cultivation of microalgae.**
- **Cepsa reinforces its commitment to research, development and innovation (R&D&I) as a lever for its 2030 strategy, *Positive Motion*, to be a leader in the production of biofuels and green hydrogen in Spain and Portugal.**

Cepsa and the Instituto Tecnológico de Canarias (ITC) will promote the development of biofuels from microalgae. The research which is scheduled to be completed in the third quarter of 2024, is focused on producing feedstock that can be converted into sustainable biofuels and chemicals at Cepsa's Energy Parks, without the need to make any modifications to the plants and equipment. For this purpose, it will be used beforehand in the pilot plants of the company's Research Center.

This project is an example of open innovation, in which ITC will be in charge of cultivating these microalgae in water from industrial processes, and a joint team from both companies will carry out the hydrothermal liquefaction (HTL) process on the crop to valorize the biomass. The HTL reactor, designed by Cepsa, will be used to obtain the raw material to be evaluated in the energy company's pilot plants.

The cultivation of these microalgae, native to the Canary Islands, will be developed in the archipelago, which has a stable temperature throughout the year and a high availability of solar radiation, making it an optimal place for cultivation.

The initiative will boost the circular economy and will use raw materials of renewable origin, which do not compete with water resources or food. In this sense, fresh water from the secondary treatment of a wastewater treatment plant is used, as well as brine from a desalination plant. The use of these biofuels from microalgae can reduce CO<sub>2</sub> emissions by up to 90% compared to the use of traditional fuels. Specifically, with the production of one hectare of microalgae cultivation, 72 tons of CO<sub>2</sub> are reduced per year, which is equivalent to the CO<sub>2</sub> absorbed annually by 3,000 trees.

This initiative takes into account sustainability and efficiency criteria at all levels of the process, and these raw materials are characterized by their high CO<sub>2</sub> capture capacity, rapid growth and high energy potential.

Rafael Larraz, Cepsa's R&D director, expressed the company's satisfaction at reaching such an agreement: "At Cepsa we are excited to join forces with the Canary Islands Institute of Technology to carry out this research. We are confident that this project will lead to great achievements in the production of biofuels that will drive the decarbonization of land, sea and air transportation, and thus advance our objective of being a benchmark in the energy transition".

For his part, Gabriel Megías, manager of the Canary Islands Institute of Technology, stressed that "the multidisciplinary nature of the R&D that we address from ITC around the blue, circular and green economies positions us as a technology partner in this pilot initiative of Cepsa for the energy recovery of native species of marine microalgae and especially motivates us to contribute from knowledge to the promotion of sustainable mobility with new fuels that help reduce the ecological footprint in the transportation sector".

Through its 2030 strategy, *Positive Motion*, Cepsa aims to lead sustainable mobility and the production of green hydrogen and biofuels in Spain and Portugal. Specifically, by the end of this decade, it will have an annual production capacity of 2.5 million tons of biofuels, of which 800,000 tons will be SAF.

Innovation is one of the key levers for driving these objectives. For this reason, the company has tripled its investment in R&D&I this year compared to the previous year, aimed at researching different projects in the search for new sustainable energy solutions.

Cepsa has established a roadmap to cut its emissions, which is one of the most ambitious in its sector. Specifically, in 2030, it will reduce its CO<sub>2</sub> emissions (scope 1 and 2) by 55% and its carbon intensity index by 15-20% in energy product sales, compared to 2019, with the objective of achieving net zero emissions by 2050. Cepsa wants to go beyond net zero and have a positive impact, adding value in the communities where it operates by enabling its customers and other stakeholders to move forward in the right direction.

For more than thirty years, ITC has been leading research and development projects on sustainable energy technologies in the Canary Islands to accelerate the massive integration of renewable sources in the island's electrical system, being a key element to achieve the goal of climate neutrality by 2040, a target set by the regional government in the Climate Change Law. The Canary Islands Energy Transition Plan, the roadmap for energy planning drawn up by the ITC on behalf of the regional Ministry of Ecological Transition, envisages reaching 60% of electricity demand with renewables by 2030.

In Pozo Izquierdo, on the island of Gran Canaria, the ITC has the Area of Technological-Industrial Development in Blue Biotechnology, a space dedicated to the experimentation and validation of processes and products related to marine plant aquaculture and the industrial exploitation of native strains of micro and macroalgae. This physical framework houses the collaboration project between Cepsa and ITC, an initiative that is aligned with the Canary Islands Blue Economy and Circular Economy Strategies aimed at moving towards a production model based on an intelligent and sustainable use of resources.



The development and use of biofuels contributes to several of the 2030 Agenda's Sustainable Development Goals (SDGs): SDG 7 (Affordable and clean energy), SDG 8 (Decent work and economic growth), SDG 12 (Responsible consumption and production), and SDG 13 (Climate action).

**Cepsa** is a leading international company committed to sustainable mobility and energy with a solid technical experience after more than 90 years of activity. The company also has a world-leading chemicals business with increasingly sustainable operations.

In 2022, Cepsa presented its new strategic plan for 2030, Positive Motion, which projects its ambition to be a leader in sustainable mobility, biofuels, and green hydrogen in Spain and Portugal, and to become a benchmark in the energy transition. The company places customers at the heart of its business and will work with them to help them advance their decarbonization objectives.

ESG criteria inspire all of Cepsa's actions as it advances toward its net positive objective. Over the course of this decade, it will reduce our Scope 1 and 2 CO<sub>2</sub> emissions by 55% and the carbon intensity index of our products by 15-20%, with the goal of achieving net zero emissions by 2050.

**Instituto Tecnológico de Canarias** is a public R&D center and a key element of the Government of the Canary Islands in the promotion of the competitiveness of the regional economy, betting on knowledge as an engine for sustainable growth and job creation. With a multidisciplinary approach, its R&D&I areas address global challenges from the regional dimension, to respond to a vulnerable territory threatened by tourism pressure, the climate crisis and the determining factors inherent to an OR (remoteness, insularity, limited territory, dependence on the outside world, etc.).

The Institute focuses its areas of scientific-technological specialization on strategic sectors for economic growth and diversification in the archipelago, highlighting the competitive advantages of the territory as a natural laboratory for the development of solutions for sustainability and resilience. Among other lines of work, the Canary Islands R&D center promotes the use of renewable energy resources and the development of sustainable self-supply and electricity generation technologies, the optimization of water resources and the regeneration of water for agricultural use, the productive valorization of the coastline and the marine-maritime area, and food safety. These capabilities are transferred to island territories and regions around the world that share similar conditions and as a strategy for adaptation to the impact of climate change.

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