



Sustainable
Markets
Initiative

Carbon Capture, Utilisation and Storage (CCUS)

Pocket Guide for Members

drax

STOREGDA

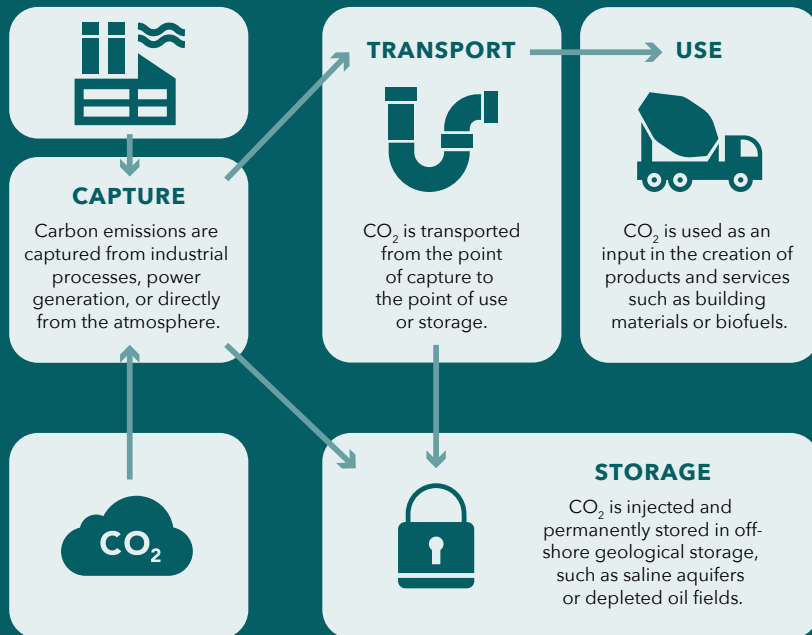
CCUS is an essential tool in meeting our net zero commitments

CCUS is a suite of technologies which captures carbon dioxide from point sources such as renewable power generation and industrial facilities (point source carbon capture), or directly from the atmosphere (direct air capture).

CCUS can:

- Sustain industrial manufacturing processing in a net zero economy
- Enable reliable domestic energy supply, supporting renewable energy with dispatchable bioenergy/thermal power generation
- Tackle historic CO₂ emissions
- Create new products and support a circular economy

THE CCUS PROCESS



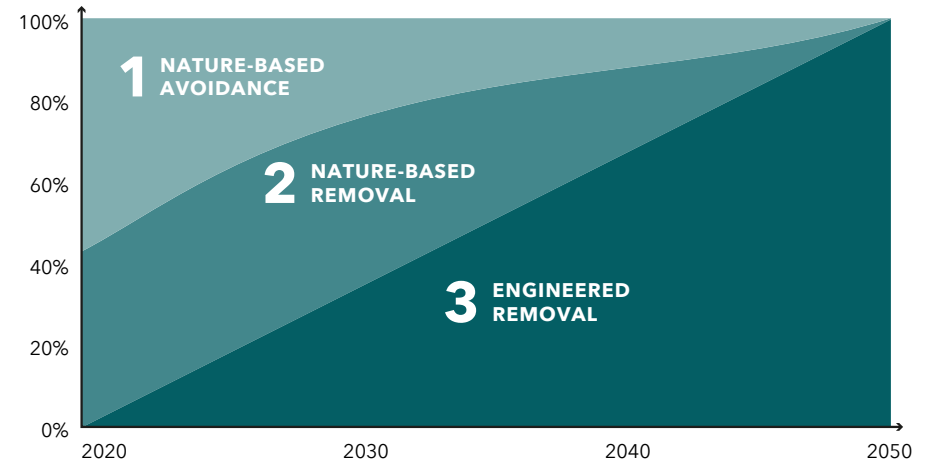
All pathways that limit global warming to 1.5 °C or 2 °C involve substantial levels of carbon removals from CCUS from 2020.¹

¹University of Oxford



WHERE CCUS FITS IN THE TOOLBOX

Percentage breakdown of carbon credit portfolio over time (Illustrative)



- 1** Cut emissions and in the short term, use high-quality avoidance credits from nature conservation.
- 2** Shift the portfolio towards nature-based removal, e.g. reforestation.
- 3** Remove carbon from atmosphere using engineered solutions.

Source: Oxford Principles and World Economic Forum

The science is clear: CCUS is a vital suite of technologies for the climate and can support businesses as they diversify their carbon credit portfolio.

Reducing emissions is critical, but investment in both engineered carbon removals and nature-based solutions is essential.

What needs to be done?



CLEAR MARKET SIGNALS FROM GOVERNMENT

- To unlock private sector investment, governments around the world need to demonstrate commitment and roll-out enabling incentives such as mandates and business models.



GLOBAL DEMAND SIGNALS

- As well as government providing assurance to the private sector, the private sector needs to demonstrate commitment by allocating meaningful resources to deploying decarbonisation infrastructure.
- The private sector has begun participating in the Voluntary Carbon Market by making advanced or current commitments to carbon removal credits, but greater demand is needed.



SUPPLY CHAIN READINESS

- CCUS providers must move at pace to deliver the infrastructure needed and engage the supply chain early.

How you can help

Sustainable Markets Initiative members can sign-up to the Sustainable Markets Initiative Carbon Removals Programme. This will enable the flow of carbon offset funding into engineered removals (and nature-based) projects and support your carbon credit portfolio. For more information, email: info@sustainable-markets.org

Understanding the available CCUS technologies

CCUS technology involves capturing CO₂ from the atmosphere or from industrial processes. This can be done with different technology; the carbon can be either stored or utilised.



CCS - Carbon Capture and Storage

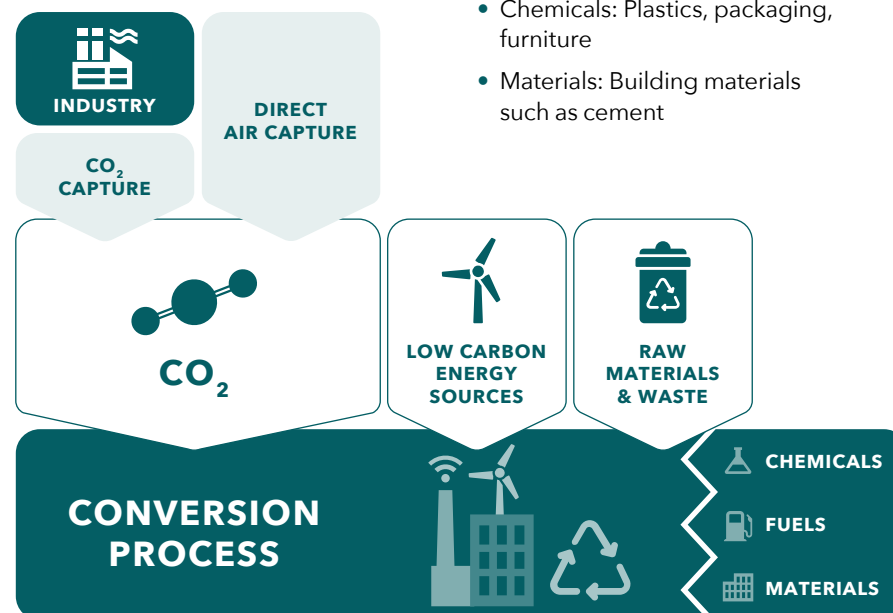
In the CCS process, once the CO₂ is captured, it is then transported and stored in deep underground geological formations.



CCU - Carbon Capture and Utilisation

In CCU, the CO₂ is then converted into products such as:

- Fuels: Biofuels, electrification and hydrogen
- Chemicals: Plastics, packaging, furniture
- Materials: Building materials such as cement



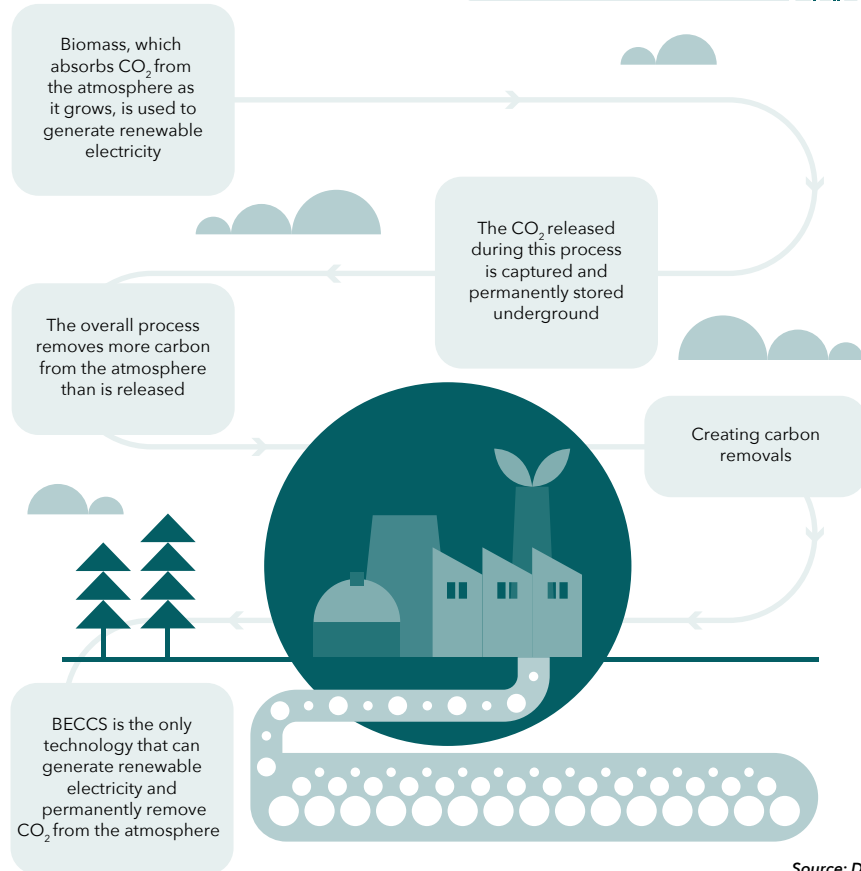
Source: CO₂ Value Europe

BECCS - Bioenergy with Carbon Capture and Storage

BECCS is the process of generating reliable renewable electricity from biomass. The carbon created during the process is then captured and permanently stored or used.

BECCS can be a standalone power generation and carbon capture site, or it can be integrated into industrial processes such as Sustainable Aviation Fuel development or steel production.

Drax Power Station
UK Case Study



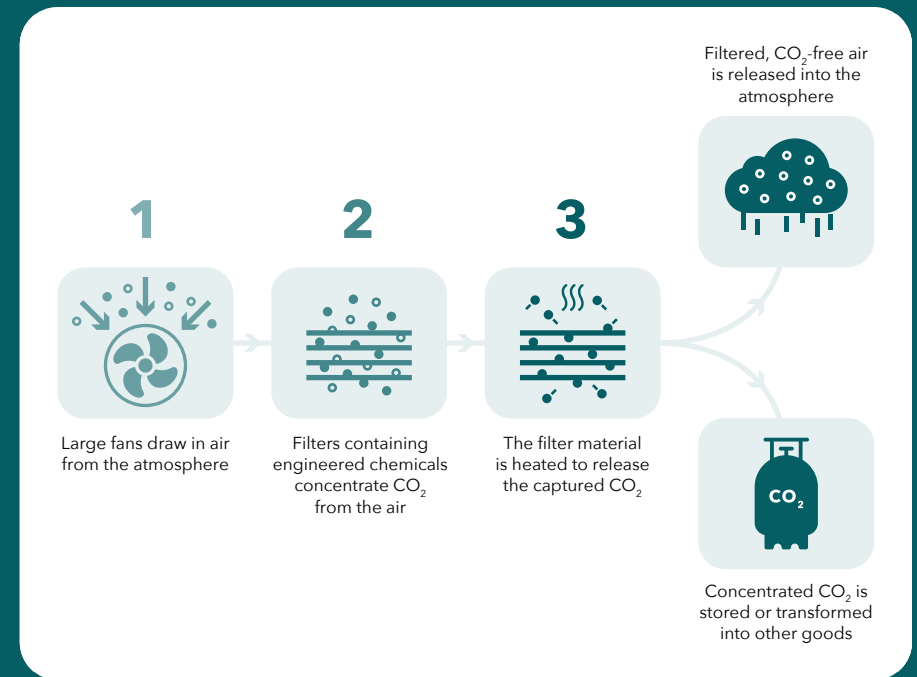
Source: Drax

DACS - Direct Air Capture and Storage

Direct Air Capture is a fully engineered carbon removal technology, which uses chemical or physical processes to capture carbon from the atmosphere.

Captured carbon is then either stored permanently in geological formations (like with at-source carbon capture and storage) or used in products such as building materials or sustainable aviation fuel.

DAC is an essential carbon removal technology because it can address historic carbon emissions that are already in the atmosphere and can also capture emissions from hard-to-abate sectors.





Sustainable Markets Initiative

info@sustainable-markets.org

www.sustainable-markets.org

drax

drax.com

STOREGGA

storegga.earth