ZEP Briefing – Industrial Carbon Management Strategy

Summary

The European Commission opened a public consultation in June 2023 to gather input ahead of an EU strategy dedicated to CCUS. The CCSA responded to this consultation. The European Commission published the strategy on 6 February 2024 together with a proposal for an EU climate target for 2040 (link to the strategy).

Key elements

Targets

- 50 million tonnes of CO2 per year captured in the EU by 2030;
- Approximately 280 million tonnes of CO2 per year would have to be captured in the EU by 2040;
- Up to 450 million tonnes of CO2 per year captured in the EU by 2050;
- By 2040, about half of the captured CO2 would have to come from biogenic sources or directly from the atmosphere;
- At least 250 million tonnes of CO2 per year stored geologically in the European Economic Area in 2040.

Costs and benefits

- The investment cost of transport infrastructure related to the Net Zero Industry Act 2030 objective would amount to between €6.2 and 9.2 billion by 2030 and would require approximately EUR 3 billion in investments in carbon storage facilities;
- Beyond 2030, it is estimated that the required investment needs in CO2 transport infrastructure would rise to between €9.3 and 23.1 billion in 2050, based on the objectives set out in the EU’s 2040 climate target communication;
- Theoretical EU market potential of 360 to 790 million tonnes of captured CO2 could lead to a total economic value between €45 billion and €100 billion, contributing to the creation of up to 170,000 net-zero jobs.
Three pathways
- Capturing CO2 for storage
- Removing CO2 from the atmosphere
- Capturing CO2 for utilisation

Transport infrastructure

The transport infrastructure, including ships, trains, and trucks (depending on the business case), is expected to be facilitated by EU-wide CO2 transport infrastructure interoperability rules – including minimum CO2 quality standards to ensure it can flow freely across the EU/EEA.

The Communication states that the latest PCI/PMI list includes “14 CO2 transport projects with an overall planned capacity up to 103 Mtpa of CO2 and a possibility to reach up to four onshore storage sites and eight or more offshore locations”.

The European Commission foresees to:
- From 2024, prepare a potential CO2 transport regulatory package to establish an EU-wide single market for CO2 (covering market and cost structure, cross-border integration and planning, technical harmonisation and investment incentives for new infrastructure, third-party access, competent regulatory authorities and tariff regulation for transport assets, as well as ownership models)
- From 2024, propose an EU-wide CO2 transport infrastructure planning mechanism in cooperation with Member States and the CCUS Forum.
- From 2024, consider nominating European coordinators to support the early development of (cross-border) infrastructure projects
• Adapt emissions accounting rules under the EU ETS to **recognise all modes of transport**
• Work with CEN and CENELEC to create **minimum standards for CO2 in transport and storage** infrastructure to be used in a network code and consider guidelines on “incidental associated substances”
• Assess if **re-use/repurposing of existing hydrocarbon transport infrastructure** for CO2 transport is possible
• Encourage Member States to establish **Important Projects of Common European Interest** for CO2 transport and storage infrastructure projects
• Promote through the International Maritime Organization the development of any necessary **guidelines on safe transportation of CO2 by sea**

**Demand management**

The European Commission foresees to:

• **By 2026**, establish an **EU CO2 aggregation platform** to support CO2 capture companies in procuring CO2 value chain services and matching supply and demand;
• **By 2025**, develop with Member States step-by-step **guidance for permitting processes for net-zero strategic projects for CO2 storage**;
• **By 2026**, establish an **EU-wide investment atlas of potential CO2 storage sites**; and
• Develop **guidelines for CO2 storage permitting balancing site-specific flexibility with investment predictability** to expedite the roll-out of CO2 storage (especially for the first 50 million tonnes of annual storage capacity by 2030).
• Use the **knowledge-sharing Platform** for industrial CCUS projects to develop together with industry sectoral roadmaps for industrial carbon management.

Member States should:

• Include in their national energy and climate plans (NECPs) their assessment of capture needs and storage capacity/options and identify actions to support the deployment of a CCS value chain;
• **By 2025**, ensure that they have **transparent processes in place for storage permit applicants** to engage with the competent authorities during the preparatory phase;
• From 2024, support the development and roll out of cooperative net-zero strategic projects under the NZIA to create full carbon capture, transport and storage value chains; and
• **By 2025 at the latest**, enable their **geological services to contribute existing data** and to generate new data to contribute to an EEA-wide investment atlas of potential CO2 storage sites.

**Carbon removals**

• **By 2050**, the EU could need carbon removals to balance out around **400 million tonnes CO2** equivalent of residual emissions in hard-to-abate sectors;
• Consider setting specific objectives for carbon removals, based on a net 2040 GHG emission reduction objective;
• Develop support mechanisms for industrial carbon removals, including if and how to account for them in the EU ETS; and
• Boost EU research, innovation and early-of-a-kind demonstration for novel industrial technologies to remove CO2 under Horizon Europe and the Innovation Fund.

CCU
• Identify and address existing structural challenges and regulatory barriers to the deployment of CCU technologies, by implementing a comprehensive framework for CCU;
• Use the knowledge-sharing Platform for industrial CCUS projects to co-develop with industries sector specific roadmaps on CCU activities;
• Draw up a coherent framework to account for all industrial carbon management activities that accurately reflect the climate benefits across their value chains, and to incentivise the deployment of innovative and sustainable permanent and non-permanent CCU applications, while removing barriers;
• Assess demand pull options, in concertation with industries, to increase the uptake of sustainable carbon as a resource in industrial sectors (in full consideration of the Commission’s upcoming Biotech and Biomanufacturing initiative);
• The EU ETS 2026 review will assess whether accounting system ensures that all emissions are accounted for and avoids double counting when CO2 captured is used in products that are not considered as permanent in an ETS context; and
• The 2026 review of the EU ETS will also assess the feasibility of including municipal waste incineration installations, and other waste management processes.

Investments and funding framework

CCS projects are expected to amount to a cumulative €10 billion by 2030 (with current funding shortfall), but a commercially viable market should continue beyond 2030 based on the ETS carbon price. Carbon Contracts for Difference (CCfD) are indicated as a viable alternative to create a market that does not rely entirely on direct subsidies.

The European Commission would:
• As of 2024, work with Member States to potentially launch important projects of common European interest for CO2 transport and storage infrastructure via the JEF-IPCEI;
• As of 2024, engage with the European Investment Bank on financing of CCS and CCU projects; and
• Facilitate investment needs in industrial carbon management up to 2040 and 2050.
• Launch a cross-border CO2 transport infrastructure call with EU countries using CEF funding to support Important Projects of Common European Interest (IPCEI) as well as projects of common interest (PCI) and projects of mutual interest (PMI);
- Evaluate the maturity of certain CO2 capture installations, such as those used in cement or lime production, to determine if they are ready to move from grant support to competitive bidding auctions under the Innovation Fund; and

Cross-border and international cooperation

The European Commission foresees to:

- Work towards accelerated international cooperation to promote harmonised reporting and accounting of industrial carbon management activities, to ensure they are accurately accounted for under the UNFCCC transparency framework.
- Work to ensure that internationally carbon pricing frameworks focus on the necessary emissions cuts while providing for carbon removals to tackle emissions in the hard-to-abate sectors.

In addition, the Strategy stipulates that any potential future recognition of CO2 storage sites in third countries without a linked ETS would depend on there being equivalent conditions to ensure permanently secure and environmentally safe geological storage of captured CO2, provided that the storage is not used to increase hydrocarbon recovery and that this leads to an overall reduction in emissions.

Public perception

The European Commission foresees to:

- Work with EU countries to ensure CO2 transport and storage projects can reward local communities hosting those projects; and
- Work with EU countries and industries to increase knowledge of CCUS.

R&I

The European Commission foresees to:

- Support a new knowledge-sharing platform for industrial CCUS projects.
- Continue to invest in R&I for all industrial carbon management technologies, including energy and cost efficiency optimisation of processes and pre-normative research to contribute to standardisation.