

Webinar



Best practices of CCUS infrastructure in Europe

20th September 2023





Moderator
Jaap Peterse
Senior Consultant
at Guidehouse

Agenda

11.00 – 11.05 Welcome and introduction from Gas for Climate chair

11.05 – 11.10 Introduction from DG ENER

11.10 – 11.20 CCUS technology specifics

11.20 – 11.45 Policies, gaps, and recommendations

11.45 – 12.00 Q&A

Webinar Rules



Do not raise your hand: raised hands will not be considered



Write your **questions** in the **Q&A box**



Your camera(s) and microphone(s) **will stay turned off**

Welcome from the Consortium

Gas for Climate was initiated in 2017 to analyse and create awareness about the role of renewable and low carbon gas in the future energy system. Gas for Climate is committed to achieve net zero greenhouse gas emissions in the EU by 2050.



Marie-Claire Aoun

Director of Prospective and
Institutional Relations
Teréga

Consortium members



Gas for Climate over the years





Speaker
Alexandre Dedo

Policy Officer
DG ENER



Speaker
Samantha Piller

Senior Consultant
at Guidehouse

Background and objective of study

Background:

- According to the IPCC, IEA, and EC, CCUS will play a pivotal role in achieving net zero emissions in the EU by 2050.
- CCUS project development in the EU is shaping up but there is a lack of a comprehensive regulatory framework.

Objective of study:

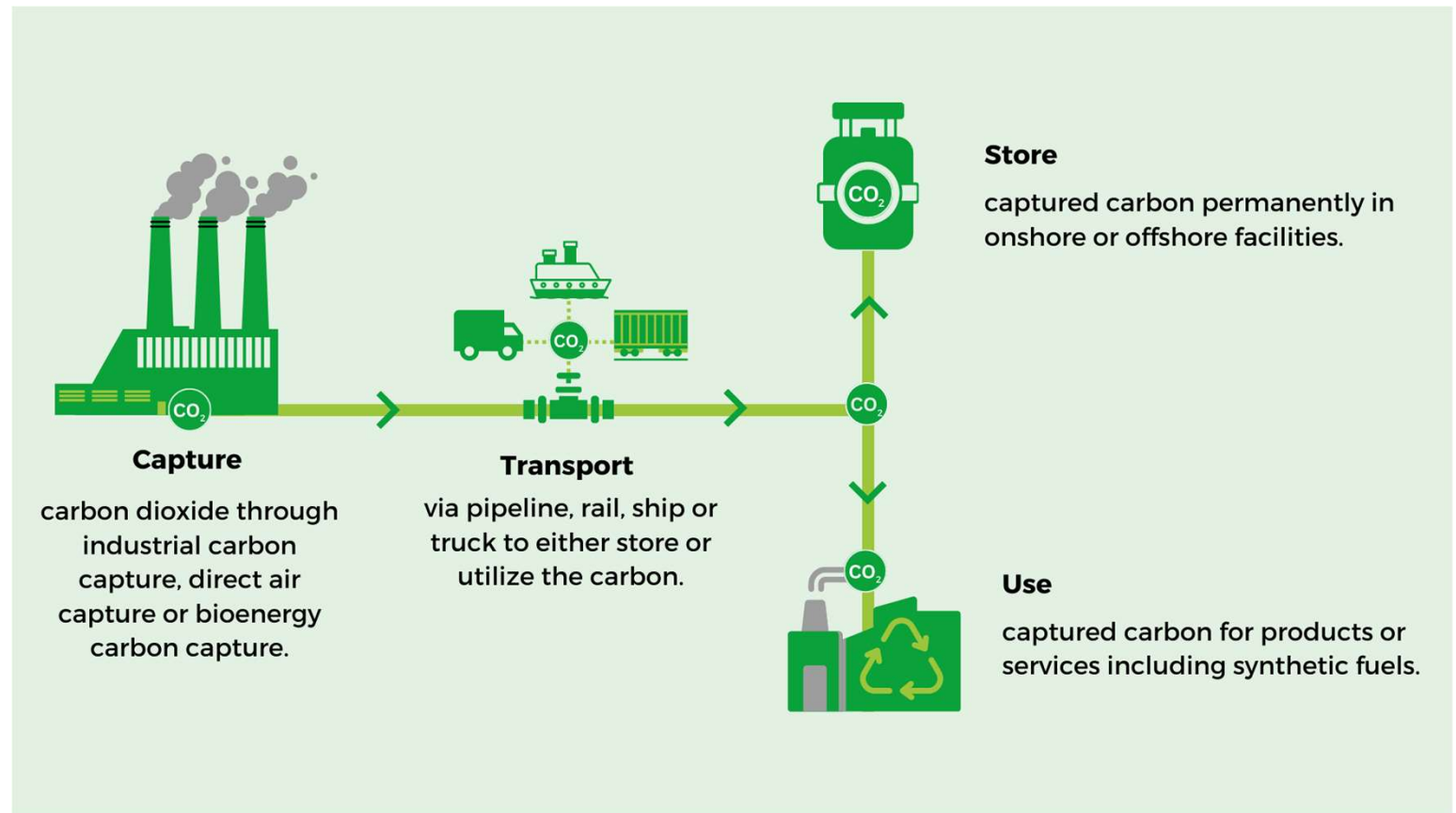
- The aim of the paper is to assess what the best practices are in terms of regulation, policy and market engagement to accelerate the deployment of CCUS infrastructure.



Webinar Agenda

- 1** CCUS technology specifics
- 2** Policies, gaps, and recommendations
- 3** Q&A

CO₂ Infrastructure




Selected CCUS Projects (non-exhaustive list)


Private parties including **TSOs are leading the way with advancing CCUS infrastructure**, however a regulatory framework is missing to accelerate the market.




- Aramis**

 - TSO(s): 
 - Open access CO₂ transport and storage
 - Start date: 2026

- German CO₂ Transport Infrastructure**

 - TSO(s): 
 - CO₂ starter grid to connect German industrial hubs to ports
 - Start date: 2028


- Grand Ouest CO₂**

 - TSO(s): 
 - Transport of industrial CO₂ via pipeline to Saint-Nazaire port for permanent storage
 - Start date: 2030


- Korskro Biogas Plant**

 - Biomethane plant with carbon capture
 - Start date: operational since 2019


- Belgian Open Access CO₂ Infrastructure**

 - TSO(s): 
 - Multiple CCS projects with offshore storage via port of Ghent and Antwerp
 - Start date: 2026

- Pycasso**

 - TSO(s): 
 - Full chain cross-border (France and Spain) CCUS project
 - Start date: 2030

- Ravenna CCS**

 - TSO(s): 
 - First application of the full CCS value chain in Italy
 - Start date: 2024

Key considerations during project development



Strong collaboration
between public and private stakeholders including industry partners and all levels of government



Local **community involvement**
through public consultations and disclosures



Highlight future projects in the **national CCUS strategies** or outline in national disclosure commitments



Funding support
from national and/or EU level



Speaker
Anirudh Sharma

Managing Consultant
at Guidehouse

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Key Considerations



CCUS infrastructure entails high upfront capital expenditure and risk currently



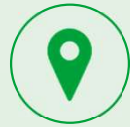
CCUS policy and support schemes should be developed with a value chain perspective



Network infrastructure should be developed with common standards and cross-border cooperation



Significant variation in CO₂ transport and storage costs across Europe



Highly dependent upon **proximity of storage sites** and **mode of transportation** from emitters

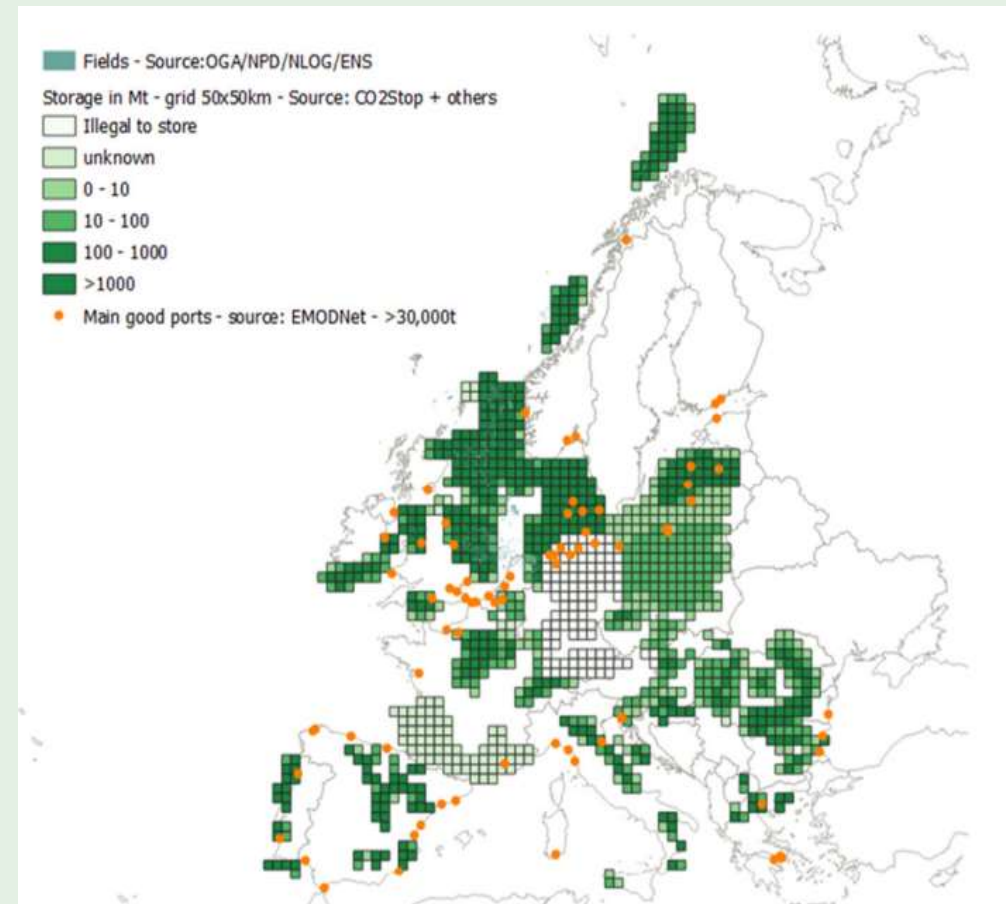


Solutions include **building new coordinated CO₂ pipelines** across Europe to reduce transport costs



Siloed and restricted buildout of transport and storage capacity solely within planned sites is likely to **result in high costs.**

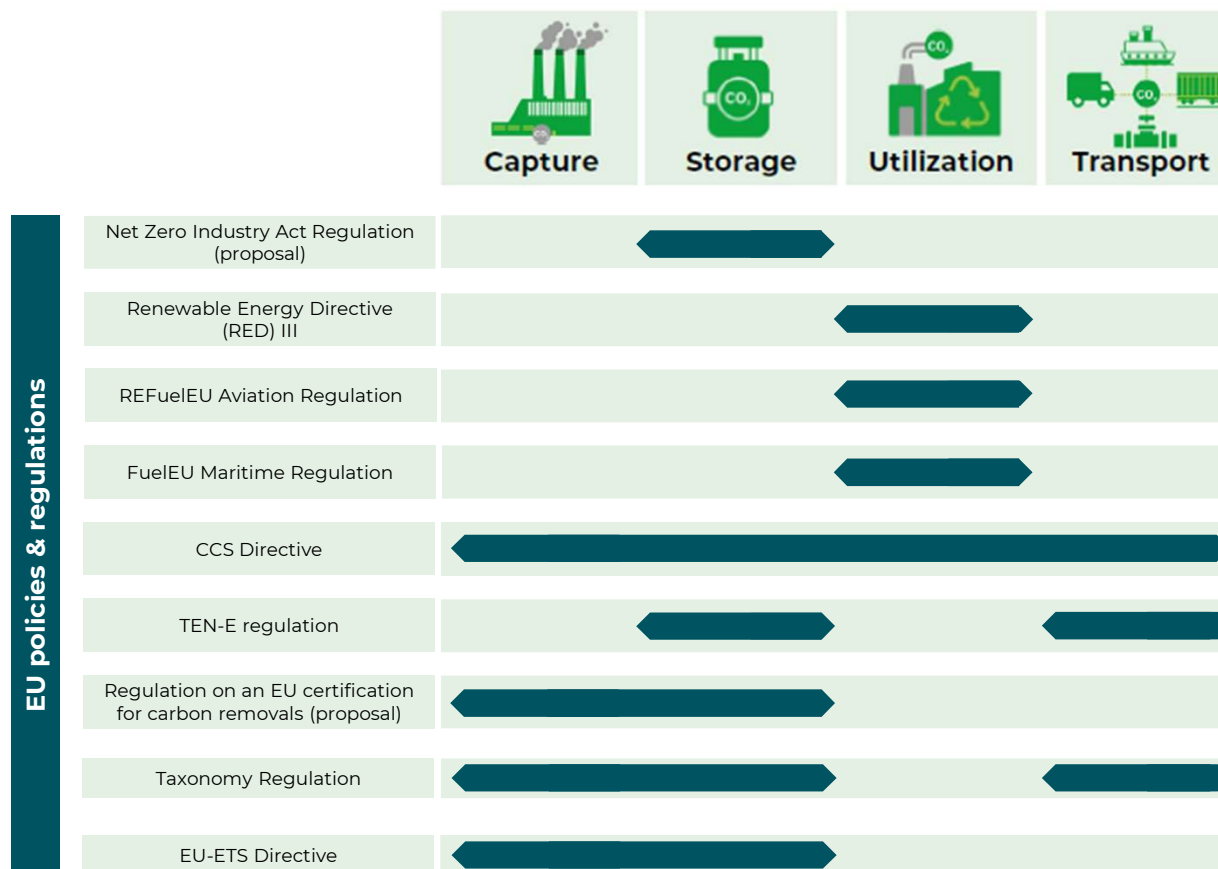
Potential CO₂ storage locations across Europe





CCUS value chain gaps:

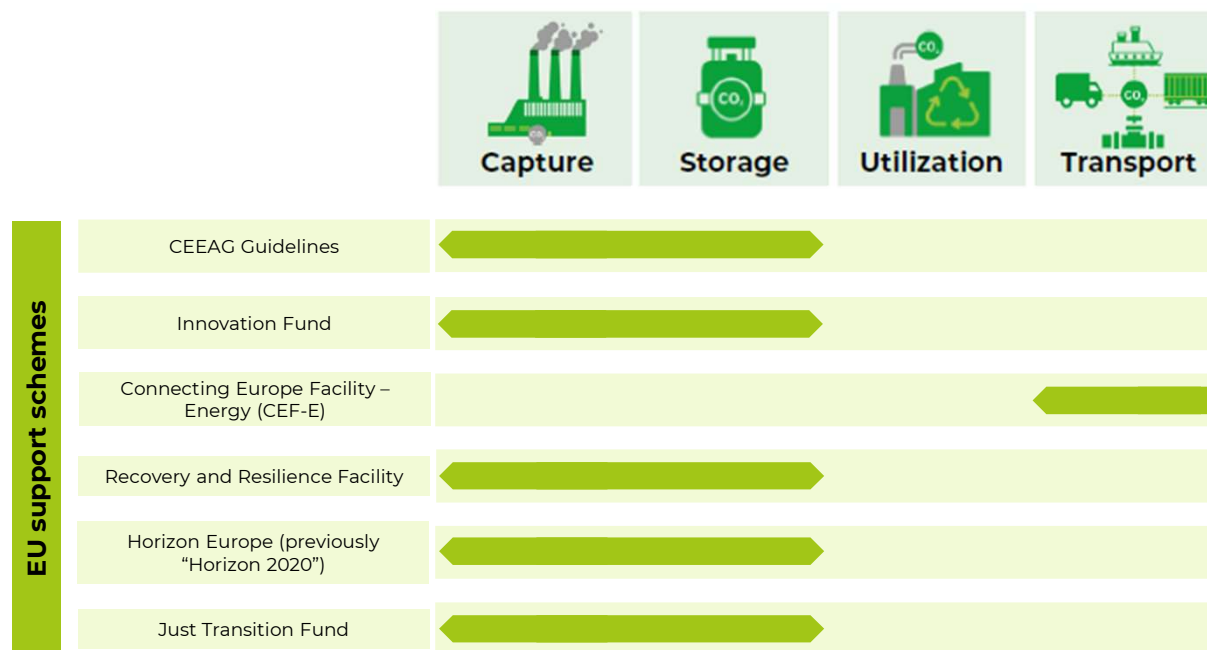
- 1 Regulatory framework for CCUS is fragmented with no rules on Third Party Access (TPA) and unbundling





CCUS value chain gaps:

- 2 Continued funding gaps along the CCUS value chain add significant risks and upfront costs to project developers



Policy recommendations for the CCUS value chain

Policy measures in the EU should address key aspects of CO₂ transport and storage infrastructure.



Ensure future CO₂ networks are **open access and non-discriminatory** to prevent inefficiencies and avoid decision-making based on individual business interests.

➔ **Task TSOs to develop, own, and operate open access and non-discriminatory networks.**



Comprehensive policy framework across **the CCUS value chain.**

➔ **Suitable regulatory framework for CO₂ transport and storage.**

➔ **Require MSs to declare planned role of CCUS in their national climate plans.**



Close cooperation with **other MSs and network operators of natural gas and hydrogen** to allow for synergistic planning to facilitate coordinated decision-making.

➔ **Common standards and cross-border cooperation on network planning.**

Recommendations for Support schemes for the CCUS value chain

Financial support schemes are required to de-risk capital-intensive investments and increase speed and scale of infrastructure buildout.



Predictable revenue streams for CCUS projects over the long term are key to **kick-starting and de-risking the market.**

➔ **Develop support schemes that cover the entire CCUS value chain.**



Negative emissions through biogenic CO2 capture and storage should be promoted to develop a robust market.

➔ **Consider defining specific incentives for biogenic CO2 to support carbon removal.**

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Thank you for your attendance!

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