



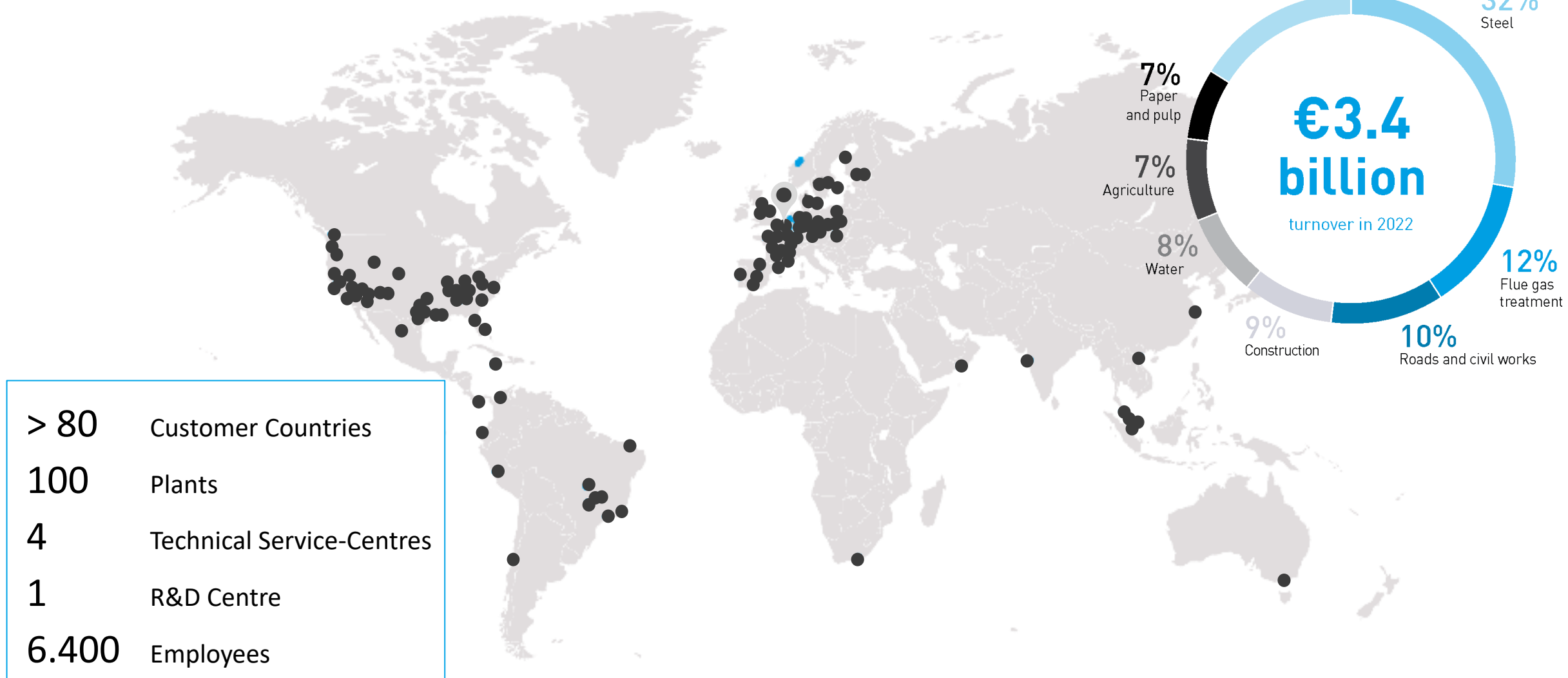
CO₂ncrEAT

CCU going forward towards
Carbon neutrality in 2050

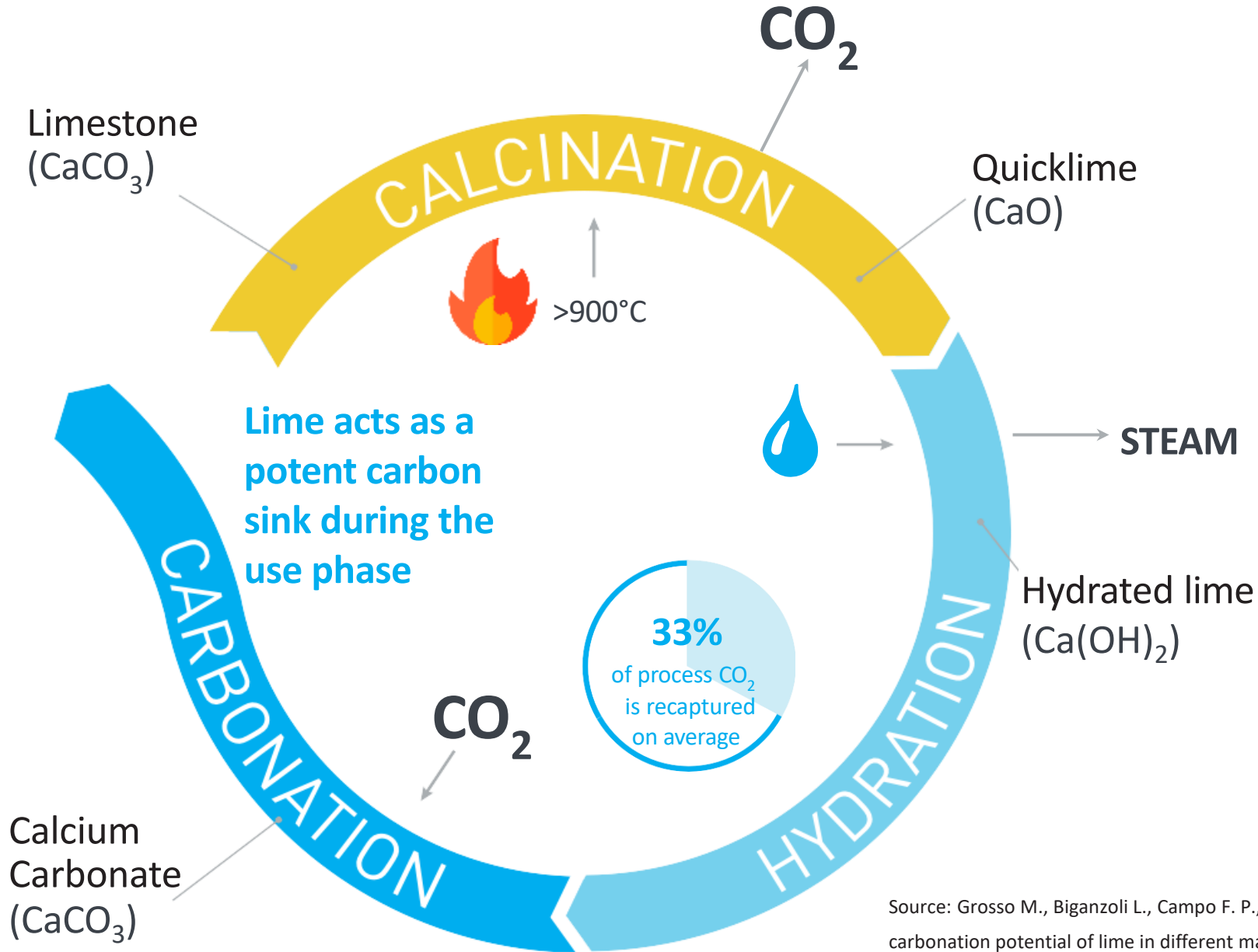
Frederik Verhelst - Head of Materials - Europe
Business Innovation Center - Lhoist
October 11th, 2023



A GLOBAL MARKET LEADER IN LIME



LIME AS A CARBON SINK



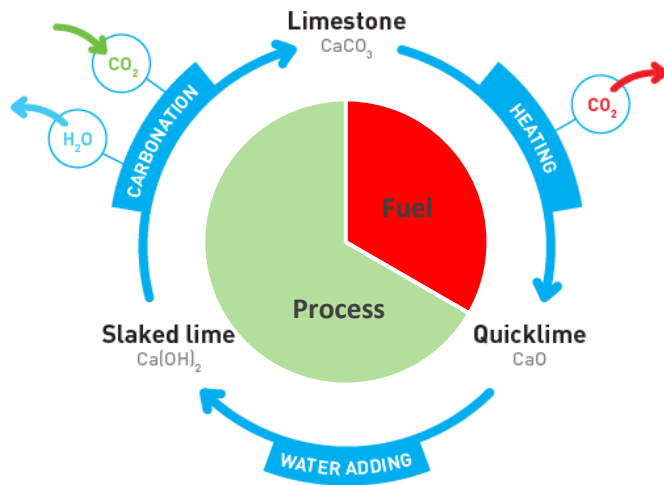
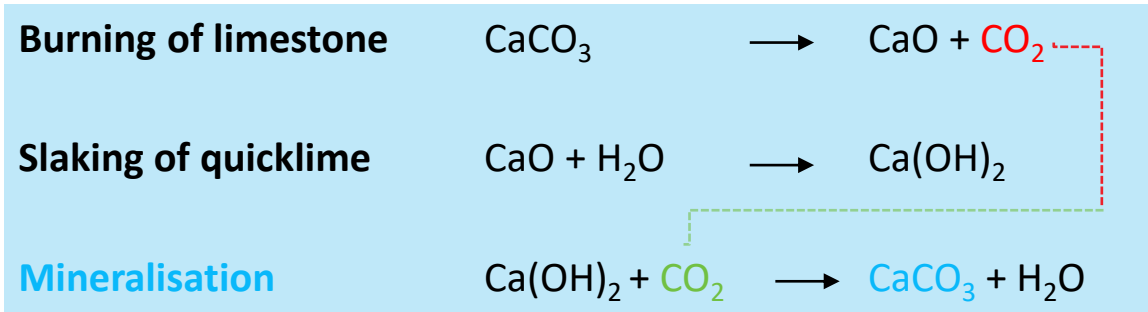
% of process CO_2 absorbed during lime use

- 80-92% Lime mortar
- 32% Flue gas purification
- 93% Pulp and paper
- 5-28% Steelmaking
- 100% Drinking water

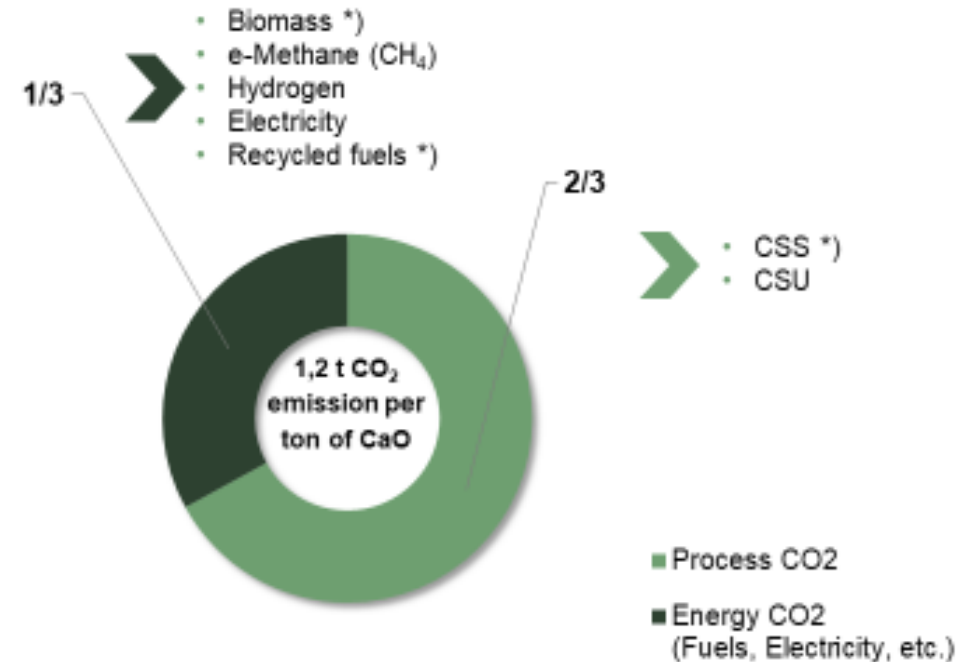
Source: Grosso M., Biganzoli L., Campo F. P., Pantini S., Tua C. 2020. Literature review on the assessment of the carbonation potential of lime in different markets and beyond. Report prepared by Assessment on Waste and Resources (AWARE) Research Group at Politecnico di Milano (PoliMI), for the European Lime Association (EuLA). Pp. 333.

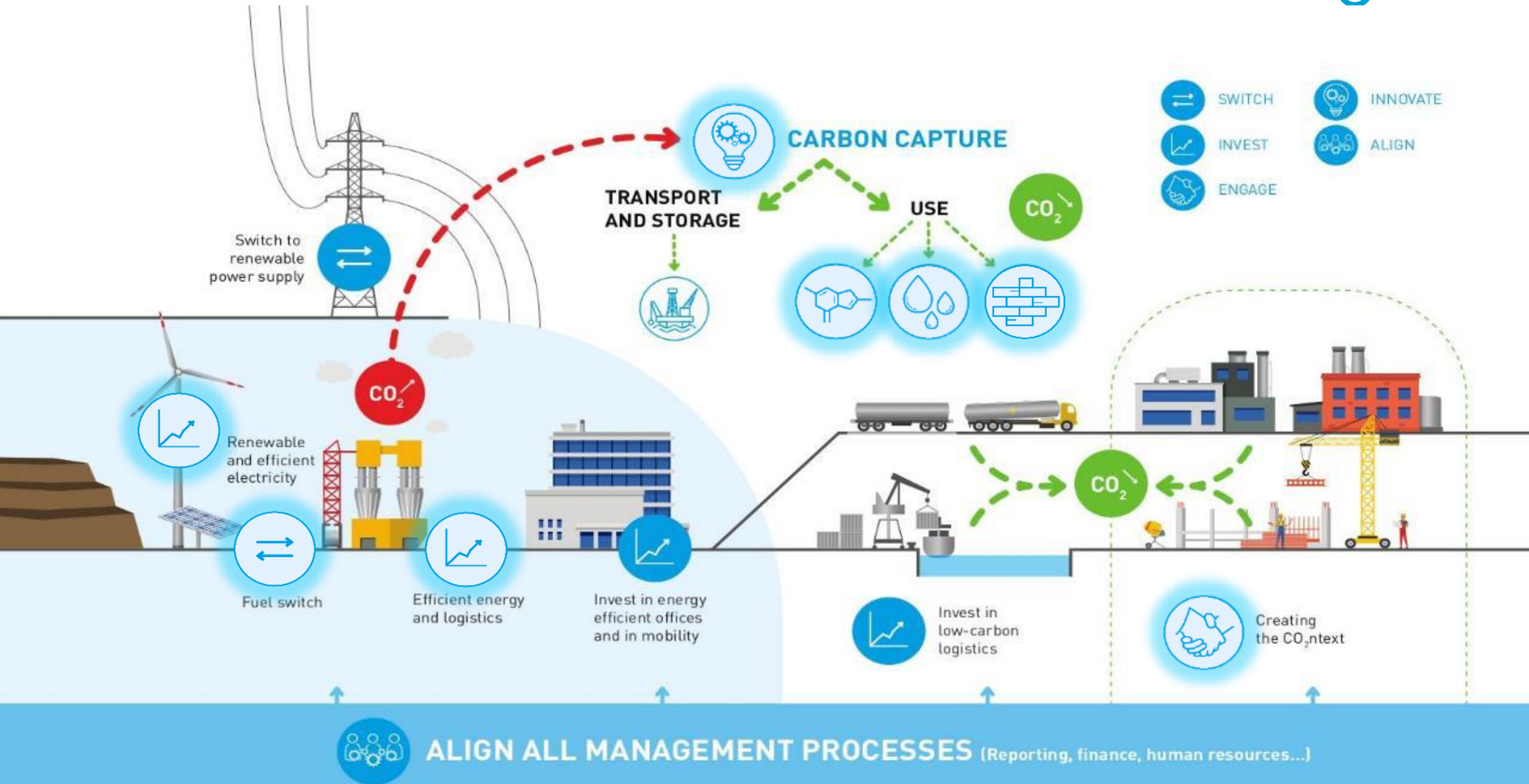
CRITICAL INDUSTRY FOR 22ND CENTURY SOCIETY

Combined CCS and CCU lead to carbon negative contribution for society

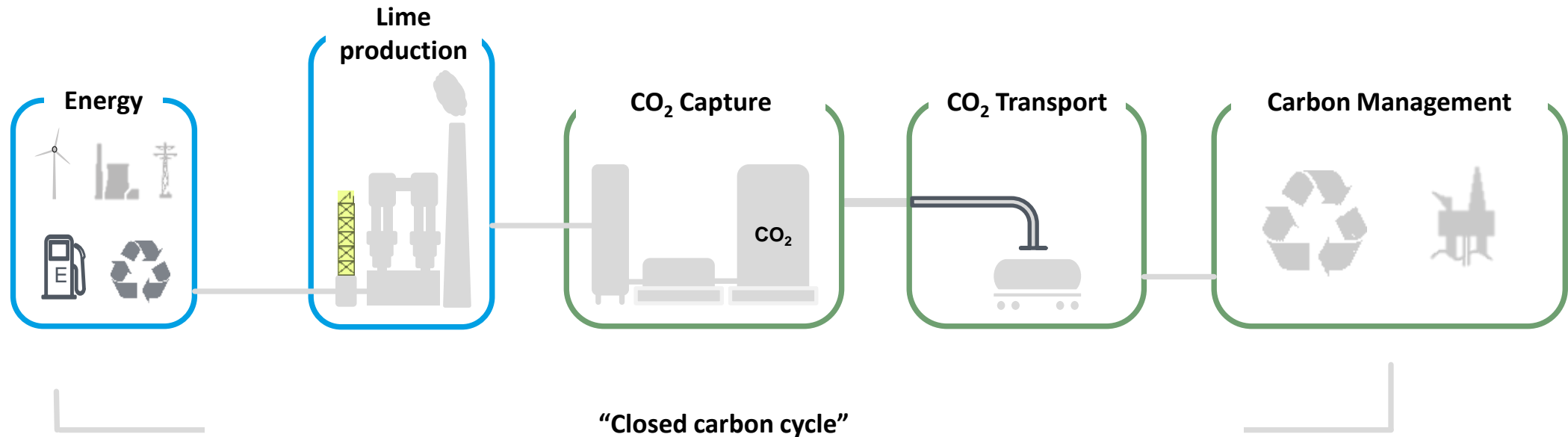


Our challenge:
The unavoidable CO₂ (“process CO₂”)





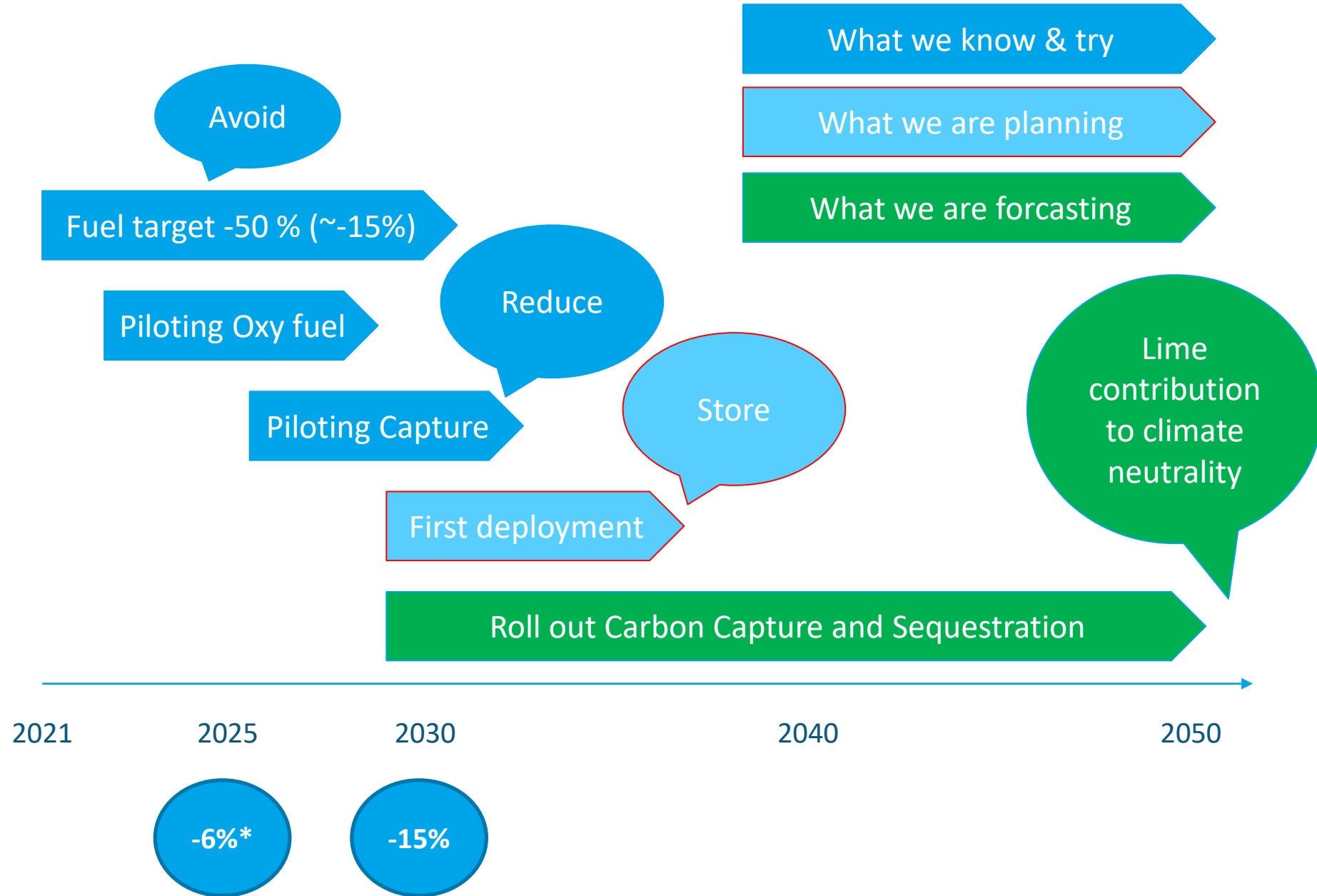
In some applications, especially in materials, this cycle becomes **carbon negative**.



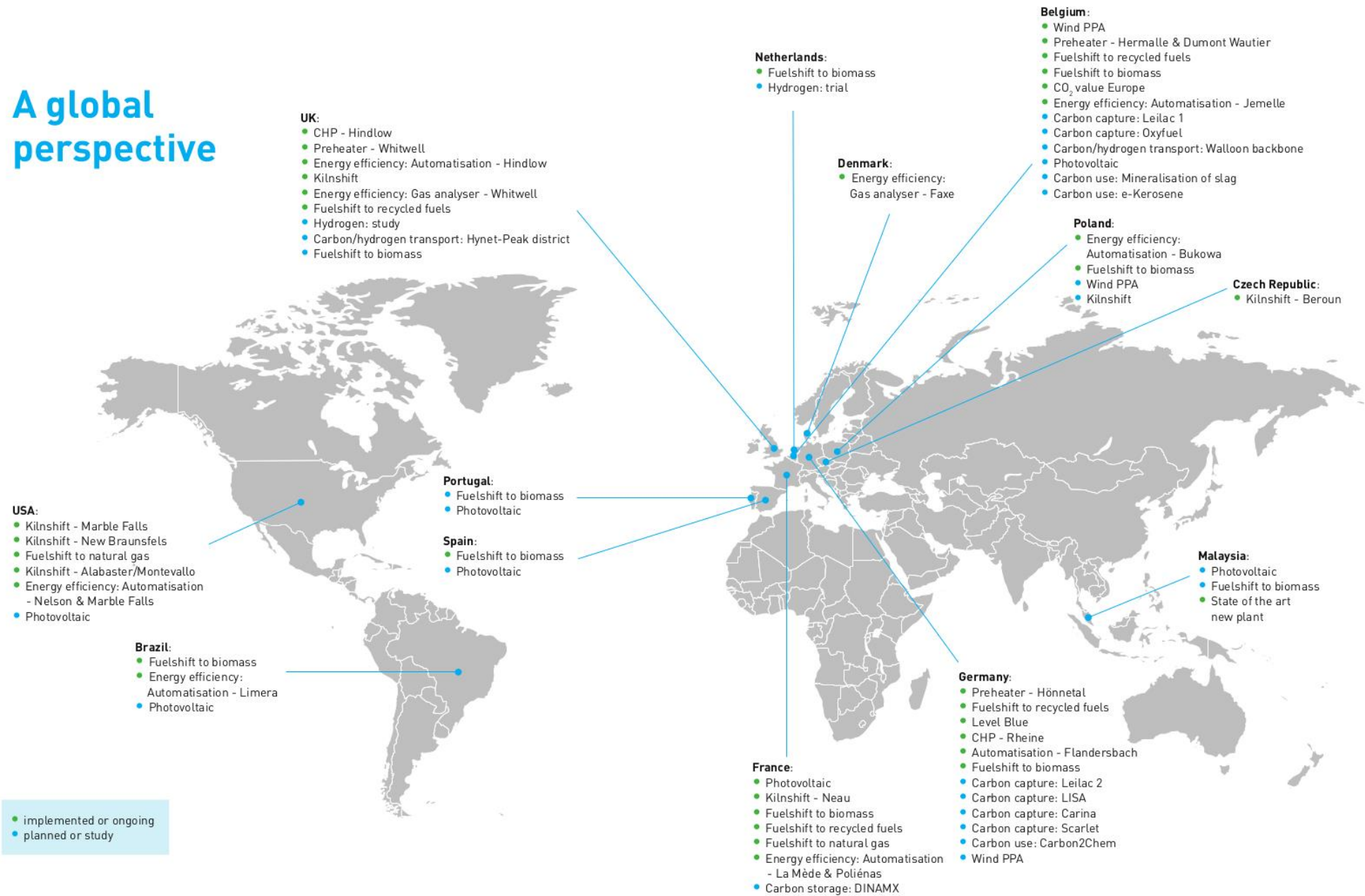
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LHOIST CARBON ROADMAP TOWARDS 2050



A global perspective

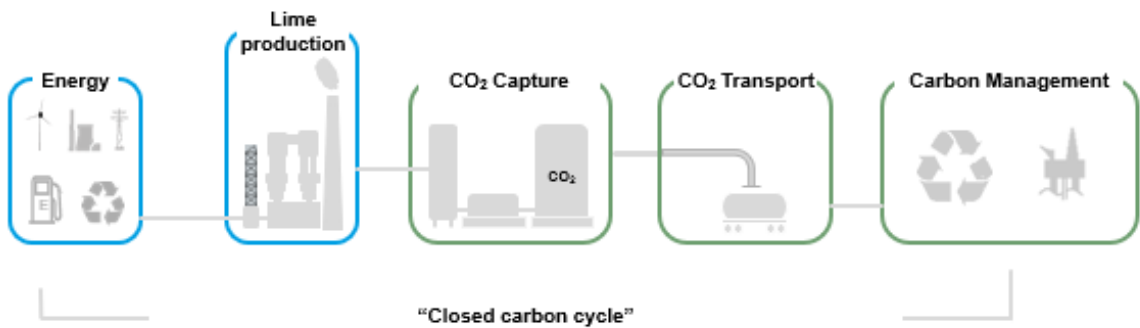


TRANSFORMATION PATHWAY TO A LOW CARBON LIME OFFER

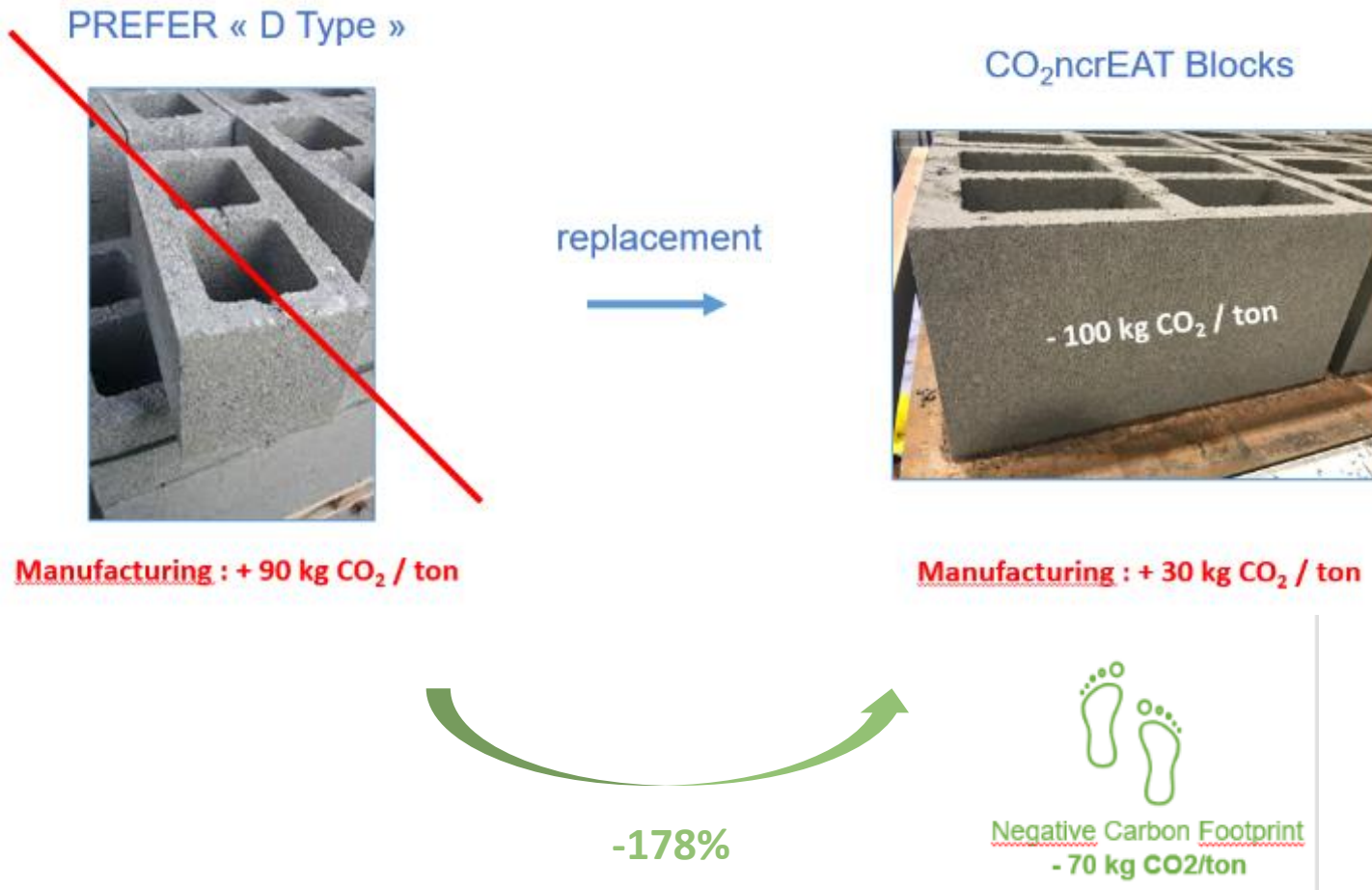


TOWARDS LOW CARBON LIME

In some applications, especially in materials, this cycle becomes **carbon negative**.



CARBON NEGATIVE BUILDING PRODUCT



› Motivation of the project is the creation of an innovative masonry block with a carbon negative footprint

› CO₂ncrEAT blocks carbon footprint is

› -70kg CO₂/t

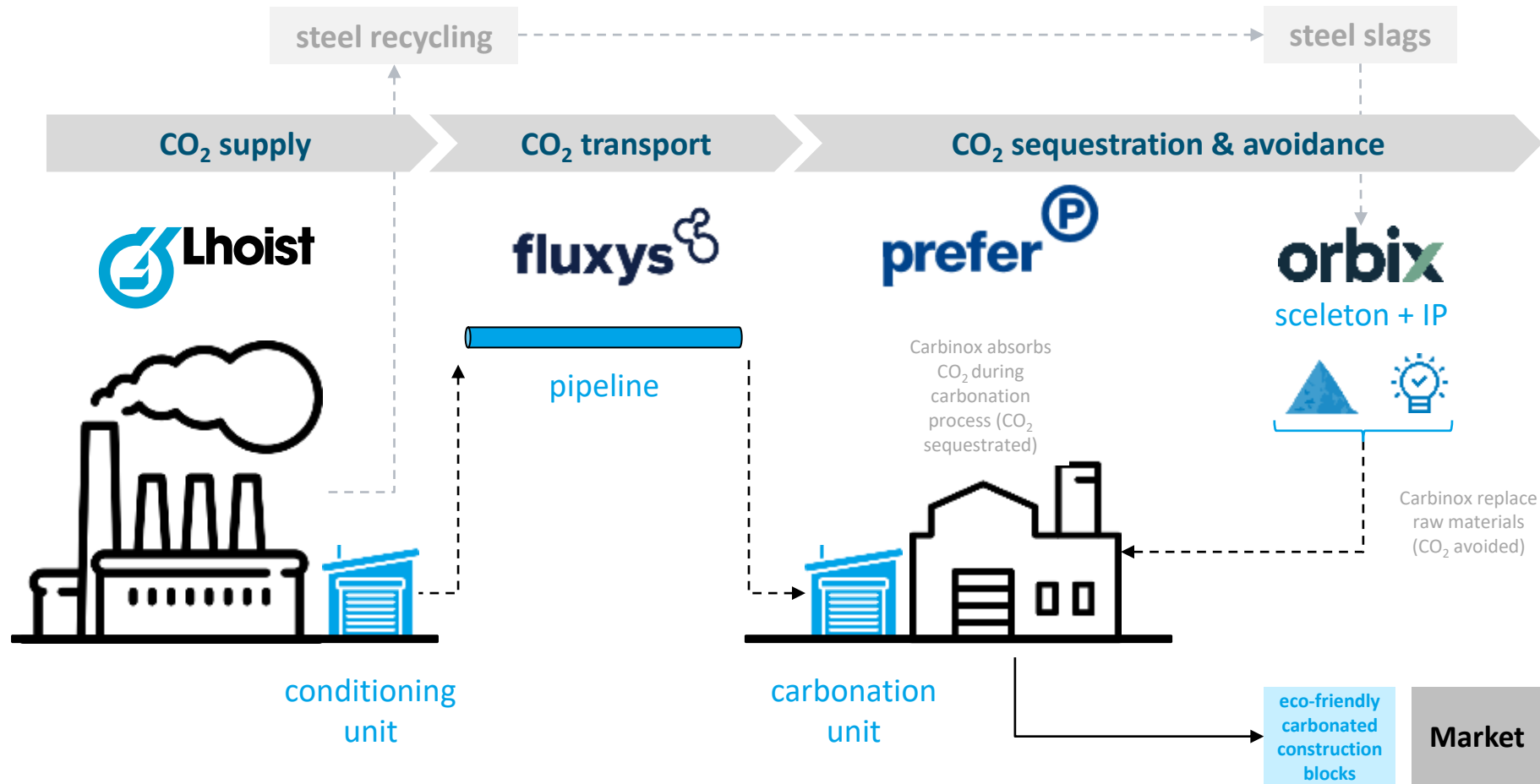


› normal blocks which have a footprint of

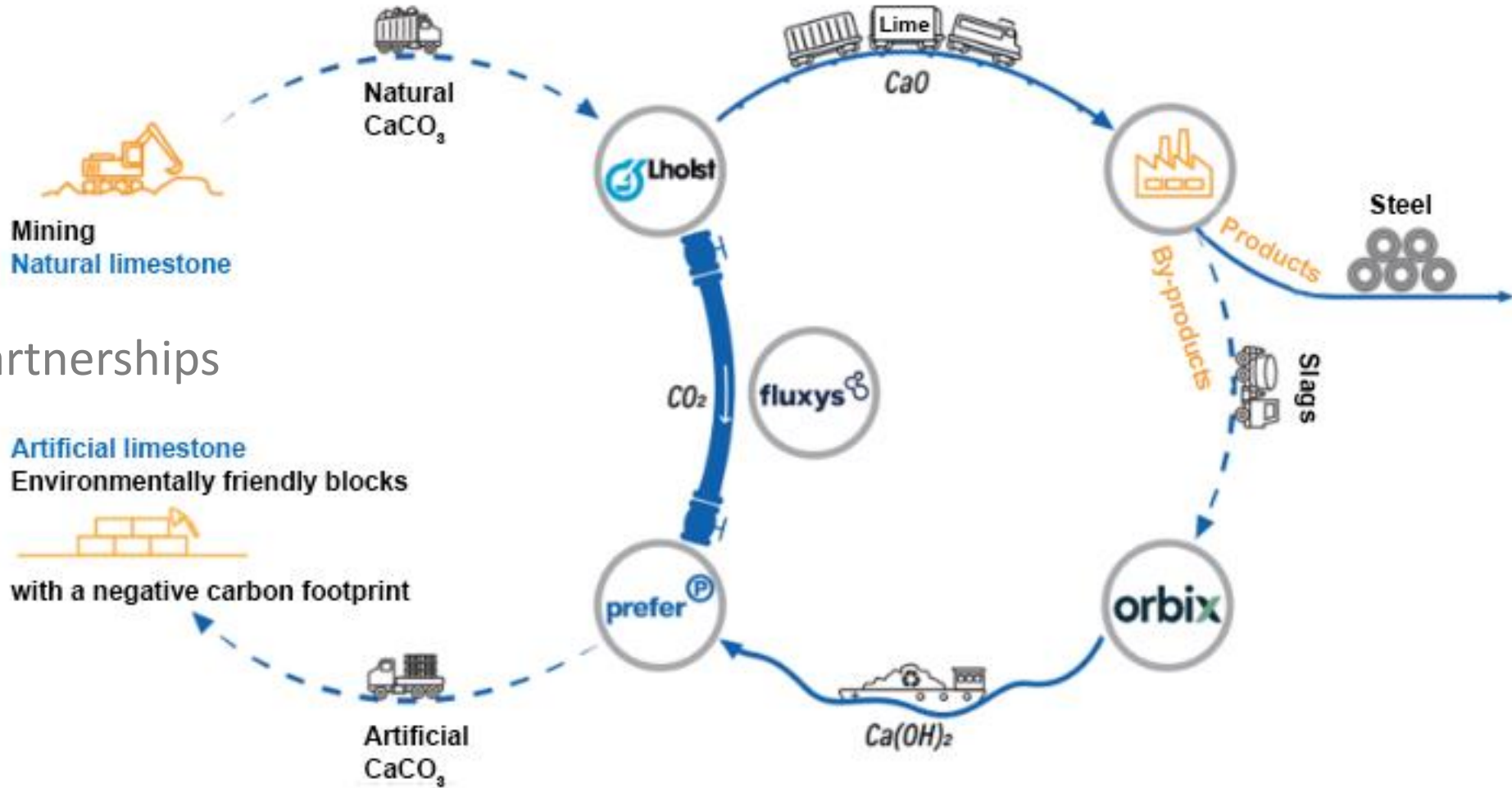
› +90kg CO₂/t

CO₂ncrEAT INDUSTRIAL PROCESS

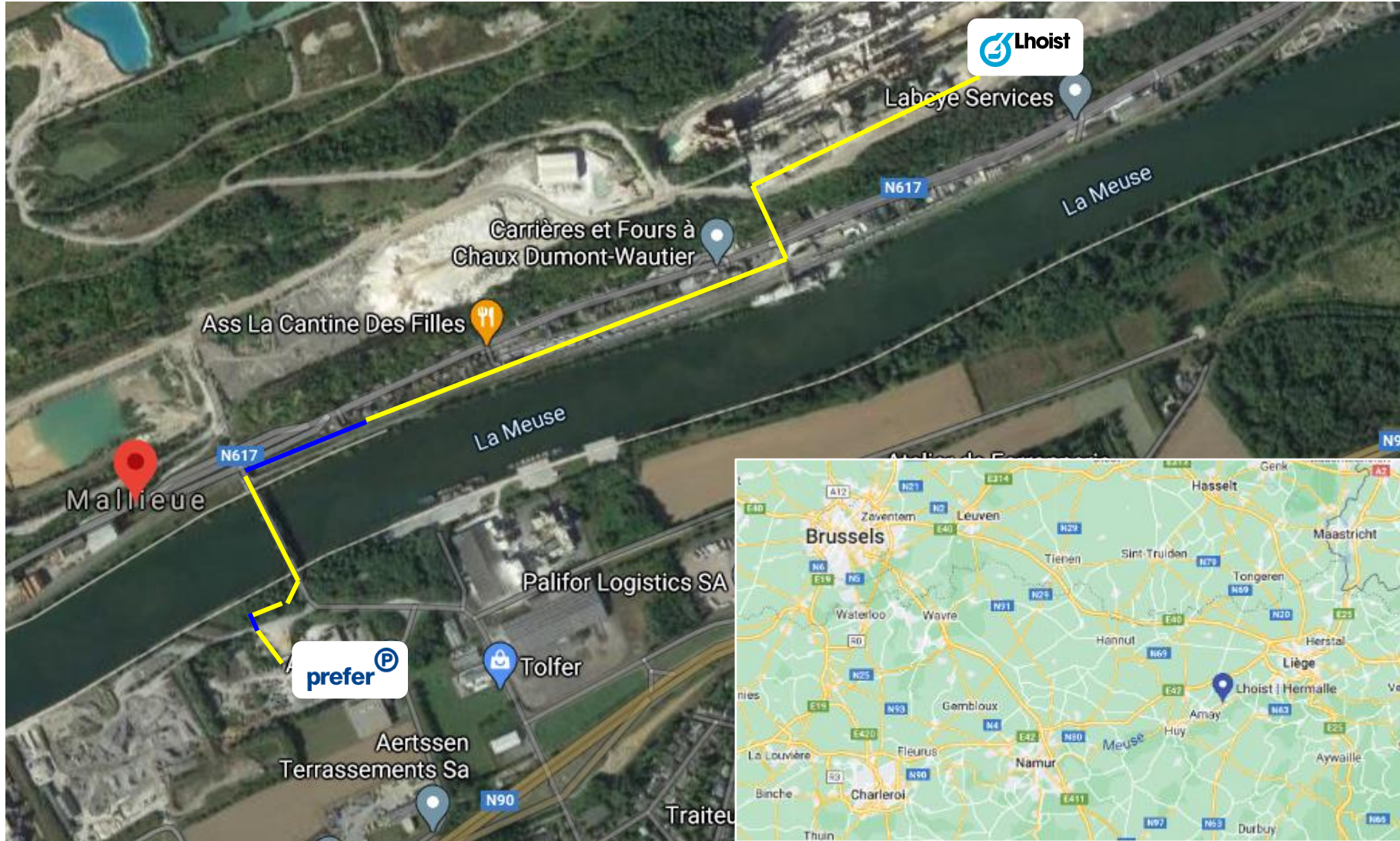
CO₂ncrEAT project consists in the production of eco-friendly carbonated construction blocks through an innovative process conducted by a consortium made of four (4) companies: Prefer, Orbix, Lhoist and Fluxys

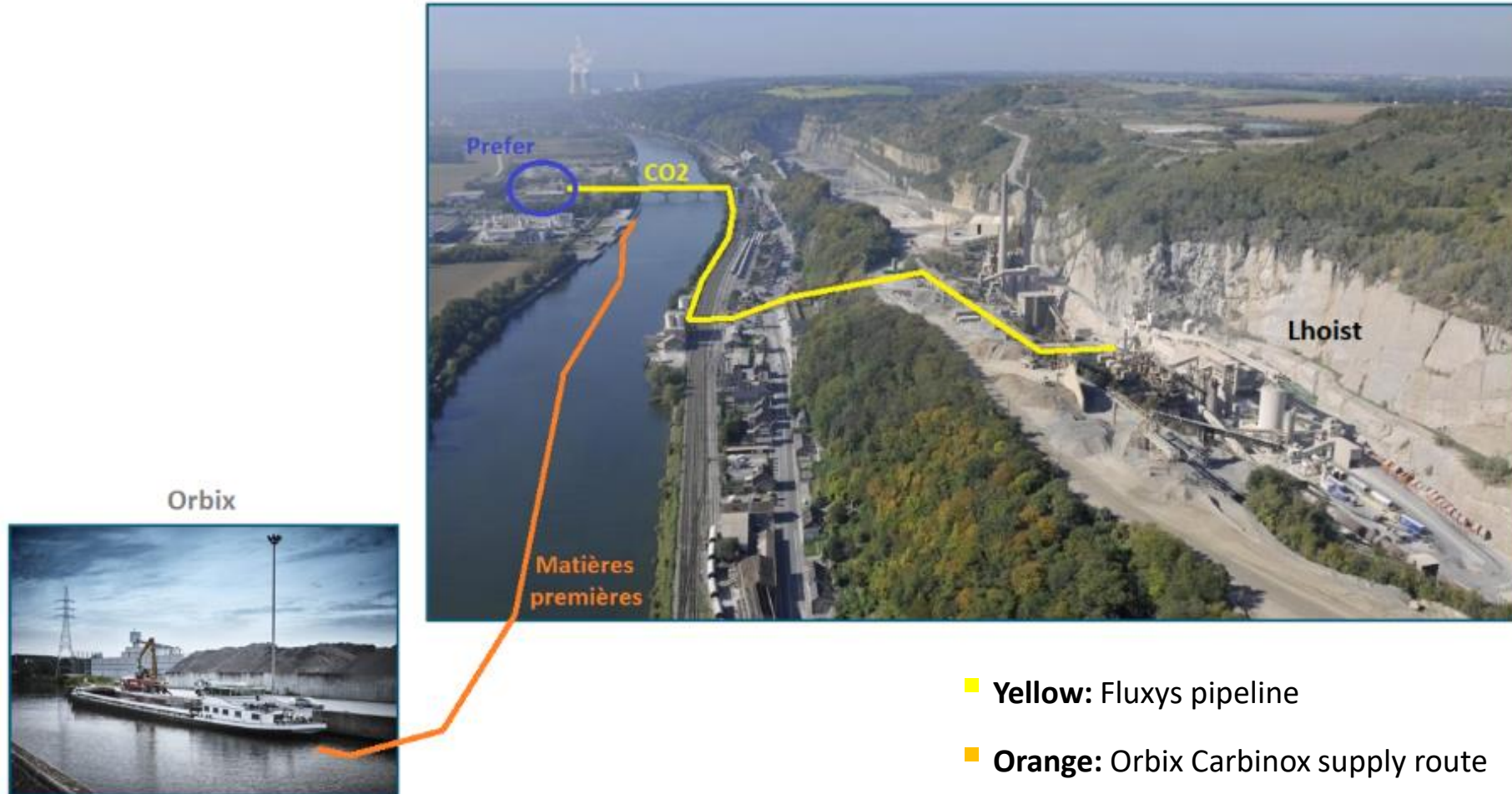


DOUBLE CIRCULARITY : LIME AND CO₂



Integrating partnerships



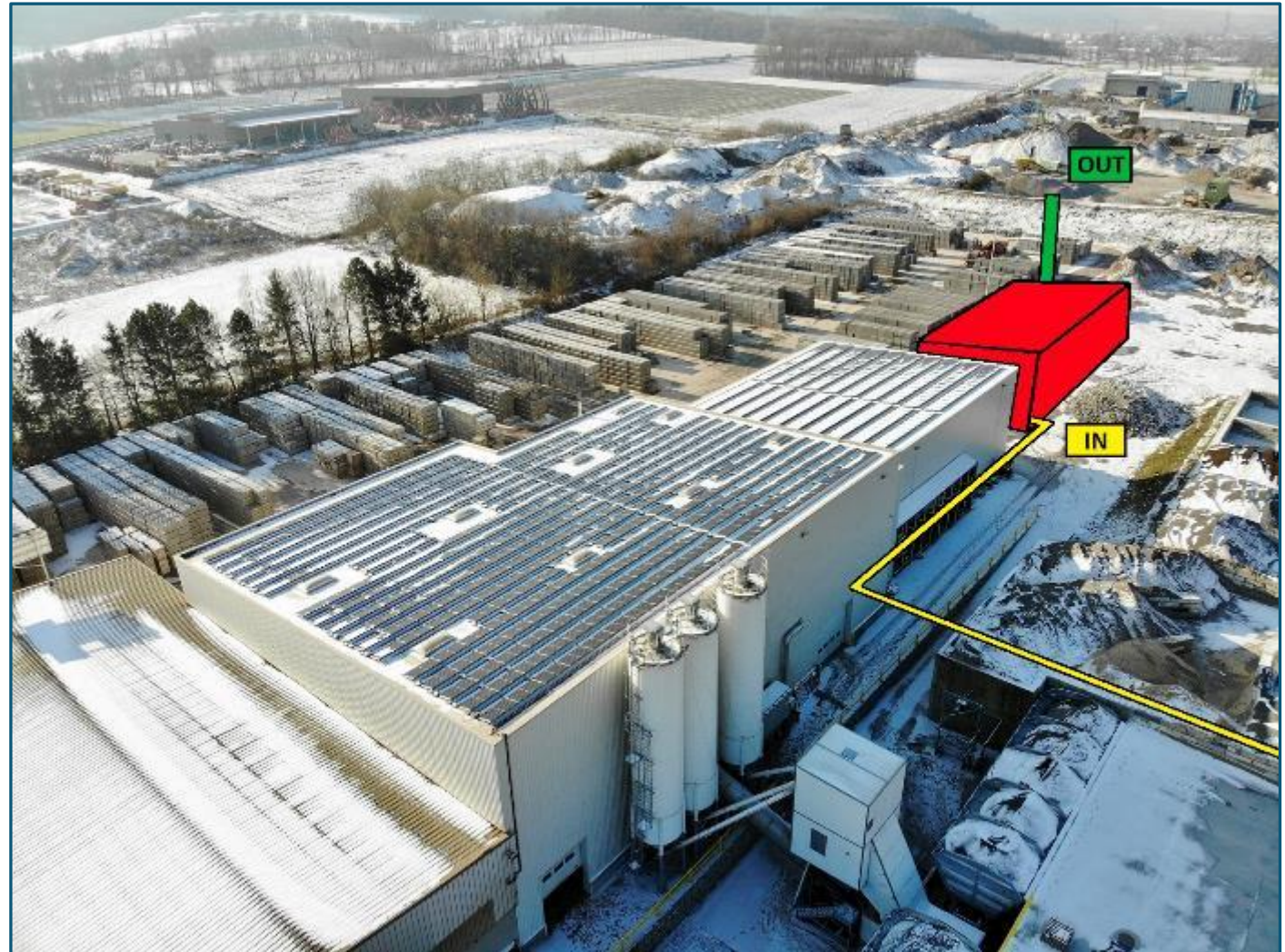


- **Yellow:** Fluxys pipeline
- **Orange:** Orbix Carbinox supply route
- **Blue:** Prefer plant

CO₂ncrEAT BLOCKS vs. CONCRETE BLOCKS

AN EXISTING MARKET, CARBONATION AS SUSTAINABLE BINDER

- › New production unit
- › Industrial development of a building material with positive climate impact compared to existing offer
- › 1 on 1 replacement



METRICS OF THIS CARBON CAPTURE & UTILISATION PROJECT



Circular economy

- Combination of two by-products (CO₂ + slags)
- Slags – source of Calcium and recycled sand
- Better use of **natural resources**



Up to 100 kg CO₂-sequestration / ton blocks totalling 200 kt avoided, cumulated after 10 years



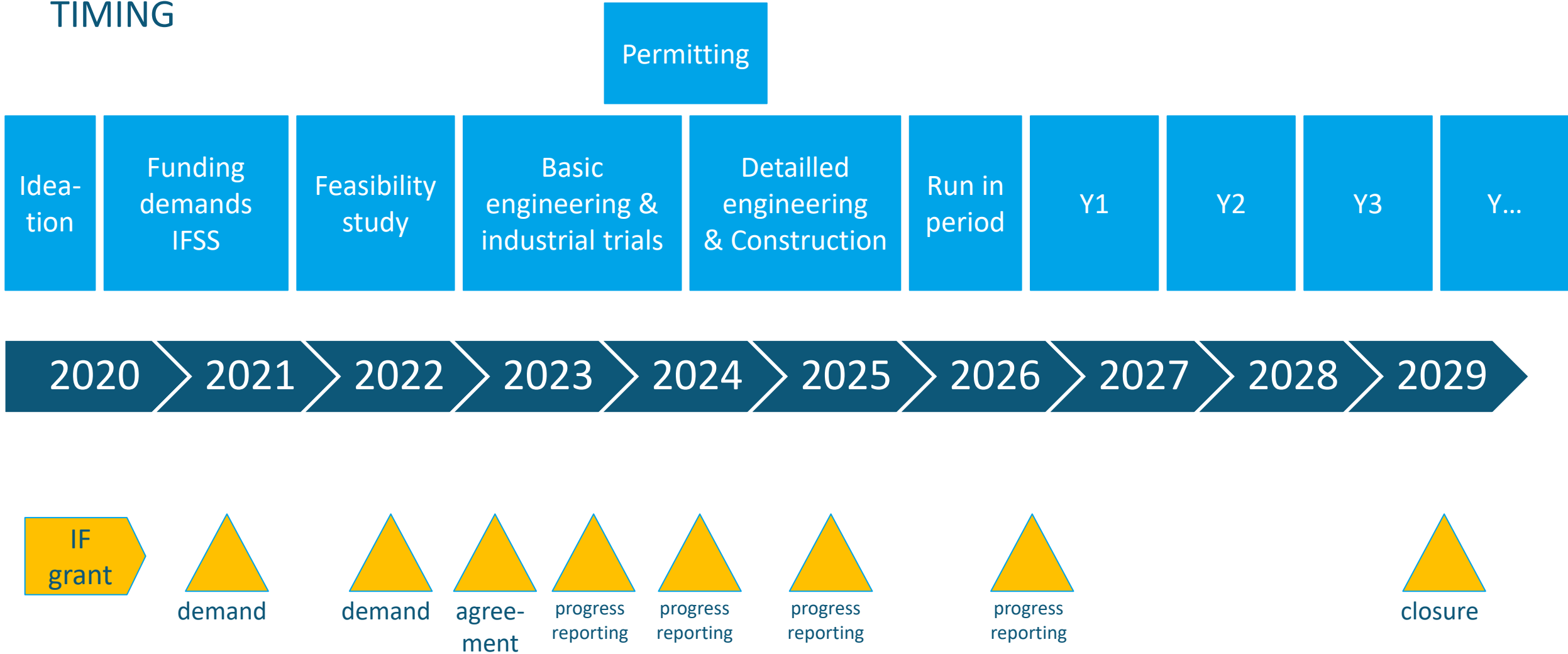
Industrial CO₂ use leading to **Efficient** CO₂-sequestration and low **cost** €/ton CO₂



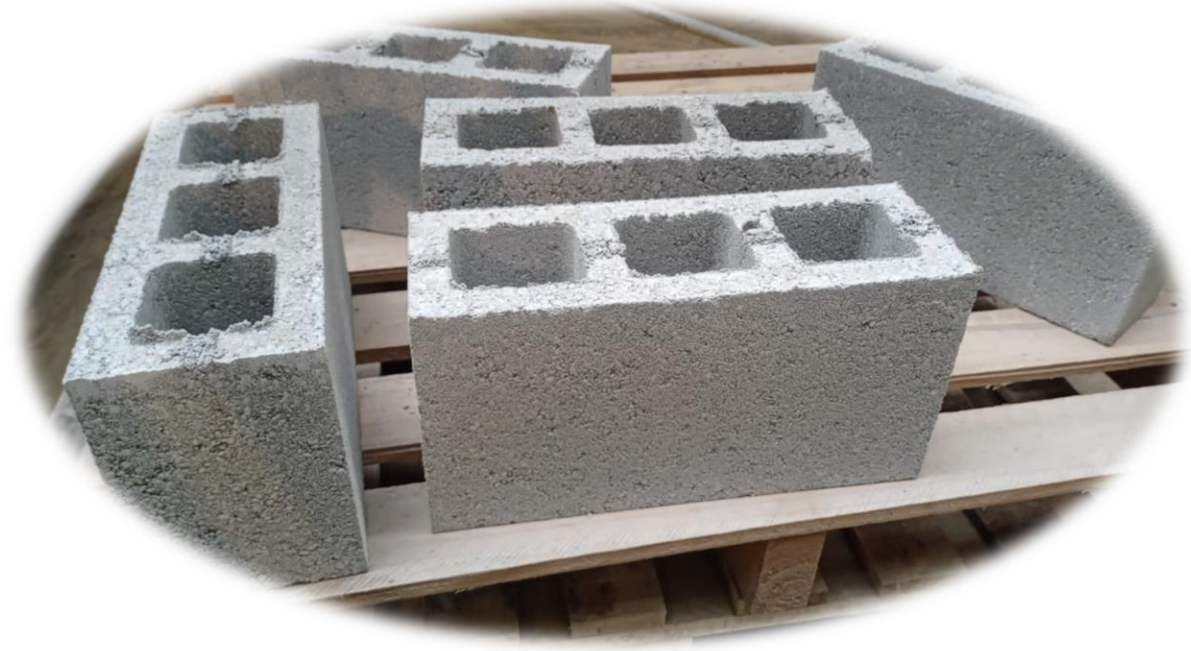
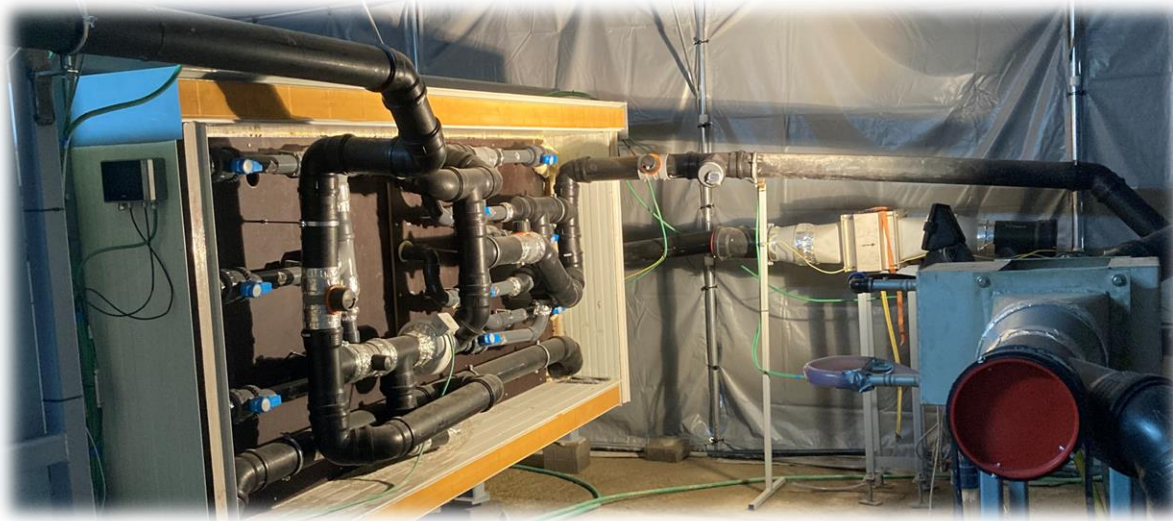
Low energy consumption



Contribution to Net carbon negative over the full value chain



**FIRST BUILDING BLOCKS
MADE FROM INDUSTRIAL STREAMS:
SAME BUILDING BLOCKS,
REDUCED CARBON FOOTPRINT**



CO₂ncrEAT: The project is funded by the European Union through the Innovation Fund Small Scale, grant agreement 101103194.



**Funded by
the European Union**

The CO₂ncrEAT team is working day and night to make it happen...



prefer[®]

Lhoist

orbix

fluxys



CO₂ncrEAT

An integrated negative carbon footprint solution for building blocks.
Same building blocks, different carbon footprint.

Grant Agreement nr. 101100134



Funded by
the European Union



Together, The Future

