

INNOVATION FUND

Deploying innovative net-zero technologies for climate neutrality

CarboClearTech: CarboClearTech

The Innovation Fund is 100% funded by the EU Emissions Trading System

| Project Factsheet

The CarboClearTech project led by Lafarge Ciments will provide a significant boost to reduce carbon dioxide (CO₂) emissions from hard-to-abate industries in Southwest Europe. The project will kick-start a new end-to-end Carbon Capture and Storage (CCS) value chain from the Lafarge cement plant at Martres-Tolosane to an onshore storage in the Pyrenean Piedmont. The project aspires to reach a relative greenhouse gas (GHG) emissions avoidance of up to 124.7% due to the biogenic fraction of the refused derived fuel used in the cement plant.

CarboClearTech will deploy a disruptive technology to capture the carbon dioxide, using a combination of Vacuum Pressure Swing Adsorption (VPSA) and cryogenisation, which will be a world first deployment of this technology. In addition, an innovative modification of the cement plant to increase CO₂ concentration in flue gas is expected to enhance the overall energy efficiency of the process and to

COORDINATOR
LAFARGE CEMENTS

LOCATION
France

CATEGORY
Carbon capture and geological storage (CCS)

SECTOR
Cement lime

AMOUNT OF INNOVATION FUND GRANT
EUR 120,003,734

EXPECTED GHG EMISSIONS AVOIDANCE
7,047,400 tonnes CO₂ equivalent

STARTING DATE
01 April, 2025

ENTRY INTO OPERATION DATE
31 December, 2030

FINANCIAL CLOSE DATE
31 January, 2028

* Calculated vs. the 2021-2025 ETS benchmark of 6.84 tCO₂e/tH₂, not taking into account additional carbon abatement due to substitution effects in the H₂ end use application, i.e. conservative estimate.

enhance the capture rate, by achieving an improved recovery rate of 96.5%. The project also includes an innovative and energy-efficient concept to significantly reduce the NOx emissions. The CO2 will be then transported by pipeline to geological permanent onshore storage in the Pyrenean Piedmont. The project is expected to avoid 7 million tonnes of CO2 equivalent over 10 years, which is equivalent to the annual emissions from about 1.67 million passenger vehicles.

By capturing and storing a significant volume of CO2 and enabling the transport and storage infrastructure for nearby emitters, the project will directly contribute to delivering a part of the EU's Net Zero Industry Act target of 50 million tons of CO2 injection capacity by 2030. CarboClearTech will thus help Europe achieve its goal of becoming the first climate-neutral

continent by 2050, as outlined in the European Green Deal. Additionally, the project aims to significantly reduce nitrogen oxide (NOx) emissions in alignment with the Zero Pollution Action Plan to improve the air quality.

CarboClearTech will also diffuse knowledge on CCS in the region, creating opportunities and programmes for upskilling and reskilling the work force that was previously employed by the oil gas sector value chain to facilitate a successful transition to a sustainable competitive economy. By demonstrating the cost reduction and efficiency gains of the chosen technology, the project will support the deployment and replicability of similar initiatives in Europe. The project has the potential to become one of the major flagships to decarbonise the South of Europe, supporting the development of a fluid regional CO2 market solutions for hard-to-abate industries.

| Participants

LAFARGE CEMENTS

France