

DECARBONIZING OUR OPERATIONS WITH CCUS

CARBON2BUSINESS

Setting the standards for net-zero cement production and industrial climate innovation



 **LÄGERDORF, GERMANY**



Co-funded by the European Union
Emissions Trading System
Innovation Fund



CARBON2BUSINESS



The Carbon2Business project aims to capture CO₂ from our plant at Lägerdorf and repurpose it as an industrial raw material. From 2029, the project will capture more than 1 million tons of CO₂ emissions annually, making cement production at the Lägerdorf plant entirely net zero.

The captured CO₂ can be processed into e-methanol through methanol synthesis or reprocessed as a raw material, for example to produce plastics. With this utilization project, we are creating new value chains and developing technologies to enable the decarbonization of industrial companies beyond the cement industry. The project was awarded a grant from the European Union Innovation Fund in 2022.

The technology behind the project

The €109.8 million investment from the EU will be used to build a new kiln line with an innovative oxyfuel process. Combustion air is substituted with pure oxygen resulting in a CO₂-rich flue gas, which is then cooled down, purified and liquefied in a Carbon Processing Unit (CPU).

Alternative capturing concepts in the cement industry are based on so-called End-of-Pipe solutions, where CO₂ needs to be separated and processed. Oxyfuel technology allows an integrated approach which is more energy efficient. The technology captures almost 100% of CO₂ emissions during cement production. The flue gas is then further processed into a high-purity CO₂ gas as a feedstock for the chemical industry and used as a raw material for other industries.

At a glance



NET-ZERO
by 2029



FUNDING
€109.8 million from the EU
Innovation Fund



ANNUAL CO₂ CAPTURE
Around
1.2 million tons



INNOVATION
1st demonstration of
a large-scale 2nd gen
oxyfuel cement kiln
and downstream CPU



PATHWAY
Utilization



TECHNOLOGY
Oxyfuel

OXYFUEL is an integrated process whereby air for combustion in the cement manufacturing process is replaced with oxygen. This prevents nitrogen in the system and enables a highly concentrated CO₂ exhaust stream.

Our Partners

- ThyssenKrupp Industrial Solutions for a first-of-its-kind implementation of oxyfuel technology
- Linde Engineering for the implementation of the Carbon Processing Unit

Carbon2Business will be integrated with other projects in the region to build up material flows, including a hydrogen network, from CCUS and kick-start innovative, cross-sectoral value chains.

“The EU’s investment commitment for the Carbon2Business project is a strong signal for the entire West Coast region in Schleswig-Holstein, which is increasingly becoming a green energy hub.”



Thorsten Hahn
CEO Holcim
Germany



3D rendering of the Lägerdorf cement plant