

INNOVATION FUND

Deploying innovative net-zero technologies for climate neutrality

CO2LLECT: Innovation in Carbon Capture and Transport

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

| Project Factsheet

CO2LLECT: Innovation in Carbon Capture and Transport

CO2LLECT is an innovative end-to-end carbon capture and storage (CCS) project that will achieve negative emissions in Germany's largest cement plant in Rüdersdorf by applying a proprietary adsorptive and cryogenic capture technology developed by a leading technology provider. Following capture, the liquid CO₂ will be temporarily stored and transported by railroad to a CO₂ hub in Northern Germany, where it will be shipped to an offshore storage site in the North Sea. CO2LLECT is expected to lead to a substantial relative greenhouse gas (GHG) emission avoidance compared to the reference scenario, thus contributing to carbon-negative cement production.

The project will deploy an innovative setup to optimise the use of renewable fuels and capture CO₂ emissions, marking the first application of this capture technology at a commercial scale. Significant

COORDINATOR

CEMEX ZEMENT GMBH

LOCATION

Germany

CATEGORY

Carbon capture and geological storage (CCS)

SECTOR

Cement lime

AMOUNT OF INNOVATION FUND GRANT

EUR 157,116,975

EXPECTED GHG EMISSIONS AVOIDANCE

12,560,406 tonnes CO₂ equivalent

STARTING DATE

01 April, 2025

ENTRY INTO OPERATION DATE

31 May, 2030

FINANCIAL CLOSE DATE

31 August, 2027

* 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.

advances will be achieved in terms of low electricity and water consumption for adsorptive and cryogenic separation processes. Cemex, the project's coordinator, also aims to reduce fossil fuel consumption in the combustion process by injecting green hydrogen produced by an electrolyser on site. Integrating the capture plant with the cement production is designed to maximise operational and energy efficiency and optimise water use in a region facing water stress. The project is expected to lead to a GHG emission reduction of approximately 12.6 million tonnes of CO₂ equivalent over its first ten years of operation, which is the average emissions of more than 1.5 million one-person households.

The project aligns with various policy frameworks, such as the European Green Deal, the Net-Zero-Industry Act, the Carbon Border Adjustment Mechanism, and the Just Transition. By supporting the market development for carbon-negative cement, it

will help decarbonise the construction sector and enable sustainable regional growth. By deploying new CCS value chains, the project will enhance the demand for net-zero technologies manufactured in Europe and thus contribute to the resilience of European supply chains.

CO₂LLECT will help kick-start the development of CO₂ infrastructure in Germany. The project showcases CO₂ transport by train, enabling synergies with local emitters. It serves as a blueprint for remote locations without harbours, generating clean tech, engineering, and plant jobs. This fosters business clusters, value chains, and innovation, improving the economy while creating job opportunities and collaboration. The flexible and adaptable capture technology can be replicated across various industrial sites globally, leading to significant efficiency gains and cost reductions.

| Participants

CEMEX ZEMENT GMBH

Germany

LINDE GMBH

Germany

CEMEX INNOVATION HOLDING AG

Switzerland