Projects

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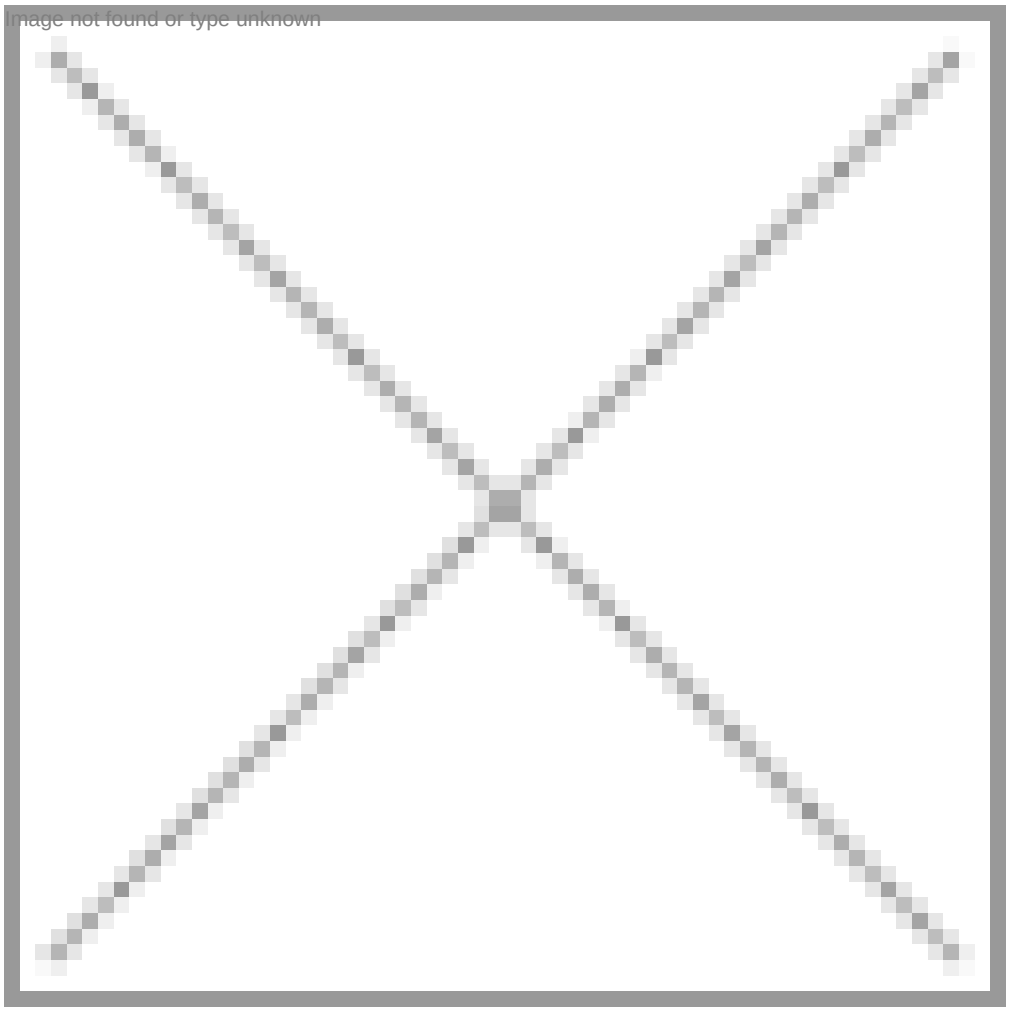

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THE RETROFEED PROJECT: A milestone on the road to decarbonisation

The RETROFEED project - Smart retrofitting in process industry (full title - Implementation of a smart RETROfitting framework in the process industry towards its operation with variable, biobased and circular FEEDstock) was funded by Horizon 2020 under a SPIRE call.

RETROFEED kicked off on the 1st of November 2019 and ended on the 31st of October 2023. It was implemented by a consortium of 19 partners under the coordination of the A.SPIRE member, the Spanish research centre, **CIRCE**.

An ambitious and ample project, RETROFEED had a series of complex goals, all having the capacity to reshape the European process industry. As stated on **its website** - RETROFEED is one of the steps necessary to achieve 100% decarbonisation.

The feasibility of the solution was demonstrated in six demo sites and five Energy-Intensive Industries sectors, proving cross-sectoral feasibility and resulting in a consequent reduction in GHG emissions of 73 kton of CO2.

PROJECT OVERVIEW AND RESULTS

RETROFEED's broad and final objective was ''to increase both resources and energy efficiency, thus reducing greenhouse gas emissions'' (**source**).

Digitalisation was a cornerstone of this project thought as a "smart green revolution" in the "digital age" (**source**).

The solution proposed by the RETROFEED project was implemented in six demo sites and five process industries, proving a cross-sectoral approach. The two demo sites for the steel sector are in Romania and Italy. The other five are in Spain (agrochemical and ceramic sectors), Portugal (cement sector) and Turkey (aluminium sector). A different technological solution was implemented in each demo site.

The demonstrators reached an average increase of 23% in resource efficiency, an increase of 8% in energy efficiency, and a 12,8% to 59% reduction of GHG emissions (the indicator is calculated as the relative difference in GHG emissions per unit of product after the implementation of RETROFEED innovations compared to the baseline situation).

HOW RETROFEED CAN RESHAPE THE ENERGY-INTENSIVE INDUSTRIES

The RETROFEED project was showcased as a Success story at the **European Research and Innovation Days 2024**. This year's event celebrated 40 years of Framework Programmes and their role in the green transition.

The project has reached its goal and demonstrated that it is possible to enable the use of variable bio-based and circular feedstock in energy-intensive industries through the retrofitting of core equipment, the implementation of an advanced monitoring and controlling system, and the development of a DSS - Decision Support System for the plant operators. The decision support system (DSS) can increase the impact capacity of the solutions proposed by the project.

RETROFEED has elaborated free online training to enhance the knowledge about retrofitting solutions developed, hence promoting the replication and exploitation of results (available **here**). The project manager, Diego Redondo Taberner, emphasises that - given the concern about climate change - it is encouraging to see that EIIs can reduce their CO2 emissions by using novel technologies. Moreover, he explained that the circular economy concept applied in RETROFEED is no less important; since there is no transformation project without a byproduct, we must always be alert to possible alternative uses of the byproducts.

Check out the **project's website** to learn more.

A.SPIRE considers the RETROFEET project an essential enabler in achieving the ambitions of the process industry and fulfilling the needs of a society in transition by bringing ‘’the most innovative solutions in terms of circular economy to the industry’’ (source). Replicating the RETROFEED's achievement could bring the Energy-Intensive Industries closer to the 2050 SRIA vision of circularity, climate neutrality and competitiveness.

Download the full **document** for more information and details about this success story.

If you want to know more about A.SPIRE and Processes4Planet, contact the **team**.