European Commission

CEMENT AND LIME

INNOVATION FUND

Deploying innovative net-zero technologies for climate neutrality

ACCSION: ACCSION – Aalborg Portland Carbon Capture and Storage using Infrastructure Onshore in North Jutland

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

| Project Factsheet

The project aims to establish one of Europe's first full onshore carbon capture, transport, and storage value chain using innovative, reliable, and efficient technologies. This project seeks to eliminate 15 million tonnes of greenhouse gas (GHG) emissions by capturing 1.4 million tons of CO2 annually from the Aalborg Portland cement plant and supplying recovered heat from the capture process. Aalborg Portland is Denmark's sole cement producer and largest industrial CO2 emitter, contributing to over 4% of national emissions. Planned to be operational by the end of 2029, ACCSION aims to fulfil a cumulative 113% emissions avoidance over its first ten years of operations compared to the reference scenario, playing a critical role in Denmark's GHG emissions reduction goals. By 2030, Aalborg Portland aims to become Europe's first net-zero cement plant producing grey and white cement, leveraging on capturing and storing the biogenic CO2 fraction, which offsets any remaining fossil emissions.

COORDINATOR
Aalborg Portland A/S

LOCATION
Denmark

CATEGORY
Carbon capture and geological storage (CCS)

SECTOR
Cement lime

AMOUNT OF INNOVATION FUND GRANT
EUR 220,123,498

EXPECTED GHG EMISSIONS AVOIDANCE
15,077,949 tonnes CO2 equivalent

STARTING DATE
01 May, 2024

ENTRY INTO OPERATION DATE
31 December, 2028

FINANCIAL CLOSE DATE
31 October, 2025

** 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.*

Updated on 11 March 2025

To achieve these targets, ACCSION will deploy several innovations. First, the project will leverage Air Liquide's proprietary Cryocap™ technology, to capture CO2 from two distinct processing units in a single train, paving the way for a "cluster capture" approach that achieves economies of scale. Second, biogas will be used in Aalborg Portland's kilns to maximise carbon removal and enable net-zero cement production. Finally, 100% of the capture plant's power consumption will be met through renewable electricity.

The project is positioned ideally for efficient access to potential onshore storage sites within Denmark. ACCSION's successful implementation will demonstrate the technical feasibility of onshore CO2 storage, a critical advancement for European Carbon Capture and Storage (CCS) development. Its success could pave the way for a more accessible and economically viable onshore storage network, setting new standards for scalability and affordability in CCS technology and infrastructure and contributing to the Net-Zero Industrial Act target of 50 million tonnes of annual CO2 injection capacity by 2030. Moreover, the project captures CO2 from a hard-to-abate sector, supporting Europe's target of reducing net GHG emissions by at least 55% by 2030 and achieving climate neutrality by 2050.

Smart heat integration will allow the recovery of 80 MW of excess heat from the capture process to supply local district heating, providing sustainable heating for approximately 19 100 standard households annually. As such, ACCSION advances industrial decarbonisation while supporting local energy systems with cleaner and more efficient heat.

| Participants

Aalborg Portland A/S	Denmark
AIR LIQUIDE DANMARK AS	Denmark
AIR LIQUIDE GLOBAL E SOLUTIONS FRANCE	France
AIR LIQUIDE GLOBAL E SOLUTIONS GERMANY GMBH	Germany
AIR LIQUIDE GLOBAL E SOLUTIONS POLAND SPOLKA AKCYJNA	Poland
AIR LIQUIDE INDUSTRIE B.V.	Netherlands
AIR LIQUIDE INDUSTRIES BELGIUM	Belgium