# DECARBONIZING OUR OPERATIONS WITH

# GO4ZERO

Moving towards carbon-neutral cement production through cutting-edge $CO_2$ capture and purification technologies.

HOLCIM

# GO4ZERO – PHASE II

# IMPLEMENTING A $CO_2$ CAPTURE AND PURIFICATION UNIT

Holcim GO4ZERO and Air Liquide Industries Belgium are jointly initiating the permit application process covering the second phase of the GO4ZERO project. This phase focuses on the implementation of the necessary equipment for capturing and treating $CO_2$ emissions from the new cement kiln at Obourg, whose construction is set to begin in January 2024.

**The Obourg cement plant has been innovating for over a century: it was the first to leverage steel slag in cement production and a pioneer in co-processing (utilizing waste as fuel or an alternative raw material). With GO4ZERO, a brand new kiln is being constructed, incorporating a series of technological innovations. This positions the cement plant once again as a precursor for its environmental performance and a leader in cement decarbonization.**

## 1 PROJECT, 2 PHASES, 2 PERMITS

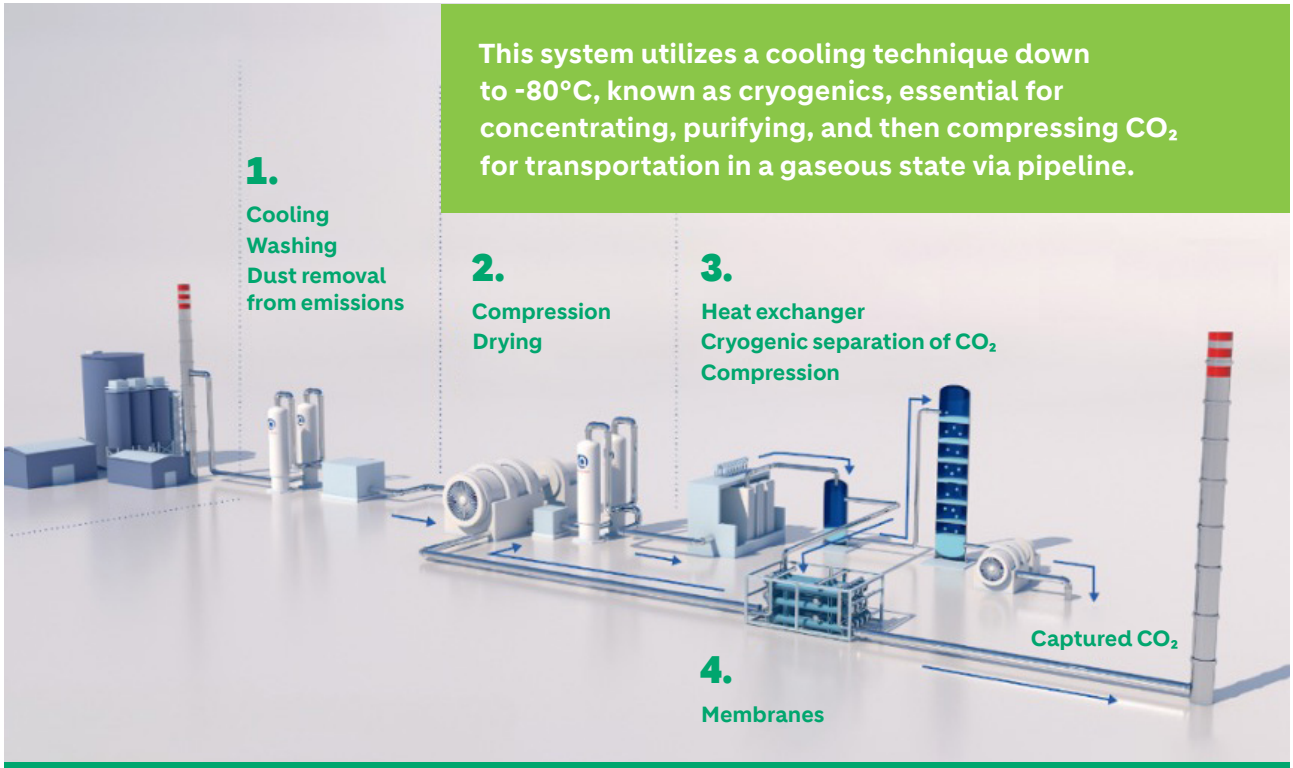
GO4ZERO embodies the ambition to produce carbon-neutral cement in Obourg by the end of the decade. It aligns with Holcim Group's overall strategy to decarbonize the construction sector by providing sustainable solutions. To achieve this goal, GO4ZERO is significantly transforming the industrial cement production process at its century-old Obourg site: a brand new kiln is being installed during the **project's Phase I.**

Instead of the wet chalk extracted from the soon-to-be-depleted Obourg quarry, limestone transported by train from Vaulx will be used to produce the clinker, the basic component of cement. This new 'dry process' method, combined with new technologies for preheating, energy recovery, and co-processing, reduces $CO_2$ emissions by 30% per ton of clinker produced. This marks the **project's first phase,** which received its initial single permit in February 2023. Execution is underway, with the work expected to last 3 years.

**The project's second phase** aims to capture $CO_2$ generated by this new kiln. It will then use pure oxygen instead of ambient air as an oxidizer **to concentrate the $CO_2$ emissions from the treatment equipment to over 80%.** This oxy-fuel technology enables **the capture and subsequent purification of $CO_2$ to over 99% in a $CO_2$ Purification Unit (CPU) through cryogenic methods.** The purified $CO_2$ will then be transported via pipeline to portside liquefaction facilities before being loaded onto specialized ships and transported at very low temperatures to North Sea sequestration wells.

# A «CPU», HOW DOES IT WORK?

CPU stands for $CO_2$ Purification Unit, **an industrial device that captures and treats $CO_2$ emissions from our cement kiln.**




- This technique requires a **SPECIFIC ELECTRIC POWER SUPPLY**.
- It also demands **PROPER TREATMENT OF THE WATER** produced and used in the CPU.
- **A PHYSICAL AND CHEMICAL TREATMENT** is applied to the recovered water with the goal of achieving 100% reuse.

Air Liquide is Holcim's industrial partner for the engineering, construction, and operation of this $CO_2$ treatment unit, which it will own; this is why the permit application will be submitted on behalf of both companies.

Air Liquide has already installed several CPU units based on a cryogenic distillation technology it has developed and patented, known as Cryocap™.

HOLCIM

## +€500.000.000

invested in a new industrial tool (Phase I and II), showcasing our region's technological excellence.

## 1.030.000 tons of $CO_2$

captured and sequestered annually by the end of 2028 thanks to Phase II.

## €230.000.000

from the European Union's Innovation Fund, which selected the best European decarbonization projects.

## +100 GWh

of potential for carbon-neutral energy production at the site (through a photovoltaic park and heat recovery) after the development of both phases.

# HOLCIM GO4ZERO AND AIR LIQUIDE ARE PREPARING TO JOINTLY SUBMIT A PERMIT APPLICATION FOR:

- **Operating the new kiln (Phase I, February '23 permit) using oxy-fuel technology,** which includes building a pressure reduction station for the oxygen supplied by the existing pipeline to feed the kiln
- **Constructing and operating auxiliary equipment to enable oxygen combustion and $CO_2$ capture:**

→ **cooling and gas condensation unit**

→ **water management (treatment and recirculation)**

→ **new electrical installations to power these new equipments**

→ **implementing gas recirculation to concentrate the $CO_2$**

→ **$CO_2$ quality measurement and metering station**

# FIRST STEP IN THE PERMIT PROCESS

The preliminary information meeting (PIM) on December 14, 2023, marks the first step of this permit process. Its purpose is to inform the local residents about Phase II of the GO4ZERO project and to initiate the environmental impact study related to it. The goal is to have the new equipment operational in the second half of 2028.

# CONTRIBUTE TO THE PRELIMINARY STUDY

**To participate in the preliminary study of the environmental impacts,** you have the opportunity to submit your observations and suggestions in writing until Friday, December 29, 2023, to the Municipal College of Mons (Grand Place, 22 at 7000 Mons / **environnement@ville.mons.be**, with a copy to Holcim GO4ZERO SA (Avenue Robert Schuman, 71 at 1401 Nivelles / **go4zero-be@holcim.com**).

GO4ZERO By Holcim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