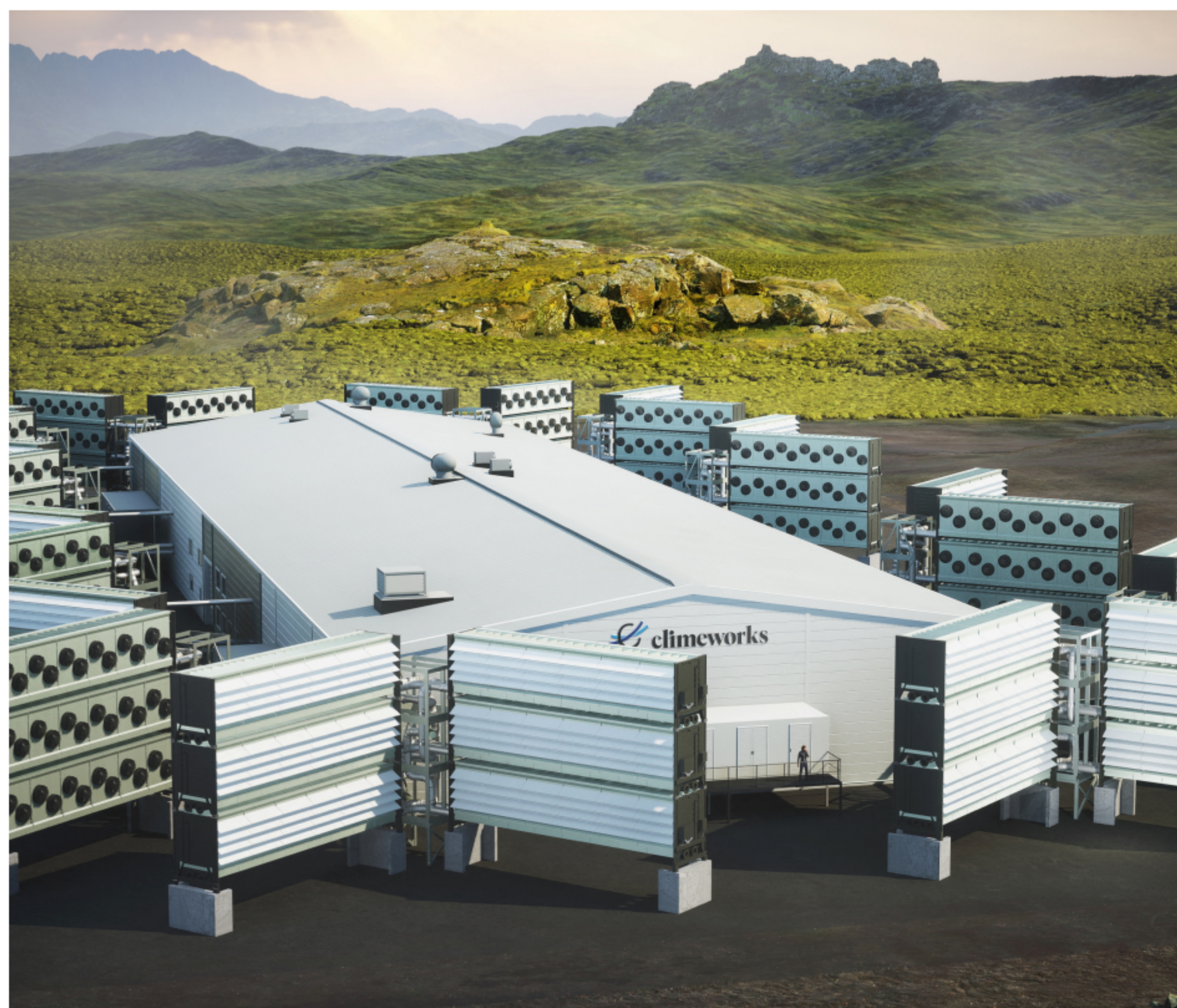




# PROJECT CYPRESS

For a Better Net-Zero Tomorrow

## ▶ Direct Air Capture



## What is Direct Air Capture?

Direct Air Capture (DAC) is an important climate solution that removes excess carbon dioxide (CO<sub>2</sub>) directly from the atmosphere. Science and industry agree that DAC projects are an urgent necessity to remove excess CO<sub>2</sub> from the atmosphere. This will help to prevent worsening extreme weather events, such as hurricanes, droughts, and floods, in the long term.

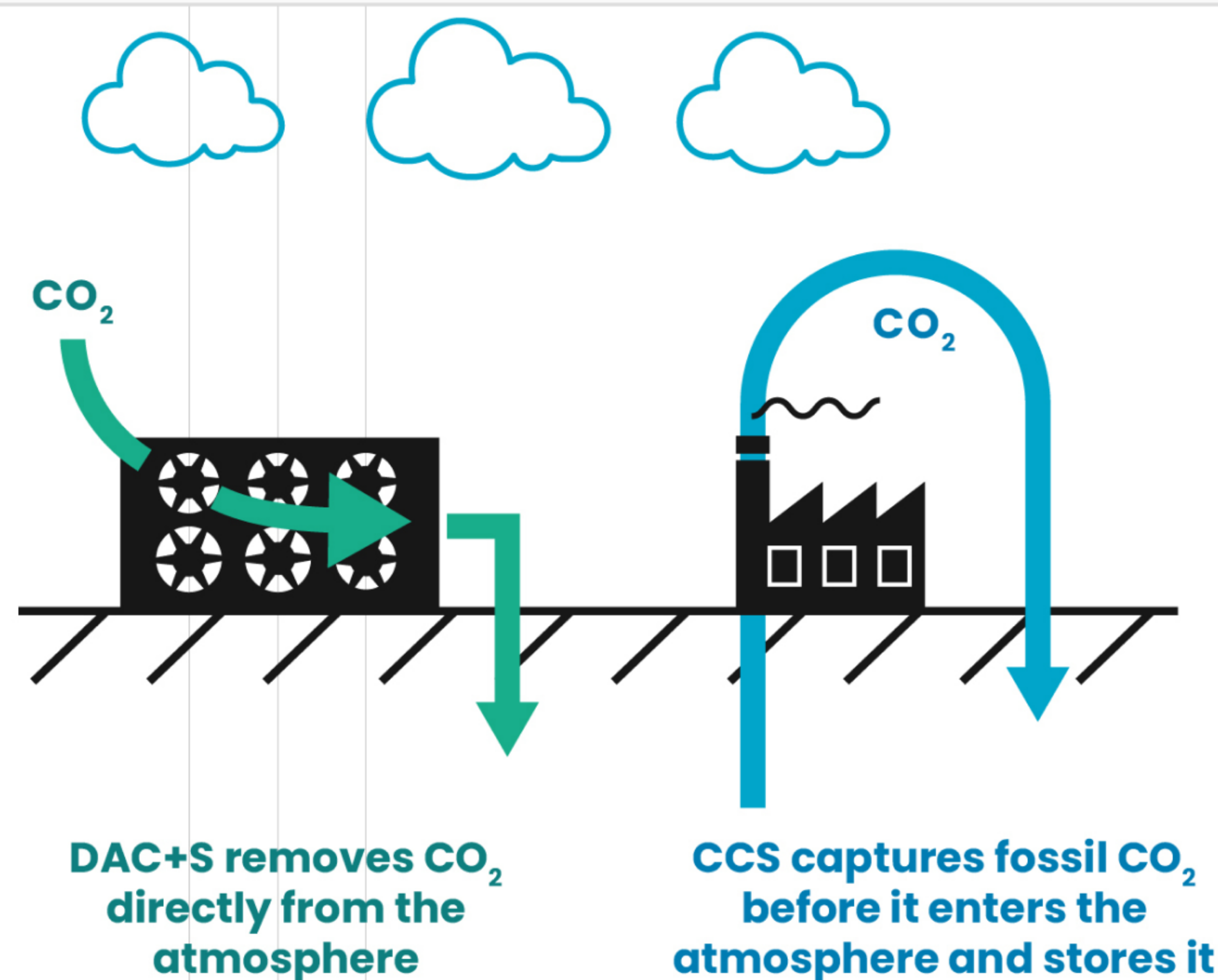
## Is DAC the same as Point Source CO<sub>2</sub> Capture?

Unlike carbon capture, which is situated at a point source, like a factory or power plant, and prevents emissions from entering the atmosphere, DAC removes CO<sub>2</sub> that has already been emitted into the atmosphere directly from the air. None of the CO<sub>2</sub> Project Cypress removes will be used to enable fossil fuel extraction through methods like enhanced oil recovery.

● **Carbon dioxide removal (CDR) via direct air capture & storage (DAC+S)** removes atmospheric CO<sub>2</sub> directly from ambient air (= negative emissions)

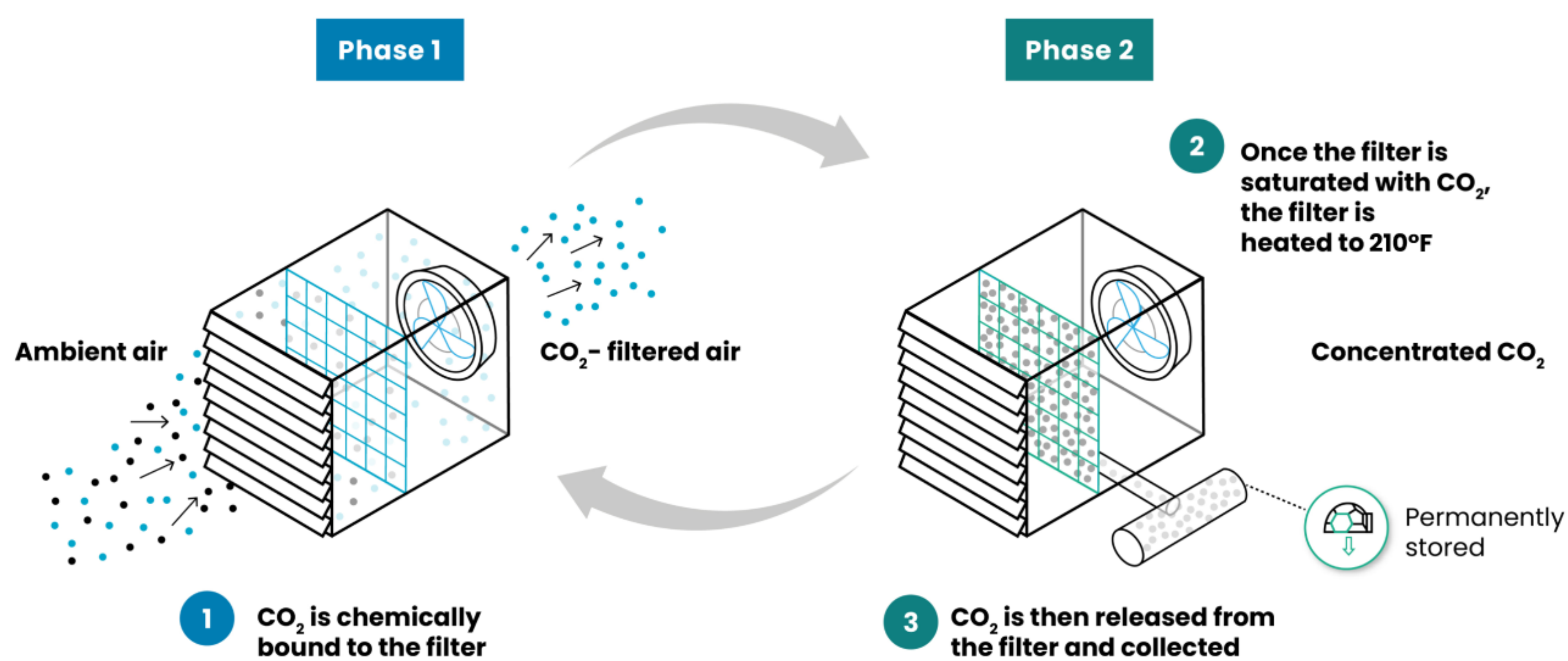
● **Carbon capture and storage (CCS)** usually captures fossil CO<sub>2</sub> from point sources (= avoided emissions)

DAC+S is carbon negative, while CCS achieves results closer to carbon neutrality.

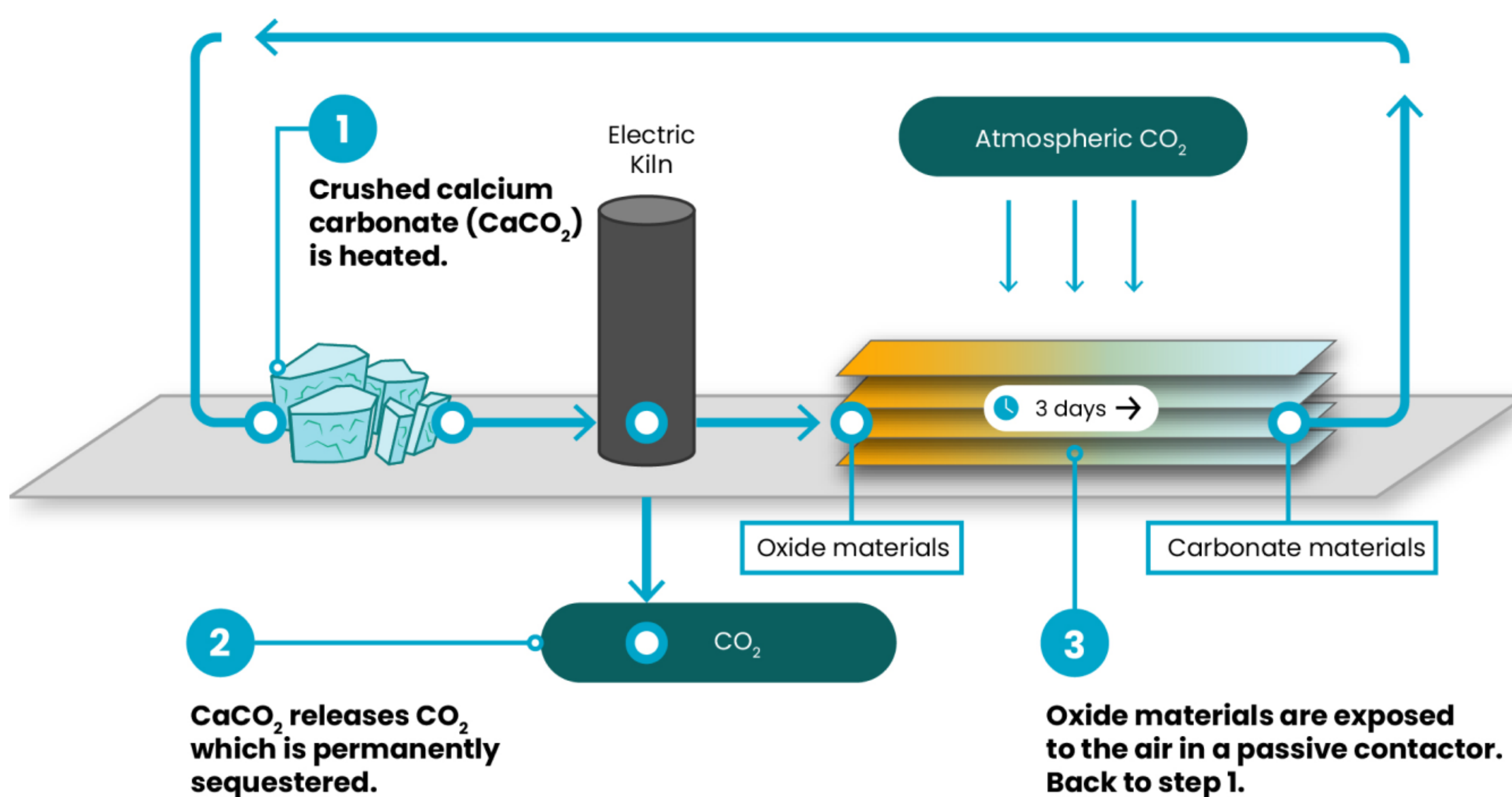




## The Climeworks Direct Air Capture Process



## The Heirloom Direct Air Capture Process



## How does DAC technology work?

Project Cypress will deploy proven DAC technology from two companies: Climeworks and Heirloom.

Climeworks' technology includes modular  $\text{CO}_2$  collectors that can be stacked to build facilities at any capacity and are powered solely by renewable and waste energy. The collectors remove  $\text{CO}_2$  from the air: First, air is drawn into the collector, where the  $\text{CO}_2$  is captured on the surface of a highly-selective filter material in a process called "adsorption." Next, when the filter is full of  $\text{CO}_2$ , the collector is closed and the material is heated to about 210°F to release the  $\text{CO}_2$  in a process called "desorption." The  $\text{CO}_2$  is collected in high purity and concentration and the process repeats.

Heirloom's technology rapidly accelerates the natural processes that enable limestone to adsorb  $\text{CO}_2$  from the air from a time span of years down to days. Limestone is the world's most abundant material and is used in medicine, cosmetics, and food production among other uses. In this process, the limestone is heated in a renewable-energy powered electric kiln to remove the  $\text{CO}_2$  which is then permanently stored. The mineral is laid on vertically stacked trays - where the limestone acts like a sponge, pulling  $\text{CO}_2$  from the atmosphere. This process is repeated over again in a loop to continuously sponge  $\text{CO}_2$  from the atmosphere.

## Where does the $\text{CO}_2$ go once it's been captured?

Once captured, the  $\text{CO}_2$  is stored underground in cooperation with an experienced storage partner. Storing  $\text{CO}_2$  underground has been an industry practice for more than four decades and is well-understood and safe. Wells used to inject  $\text{CO}_2$  into the ground are Class VI wells, built with strong materials that are highly tolerant to  $\text{CO}_2$  and built to prevent leaks and corrosion. For this project,  $\text{CO}_2$  will be stored about 7,000 feet underground.

