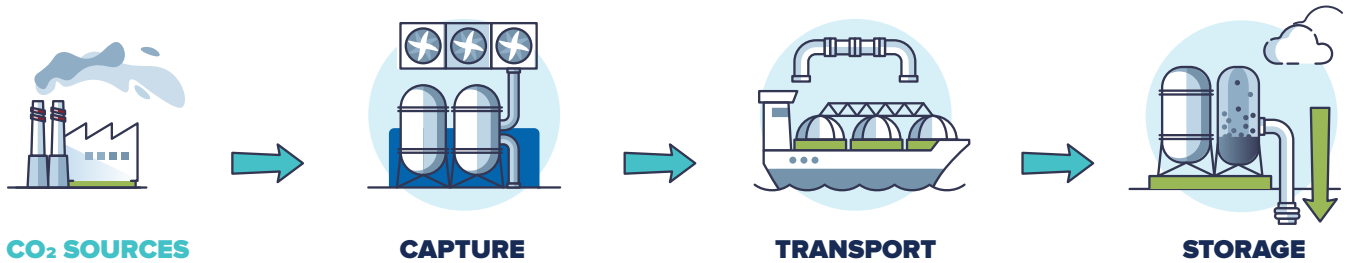


**Capture** is the first stage of the CCS process. It involves separating CO<sub>2</sub> from emissions produced by industrial processes such as cement or steel production, or from fossil fuel-based power generation. CO<sub>2</sub> can also be captured directly from the air.



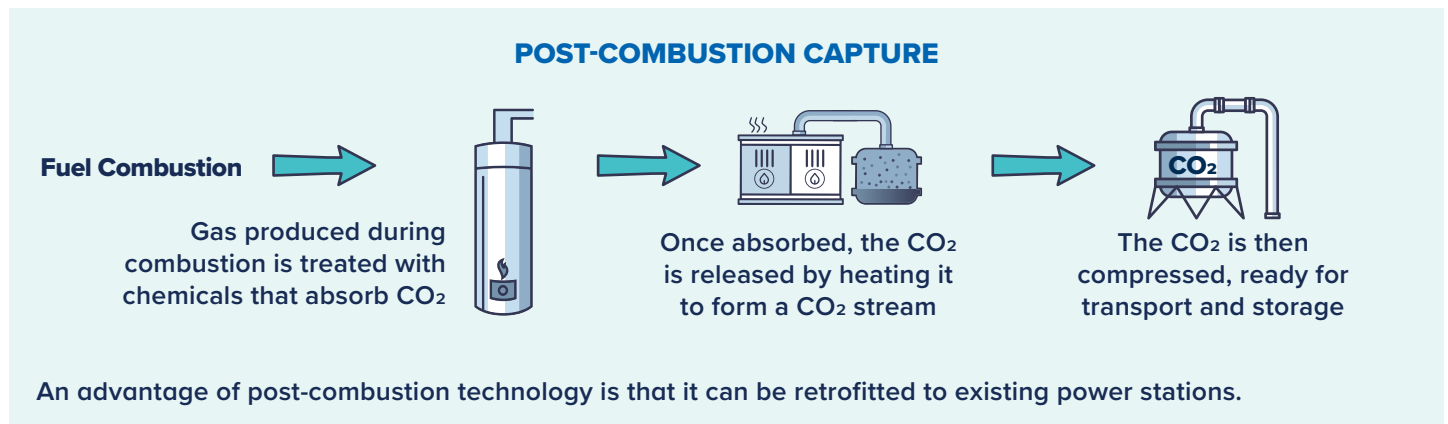
### CAPTURE FROM INDUSTRIAL PROCESSES OR POWER GENERATION

Three main methods are used to capture CO<sub>2</sub> from either industrial processes or power generation:

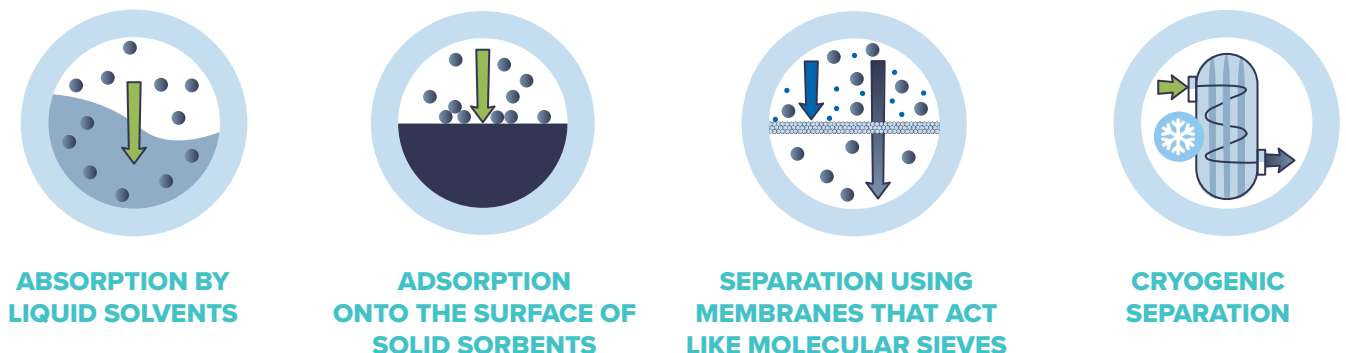
- » **Pre-combustion**
- » **Post-combustion**
- » **Oxyfuel combustion**

All involve physical or chemical processes being applied to capture the CO<sub>2</sub> so that it can be transported and stored.

The diagram below shows key steps in post-combustion capture.



### TECHNOLOGIES USED DURING CO<sub>2</sub> CAPTURE



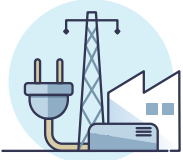
Other advanced technologies are being pursued such as chemical looping.

Carbon Capture and Storage (CCS) is a suite of technologies playing an important role in limiting global warming, by reducing the amount of CO<sub>2</sub> reaching the atmosphere, or removing it directly.

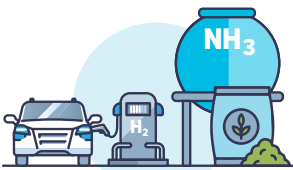
## CARBON CAPTURE HAS WIDE RANGING APPLICATIONS

**ESSENTIAL TO MITIGATE CO<sub>2</sub> EMISSIONS FROM INDUSTRY**

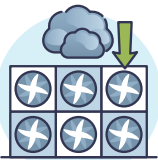
Almost 34% of global-energy related CO<sub>2</sub> emissions come from industrial processes such as cement, steel, pulp and paper, chemicals and natural gas processing.

**CRITICAL PART OF THE LOW-CARBON ENERGY SECTOR**

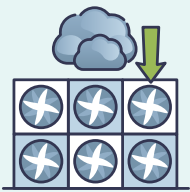
Power plants equipped with CCS can supply flexible low-carbon electricity to complement the variable nature of renewable energy.

**ENABLER FOR LOW-CARBON HYDROGEN PRODUCTION**

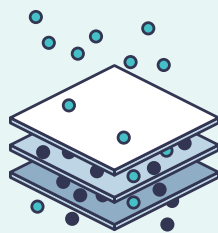
Low-carbon hydrogen can help decarbonise the transport sector and be used for power generation. It can also be used to produce other low-carbon products such as ammonia, urea and fertiliser.

**CONTRIBUTES TO OTHER TECHNOLOGIES THAT REMOVE CO<sub>2</sub> DIRECTLY FROM THE AIR**

CO<sub>2</sub> can be removed directly from the air using methods underpinned by CCS. Direct Air Capture with CCS (DACCS) is one example of this.

**DIRECT AIR CAPTURE WITH CCS (DACCS)**

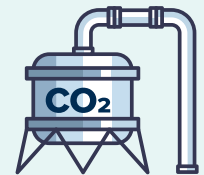
During DACCS, fans draw in air



The air is passed through filters to capture the CO<sub>2</sub>

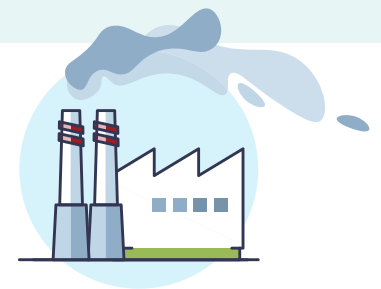


The filters are heated to produce a CO<sub>2</sub> stream



The CO<sub>2</sub> stream is then compressed, ready for transport and storage

**CCS technologies can capture well over 90% of CO<sub>2</sub> emissions from industries where they are applied – CO<sub>2</sub> that would otherwise have been released into the atmosphere.**



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