European Commission

State of play: June 2025

INNOVATION FUND
projects in Portugal

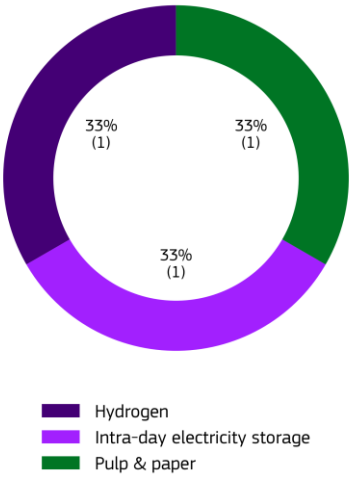
Funded by revenues from the EU Emissions Trading System (EU ETS), the Innovation Fund aims to encourage companies and public authorities to invest in cutting-edge low-carbon technologies with significant potential for reducing greenhouse gas (GHG) emissions in the European Economic Area (EEA). The Fund awards projects through calls for proposals and auctions[1].

Innovation Fund Calls

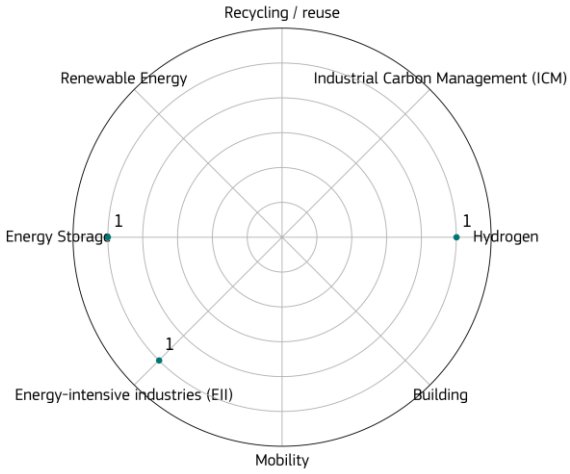
Currently, the Innovation Fund supports 3 project(s) (partially or fully)[2] implemented in Portugal with a total grant amount of EUR 98.1 million. Their cumulative capital expenditure (CAPEX) is approximately EUR 305.7 million.

These projects contribute to decarbonising European industries. Over their first ten years of operation, they are expected to reduce GHG emissions by 1,478,047 t CO_2 equivalent.

Projects per sector
Number of projects



Technology pathways[3] in the country
Number of projects



[1] *The figures presented are only for ongoing funded projects. Information on closed or terminated projects is only included under the funded projects table (when applicable). For definitions of ongoing, closed, and terminated projects, check the glossary on the last page of this document.*

[2] *"Partially" refers to projects located in multiple locations. For projects in multiple locations, the budget and GHG abatement have been attributed to the main country of implementation chosen by the project. See table below "List of awarded Innovation Fund projects" for detailed information.*

[3] *A project can choose multiple climate mitigation pathways and, therefore, have multiple technology pathways.*

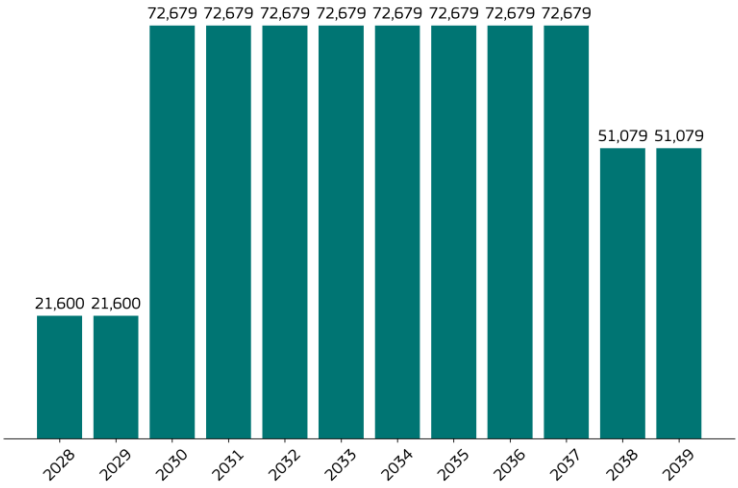
Innovation Fund Auctions

Currently, the Innovation Fund supports 2 project(s) in Portugal, contributing to the decarbonisation of European industries. In the first ten years of operation, they are expected to reduce GHG emissions by 4,971,237 t CO_2 equivalent[4].

The total Innovation Fund support through competitive bidding in Portugal is of EUR 329.4 million.

Expected renewable/RFNBO[5] hydrogen production per year

in tonnes



[4] *The total expected GHG emission reduction is automatically calculated based on project data and parameters provided.*

[5] *RFNBO: Renewable Fuels of Non-Biological Origin.*

Awarded Innovation Fund projects in Portugal

Net-zero technology projects

Acronym[6]	Title	Topic	Sector	Starting date	Participants	Expected GHG emission avoidance (t CO_2e)	Innovation Fund grant (EUR million)
LK2BM	Conversion of a pulp mill lime kiln fuel source to biomass	InnovFund-SSC-2020-single-stage	Pulp paper	01/01/2022	NVGPULPSETUBAL	142,925	4.5
GH2A	GREENH2ATLANTIC	InnovFund-2022-LSC-02-INDUSTRY-ELEC-H2	Hydrogen	01/06/2024	HYTLANTIC	842,979	62.0
BigBATT	Large-scale Battery Deployment in Generation Platform	INNOVFUND-2023-NZT-GENERAL-MSP	Intra-day electricity storage	01/05/2024	EDP - PRODUCAO	492,143	31.6

Projects selected through auctions

Acronym	Title	Topic	Starting date	Participants	Product	Volume (kilotonnes)	Expected GHG emission avoidance (t CO_2e)	Innovation Fund grant (EUR million)
Grey2Green-II	Sines Refinery Transformation from Grey to Green Hydrogen – Phase II: 200 MW by 2028	InnovFund-2023-AUC-RFNBO-Hydrogen	01/10/2024	GALP ENERGIA SA | PETROGAL	Renewable hydrogen	216	1,477,440	84.2
MP2X	MadoquaPower2X	InnovFund-2023-AUC-RFNBO-Hydrogen	01/10/2024	MADOQUAPOWER2X | Madoqua NH3	Renewable hydrogen	511	3,493,797	245.2

Participants from Portugal in projects implemented in other country/countries

Acronym	Title	Topic	Country(ies) of implementation	Participants	Sector	Expected GHG emission avoidance (t CO_2e)	Innovation Fund grant (EUR million)

[6] *Project with multiple implementation locations (in italics): the expected GHG emission avoidance and Innovation Fund grant refer to the entire project total, not the part in this country. This data is not included in the aggregated data for the country as presented above under 'Innovation Fund Calls'.*

Acronym	Title	Topic	Country(ies) of implementation	Participants	Sector	Expected GHG emission avoidance (t CO_2e)	Innovation Fund grant (EUR million)
ASTURIAS H2 VALLEY	ASTURIAS H2 VALLEY	InnovFund-2022-LSC-02-INDUSTRY-ELEC-H2	ES	ABOÑO | EDPR PT PO | EDPE | EDPR	Hydrogen	1,329,786	18.1

Project overview

Acronym	Title	Abstract
LK2BM	Conversion of a pulp mill lime kiln fuel source to biomass	The aim of LK2BM project is to reduce up to 76% of direct greenhouse gas (GHG) emissions from the pulp mill's lime kiln (compared to a conventional technology), based on a retrofit solution which allows the conversion from natural gas to a biomass fuel. A pilot scale rotary kiln burner and its wood fuel feeding lines and equipment will be designed and built, in order to allow a fuel shift to 100% hardwood residues (eucalyptus sawdust and pellets), replacing the current natural gas-fired in the existing pulp mill's lime kiln. Considering the lime kiln equipment is responsible for most of the fossil fuel consumption in the pulp mill, the key innovative element of the project relates to the fuel shift from natural gas to hardwood residues (generated from locally sourced wood handling operations). This represents a first-of-a-kind application of using such biomass residues as a fuel for rotary lime kilns. The project will overcome key technological challenges by introducing two innovative elements that include: (1) a new burner design, which extends the kiln's fuel options and allows hardwood residues to be used, whilst ensuring that the integrity of the kiln is maintained compared to a standard kiln; and (2) a retrofit solution that avoids the need to install a new lime kiln and thus achieves significant GHG emissions savings without increasing costs. Although no changes in the production capacity of kraft pulp are envisaged at the plant, the conversion of the lime kiln will lead to a decrease in GHG emissions of 76% compared to a reference scenario. This represents the avoidance of more than 185 000 tonnes of CO2 equivalent during the first ten years of operation. The locally-sourced biomass is considered as energy recovery from a waste stream, with respect to the waste management 'hierarchy', since the sawdust (a by-product) from wood handling operations is used as feedstock in the project. The proposed innovation in feedstock substitution will improve the cost base of the kraft pulp production process in the pulp and paper industry. Using other local biomass wastes will also generate business opportunities with external suppliers, thereby strengthening the supply chain of bio-based feedstock and promoting the forestry and wood-processing industries locally. This will result in significant potential benefits to the local and regional economy where the plant is located. The project has the potential for further expansion on its current site, as well as the installation of the new technology to other pulp mills in the company's group within the same region. The proposed solution could also be easily replicated within the pulp and paper sector, especially in regions where eucalyptus (used as the biomass fuel in this case) or other hardwood species are abundant. The technology could finally also be credibly applied across the economy, especially in other energy intensive industries such as cement and lime.
GH2A	GREENH2ATLANTIC	The GreenH2Atlantic (GH2A) project will develop, install and operate a first-of-a-kind 100 megawatt (MW) electrolyser in Sines, Portugal. The project will produce over 11 300 kilograms a year of renewable hydrogen (H2) while avoiding 100% relative greenhouse gas (GHG) emissions. The project's novel artificial intelligence enhanced hydrogen management system will enable the efficient integration of multiple renewable energy assets, while guaranteeing hydrogen delivery to the local refinery and injection into the natural gas grid. GH2A will demonstrate hydrogen's competitiveness in real operating conditions, using electrolysis technology beyond the state-of- the art. GH2A will reconvert a decommissioned coal fire power plant into a hydrogen hub. By reusing the existing assets (including sea water intake, outlet infrastructures, electrical equipment and existing buildings and warehouses), GH2A will minimize its local impact and reduce construction timings, saving 22 000 tonnes of concrete and 900 tonnes of steel. The hydrogen produced will be blended into the natural gas grid at a scale sixteen times greater than the current state of the art. This will avoid 765 000 tonnes of CO2 equivalent over the first ten years of operation, equivalent to the annual emissions of 20 000 Portuguese citizens. The reconversion of the former power plant will allow the concept to be replicated worldwide, promoting circular economy, and reducing GHG emissions. GH2A will be vital for upscaling renewable hydrogen use by the industry which is key to EU decarbonisation policies. GH2A aligns with Portugal's strategy of 80% renewable share of electricity by 2030. Renewable hydrogen will be produced to comply with the Renewable Energy Directive and its delegated acts on renewable fuels of non-biological origin (RFNBO), using newly built renewable sources. The project will thus enable increased penetration of renewable energy into the grid by timing the electrolyser to coincide with periods of high renewable energy generation. GH2A serves as a catalyst for the widespread adoption of hydrogen across the EU and will spearhead the development of a robust value chain. The project will

Acronym	Title	Abstract
		therefore contribute to the REFuelEU goal of reducing fossil fuel consumption in industry and transport, and it will contribute to the goals of the European Hydrogen Strategy in terms of domestic renewable hydrogen production by 2030. GH2A will create 5 700 jobs across the hydrogen supply chain in Portugal and Europe. This business model will contribute to a Just Transition by alleviating the socio-economic impact of closing fossil fuel plants across Europe. The renewable hydrogen that will be produced by GH2A will be transported through a centralised "backbone" pipeline in Sines, Portugal. This critical infrastructure will support the development of Sines as a hydrogen hub by providing an off-take route to future projects. GH2A partners with local academia, through initiatives such as HyLab, contributing to research and development, ensuring that lessons learnt and challenges faced by this large innovative decarbonisation project are captured and shared widely.
Grey2Green-II	Sines Refinery Transformation from Grey to Green Hydrogen – Phase II: 200 MW by 2028	The Grey2Green-II project will be developed by Petrogal S.A., part of the Galp Energia group, one of the energy leading companies in Portugal and owner of the Sines refinery, in Sines Industrial and Logistics Zone (ZILS), where the 200 MW electrolyser project will be located. By utilising renewable electricity from a variety of sources, the Grey2Green-II project will produce RFNBO Hydrogen. The project's electricity needs will be mostly fulfilled by a combination of several solar and wind PPAs (Power Purchase Agreements), with the remaining energy obtained from the power grid, which has a high renewable share from the Iberian electricity market. This diverse and solid energy supply mix is critical to ensure the safe and reliable operation of Galp's Sines refinery, which will be the off taker of the project. The Grey2Green-II project will significantly enhance the sustainable operations of its off taker, the Sines Refinery. The RFNBO hydrogen produced by the project will partially replace the grey hydrogen that is currently produced in the Steam Methane Reformer units (SMR) at the Sines Refinery, and will feed the refining processes (e.g. hydrocracking and hydrotreating units) to produce several fuels used for mobility such as, kerosene, diesel, gasoline, Liquefied petroleum gas (LPG) and naphtha. The hydrogen produced by the Grey2Green-II plant will be delivered directly to the refinery via an internal pipeline connection. Once operational, the Grey2Green-II plant will supply more than 30% of the total hydrogen consumed in the Sines refinery. This will result in GHG emission avoidance of over 1.47 million tons of carbon dioxide (CO2) in its first 10 years of operation.
MP2X	MadoquaPower2X	The use of renewable hydrogen as an alternative to fossil fuels will play an important role in the EU's transition towards climate neutrality by 2050, and the achievement of its objectives as set forth in the REPowerEU plan. Located at the Sines Industrial and Logistics Zone (Zona Industrial e Logística de Sines, ZILS) in Southwest Portugal, the project plans to install a 500MW alkaline electrolyser to produce annually approximately 50,000 tonnes of RFNBO hydrogen, the majority of which will be then converted to 280,000 tonnes of RFNBO ammonia annually within the same installation. The project's electricity will be provided through a combination of directly connected and dedicated solar photovoltaic power plants with a capacity of 633 MW's and multiple wind farms with a capacity of 375 MW's. These sources of renewable energy will be developed in Portugal and Spain alongside the project. The integrated project approach will provide cost competitive electricity sourcing to produce both renewable hydrogen and ammonia. Over its first ten years of operation, the project will contribute to an absolute avoidance of 3,493,797 tonnes of carbon dioxide equivalent of (tCOeq). RFNBO hydrogen used in the ammonia plant will be sourced internally, creating a self-sufficient production system. The project may acquire additional third-party produced RFNBO hydrogen for increased RFNBO ammonia production. This will contribute to the establishment of a growing hydrogen ecosystem in Sines, Portugal. The project's strategic location at the Port of Sines allows for a broad offtake strategy, focusing on fossil fuel substitution in the European shipping industry, as well as export opportunities to chemical industry located in other EU countries. This project contributes to the European Hydrogen Bank's goal of making 10 million tonnes of domestically produced renewable hydrogen in Europe available by 2030.
BigBATT	Large-scale Battery Deployment in Generation Platform	The project will deploy a large-scale Battery Energy Storage System (BESS) adjacent to the Ribatejo Combined Cycle Gas Turbine (CCGT) at Carregado, Portugal. Designed to store and deliver over 3 000 TJ of renewable electricity over ten years, BESS is projected to save approximately 500 000 tons of CO2 emissions throughout its lifetime. By optimising energy storage capacity and reducing reliance on fossil fuels, the project will enhance the overall efficiency and environmental sustainability of the Portuguese power generation system. The project will store excess energy during low-demand periods and release it during peak-demand periods, thereby maximising the use of renewable energy sources and contributing to grid stability and reliability.

Acronym	Title	Abstract
		With 150 MW of power and 360 MWh of energy storage capacity, this project will be one of the largest BESS systems deployed in Europe integrated with a CCGT for grid connectivity. It will be capable of supplying electricity to approximately 100,000 households. The project will ensure efficient operation and real-time energy management by leveraging advanced technology. The project leverages advanced Lithium Iron Phosphate (Li-ion LFP) technology, capable of two discharge cycles per day, and incorporates a state-of-the-art Energy Management System (EMS) for real-time monitoring and control. These innovations ensure efficient operation, optimal energy dispatch, and real-time energy management. As recognised by the European Green Deal, energy storage systems are essential to ensure the deployment of renewable energy sources (RES), manage intermittency and achieve climate neutrality by 2050. Moreover, in line with the REPowerEU Plan, RES energy storage solutions will pave the way for a cleaner, more flexible, and secure energy future for Europe by accelerating the shift away from conventional energy sources, such as coal and gas. In this context, this project is fully aligned with European policy objectives, directly contributing to emission reductions and supporting the transition towards a zero-emissions energy grid while reducing Europe's dependency on fossil fuels. BigBATT will enhance Europe's access to secure, sustainable, and net-zero technologies by providing a scalable, flexible, and innovative solution. The strategic location near the CCGT facility will enable seamless integration of the BESS into the existing infrastructure, efficiently connecting the batteries to the grid.This integration will foster the development of a competitive, structured supply chain, create jobs, and provide clean energy to the Lisbon region. Moreover, the project will drive cost reductions through manufacturing innovations - such as leveraging Lithium Iron Phosphate (LiFePO4) technology - and by collaborating with suppliers. It will also enhance efficiency and address resource constraints, contributing significantly to the transition towards a climate-neutral economy.

GLOSSARY

Ongoing project: a project with a signed Grant Agreement currently under implementation.

Closed project: a project with a signed Grant Agreement that is formally completed.

Terminated project: a project with a signed Grant Agreement that was terminated during implementation.