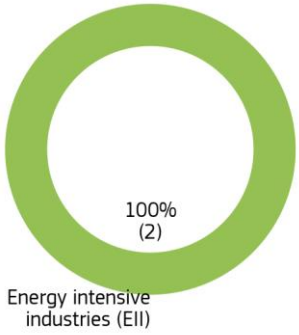
European Commission

Innovation Fund Programme

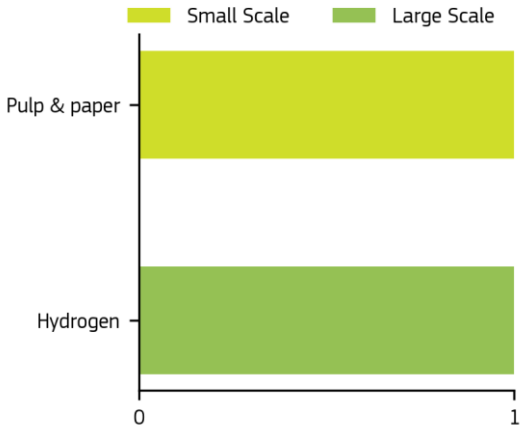
Overview of ongoing projects in Portugal

Funded by the revenue of the EU Emissions Trading System, the Innovation Fund's goal is to help businesses investing in innovative low-carbon technologies with significant GHG emissions reduction potential.
The Innovation Fund currently supports **2 projects** located in Portugal, which will contribute to the decarbonisation of European industries with a total expected GHG emission reduction of **985,904 t CO_2 equivalent in the first 10 years of operation.**
The total **Innovation Fund grant in Portugal is of EUR 66.5 million**, out of the **total relevant costs of EUR 118.5 million**, as defined in Art 5 of the Delegated Regulation 2019/856 on the Innovation Fund[1].

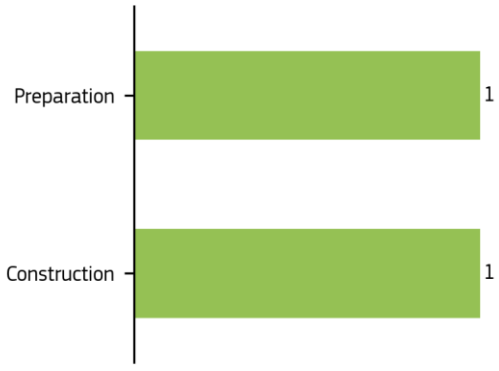
Projects per category
Number of projects and percentage of the total



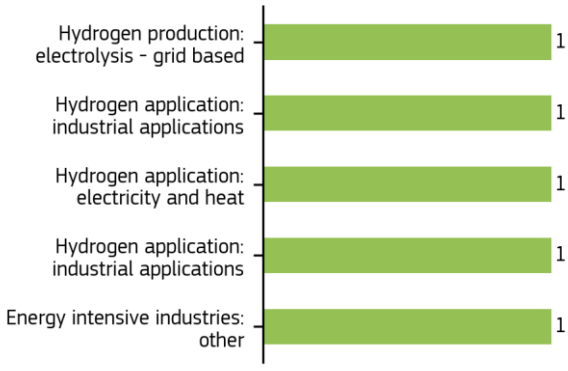
Projects per sector
Number of Small and Large-Scale projects



Projects per phase[2]
Number of projects



Top 5 technology pathways[3]
Number of projects



[1] *OJ L 140, 28.5.2019, p. 9.*
[2] *Preparation means the period before financial close is reached; construction means the period between financial close and entry into operation; operation means that the construction is finished and the project has already started production.*
[3] *Projects may employ several technological pathways, only the top 5 per country are kept in the graph.*
State of play: 18/06/2024

List of ongoing Innovation Fund projects in Portugal

Acronym	Title	Sector	Start date	Project phase	Beneficiaries	Innovation Fund grant (EUR million)	Expected GHG emission avoidance (t CO2eq)
Large Scale						**62.0**	**842,979**
GH2A	GREENH2ATLANTIC	Hydrogen	01/06/2024	Preparation	HYTLANTIC	62.0	842,979
Small Scale						**4.5**	**142,925**
LK2BM	Conversion of a pulp mill lime kiln fuel source to biomass	Pulp & paper	01/01/2022	Construction	NVGPULPSETUBAL	4.5	142,925

Project overview

Acronym	Title	Description
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 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.
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.