

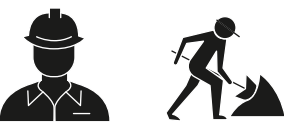
LEILAC: CAPTURING UNAVOIDABLE CO₂ PROCESS EMISSIONS IN THE CEMENT AND LIME INDUSTRIES

Cement is one of the most widely used substances on the planet and mostly made of clinker. It is fulfilling an essential role in meeting society's demand for housing and infrastructure.

Lime is essential for the production of steel and is used in a variety of applications such as in the construction, paper, and chemical industries.

CEMENT INDUSTRY

48 000
employees in the EU28¹

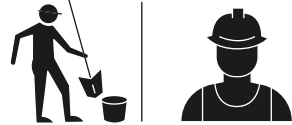


Cement production in the EU28

170 MT

LIME INDUSTRY

15 000
employees in the EU28²

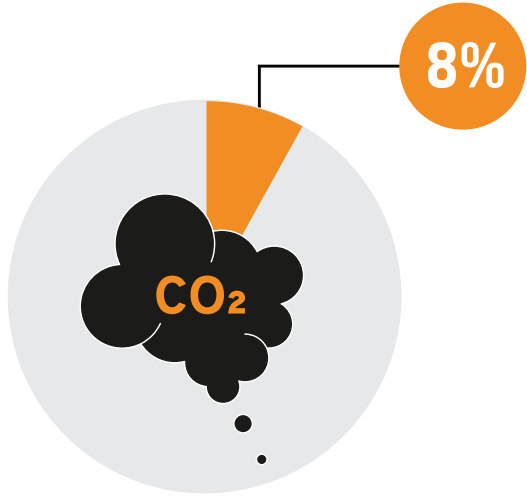


Lime production in the EU28

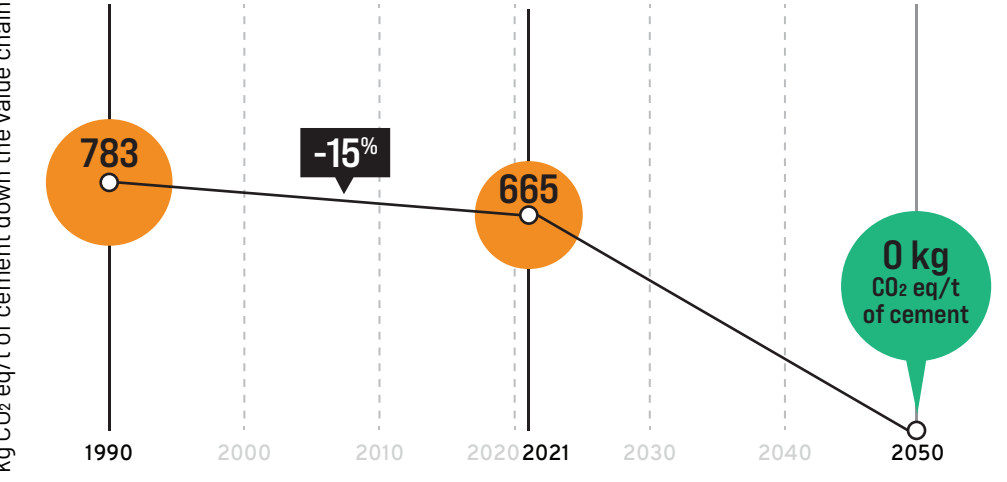
24 MT

2050 ROADMAP

The cement industry is responsible for around 8% of global CO₂ emissions³, contributing to global warming.



CARBON NEUTRALITY OBJECTIVE BY 2050⁴



CO₂ reductions along the cement value chain in EU (5Cs: clinker, cement, concrete, construction, re-carbonation)

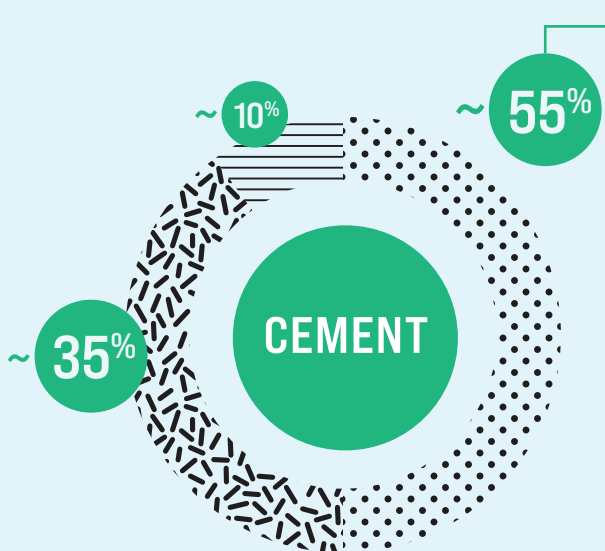
SOURCES OF CO₂-eq EMISSIONS

The carbon footprint of cement and lime production from cradle-to-gate (including infrastructure, raw material extraction, etc) is dominated by:

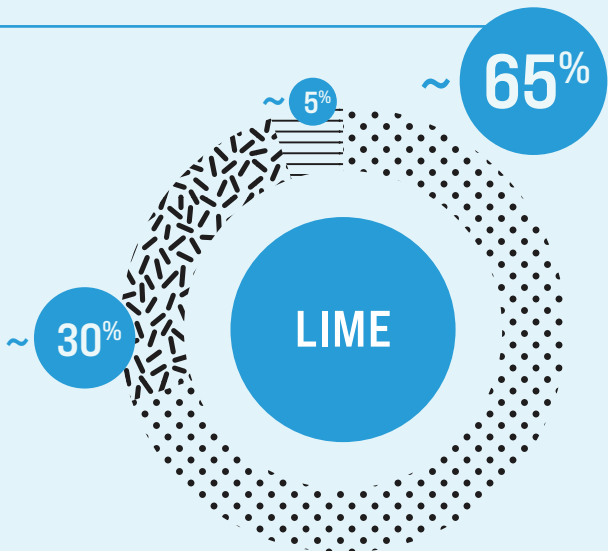
Process emissions: Limestone calcination: combustion process where limestone is turned into lime and CO₂ emissions are released.

Fuel emissions: 2020 fossil-based fuel mix. Can be decarbonized or reduced, using alternative sources.

Emissions related to electricity consumption, infrastructures, waste, or mineral inputs.



LEILAC TECHNOLOGY CAPTURES UNAVOIDABLE PROCESS EMISSIONS



1. In 2015/2016: <https://cembureau.eu/about-our-industry/key-facts-figures/> | 2. In 2015/2016: <https://www.eula.eu/european-commission-2018-competitiveness-of-the-european-cement-lime-sectors/>
3. <https://www.chathamhouse.org/2018/06/making-concrete-change-innovation-low-carbon-cement-and-concrete> | 4. https://cembureau.eu/media/kuxd32gi/cembureau-2050-roadmap_final-version_web.pdf



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654465.



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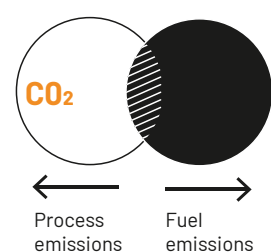
LEILAC TECHNOLOGY

KEY BENEFITS

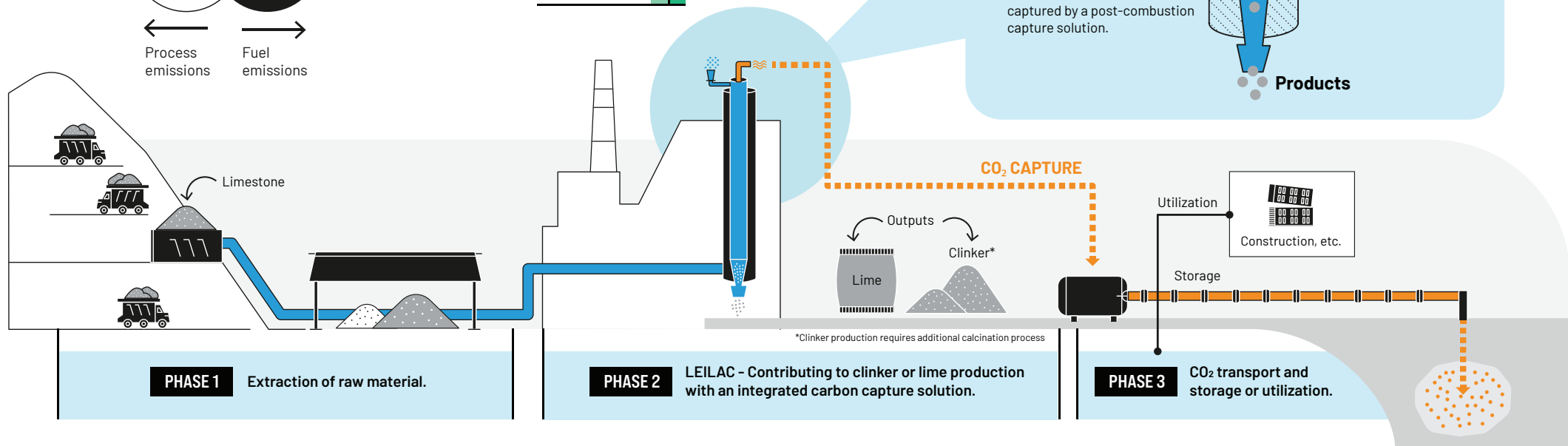
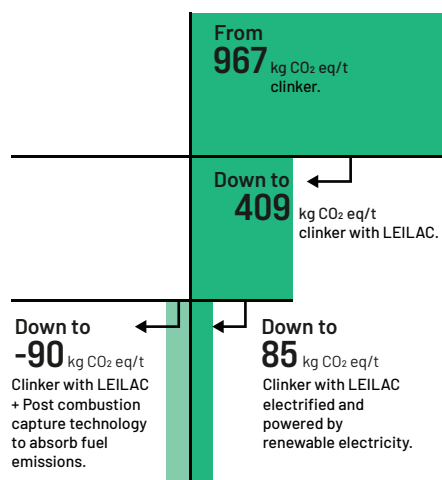
1

ROBUST CARBON CAPTURE TECHNOLOGY

LEILAC Technology (direct separation) leads the industry towards a **decarbonized economy** through the **separation of process emissions and their capture**.



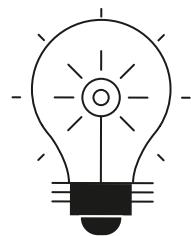
- 1 Raw materials, including limestone and raw cement meal, are heated via a special steel reactor that separates fuel emissions from process emissions (CO₂).
- 2 Depending on the chosen fuel, the carbon footprint will be further reduced or even negative:



2

STRAIGHTFORWARD TECHNOLOGY

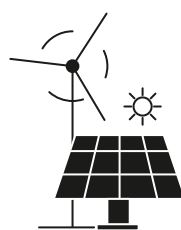
No additional processes or chemicals are required. Simply a **novel "calciner" (kiln) design**.



LEILAC indirect heating solution can use any source of energy.



Primary or **alternative fuel** including biomass.

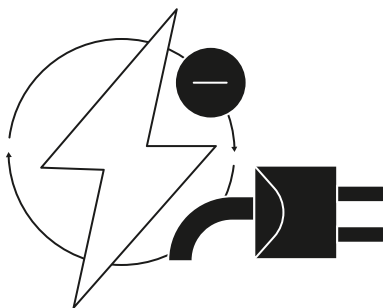


Electricity from grid or **renewable sources**.

3

COST-EFFECTIVE AND OPTIMIZED ENERGY SOLUTION TO CAPTURE CO₂ EMISSIONS

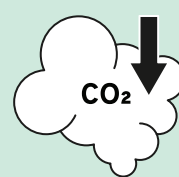
LEILAC requires a **limited amount of additional energy** to capture process CO₂ emissions.



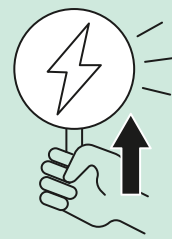
The LEILAC technology is a **simple system to operate**.

CONCLUSION

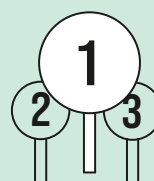
According to the project key findings, **LEILAC is a solution to:**



Efficiently lower CO₂ emissions in a cost-effective way, which will contribute to **reaching the EU's carbon neutrality objective by 2050**.



Increase competitiveness of the European cement and lime industries with a resource and energy-efficient carbon-capture technology.



Demonstrate the cement and lime industries' **leading position in carbon capture solutions**.