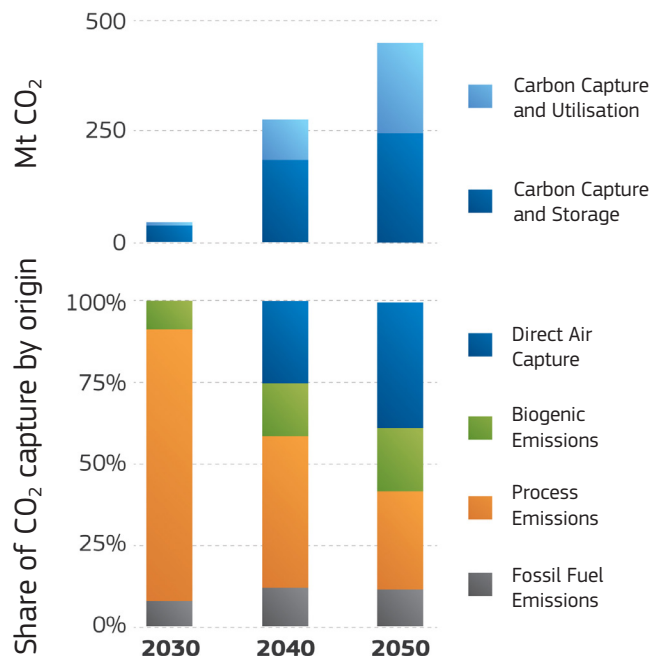# Industrial Carbon Management:
Capturing, storing and using CO_2 to reach our climate goals

Achieving our ambitious climate targets requires a significant reduction in CO_2 emissions in the coming years. While much of this can be achieved through investing in **energy efficiency** and **renewable energy**, we will also need technologies that can capture and store CO_2, or utilise it. This will be particularly important in sectors where it is the most challenging to reduce emissions, such as cement and waste-to-energy.

To reach the recommended **90%** net emissions reduction by 2040 and climate neutrality by 2050, the EU will need to be ready to capture:
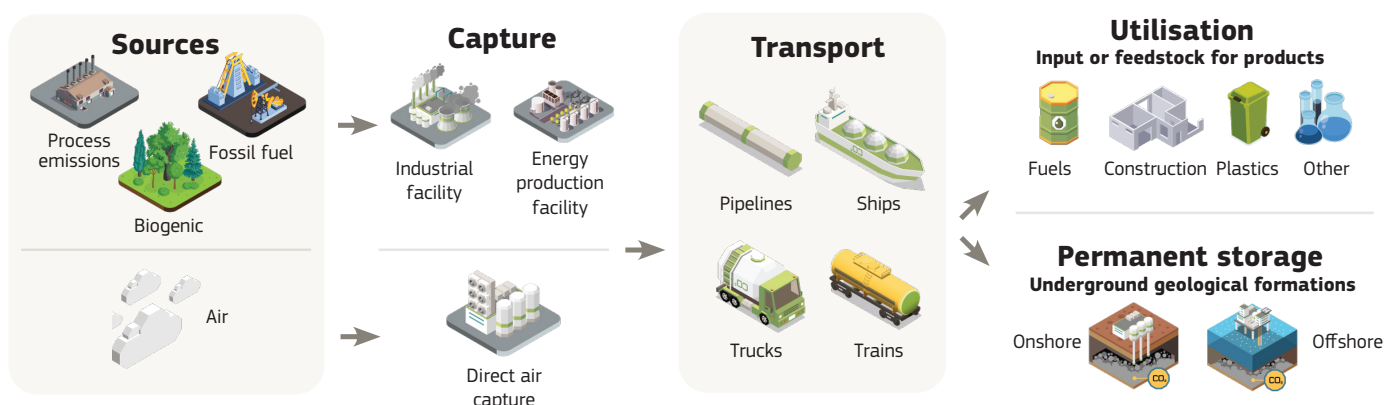
· at least **50 million tonnes** of CO_2 per year by 2030,

· approximately **280 million tonnes** by 2040,

· and around **450 million tonnes** by 2050.

This will also require **removing CO_2 from the air**.

Chart 1 (top): Mt CO_2 — 500 / 250 / 0
- Carbon Capture and Utilisation
- Carbon Capture and Storage
Years: 2030, 2040, 2050

Chart 2 (bottom): Share of CO_2 capture by origin — 100% / 75% / 50% / 25% / 0%
- Direct Air Capture
- Biogenic Emissions
- Process Emissions
- Fossil Fuel Emissions
Years: 2030, 2040, 2050

What is industrial carbon management?

· The **capture of CO_2** from fossil fuel combustion, industrial processes, biogenic emissions, or directly from the air.

· Where the captured CO_2 is not used directly on-site, it is **transported** and either **used** in industrial processes for construction products, synthetic fuels, plastics or other applications, **or permanently stored** in underground geological formations.

· Where permanent storage involves CO_2 captured from biogenic sources or directly from the air, it results in **carbon removals**.

Sources
Process emissions
Fossil fuel
Biogenic
Air

Capture
Industrial facility
Energy production facility
Direct air capture

Transport
Pipelines
Ships
Trucks
Trains

Utilisation
Input or feedstock for products
Fuels
Construction
Plastics
Other

Permanent storage
Underground geological formations
Onshore
Offshore

A European approach to industrial carbon management

In order to boost industrial carbon management, the Commission has put forward a strategy to address all parts of the CO_2 value chain – and move towards an **EU single market for carbon management**. The strategy aims to establish an EU-wide framework and approach to industrial carbon management, so that investment can be better coordinated at EU and national level.

MAIN ACTIONS AND TOOLS TO SET UP AN EU CO_2 VALUE CHAIN

Deploying CO_2 transport infrastructure

- Preparation of a **regulatory framework, market design** and **infrastructure planning mechanism**
- Establish **emissions accounting rules under the EU ETS** to enable transport of CO_2
- Minimum **standards for CO_2 streams** applicable to all industrial carbon management solutions
- Assessment of the potential to **reuse/repurpose existing infrastructure** for CO_2 transport and storage
- Nomination of **European coordinators** to support the early development of infrastructure

Boosting carbon capture and storage

- Dedicated voluntary **demand assessment and demand aggregation platform** for linking CO_2 transport and storage providers with emitters
- **Investment Atlas** of potential CO_2 storage sites
- Step-by-step **guidance for permitting processes** for CCS net-zero strategic projects
- Develop **sectoral roadmaps** using the knowledge-sharing Platform for industrial CCUS projects

Supporting carbon removals

- Assessment of overall **objectives in line with the 2040 climate ambition**
- Develop **policy options** for supporting industrial carbon removals
- Boost research and innovation through **Horizon Europe** and the **Innovation Fund**

Fostering carbon utilisation

- Boost **higher uptake of sustainable carbon** as a resource in industrial sectors
- Establish **rules for the accounting** of all industrial carbon management activities

To further promote **investment and funding**, the Commission will assess investment needs for carbon management for 2040 and 2050, as well as the maturity of relevant technologies for moving from project-based to market-based funding mechanisms. We will support the Member States in increasing **knowledge**, **awareness** and **public acceptance** among the local communities for these technologies.