

Public consultation on a legislative initiative for CO₂ markets and infrastructure

Fields marked with * are mandatory.

Introduction

The Communication on a 2040 climate target[1] and its impact assessment[2] demonstrate that, alongside the roll-out of renewable energy and achieving energy and material efficiency, industrial carbon management (ICM) is necessary to meet the European Union's climate objectives. With that in mind, the industrial carbon management strategy[3] (ICM strategy), adopted by the Commission in February 2024, sets out a comprehensive approach for the EU to scale up carbon management. The strategy identifies a set of actions to be taken, at EU and national level, to establish a single market for CO₂ and to create a more attractive environment for investments in industrial carbon management technologies.

Encompassing carbon capture, utilisation and storage (CCUS) and carbon removals, industrial carbon management can address remaining hard-to-abate CO₂ emissions, including process emissions from industry. Moreover, carbon capture and carbon removals are a prerequisite to retaining a decarbonised and competitive industrial base in the EU while achieving climate neutrality by 2050.

Industrial carbon management can be divided into three main components:

1. Capture of CO₂ for storage (CCS), where CO₂ emissions of fossil origin are captured for permanent and safe geological storage;
2. Capture of CO₂ for utilisation (CCU), where captured CO₂ is used in synthetic products, chemicals or fuels (e.g. synthetic fuels can be produced using hydrogen combined with CO₂, to be used in drop-in fuels and processes);
3. Removal of CO₂ from the atmosphere, where biogenic or atmospheric CO₂ is captured by technological means and permanently stored either geologically or in products.

Where CO₂ is not directly stored or used at the place of capture, it will need to be transported to a different location via pipeline, ship, truck, or rail for its permanent storage or utilisation. Transportation is therefore key for these three technologies, and is necessary to enable a fully-fledged EU CO₂ market.

Today, a limited number of ICM projects are being built and final investment decisions have only been taken for a few storage sites in the EU, including Greensand (CO₂ storage project in Denmark, 0.4 million tonnes of

CO₂ per year (Mtpa) in the initial phase) and Porthos (CO₂ storage project in the Netherlands, 2.5 Mtpa). From the first Union list of Projects of Common Interest and Projects of Mutual Interest, two CO₂ infrastructure projects are under construction[4]. However, the modelling of the 2040 climate target impact assessment indicates that the EU would need to capture 50 million Mtpa already by 2030, 280 Mtpa by 2040, and up to 450 Mtpa by 2050 to stay on track with its climate targets.

The EU already has legislation in place to support the deployment of industrial carbon management solutions.

The Directive on the geological storage of carbon dioxide[5] (CCS Directive) establishes a legal framework for the safe geological storage of CO₂, covering all geological formations across the EU and the European Economic Area in the lifetime of storage sites.

The Regulation on trans-European networks for Energy[6] (TEN-E) facilitates the building of cross-border CO₂ infrastructure recognised as Projects of Common Interest (PCIs) and Projects of Mutual Interest (PMIs). This is made possible through accelerated permitting procedures and financing under the Connecting Europe Facility. Given the critical role of grids for integrating affordable renewable energy and supporting electrification, the Commission has announced a European Grids Package whose key objective will be to help upgrade and expand energy networks and speed up permitting. To gather input, the Commission launched a public consultation in May 2025 on a call for evidence[7] and on a questionnaire[8], which also includes questions on CO₂ transport.

The Net Zero Industry Act (NZIA)[9] aims to establish an EU market for CO₂ storage services and sets a legally binding target of 50 million tonnes of annual CO₂ injection capacity in the EU by 2030. To create this part of the necessary CO₂ infrastructure, 44 EU oil and gas producers must contribute to developing these CO₂ storage sites. The NZIA also streamlines the permitting process for the projects that will need to be carried out to meet this objective. In addition, under the CCS Directive, Member States must take the necessary measures to ensure that potential users are able to obtain access to transport networks and to storage sites for the geological storage of the produced and captured CO₂[10].

The EU ETS Directive[11] incentivises the capture of CO₂ from fossil fuels and industrial processes by exempting permanently stored emissions from the requirement to surrender allowances. Under its review clause, the Commission must submit a report by July 2026 - and possibly propose legislation - on the integration of atmospheric CO₂ removals into the EU ETS, as well as on how to account for captured and utilised CO₂ in products. This initiative on EU ETS is subject to a separate public consultation[12].

Investments in the CO₂ value chain and funding (for research, innovation and deployment) are crucial to unlock the full potential of industrial carbon management. The EU ETS price is key to make CCS projects commercially viable, because EU ETS allowances are not required for CO₂ that is permanently stored. Several funding mechanisms are available for large-scale CCS projects (such as the EU ETS Innovation Fund, InvestEU and the Connecting Europe Facility)[13]. In addition, as stated in the ICM strategy, tariffs, new financing instruments, guarantees and risk instruments would need to be introduced to facilitate investments. The Clean Industrial Deal has highlighted the importance of lead markets for decarbonised end products, to

underpin the long-term business case for decarbonisation through the capturing of CO₂ emissions.

While the current legislative framework covers important parts of the CO₂ value chain and infrastructure, its primary aim is not to foster the development of an internal market for CO₂ and related infrastructure. However, substantial CO₂ transport infrastructure needs to be developed to move captured CO₂ to storage or utilisation sites[14].

Still today however, barriers to cross-border CO₂ transportation and market access continue to exist, both within the EU and with third countries. Also, CO₂ pipeline infrastructure is likely to have the characteristics of a natural monopoly whilst the market for CO₂ storage capacity and injection is one with significant entry barriers, which affect the emergence of a competitive value chain and trust in equitable market outcomes. Other barriers are connected to permitting CO₂ assets, the reuse or repurposing of existing assets for CO₂ and the means to effectively address investment risks, in particular at early stages of market development.

Moreover, investment risks are perceived as high due to a lack of confidence and regulatory certainty and predictability and coordination problems along the CO₂ value chain (i.e. lack of coordination between capture, transport infrastructure and storage projects)[15]. At the same time, there is a need to develop significant CO₂ transport infrastructure to move CO₂ from capture to storage or utilisation sites.

The ICM strategy has therefore identified the need to develop a regulatory framework supporting the emergence of an integrated and competitive market for CO₂ and CO₂ infrastructure. The political guidelines for the 2024-2029 Commission[16] reiterated the need to put forward a proposal for a regulatory package on CO₂ infrastructure and markets, while the Clean Industrial Deal communication[17] highlighted the need to implement the ICM strategy and reiterated the EU's long-standing objective to create a market for captured carbon.

This public consultation is part of a wider stakeholder consultation strategy aimed at informing the development of the impact assessment and the legislative proposal on CO₂ infrastructure and markets. The answers to this questionnaire will provide valuable evidence for the impact assessment, which will in turn feed into the preparation of the legislative initiative.

When developing the impact assessment and legislative proposal, the Commission will also take into account the outcome of previous consultations, including the consultation[18] carried out for the preparation of the ICM strategy, the grid package and the work developed under the ICM Forum[19].

In this questionnaire, the more general questions are set out in Chapter 1, while specific questions on technical and regulatory issues are set out in Chapters 2 to 5.

1. Commission communication: Securing our future Europe's 2040 climate target and path to climate neutrality by 2050 building a sustainable, just and prosperous society, 6 February 2024, [EUR-Lex - 52024DC0063 - EN - EUR-Lex](#).
2. Commission staff working document: Impact Assessment accompanying the document communication on 'Securing our future Europe's 2040 climate target and path to climate neutrality by 2050 building a sustainable, just and prosperous society', 6 February 2024, [EUR-Lex - 52024SC0063 - EN - EUR-Lex](#).

3. Commission communication: Towards an ambitious Industrial Carbon Management for the EU, 6 February 2024, (COM/2024/62), [EUR-Lex - 52024DC0062 - EN - EUR-Lex](#).

4. This includes the projects CO₂ TransPorts (CCS project between Rotterdam, Antwerp and North Sea Port areas) and Northern Lights (CO₂ storage on the Norwegian continental shelf with cross-border infrastructure connecting several European capture initiatives, among others in Belgium, Germany, Ireland, France and Sweden. These two projects are expected to begin operations in 2026 with a storage volume of up to 5 Mt /y CO₂.

5. Directive 2009/31/EC on the geological storage of carbon dioxide of 23 April 2009; [Directive - 2009/31 - EN - EUR-Lex](#).

6. Regulation (EU) 2022/869 on guidelines for trans-European energy infrastructure of 30 May 2022; [Regulation - 2022/869 - EN - EUR-Lex](#).

7. Call for Evidence: [European grid package](#).

8. Public consultation questionnaire: [European grid package](#).

9. Regulation (EU) 2024/1735 on establishing a framework of measures for strengthening Europe's net-zero technology products manufacturing ecosystem of 16 March 2023; [Regulation - 2024/1735 - EN - EUR-Lex](#).

10. Member States must ensure that users have access to CO₂ transport networks and storage sites for geological storage in accordance with Article 21 of Directive 2009/31/EC. To that end Member States must ensure that the operator refusing access on the grounds of lack of capacity, or a lack of connection makes any necessary enhancements as far as it is economical to do so or when a potential customer is willing to pay for them.

11. Directive 2003/87/EC.

12. [EU emissions trading system for maritime, aviation and stationary installations, and market stability reserve – review](#).

13. Commission Communication: Towards an ambitious Industrial Carbon Management for the EU, [EUR-Lex - 52024DC0062 - EN - EUR-Lex](#).

14. JRC study: [Shaping the future CO₂ transport network for Europe](#), 6 February 2024; an update of this study is expected in Q2 2025.

15. See also the Commissions' Call for Evidence [insert link when available]

16. [Political Guidelines 2024-2029 | European Commission](#).

17. The Clean Industrial Deal: A joint roadmap for competitiveness and decarbonisation, COM(2025) 85 final.

18. The public consultation ran between 8 June and 31 August 2023, [Industrial carbon management – carbon capture, utilisation and storage deployment](#); The results are available in the [Summary report of the results to the open public consultation - Publications Office of the EU](#).

19. The Industrial Carbon Management Forum (ICM Forum), named the CCUS Forum until 2023, was established in 2021 and meets annually since. It brings together representatives from the EU institutions, EU and non-EU countries, NGOs, business leaders and academia to facilitate the deployment of carbon capture and storage (CCS) and carbon capture and utilisation (CCU) technologies. The Forum also established different working groups focusing on particular issues of the ICM value chain. [ICM Forum and Working Groups](#)

About you

* Language of my contribution

- Bulgarian
- Croatian
- Czech
- Danish
- Dutch
- English
- Estonian

- Finnish
- French
- German
- Greek
- Hungarian
- Irish
- Italian
- Latvian
- Lithuanian
- Maltese
- Polish
- Portuguese
- Romanian
- Slovak
- Slovenian
- Spanish
- Swedish

*I am giving my contribution as

- Academic/research institution
- Business association
- Company/business
- Consumer organisation
- EU citizen
- Environmental organisation
- Non-EU citizen
- Non-governmental organisation (NGO)
- Public authority
- Trade union
- Other

*First name

George

*** Surname**

Wüstner

*** Email (this won't be published)**

george.wuestner@entsog.eu

*** Organisation name**

255 character(s) maximum

ENTSOG - European Network of Transmission System Operators for Gas

*** Organisation size**

- Micro (1 to 9 employees)
- Small (10 to 49 employees)
- Medium (50 to 249 employees)
- Large (250 or more)

Transparency register number

Check if your organisation is on the transparency register. It's a voluntary database for organisations seeking to influence EU decision-making.

565032821273-72

*** Country of origin**

Please add your country of origin, or that of your organisation.

This list does not represent the official position of the European institutions with regard to the legal status or policy of the entities mentioned. It is a harmonisation of often divergent lists and practices.

<input type="radio"/> Afghanistan	<input type="radio"/> Djibouti	<input type="radio"/> Libya	<input type="radio"/> Saint Martin
<input type="radio"/> Åland Islands	<input type="radio"/> Dominica	<input type="radio"/> Liechtenstein	<input type="radio"/> Saint Pierre and Miquelon
<input type="radio"/> Albania	<input type="radio"/> Dominican Republic	<input type="radio"/> Lithuania	<input type="radio"/> Saint Vincent and the Grenadines

● Algeria	● Ecuador	● Luxembourg	● Samoa
● American Samoa	● Egypt	● Macau	● San Marino
● Andorra	● El Salvador	● Madagascar	● São Tomé and Príncipe
● Angola	● Equatorial Guinea	● Malawi	● Saudi Arabia
● Anguilla	● Eritrea	● Malaysia	● Senegal
● Antarctica	● Estonia	● Maldives	● Serbia
● Antigua and Barbuda	● Eswatini	● Mali	● Seychelles
● Argentina	● Ethiopia	● Malta	● Sierra Leone
● Armenia	● Falkland Islands	● Marshall Islands	● Singapore
● Aruba	● Faroe Islands	● Martinique	● Sint Maarten
● Australia	● Fiji	● Mauritania	● Slovakia
● Austria	● Finland	● Mauritius	● Slovenia
● Azerbaijan	● France	● Mayotte	● Solomon Islands
● Bahamas	● French Guiana	● Mexico	● Somalia
● Bahrain	● French Polynesia	● Micronesia	● South Africa
● Bangladesh	● French Southern and Antarctic Lands	● Moldova	● South Georgia and the South Sandwich Islands
● Barbados	● Gabon	● Monaco	● South Korea
● Belarus	● Georgia	● Mongolia	● South Sudan
● Belgium	● Germany	● Montenegro	● Spain
● Belize	● Ghana	●Montserrat	● Sri Lanka
● Benin	● Gibraltar	● Morocco	● Sudan
● Bermuda	● Greece	● Mozambique	● Suriname
● Bhutan	● Greenland	● Myanmar/Burma	● Svalbard and Jan Mayen
● Bolivia	● Grenada	● Namibia	● Sweden
● Bonaire Saint Eustatius and Saba	● Guadeloupe	● Nauru	● Switzerland

● Bosnia and Herzegovina	● Guam	● Nepal	● Syria
● Botswana	● Guatemala	● Netherlands	● Taiwan
● Bouvet Island	● Guernsey	● New Caledonia	● Tajikistan
● Brazil	● Guinea	● New Zealand	● Tanzania
● British Indian Ocean Territory	● Guinea-Bissau	● Nicaragua	● Thailand
● British Virgin Islands	● Guyana	● Niger	● The Gambia
● Brunei	● Haiti	● Nigeria	● Timor-Leste
● Bulgaria	● Heard Island and McDonald Islands	● Niue	● Togo
● Burkina Faso	● Honduras	● Norfolk Island	● Tokelau
● Burundi	● Hong Kong	● Northern Mariana Islands	● Tonga
● Cambodia	● Hungary	● North Korea	● Trinidad and Tobago
● Cameroon	● Iceland	● North Macedonia	● Tunisia
● Canada	● India	● Norway	● Türkiye
● Cape Verde	● Indonesia	● Oman	● Turkmenistan
● Cayman Islands	● Iran	● Pakistan	● Turks and Caicos Islands
● Central African Republic	● Iraq	● Palau	● Tuvalu
● Chad	● Ireland	● Palestine	● Uganda
● Chile	● Isle of Man	● Panama	● Ukraine
● China	● Israel	● Papua New Guinea	● United Arab Emirates
● Christmas Island	● Italy	● Paraguay	● United Kingdom
● Clipperton	● Jamaica	● Peru	● United States

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<input type="radio"/> Colombia	<input type="radio"/> Jersey	<input type="radio"/> Pitcairn Islands	<input type="radio"/> Uruguay
<input type="radio"/> Comoros	<input type="radio"/> Jordan	<input type="radio"/> Poland	<input type="radio"/> US Virgin Islands
<input type="radio"/> Congo	<input type="radio"/> Kazakhstan	<input type="radio"/> Portugal	<input type="radio"/> Uzbekistan
<input type="radio"/> Cook Islands	<input type="radio"/> Kenya	<input type="radio"/> Puerto Rico	<input type="radio"/> Vanuatu
<input type="radio"/> Costa Rica	<input type="radio"/> Kiribati	<input type="radio"/> Qatar	<input type="radio"/> Vatican City
<input type="radio"/> Côte d'Ivoire	<input type="radio"/> Kosovo	<input type="radio"/> Réunion	<input type="radio"/> Venezuela
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<input type="radio"/> Cuba	<input type="radio"/> Kyrgyzstan	<input type="radio"/> Russia	<input type="radio"/> Wallis and Futuna
<input type="radio"/> Curaçao	<input type="radio"/> Laos	<input type="radio"/> Rwanda	<input type="radio"/> Western Sahara
<input type="radio"/> Cyprus	<input type="radio"/> Latvia	<input type="radio"/> Saint Barthélemy	<input type="radio"/> Yemen
<input type="radio"/> Czechia	<input type="radio"/> Lebanon	<input type="radio"/> Saint Helena	<input type="radio"/> Zambia
<input type="radio"/> Democratic Republic of the Congo	<input type="radio"/> Lesotho	<input type="radio"/> Ascension and Tristan da Cunha	
<input type="radio"/> Denmark	<input type="radio"/> Liberia	<input type="radio"/> Saint Kitts and Nevis	<input type="radio"/> Zimbabwe
		<input type="radio"/> Saint Lucia	

The Commission will publish all contributions to this public consultation. You can choose whether you would prefer to have your details published or to remain anonymous when your contribution is published. **For the purpose of transparency, the type of respondent (for example, 'business association, 'consumer association', 'EU citizen') country of origin, organisation name and size, and its transparency register number, are always published. Your e-mail address will never be published.** Opt in to select the privacy option that best suits you. Privacy options default based on the type of respondent selected

*Contribution publication privacy settings

The Commission will publish the responses to this public consultation. You can choose whether you would like your details to be made public or to remain anonymous.

Anonymous

Only organisation details are published: The type of respondent that you responded to this consultation as, the name of the organisation on whose behalf you reply as well as its transparency number, its size, its country of origin and your contribution will be published as received. Your name will not be published. Please do not include any personal data in the contribution itself if you want to remain anonymous.

Public

Organisation details and respondent details are published: The type of respondent that you responded to this consultation as, the name of the organisation on whose behalf you reply as well as its transparency number, its size, its country of origin and your contribution will be published. Your name will also be published.

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1/ General questions

Q1. The industrial carbon management value chain still has room to mature. A regulatory framework that is fit for purpose must take this into account. With that in mind, what regulatory model at EU level do you consider suitable to support the emergence of an integrated and competitive EU market for CO₂?

- No regulatory intervention is needed. Progress so far has been made without such market rules at EU level and competitive market outcomes are likely to emerge without intervention.
- A common approach is needed with an EU legislative framework setting out key regulatory principles (addressing barriers to cross-border trade, ensuring competitive market outcome and a level playing field, fostering infrastructure development, etc.).
- The rules should be developed in phases. Key regulatory principles can be set now at EU level, while more detailed EU-wide technical rules should be left until later, with individual Member States having the option to introduce such rules earlier if they consider it necessary.

- Detailed rules (with key regulatory principles and technical provisions) are needed at EU level from the start to prevent regulatory divergence between Member States and to create investment certainty.
- Next to market rules we need rules that support market development. Notably, the NZIA annual CO₂ injection capacity of at least 50 million tonnes of CO₂ by 2030 supports the emergence of an integrated and competitive EU market for CO₂ storage services. Such a target is an example to follow. A renewal of this Union-level objective should be considered in the context of the Commission assessment of the need for a new Union-wide injection capacity objective in June 2027 (Article 20 (3) NZIA).

Other(s) - Please specify what approach is needed and why.

500 character(s) maximum

Q2. The development of CO₂ markets seems highly likely. However, a significant amount of uncertainty remains. How should this uncertainty be taken into account when designing a regulatory framework that is fit for purpose?

- Clearly setting out key regulatory principles for infrastructures and market design will remove a significant amount of uncertainty, while flexible rules will not. Setting out clear rules at the outset is therefore better than allowing flexibility.
- Setting out key regulatory principles leaves enough flexibility for details to be fine-tuned later or at Member State level. No additional specific provisions need to be set out to enable the main regulatory principles to be applied in a flexible way during the ramp-up phase. The CO₂-related provisions in the NZIA Regulation are sufficient as a ramp-up phase regulatory regime.
- Only the main regulatory principles are needed. However, sufficient flexibility needs to be built into these main principles, e.g. by allowing temporary exemptions/derogations befitting the value chain's ramp-up phase.

Other(s) - Please specify.

500 character(s) maximum

If you consider allowing temporary exemptions/derogations from the main regulatory principles to be an important element, please specify which principles exemptions /derogation are useful and why.

500 character(s) maximum

There is merit in applying a TPA approach from the outset to CO₂ grid investments, with possible exemptions for existing networks, projects with an adopted FID (i.e., made before the Directive and Regulation enter into force), and direct lines, granted by NRAs case-by-case. Specific infrastructure may also be exempted where appropriate, following procedures used for gas interconnectors and LNG terminals.

Carbon capture and storage (CCS) is often seen as a solution for industries where emissions are economically or technically hard-to-abate. However, technological change may affect what decarbonisation option is most effective in a given industrial application. Also, Member States have different starting positions and decarbonisation pathways. Some flexibility, such as on the applications where CCS is applied, may therefore have benefits. At the same time, the risk of continued fossil fuel use must be avoided.

Q3. With this in mind, what should be the focus of an EU market regulatory framework?

- Ⓐ EU market rules should clearly state that CCS is only to be used in hard-to-abate sectors. The risk of distortion due to technological bias is less serious than the risk that CCS is used in applications that result in the continued use of fossil fuels.
- Ⓑ Legislation should support decarbonisation but be technologically neutral. This would avoid market distortions and additional costs due to technological bias in the regulatory framework. Decisions on the decarbonisation option to be used in a given application or industry should be left to the market.
- Ⓒ Market legislation at EU level should be technologically neutral. Other EU or national instruments (like subsidy schemes) are more suitable to steer the industries and applications in which CCS is deployed.

Other(s) - Please specify what approach is needed and why.

500 character(s) maximum

Q4. The industrial carbon management strategy and the 2024 impact assessment picture a future where CO₂ is not only permanently stored but also one where CO₂ is captured (such as through bioenergy with carbon capture and storage (BECCS) and

direct air capture (DAC)) and used in synthetic products, chemicals or fuels, especially after 2040. What impact should this have on market design?

- Market design should already take full account of storage and reuse of CO₂ as well as the streams by BECCS and DAC, which have different requirements.
- Minimal impact. The main market design principles are not fundamentally different for permanent storage and reuse of CO₂ anyway.
- CO₂ capture for permanent storage will be the main driver of the value chain for a significant period of time. Therefore, we should focus on this and pay particular attention to storage-related issues, such as access conditions.
- I don't have an opinion.

Other(s) - Please specify.

500 character(s) maximum

Q5. Laying down rules can create legal certainty and regulatory predictability. However, laying down rules too early can be risky for a still-developing value chain. How important would it be to set out the following regulatory principles early on in order to support the development of a dedicated CO₂ network and market framework? Please indicate your position for each regulatory principle.

Regulatory principles	Very important	Important	Neutral	Not very important	Not important	No opinion
Coordinated planning of the CO ₂ transport infrastructure.	<input checked="" type="radio"/>	<input type="radio"/>				
Providing regulatory certainty for existing CO ₂ projects.	<input checked="" type="radio"/>	<input type="radio"/>				
Enabling the use of existing energy infrastructure for the transport of CO ₂ .	<input checked="" type="radio"/>	<input type="radio"/>				
Streamlining the permitting framework.	<input checked="" type="radio"/>	<input type="radio"/>				
Removing legal barriers to cross-border CO ₂ transport and trade.	<input checked="" type="radio"/>	<input type="radio"/>				
Clear rules for CO ₂ interconnections with non-EU (EEA) countries.	<input checked="" type="radio"/>	<input type="radio"/>				
Ensuring clear responsibility for CO ₂ leakage in parts of the CO ₂ value chain.	<input checked="" type="radio"/>	<input type="radio"/>				
Creating cross-border interoperability to enable the unhindered flow of CO ₂ across borders and between modes of transport.	<input checked="" type="radio"/>	<input type="radio"/>				
Ensuring non-discriminatory and transparent access to CO ₂ networks.	<input checked="" type="radio"/>	<input type="radio"/>				
Ensuring non-discriminatory and transparent access to CO ₂ storage.	<input checked="" type="radio"/>	<input type="radio"/>				
Avoiding conflicts of interest in the CO ₂ market.	<input checked="" type="radio"/>	<input type="radio"/>				
De-risking investments in the CO ₂ transport infrastructure.	<input checked="" type="radio"/>	<input type="radio"/>				
Increasing market transparency and visibility in the CO ₂ value chain.	<input checked="" type="radio"/>	<input type="radio"/>				

Other(s) - Please specify.

500 character(s) maximum

The rules must take into account the specificities of the CO₂ market and should not simply mirror existing legislation.

2/ Providing regulatory certainty and investor confidence to develop the necessary CO₂ infrastructure

Coordinated CO₂ infrastructure planning

Almost all Member States include the capturing of CO₂ in their decarbonisation policies. However, not all have the possibility to store CO₂ on their territory due to regulations that prohibit CO₂ storage or due to insufficient CO₂ storage capacity. The transportation of CO₂ over longer distances, including the cross-border transportation of CO₂, is therefore expected to play an important role in the decarbonisation of the EU's hard-to-abate sectors. Currently, CO₂ can be transported via pipelines as well as via modes of transport not involving pipelines, including shipping, rail and road transport.

In this section of the questionnaire, CO₂ 'transport infrastructure' means the network of CO₂ pipelines as defined in the NZIA, i.e. including associated booster stations, for the transport of CO₂ to the storage site, as well as any ships, road or rail modes of transport, including liquefaction devices and temporary storage facilities, if needed, for the transport of CO₂ to the harbour facilities and storage site, while CO₂ 'pipeline network' is limited to the transport of CO₂ via pipelines.

Q6. How do you see the current and future role of CO₂ transportation modes? Please indicate whether and to what extent you agree with the following statements. Please indicate your position for each statement.

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	No opinion
CO ₂ transportation by truck, train, ship or pipeline will continue to exist side-by-side in the foreseeable future.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The higher the volume of CO ₂ to be transported and the longer the distance, the more cost effective will be CO ₂ transportation by pipeline.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Non-pipeline-based transportation modes are only important in the ramp-up phase as they provide flexibility and timely availability.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The closest substitute for CO ₂ transportation by pipelines is maritime shipping of CO ₂ (where waterways are available).	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
As they can more readily be used in other applications and locations, investments in non-pipeline-based CO ₂ transportation modes are inherently less risky as an investment and will be rolled out more easily.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>

Other – Please explain.

500 character(s) maximum

CO₂ transport infrastructure will be needed, both within the EU and with third countries. However, there may be barriers that slow down or prevent such CO₂ transport infrastructure from being developed. Furthermore, some of the facilitating measures in NZIA, such as Article 22 on CO₂ infrastructure, will cease to exist once the objective of 50 Mt objective by 2030 is met.

Q7. What do you consider to be the main barriers to the development of a CO₂ transport infrastructure, both within the EU and with third countries? Please indicate your position for each potential barrier.

Potential barriers	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	No opinion
Lack of investor confidence along the CO ₂ value chain.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of regulatory certainty for infrastructure developers.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of coordination along the CO ₂ value chain and across Member States.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Lack of visibility of CO ₂ capture volumes and of storage capacity availability.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of coordinated CO ₂ infrastructure planning at national level, i.e. within a Member State.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of coordination of infrastructure plans between neighbouring Member States.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of coordination of CO ₂ infrastructure planning along infrastructure corridors (i.e. CO ₂ infrastructure over longer distances, crossing several Member States, with destinations including offshore locations).	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of coordinated and transparent EU-level infrastructure planning.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other(s) – Please specify.

500 character(s) maximum

To date, CO₂ infrastructure projects have been developed in isolation. A harmonised EU-wide coordination and national planning framework can address fragmentation and regulatory challenges, particularly for cross-border initiatives. ENTSOG, as trusted technical adviser, is well placed to support coordination, leveraging its expertise and experience gained while developing natural gas infrastructure and market functioning, as well as creating European Hydrogen infrastructure in the EU.

Under the TEN-E Regulation, CO₂ infrastructure can be assigned the status of Project of Common Interest or Project of Mutual Interest under certain conditions, and can benefit from accelerated permitting procedures and co-funding under the Connecting Europe Facility (for studies and works). However, the TEN-E Regulation does not provide a regulatory tool for the planning of cross-border and/or national CO₂ infrastructure. Currently, there are no CO₂ infrastructure planning measures in EU legislation.

Q8. Current network planning tools for electricity, gas and hydrogen (national network plans, EU-level 10-year network development plans) focus on the planning of pipeline networks. In your view, how should the planning of CO₂ transport infrastructure take into account non-pipeline modes of transport?

- The planning tool for CO₂ transport infrastructure should cover both pipeline and non-pipeline infrastructure.

- The availability of alternative modes of transport should be taken into account when considering the need for pipeline infrastructure. However, there is no need to actually plan non-pipeline CO₂ modes of transport, as the market will take care of that.
- Not at all.

Other – Please explain.

500 character(s) maximum

Planning tools must reflect transport capacity, distance, repurposing possibilities where applicable, and regulatory feasibility to ensure cost-effective, interoperable CO₂ networks. Off-grid measures can also be considered in scenario work to enhance planning flexibility and resilience. Non-pipeline transport modes can be intended as element complementary to transmission infrastructure. They should be taken into account (not for planning them, but to improve transport infrastructure planning).

Q9. What is your position on CO₂ pipeline network planning? Please indicate whether and to what extent you agree with the following statements.

Statements	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	No opinion
CO ₂ pipeline network planning coordinated at EU level provides visibility on CO ₂ pipeline needs.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CO ₂ pipeline network planning coordinated at EU level provides visibility on CO ₂ pipeline availability for CO ₂ emitters and storage operators.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CO ₂ pipeline network planning coordinated at EU level can help mitigate the coordination risk in the CO ₂ value chain.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CO ₂ pipeline network planning coordinated at EU level can help speed up the development of CO ₂ pipelines.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CO ₂ pipeline network planning coordinated at EU level is absolutely necessary for developing the CO ₂ infrastructure needed CO ₂ .	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

CO ₂ pipeline network planning coordinated at EU level should be based on national CO ₂ pipeline planning.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CO ₂ pipeline network planning coordinated at EU level should make use of information already available under existing EU legislation (e.g. EU ETS Directive, CCS Directive, NZIA)[20].	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CO ₂ pipeline network planning coordinated at EU level should guarantee that infrastructure included in the plans is built.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other(s) – Please explain.

500 character(s) maximum

Q10. Which of the below CO₂ pipeline network planning measures do you think would be needed to enable the necessary CO₂ transport infrastructure to be planned and developed in a timely and cost-efficient way? Please indicate your view for each planning tool.

Planning tools	Needed	May be needed	Not needed	No opinion
Planning by each infrastructure operator	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
National network plans	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Coordinated national and EU-level network plans	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Coordinated EU-level network plan	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other(s) – Please specify.

500 character(s) maximum

Operator-level planning ensures technical feasibility. National plans reflect local needs and emitters siting and potential. Coordinated national-EU plans enable alignment and cross-border synergies. Strategic coherence, cost-efficient solutions, transparency, and infrastructure readiness across Member States will be supported while cooperation and planning at EU-level.

Recent legislation (i.e. the Hydrogen and Gas Market Decarbonisation Package) reinforced the system integration approach by strengthening integrated network planning provisions for the electricity, hydrogen and gas sectors. At EU level, the 10-year network development plans for electricity, hydrogen and gas have to be developed by ENTSO-E, ENTSOG and ENNOH (i.e. the associations representing electricity and gas transmission system operators and hydrogen transmission network operators) working in close cooperation. National network development plans will also be based on joint scenarios across the three sectors. These joint scenarios aim to limit the costs of infrastructure development and increase the overall efficiency of the energy system by identifying the most suitable solutions across the sectors.

The use of CCUS technologies is closely linked to the energy sector, for example in terms of (i) the high electricity demand of CO₂ capture and purification technologies, (ii) the release of cold energy in liquefied natural gas (LNG) terminals during the regasification process which can be used for CO₂ liquefaction, (iii) low-carbon hydrogen production as a demand factor for CO₂ capture, transport and storage, and (iv) the potential for reusing energy infrastructure that is no longer needed for the transport of CO₂.

Q11. In your view, what are the trade-offs between CO₂ and other networks, and what are the possible benefits of integrated network planning? Please indicate your view for each statement.

Statements	There are positive trade-offs and benefits	There are no positive trade-offs and benefits	I don't have an opinion
Linking the planning of the electricity network with the planning of CO ₂ assets (i.e. electricity consumption of capture and liquefaction technologies).	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Linking the planning of the gas network with the planning of CO ₂ assets (i.e. potential for reusing gas infrastructure that is no longer needed for the transport of CO ₂).	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Linking the planning of the hydrogen network with the planning of CO ₂ assets (i.e. for the capture of CO ₂ emitted in the process of producing low-carbon hydrogen).	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Linking the planning of the electricity, gas and hydrogen network with the planning of CO ₂ assets, i.e. applying a full system integration approach.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other(s) – Please specify.

500 character(s) maximum

Holistic planning across gas, electricity, hydrogen, heating and CO₂ networks enables cost-effective infrastructure development, supports repurposing of assets, anticipates electricity demand for capture /liquefaction, and aligns hydrogen production with CO₂ transport needs. Energy system integration accelerates decarbonisation, supports EU climate targets, and strengthens industrial competitiveness.

Regulatory predictability for existing projects

Q12. While still in its infancy, the CCUS value chain is beginning to develop, and investment decisions have been and are likely to continue to be taken before any new rules have been adopted on CO₂ pipeline and storage projects. How do you think such cases should be treated?

- To protect investments, all pre-existing CO₂ pipelines and storage sites should be exempted from any new EU rules.
- Operators of pre-existing CO₂ pipelines and storage sites that have been exempted from new EU rules can choose to 'opt-in' to an existing regulated system (i.e. apply the new rules).
- Pre-existing CO₂ pipelines and storage sites can be exempted from certain regulatory requirements. However, this exemption will expire by a certain date or the occurrence of a pre-defined event (e.g. once initial contracts expire, once assets become (part of) a larger, interconnected system, an assessment by regulatory authorities on pre-defined criteria, ,...).
- Pre-existing infrastructure should not be given any special treatment. The main regulatory principles should apply to all CO₂ pipelines and storage sites as soon as they are introduced. Having uniform market rules and avoiding regulatory barriers is the most important thing.
- I don't have an opinion.

Other(s) – Please specify.

500 character(s) maximum

The expiration date for exemptions needs to reflect the need for first movers risks and sufficient remuneration.

Removing barriers to infrastructure development

Enabling the reuse of existing energy pipeline infrastructure for the transport of CO₂

Q13. Reusing existing energy infrastructure that is no longer needed (e.g. oil and natural gas pipelines and oil and gas rigs) is considered by some as a solution for developing the necessary CO₂ infrastructure. Would you agree?

- Yes, reusing existing energy pipelines and other energy infrastructure (like oil and gas rigs) can play a crucial role in the transportation of CO₂.
- Yes, reusing existing energy pipelines can play a role, albeit a limited one.
- No, reusing existing energy pipelines cannot play a role in developing the necessary CO₂ pipeline network.
- I don't have an opinion.

What specific benefits would you expect reusing existing energy pipeline infrastructure (i.e. repurposing) to bring to the transportation of CO₂? Please indicate your view for each potential benefit.

Potential benefit	Yes, I expect this as a benefit of repurposing	No, this is not a benefit of repurposing	I don't have an opinion
Cost saving, due to the lower cost of reusing existing infrastructure, as compared to newly built infrastructure.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Time saving, i.e. shorter time needed to make existing infrastructure technically ready for the transport of CO ₂ compared to the time needed to build new infrastructure.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Accelerated administrative processes.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other(s) – Please specify.

500 character(s) maximum

Potential repurposing of infrastructure must respect obligations under Regulation (EU) 2017/1938 on safeguarding gas supply and repealing Regulation (EU) No 994/2010. Principles can mirror those by ENTSOG and ENNOH for H2, verifying national and EU context to ensure optimal, technically feasible solutions. Joint and coordinated planning among stakeholders is crucial and can create synergies across the energy system.

If you expect cost savings, can you provide an estimate of those savings?

500 character(s) maximum

In order to repurpose the existing natural gas pipeline infrastructure for CO₂ transport, it is necessary to clarify whether rights of land use, private easements as well as (other) public permits that have been granted for the

construction and operation of natural gas pipelines will remain valid once the pipeline ceases to transport natural gas and starts transporting CO₂.

Q14. In your view, are there any barriers to the repurposing of existing energy pipeline infrastructure for the transport of CO₂ today? Please indicate whether or not you agree that the following factors constitute a potential barrier.

Types of potential barrier	Yes, this constitutes a barrier	No, this does not constitute a barrier	I don't have an opinion
Legal factors (e.g. existing national or EU legislation).	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regulatory barriers to reusing existing permits and rights.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The technical characteristics of existing pipelines make them unsuitable for being repurposed to transport CO ₂ .	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
It is financially more attractive to continue using existing pipelines for natural gas (or other energy carriers).	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
No potential for scalability, i.e. it would be difficult to adapt the technical characteristics of the pipelines to make them suitable for transporting a higher volume of CO ₂ (e.g. in dense phase vs gaseous phase).	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other(s) – Please specify.

500 character(s) maximum

CO₂ can be transported as gas, supercritical fluid, or liquid, each with specific quality requirements. The choice depends on distance, purification options, regulations, and asset reuse potential. If feasible, an economic analysis should compare building new (dense) infrastructure vs. repurposing existing assets (possibly gaseous phase), considering capacity, distance, and context to optimize cost and system efficiency.

Q15. In your view, can energy infrastructure assets other than pipelines (e.g. terminals) be reused for the transport of CO₂?

- Yes
- No
- I don't have an opinion

Please specify which energy infrastructure assets (other than pipelines) could be reused for transporting CO₂.

500 character(s) maximum

LNG terminals can be converted into multi-molecule facilities, creating synergies between LNG regasification and CO₂ liquefaction through shared infrastructure.

Permitting for CO₂ transport infrastructure

Q16. The TEN-E Regulation ((EU) 2022/869), the NZIA ((EU) 2024/1735) and the Environmental Impact Assessment Directive (2011/92/EU and 2014/52/EU) include provisions for the permitting of CO₂ transport infrastructure. Moreover, the EU ETS Directive includes provisions for the permitting of the activity of CO₂ transport for storage. To what extent do you agree that these pieces of legislation set out an effective, coherent and durable framework to enable permitting and land use access for CO₂ transport infrastructure?

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree
- I don't have an opinion

Q17. Do you think that the effectiveness, coherence and durability of the permitting procedures for CO₂ transport infrastructure can be improved? Please indicate whether and to what extent you agree with the following statements. Please indicate your position for each statement.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	No opinion
Permitting procedures should be fully digitalised.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There should be a basic permitting framework that applies under all circumstances e.g. for projects that do not want to apply for or isn't able to qualify for status as net-zero strategic project or PCI/PMI.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The basic permitting framework should be permanent and without an expiry date, i.e. not linked to a specific time limited target like the	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

NZIA 2030 storage injection capacity.						
There should be a single point of contact to assist and guide applicants through the permitting procedure for CO ₂ transport infrastructure projects.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The entire permitting procedure should have a maximum duration specified in EU legislation.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Member State authorities should be required to ensure adequate resources to deal with the permitting of installations and transport capacities that have been specified in the national energy and climate plans or in their reports under Art. 21 of NZIA.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The repurposing of energy infrastructure to CO ₂ transport through the associated technical adaptations should have a simpler and shorter permitting process than for newly built infrastructure.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The availability and sharing of environmental and geological data, and any other technical data necessary for the permitting process, should be ensured.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other(s) – Please specify.

500 character(s) maximum

Regarding the maximum duration of the entire permitting procedure, to which extent do you agree with the following statements? Please indicate your position for each statement.

The entire permitting procedure should have a maximum duration specified in EU legislation:	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	No opinion

In addition, this maximum duration should be shorter than current practice.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In addition, maximum duration should be established for intermediate steps of the permitting procedure (e.g. max duration for acknowledging complete application, max duration for requesting additional information).	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q18. Regarding the single point of contact mentioned in Q17 that assist and guide the applicants for the permitting of CO₂ transport infrastructure projects, to which extent do you agree with the following statements? Please indicate your position for each statement.

Statements	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	No opinion
The single point of contact for CO ₂ transport infrastructure should as well be responsible for CO ₂ capture infrastructure.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The single point of contact for CO ₂ transport infrastructure should as well be responsible for conditioning facilities.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The single point of contact for CO ₂ transport infrastructure should as well be responsible for temporary or intermediate storage.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The single point of contact for CO ₂ transport infrastructure should as well be responsible for permanent storage.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The permitting process typically involves multiple competent authorities (in charge of e.g. species protection, safety, transport, emissions, buildings).

Q19. Which model of cooperation and coordination would you prefer for CO₂ transport infrastructure permitting, considering that the 'single point of contact' mode can deal with more complex integrated projects than a 'one-stop shop' model.

- 'Single point of contact': one entity is in charge of guiding the applicant through the process. The permitting process may entail several independent decisions, each of which are subject to different time constraints.
- 'Coordinated single point of contact': one entity is in charge of guiding the applicant through the process and helping them comply with the different time constraints. The permitting process may entail several independent decisions from different authorities.
- 'One-stop shop': one entity is in charge of the entire scope of the application and takes a consolidated decision based on input from the relevant authorities.
- I don't have an opinion

Other(s) – Please specify.

500 character(s) maximum

From the applicant's perspective, this represents the preferred approach for implementation. Nevertheless, national constraints must be taken into account, and in such cases, establishing a coordinated single point of contact should be considered.

3/ Removing barriers to the cross-border transportation of CO₂

Barriers and legal uncertainty originating from international treaties

EU Member States, along with neighbouring countries, have entered into several international treaties aimed at protecting the marine environment, which may affect the cross-border transport of CO₂ for offshore geological storage. For the Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter ('London Protocol'), EEA countries rely on the EU legal framework as a relevant 'arrangement' which already allows any operator of CO₂ transport networks and/or CO₂ storage sites to fully benefit from EU rules when importing or exporting captured CO₂ within the EEA. For other conventions including the Convention on the Protection of the Marine Environment of the Baltic Sea Area (Helsinki Convention, 'HELCOM'), the Convention for the Protection of the Marine Environment of the North-East Atlantic ('OSPAR Convention'), the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean ('Barcelona Convention') and the Convention on the Protection of the Black Sea Against Pollution ('Bucharest Convention'), the concern about providing legal certainty for the cross-border export and import of CO₂ is currently under discussion.

In addition, cross-border industrial carbon management activities also need to be reported in greenhouse gas (GHG) inventories under the United Nations Framework Convention on Climate Change (UNFCCC). Particular attention should be given to international value chains where the CO₂ is captured, transported, stored or used

in different countries. The Intergovernmental Panel on Climate Change (IPCC) will play an essential role in providing clear guidelines and methodologies to properly report all type of CCS, CCU and industrial carbon removal operations in the UNFCCC GHG inventories.

Q20. Do you think that certain international treaties represent a restriction to the cross-border transport of CO₂ within the EU (and EEA)? Please indicate whether and to what extent the below treaties represent a restriction.

	Represents a significant restriction	Represents a moderate restriction	Does not represent a restriction	I don't have an opinion
London Protocol	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
HELCOM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
OSPAR Convention	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Barcelona Convention	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Bucharest Convention	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
GHG reporting under the United Nations Framework Convention on Climate Change (UNFCCC)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Other(s) - Please specify.

500 character(s) maximum

Q21. If you indicated in the previous question that at least one international treaty represents a restriction for cross-border CO₂ transport within the EU, please specify the nature of the restriction for each treaty.

	Clear legal barriers arising from explicit restrictions on the cross-border transport of CO ₂ for	Clear legal barriers arising from the inaction of individual parties to the treaties (The inaction of the individual parties to the treaties may include the non-ratification of an	Legal uncertainty due to divergent interpretation of the treaties (including interpreting the geological storage of CO ₂ under the seabed	Legal uncertainties due to the inaction of parties to the treaties	I don't have an opinion

	offshore geological storage	amendment or the non-compliance with a Resolution.)	as dumping of waste into the sea)		
London Protocol	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
HELCOM	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
OSPAR Convention	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Barcelona Convention	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Bucharest Convention	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
GHG reporting under the United Nations Framework Convention on Climate Change (UNFCCC)	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

Other(s) - Please specify.

500 character(s) maximum

Some EU Member States lack suitable geological formations for permanent CO2 storage, making cross-border transport, potentially to non-EEA countries, essential for achieving EU-wide decarbonisation goals. To enable this, the revision of Article 6 of the London protocol will be key to addressing regulatory barriers currently restricting transboundary CO2 transport for offshore storage purposes.

Q22. In your opinion, what appropriate measures could be taken at EU level to address potential legal uncertainties and restrictions arising from international treaties, in order to facilitate cross-border CO₂ transport for permanent geological storage purposes? Please indicate your view, if any, for each treaty.

	EU regulatory intervention, in particular the adoption of a legal framework for CO ₂ transport	Publication of European guidelines for Member States	Establishment of EU-led agreements with third countries	Encourage Member States to take action, including drawing up bilateral agreements between parties to the relevant international treaties	No EU intervention necessary	I don't have an opinion
London Protocol	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
HELCOM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
OSPAR Convention	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Barcelona Convention	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Bucharest Convention	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
GHG reporting under the United Nations Framework Convention on Climate Change (UNFCCC)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Other(s) - Please specify.

500 character(s) maximum

CO₂ interconnections with countries outside the EU and EEA

The EU ETS Directive and the CCS Directive ensure high safety standards to avoid accidents that could negatively affect public health or the environment. These directives also support the achievement of the EU climate targets. However, the lack of alignment between the EU legislative framework and that of countries outside the EU/EEA (third countries) may lead to restrictions on the cross-border flow of CO₂, and on access to storage sites and utilisation sites in third countries. At the same time, the first Union list of PCI and PMI projects[21] includes a number of CO₂ infrastructure projects with third countries under certain conditions.

Q23. Which third countries/regions have CO₂ transport and storage infrastructure that could be relevant for your industrial carbon management project? Multiple answers are possible.

- United Kingdom
- North Africa
- Ukraine
- Türkiye
- Arabian Peninsula
- United States
- Asia
- None
- I don't have an opinion

Other(s) - Please specify.

500 character(s) maximum

Q24. For what reason(s) might access to potential CO₂ transport and storage infrastructure in third countries be relevant for your industrial carbon management project. Multiple answers are possible.

- To reduce overall project costs.
- To gain access to additional storage or utilisation capacity.
-

To address storage availability bottlenecks.

- To improve our negotiating position with infrastructure providers.
- To increase project flexibility and resilience.
- To access geographically closer or more suitable infrastructure.
- All of the above.
- Not relevant for our project.
- I don't have an opinion.

Other(s) - Please specify.

500 character(s) maximum

Q25. Do you think that any of the following factors could pose a restriction on the cross-border movement of CO₂ to or from third countries? Please indicate whether and to what extent each factor represent a restriction.

	Represents significant restriction	Represents a moderate restriction	Does not represent a restriction	I don't have an opinion
London Protocol	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
HELCOM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
OSPAR Convention	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Barcelona Convention	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Bucharest Convention	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Alignment with the EU ETS Directive (i.e. the need to establish a comparable monitoring, reporting and verification system as well as a mechanism for surrendering CO ₂ allowances in third countries)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Alignment with the CCS Directive (i.e. the need to establish similar safety, permitting and governance measures in third countries)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Permitting for cross-border CO ₂ transport infrastructure with third countries	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Liability and international reporting rules under international agreements, including the UNFCCC, for CO ₂ emissions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Coordination between national competent authorities for CO ₂ transport infrastructures beyond the EU	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Assurances that the market rules in third countries are aligned with the corresponding rules in the EU	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Assurances that rules for access to storage in third countries are aligned with the corresponding rules in the EU	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Assurances that CO ₂ pipeline infrastructure connecting the EU with third countries is operated in a way that is coherent with EU rules	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other(s) - Please specify.

500 character(s) maximum

Ensuring clear responsibility for CO₂ leakage in parts of the value chain

Under the EU ETS Directive, the permitting process and the allocation of responsibility for CO₂ leakage from the CO₂ transport infrastructure (regardless of the mode of transport) is determined by each Member State when it transposes the Directive into national legislation.

The transport of CO₂ for geological storage, which is permitted under the CCS Directive, and for permanent storage in products, falls within the scope of the EU ETS Directive. The CO₂ transport infrastructure for these types of storage is considered as an ETS installation under EU rules (regardless of the transport mode), meaning that it requires a GHG emission permit and a monitoring plan. Any CO₂ that leaks from the transportation system, as well as other emissions resulting from the operation of the CO₂ transport infrastructure (e.g. fuel combustion, etc.) needs to be monitored and reported, and EU ETS emission allowances need to be surrendered accordingly. The financial exposure by transport operators resulting from a leakage can however also be contracted away, for instance, to network users.

Q26. For cross-border CO₂ transport, what do you think the applicable rules should be determined by?

- Bilateral or multilateral agreements between the Member States involved.
- Case-by-case arrangements negotiated by the concerned operators.
- A harmonised EU-level framework.
-

I don't have an opinion.

Other(s) - Please specify.

500 character(s) maximum

EU-wide rules like an Interoperability Network Code (INT NC) are needed for CO₂ cross-border flows to ensure shared infrastructure works efficiently. A future code should set principles for interconnection agreements, harmonized units, CO₂ quality, and data exchange. Until then, bilateral agreements may create a patchwork; EU guidelines could help align practices. ENTSOG could assist the Commission in drafting these.

Q27. Do you think that further measures should be taken to prevent CO₂ leakage in the CO₂ transport infrastructure?

- The ETS already provides a significant incentive to avoid CO₂ leakage. No further measures are required. Under EU rules, each participant carries the ETS liability until hand-over to the next participant. In case of a leak, the directly affected participant would have to surrender emission allowances and have to pay for the leaked CO₂.
- Further measures are required.

Please specify.

500 character(s) maximum

Measures to prevent CO₂ leakage should be risk-based, not copied from methane rules, to avoid unnecessary hurdles for CCUS deployment. Applying methane-style requirements would slow investment and create technical burdens. Instead, focus on harmonized integrity standards, interoperable CO₂ quality specifications, and targeted monitoring to ensure safety without stifling growth and innovation in the sector.

Q28. In the event of a cross-border CO₂ leakage, particularly in relation to international obligations under the UNFCCC, how should liability and reporting responsibilities be determined between countries?

- EU legislation should clearly specify that the Member State where the leakage physically occurs is responsible for reporting the associated emissions.
- EU legislation should clearly specify that the Member State where the CO₂ was originally captured is responsible for reporting.
- EU legislation should clearly allocate responsibilities indicating which Member State has jurisdiction and responsibility in case of leakage over the specific parts of the infrastructure, reflecting the division of roles across the CO₂ transport and storage value chain.



Responsibility should be shared between the Member States involved, based on a predefined EU rule, with the approach supported by EU-level guidance or coordination.

- Bilateral or multilateral agreements should be concluded between the Member States involved.
- I don't have an opinion.

Q29. Would you agree that rules should be introduced on emergency response in the event of accidental release of CO₂ from the pipeline network?

- Yes, they are necessary.
- Yes, they are necessary, also for other means of transportation (i.e. not limited to pipelines).
- No, they are not necessary.
- I don't have an opinion.

In your view, what would be the most appropriate level at which emergency response rules for the accidental release of CO₂ should be set?

- Such rules should be set at EU level.
- Such rules should be set at national level based on EU-level principles.
- Such rules should be set at national level.
- Such rules should be set by the infrastructure operators.
- No, there is no need for such rules.
- I don't have an opinion.

Other(s) - Please specify.

500 character(s) maximum

Safety must be the top priority for CO₂ pipeline transport, as with natural gas. CO₂'s properties, like being heavier than air, require tailored measures for leaks. Gas TSOs already apply integrity and monitoring practices that could be adapted for CO₂.

Regional cooperation will be needed to ensure network safety and availability, but initial CO₂ system development should avoid overly strict requirements that could hinder progress.

CO₂ stream quality standardisation and quality management

A CO₂ stream is a flow of substances that results from the CO₂ capture processes. Large-scale cross-border transport of CO₂ will require handling CO₂ streams from different sources and capture technologies, and

through different modes of transport. Existing EU legislation lays down CO₂ stream acceptance criteria and procedures for permitted geological storage sites. The CCS Directive stipulates that, on a case-by-case basis, acceptable CO₂ streams for storage sites must consist 'overwhelmingly of carbon dioxide', and that the concentrations of all other substances must be below levels that would (i) adversely affect the integrity of the storage site or the relevant transport infrastructure, (ii) pose a significant risk to the environment or human health, or (iii) breach EU rules[22]. The NZIA tasks the Commission with publishing guidelines indicating the appropriate levels of CO₂ purity and of trace elements within the CO₂ stream, for CO₂ storage projects contributing to the EU's injection capacity objective.

However, EU legislation does not yet lay down detailed requirements on CO₂ quality (e.g. concerning corrosive components and other impurities) either for transport or for storage infrastructures. So far, specifications have been determined on a case-by-case basis by the main transport and storage operators, or by shippers.

According to the ICM strategy, it will be necessary to set minimum CO₂ quality standards to ensure the unhindered flow of CO₂ and to avoid market fragmentation. The Commission has requested that research be undertaken by European Standardisation Bodies to help determine appropriate standards.

Q30. At EU level, the European Committee for Standardisation (CEN) is working towards a standard for CO₂ transportation by pipeline, with work expected to conclude in Q2 2026. Do you agree that minimum CO₂ quality standards and specifications will contribute to the following? Please indicate whether and to what extent you agree with each of the following statements.

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	No opinion
Avoiding market fragmentation.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Creating market liquidity and free flow of CO ₂ .	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interoperability in the CO ₂ pipeline network, including cross-border transport and compatibility between different CO ₂ transportation modes.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clarity for emitters as to the type of capture installations.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Attribution of liability in case of injection of CO ₂ outside of the predefined quality specification (off-spec).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Avoiding significant risk to the environment or human health.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Avoiding adverse effect for the integrity of the relevant transport infrastructure.	<input checked="" type="radio"/>	<input type="radio"/>				
Avoiding adverse effect of the integrity of the relevant storage site.	<input checked="" type="radio"/>	<input type="radio"/>				

Other(s) – Please specify.

500 character(s) maximum

A minimum set of requirements should ensure CO₂ cross-border flows and usability of interconnected assets. Further standardization should remain voluntary for Member States, allowing adaptation to local needs, but diverging technical specs must not restrict flows. MS's, thus CO₂ infrastructure operators, should adopt CEN CO₂ quality EU standards to the extent possible. Early alignment with CEN standards would help mitigate CO₂ quality issues and foster consistency across the EU.

Q31. In your view, what should be the most relevant drivers for setting clear CO₂ quality specifications and standards in CO₂ networks (storage, pipeline, terminals)?

Multiple answers are possible.

- Ensure containment of CO₂ and avoid CO₂ leakages.
- Avoid corrosion and ensure system integrity.
- Ensure interoperability for cross-border CO₂ transport and between modes of transport.
- Limit the cost of technology development and deployment, as well as the operational costs for infrastructure users.
- Support the scaling-up of equipment manufacturing.
- I don't have an opinion.

Other(s) – Please specify.

500 character(s) maximum

The transportation of CO₂ will link capture sites with storage or utilisation facilities. This could involve several different infrastructure assets, i.e. both pipeline and non-pipeline modes of transport (ships, rail, road transport, collection terminals, i.e. common infrastructure that gathers CO₂ streams from multiple emitting sources, port facilities, etc.).

Q32. When different CO₂ streams from industrial processes and - in the future from, direct air capture (DAC) are mixed together in the transport infrastructure, the quality

of the CO₂ can change. To ensure that CO₂ quality remains acceptable throughout its transportation (i.e. without damaging equipment), as well as affordable, how should the CO₂ quality requirements be?

- Should be the same throughout the CO₂ value chain (from capture via non-pipeline and/or pipeline transport, including terminals, to storage and/or utilisation).
- Should be the same in the interconnected CO₂ pipeline network.
- Should be the same in the interconnected CO₂ pipeline network and in the infrastructure directly connected to pipelines (e.g. terminals).
- Can vary at different points within the interconnected CO₂ pipeline network.
- Can vary at different points within the CO₂ transport infrastructure (for instance, depending on the mode of transport).
- I don't have an opinion.

Other(s) – Please specify.

500 character(s) maximum

CO₂ quality requirements for pipelines are likely to be lower than for tank transport, both in terms of minimum purity and limits on acid-forming impurities. Early alignment with CEN standards would help address CO₂ quality issues and ensure consistency across the EU, together with interoperability rules (both cross-border and across the value chain) that should be developed.

Q33. In your view, how should it be ensured, that the quality of the CO₂ is within the applicable quality specifications in the CO₂ pipeline network?

- CO₂ specifications should be set by the most sensitive component in the system (mode of transport, storage site, CO₂ user, etc.), regardless of the volumes or the specification concerned.
- Managing CO₂ stream specifications that threaten system integrity and safety (e.g. avoiding corrosion) should be the responsibility of emitters that inject CO₂ into the transport infrastructure.
- Characteristics of CO₂ streams that do not threaten system integrity and safety should be allowed in principle. System users or modes of transport that cannot handle such a specific CO₂ stream specification are responsible for its management.



The network operators should be responsible and socialise the costs over all users.

- I don't have an opinion.

Other(s) – Please specify.

500 character(s) maximum

Captured CO₂ varies in purity and composition, making a single purification approach impractical. Solutions depend on regional circumstances:

Purify at capture in some cases

Centralized purification by transport operators to protect infrastructure

Purity adjustments at end-user level by storage operators or CCU units

Emitters should be responsible for ensuring CO₂ injected meets specifications, the transporter must verify compliance and can reject injections that threaten the infrastructure.

Q34. To what extent, if any, should information on the quality requirements for CO₂ transport and storage infrastructure be made available to the public?

- Fully. The public needs to be confident that the specifications are justified. Information on the underlying research should therefore be made available to them. If we want to make progress towards stable, trusted specifications, research cannot be proprietary.
- Partially. Information on the underlying research is only relevant for standardisation bodies, who already have access to that information. Once determined, information on the CO₂ stream specifications is sufficient for the public.
- I don't have an opinion.

Other(s) – Please specify.

500 character(s) maximum

Information produced through public activities or funded by public resources that is relevant to the development of CO₂ standards should be disclosed, with appropriate exemptions for private projects.

Q35. In your view, how can we foster cooperation and exchange of data regarding operational and research knowledge on CO₂ quality? Please explain.

500 character(s) maximum

Sharing CO₂ quality data is essential for CCUS deployment. Dedicated platforms should enable exchange wherever feasible. Additionally, operational data sharing across the value chain is critical. Existing gas-sector standards like AS4 and Edigas should be adapted for faster, cost-effective implementation. EU-wide rules similar to the Interoperability Network Code (INT NC) could support this alignment.

Q36. What do you consider to be the most cost-effective purification requirements across the CO₂ value chain? Please explain.

500 character(s) maximum

Captured CO₂ varies in purity and composition, making a single purification approach impractical. Solutions depend on regional circumstances:

- Purify at capture in some cases;
- Centralized purification by transport operators to protect infrastructure (costs should be recognized for regulated entities);
- Purity adjustments at end-user level by storage operators or CCU units.

Mixing CO₂ streams from different industrial processes (and in the future from DAC) will be relevant for the optimal design of a cost-efficient transport of CO₂, as different CO₂ streams have different concentrations of impurities that would need to be managed. Special consideration should be given to CO₂ hubs and other common infrastructure that collects CO₂ from different industrial emitters.

Q37. Which measures can, in your view, address potential technical barriers when CO₂ streams are mixed, while allowing the unhindered transportation of CO₂ in different infrastructure assets and modes of transport? Please explain.

500 character(s) maximum

Infrastructure operators verify compliance with the possibility of rejecting off-spec flows as well as of managing and transporting them if not threatening system integrity and safety. Also, the role of centralized CO₂ hubs, optimising purification activities and streamlining volumes for injection, could be relevant.

The EU market legislation for gas and hydrogen (Gas Directive and Gas Regulation) provides for the cooperation between operators and national regulatory authorities to ensure the unhindered cross-border flow of gas and hydrogen in the face of (potential) differences in the quality of these gases or differences between their specifications. Solutions can include operational activities, technical measures and infrastructure adaptations. The legislation ensures that agreements on sharing the cost of implementing the necessary measures are reached.

Q38. Which measures, in your opinion, would be necessary to ensure that differences in CO₂ quality or quality specifications do not lead to interruption of the cross-border transport of CO₂? Please indicate whether and to what extent you agree with each measure.

Measure	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	No opinion
Pipeline operators should coordinate across borders to identify and implement solutions on a voluntary basis.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Obligations on pipeline operators to cooperate across borders are necessary to identify and implement solutions.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mandatory cross-border coordination of the relevant competent regulatory authorities is necessary to solve problems.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rules on agreements on sharing the cost of implementing the jointly identified solutions across borders are necessary.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CO ₂ quality specifications applicable at cross-border interconnection points need to be agreed by the operators on both sides of the border.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Obligatory CO ₂ quality specifications applicable at cross-border interconnection points are necessary to ensure unhindered cross-border flow of CO ₂ .	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other(s) – Please specify.

500 character(s) maximum

Art. 21 Regulation (EU) 2024/1789 can guide handling CO₂ quality issues in cross-border flows. Art. 21 applies when restrictions on cross-border flows cannot be avoided. Operators should have the ability to implement measures to prevent disruptions from quality differences. If restrictions remain, rules should be established to ensure cross-border flows are not hindered and costs are shared fairly. When restrictions cannot be avoided, coordination between competent authorities is essential.

4/ Supporting the emergence of a competitive, cost-effective CO₂ value chain

Competitive conditions in the CO₂ value chain

Q39. What competitive conditions would you expect in various parts of the CO₂ value chain? Please indicate whether and to what extent you agree with each of the following statements.

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	No opinion

Pipeline transportation is characterised by high fixed costs and low variable or marginal costs.	●	●	●	●	●	●
The capacity of CO ₂ pipelines is highly scalable by e.g. increasing pressure levels.	●	●	●	●	●	●
CO ₂ pipelines have large economies of scale.	●	●	●	●	●	●
Construction costs for pipelines imply that it is attractive to build capacity for future capacity demand (given that volume risks are managed).	●	●	●	●	●	●
It is economically inefficient to build multiple competing pipelines.	●	●	●	●	●	●
The market for CO ₂ storage has high entry barriers.	●	●	●	●	●	●
The number of companies that are well placed to develop storage sites is low.	●	●	●	●	●	●
Opportunities for the geological storage of CO ₂ are not readily available in large parts of the EU. Where storage opportunities are limited, storage operators have significant market power.	●	●	●	●	●	●
CO ₂ transportation by ship is likely to be an activity subject to effective competition.	●	●	●	●	●	●
CO ₂ transportation by truck is likely to be an activity subject to effective competition.	●	●	●	●	●	●
CO ₂ transportation by train is likely to be an activity subject to effective competition.	●	●	●	●	●	●

Access conditions to CO₂ pipelines

CO₂ networks are considered by some to be natural monopolies[23]. This means that CO₂ network operators may have the market power to set tariffs for using their network at a rate significantly above competitive levels.

For CO₂ networks, Article 21 of the CCS Directive requires that Member States ensure that transparent and non-discriminatory third-party access exists on CO₂ pipelines, without specifying how this should be done in practice, and leaving Member States a wide margin of discretion in this matter.

In the EU electricity, hydrogen and gas markets, network tariffs can be regulated. These tariffs should reflect the costs of network operators and provide appropriate incentives to, among others, increase efficiencies, foster market integration and support efficient investments.

Q40. Which measures, if any, are required to better organise the tariff setting for CO₂ networks? Please indicate your position for each statement.

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	No opinion
As CO ₂ networks do not confer market power, network prices or tariffs can be expected to be set at competitive levels. Therefore, no rules are needed. Competition law is a sufficient back-up option.	<input type="radio"/>					
Market rules that ensure that markets will deliver competitive market outcomes foster trust and investment.	<input type="radio"/>					
The third-party access provisions of Article 21 of the CCS Directive are sufficient to ensure reasonable tariffs for access to CO ₂ storage and transportation infrastructure.	<input type="radio"/>					
To support the emergence of cost-effective, transparent and non-discriminatory tariffs, it is sufficient to harmonise access conditions. Tariff levels can, however, be decided during negotiations between CO ₂ network operators and users.	<input type="radio"/>					
Alongside access conditions, the level of tariffs of CO ₂ pipelines needs to be regulated at national level.	<input type="radio"/>					

Alongside access conditions, the level of tariffs of CO ₂ pipelines needs to be regulated at EU level.	●	●	●	●	●	●
Access conditions and tariffs for pipeline transportation should be tested and offered to the markets by means of market tests known as 'open seasons'[24].	●	●	●	●	●	●
Tariff setting should not distort competition between pipelines and other means of CO ₂ transportation.	●	●	●	●	●	●
As pipelines are long-term investments, network operators should be shielded from any risk of network users disconnecting before the network connection is depreciated.	●	●	●	●	●	●
The tariff each user pays should reflect the costs that the user incurs for the system (network development follows economic principles only).	●	●	●	●	●	●
There should be scope to structure network tariffs to reflect criteria other than pure economic efficiency (e.g. equity rules when connecting certain industries, emissions avoided, etc.).	●	●	●	●	●	●
To ensure equal access to CO ₂ pipelines it is also necessary to set access rules for CO ₂ terminals (i.e. common infrastructure assets gathering CO ₂ streams from multiple emitting sources and treating it for further transport or storage).	●	●	●	●	●	●

Avoiding conflicts of interest in the CO₂ market

CO₂ networks are considered by some to be natural monopolies. When network operators are vertically integrated entities, these vertically integrated entities may discriminate against competitors, which could

hamper entry into the market and cause non-competitive market outcomes.

For CO₂ networks, Article 21 of the CCS Directive requires that Member States ensure transparent and non-discriminatory third-party access to CO₂ pipelines, without specifying how this should be done in practice, and giving Member States a wide margin of discretion in this matter.

In the EU market for electricity, hydrogen and gas, the current level of harmonisation means that there are rules in place to ensure non-discriminatory access, increase transparency, reduce the risk of discrimination and remove incentives to engage in discriminatory conduct.

Q41. Is it necessary to introduce measures to ensure real and non-discriminatory access to CO₂ networks? What should such measures involve? Please indicate your position for each statement.

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	No opinion
CO ₂ networks do not confer market power to vertically integrated companies, so there is no reason to fear discriminatory anti-competitive conduct. Competition law provides for sufficient enforcement measures.	<input type="radio"/>					
There is no risk of vertical integration of CO ₂ networks with downstream or upstream network users, so it is not necessary to set rules to avoid discriminatory conduct.	<input type="radio"/>					
Discriminatory conduct is a significant risk. However, the provisions of Article 21 of the CCS Directive on third-party access at national level are sufficient to control this risk.	<input type="radio"/>					
Discriminatory conduct is a significant risk, especially if CO ₂ networks are vertically integrated with downstream users, such as storage operators.	<input type="radio"/>					
Discriminatory conduct is a significant risk, especially if CO ₂						

networks are vertically integrated with upstream users, such as emitters.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discriminatory conduct is a significant risk. We need more rules to ensure CO ₂ markets will be competitive.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In order to ensure effective third-party access to CO ₂ pipelines, access rules also need to exist for installations that are ancillary to pipeline transportation or are needed to enter or exit the pipeline system (such as CO ₂ liquification and purification installations and terminals).	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q42. Which of the following rules concerning CO₂ pipelines do you consider necessary to ensure that CO₂ markets are competitive? Please indicate your position for each statement.

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	No opinion
No additional rules are needed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Access conditions and tariffs for CO ₂ pipelines should be tested and offered on the market by means of open seasons.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rules to avoid discriminatory capacity allocation, capacity hoarding and capacity management (e.g. use-it-or-lose-it rules, return of non-used capacity to the market, capacity release obligation, secondary capacity market, capacity auctioning).	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rules to avoid cross-subsidies to upstream or downstream activities.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regulated, cost-reflective tariffs for CO ₂ networks.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

CO ₂ network activities should be delegated to a separate legal entity to ensure transparency and facilitate enforcement (these activities should be separate from other activities in the CO ₂ value chain).	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Appropriate unbundling rules for CO ₂ networks similar to those already applied in electricity, gas and hydrogen networks.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We should take the opportunity to organise the industry from the start to prevent discrimination. Structural links between CO ₂ networks and upstream and downstream network users should be prohibited.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If non-discriminatory access to pipelines is to be ensured, it is also necessary to set some rules for installations where CO ₂ enters or leaves the CO ₂ pipeline system to /from other modes of transport.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other(s) – Please specify.

500 character(s) maximum

Network tariffs should be cost reflective, however in the ramp-up phase of the network, bookings will most likely not reflect the investment needs. Tariffs should be complemented with an ITCA mechanism or guarantees for networks (allowing third party access).

Concerning appropriate unbundling rules for CO₂ networks – this should only be seen in the context of vertical unbundling and not include horizontal unbundling (accounts unbundling could be sufficient).

Access conditions to CO₂ storage

According to some, CO₂ storage capacity is scarce and entry barriers to the industry[25] are high. This is likely to result in prices for storage capacity and injection being set well above the competitive level.

Article 21 of the CCS Directive requires that Member States ensure transparent and non-discriminatory third-party access to CO₂ storage. However, it does not specify how this should be done in practice, and gives Member States a wide margin of discretion in this matter.

In the EU markets for electricity, hydrogen and gas, the current level of harmonisation means that there are rules in place ensuring non-discriminatory access to infrastructure that is important for the proper functioning of these markets. Elements of this infrastructure include LNG and hydrogen terminals and large-scale underground storage tanks for natural gas and hydrogen.

Q43. Is it necessary to introduce measures to ensure real and non-discriminatory access to CO₂ storage? What should such measures involve? Please indicate your position for each statement.

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	No opinion
The market for CO ₂ storage capacity will be competitive. CO ₂ storage capacity prices will reflect this. Competition law enforcement provides for sufficient enforcement measures.	<input type="radio"/>					
The market for storage capacity will not be inherently competitive, but the provisions of Article 21 of the CCS Directive on the national arrangements concerning third-party access to CO ₂ storage are sufficient to control this risk.	<input type="radio"/>					
Market outcomes will ultimately be driven by the geological potential for CO ₂ storage, which differs significantly across the EU. Any measure should reflect this reality in a pragmatic manner.	<input type="radio"/>					

Q44. Which of the following rules do you consider necessary to ensure that CO₂ storage markets are competitive? Please indicate your position for each statement.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	No opinion
No additional rules are needed.	<input type="radio"/>					
Access conditions and tariffs for CO ₂ storage should be tested and offered on the market by means of 'open seasons'.	<input type="radio"/>					

Rules to avoid discriminatory capacity allocation, capacity hoarding and capacity management (e.g. use-it-or-lose-it rules, return of non-used capacity to the market, capacity release obligation, a secondary capacity market, capacity auctioning).	●	●	●	●	●	●
Regulated, cost-reflective tariffs for CO ₂ storage.	●	●	●	●	●	●
Rules to avoid cross-subsidies from CO ₂ storage to other activities.	●	●	●	●	●	●
CO ₂ storage activities should be delegated to a separate legal entity to ensure transparency and facilitate enforcement (these activities should be separate from other activities in the CO ₂ value chain).	●	●	●	●	●	●
We should take the opportunity to organise the industry from the start to prevent discrimination. Structural links between CO ₂ storage and upstream activities should be prohibited.	●	●	●	●	●	●
Bundled transport and storage services offers could lead to lock-in effects and un-competitive market outcomes.	●	●	●	●	●	●

Other(s) – Please specify.

500 character(s) maximum

Accounting of biogenic CO₂

The Renewable Energy Directive (RED III)[26] and the Carbon Removals Carbon Farming Regulation (CRCF Regulation)[27] have introduced certification mechanisms for the biogenic CO₂ captured and used, respectively, in the production of renewable fuels and for the accounting of CO₂ removals. To ensure the effectiveness of negative-emission technologies and circularity, certifying biogenic CO₂ is essential for

verifying that biomass is sustainably sourced. The EU framework currently does not include a harmonised certification mechanism for biogenic CO₂ that would cover all CO₂ utilisation and storage pathways, including those involving non-permanent products.

Q45. How do you see the establishment of a harmonised EU-wide certification system for biogenic CO₂ across all utilisation pathways (e.g. fuels, materials, chemicals)? Please justify your answer.

- A harmonised certification system is essential for ensuring consistency, transparency, and credibility across the EU.
- It would be useful only for specific sectors, as a one-size-fits-all approach may not be appropriate.
- Further analysis is needed.
- A harmonised system would offer limited benefits.

Other(s) - Please specify.

500 character(s) maximum

In cases where CO₂ flows are mixed, originating from fossil, biogenic, or atmospheric sources, traceability might be required to accurately account for CO₂ removal.

Q46. Do you think that a harmonised traceability method at EU level is necessary to ensure accurate accounting of CO₂ originating from different sources (fossil, biogenic, atmospheric)? Please justify your answer.

- Yes, a harmonised mass balance approach, applied across the entire network and all pathways, would be the preferred method.
- Yes, a harmonised monitoring of individual emission sources, applied across the entire network and all pathways, would be the preferred method.
- Yes, a harmonised traceability system that combines a mass balance approach with monitoring of individual emission sources across the entire network and all pathways would be the preferred method.
- No, the traceability methods established under the existing legislation (RED III and CRCF) are sufficient.

Other(s) - Please specify.

500 character(s) maximum

5/ De-risking the development of CCS

Financing and de-risking cross-chain risk under the EU Emissions Trading System

Under EU rules, each participant carries the ETS liability until hand-over to the next participant. In the event of a leak, the directly affected participant would have to surrender emission allowances and pay for the leaked CO₂.

At the same time there are indirect financial risks. Market participants will have to buy transport infrastructure capacity to transport the captured CO₂ and storage capacity to store it. When an outage (service interruption) occurs (regardless of whether a leak was detected or not) market participants will be exposed to financial risks: if they have to vent the CO₂, they are liable for costs under the ETS. Depending on their contractual situation they may also need to continue paying for the infrastructure capacity which became unavailable (e.g. under a 'take-or-pay' contract).

Q47. In your opinion, what is the best way to address such cross-chain risk? Please indicate your position for each statement.

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	No opinion
The distribution of financial risks in the event of accidents and service interruptions is part of the normal contractual arrangements and negotiations between parties within the value chain. Specific measures are not required.	<input type="radio"/>	<input checked="" type="radio"/>				
Each value-chain partner separately should take out commercial insurance against the cost of CO ₂ leakage caused by accidents and service interruptions.	<input type="radio"/>	<input checked="" type="radio"/>				
All value-chain partners should take out joint commercial insurance against the cost of CO ₂ leakage due to accidents and service interruptions.	<input type="radio"/>	<input checked="" type="radio"/>				
All value-chain partners should create a joint pool of ETS allowances to serve as a buffer	<input type="radio"/>	<input checked="" type="radio"/>				

against CO₂ leakage costs due to accidents and service interruptions.

Other(s) – Please specify.

500 character(s) maximum

Financing and de-risking CO₂ transport infrastructure

Q48. To transport captured CO₂ to permanent storage sites or to places of its subsequent utilisation, it will be necessary to set up a new CO₂ pipeline infrastructure. However, there are apparent risks which may slow down its development. Would you agree that the following risks exist for the financing of CO₂ pipeline infrastructure?

Please indicate your position for each statement.

Risk	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	No opinion
Volumes of captured CO ₂ are smaller than those estimated at the stage of designing the pipeline infrastructure.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other elements of the CO ₂ value-chain assets are not in place by the deadline initially set.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The CO ₂ storage infrastructure to which the pipeline would link the emitters is not in place by the deadline initially set.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The necessary technological solutions are not fully developed or available as expected.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
The cost of technological development and deployment renders the investment economically unviable.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other(s) - Please specify.

500 character(s) maximum

Q49. Would you agree that financing the development of cross-border CO₂ pipeline infrastructure may pose more challenges as compared to financing national CO₂ pipeline infrastructure? Multiple answers are possible.

- Yes, due to the involvement of more than one Member State.
- Yes, due to the differences in applicable regulatory frameworks.
- Yes, due to differences in market organisation.
- Yes, due to the lack of coordinated implementation of the EU regulatory framework (e.g. differences in network access rules and tariffs regulations).
- No
- I don't have an opinion.

Other(s) - Please specify.

500 character(s) maximum

Q50. Are financial and non-financial de-risking measures necessary to develop the necessary CO₂ transport infrastructure?

- Yes.
- Yes, but only for kick-starting the market. In principle, the value chain should pay for itself.
- No, the markets will be able to deliver on the necessary investments.
- I don't have an opinion.

Other(s) - Please specify.

500 character(s) maximum

What do you think would be the necessary timeframe for it?

- For the early ramp-up phase, until ca. 2035.
- For an extended ramp-up phase, until ca. 2040.
- Beyond 2040.
- Continuous support would be needed.
- I don't have an opinion.

Other(s) – Please specify.

500 character(s) maximum

The timeline will depend on the pace of CO2 market development, its ramp-up speed, and the regulatory framework, including supporting mechanisms.

Q51. What do you think would be the appropriate tools and measures to mitigate the potential risks to the development of CO₂ pipelines, including cross-border pipelines? Please indicate your view for each tool/measure.

Tools/Measures	Yes, needed for financing national infrastructure development	Yes, needed for financing cross-border infrastructure development	No, not needed	No opinion
The development of CO ₂ pipelines should be financed with market revenues only.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Non-financial measures such as tools increasing transparency and visibility of infrastructure plans and developments.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Any financial support should be financed internally from the CO ₂ or energy systems (e.g. network user tariffs).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
If direct financial support is granted, this should be provided to pipeline network users, not pipeline operators. Pipeline operators can of course indirectly benefit from this support if network users are ready to pay for network services.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Aid should be granted directly to pipeline operators.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Other(s) - Please specify.

500 character(s) maximum

Considering the sector early-stage developments and the huge investment needs required to reach the NZIA targets, both market revenues and other financial/non-financial support measures, granted to network users to cover also infrastructure costs and/or directly to operators, are required.

Q52. What do you think would be the appropriate measures to enable the development of the necessary CO₂ pipelines assuming that they are financed internally from the CO₂ or energy systems? Please indicate your view for each measure.

Measures	Strongly agree	Agree	Neutral	Disagree	Strongly agree	No opinion
Measures making it possible to finance infrastructure development with cross-subsidies from other network activities.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regulated tariffs permitting cross-subsidies within the network supporting the connections between specific (categories of) network users.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regulated tariffs which can be adjusted over time (e.g. inter-temporal cost allocation to lower the initial tariffs).	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
State interventions limiting volume risks for network operators (e.g. capacity bookings by a State entity, State guarantees underwriting volume risks).	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Network operators carrying the risk of stranded network assets if and when users disconnect.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Cross-border cost allocation mechanisms to enable the financing of cross-border infrastructure.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other(s) - Please specify.

500 character(s) maximum

Financing and de-risking investment in CO₂ storage sites

In line with Article 19 of the CCS Directive, Member States may decide that the financial security required from CO₂ storage operators is provided by means of a levy per tonne of CO₂ stored[28]. This arrangement can lower the up-front costs for investors in CO₂ storage sites. By working together across borders, Member States could further lower the amount of the up-front financial security and financial mechanism required under the Directive for investors, while reducing the risk for their own taxpayers.

Q53. What would be the most cost-efficient and appropriate tools to lower the amount of the up-front financial security and financial mechanism required for investors in CO₂ storage sites, while ensuring the lowest possible risk for the Member States issuing the CO₂ storage permits? Please indicate your view for each tool.

De-risking tool	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	No opinion
Individual financial guarantee provided by the storage site operator.	<input type="radio"/>	<input checked="" type="radio"/>				
Contributions from storage site operators to a national CCS financial security instrument.	<input type="radio"/>	<input checked="" type="radio"/>				
Contribution from storage site operators to a commercial insurance cover that is underwritten by a national financial security instrument (CCS-specific or general).	<input type="radio"/>	<input checked="" type="radio"/>				
Contributions from storage site operators to an EEA-wide CCS financial security instrument that is underwritten by EEA Member States that rely on CCS to reach their climate targets.	<input type="radio"/>	<input checked="" type="radio"/>				
Contributions from storage site operators to a commercial insurance cover which is underwritten by an EEA-wide CCS financial security instrument financed by Member States that rely on CCS to reach their climate targets.	<input type="radio"/>	<input checked="" type="radio"/>				

Other(s) - Please specify.

500 character(s) maximum

Increasing market transparency and visibility

Currently, in the CCUS value chain, investment risks are often perceived as high. There is an apparent lack of confidence and predictability as regards new and existing projects, infrastructure and capture installations.

Coordination problems across the value chain also seem to contribute to a slow-down in investment in CO₂ infrastructure. With this in mind, tools and measures which help improve market transparency and ensure coordination could boost investment predictability and security.

One of the goals of the ICM strategy is to develop a platform for demand assessment and demand aggregation for CO₂ transport or storage services by 2026. The aim is to match the emitters' CO₂ volumes of captured CO₂ with transport and storage service providers and to increase market transparency. Developing a CO₂ platform may draw on the positive experience of AggregateEU[29]. At the same time, account should be taken of the specific characteristics of the nascent CO₂ infrastructure and market.

The following questions aim to assess whether it is necessary to introduce supportive measures for the nascent CO₂ market and whether those measures could take the form of an EU-wide-platform. The purpose of these questions is also to understand which specific functionalities could better support the market and the smaller market players in particular, so that they can leverage their commercial power.

Q54. Which of the existing platforms do you think could serve as a model for setting up a CO₂ platform?

- A matching and aggregation platform (like AggregateEU and the Hydrogen mechanism[30]) connecting sellers and buyers in the market.
- A capacity booking platform (like PRISMA, GSA Platform or Regional Booking Platform[31]) which can offer storage and/or transport infrastructure capacity on the market (primary and secondary trading).
- A capacity transparency platform (like the ENTSOG transparency platform[32]) providing information on capacity and flows in a coordinated and transparent manner.
- None of the above.
- I don't have an opinion.

Other(s) - Please specify.

500 character(s) maximum

Public access to data on cross-border flows - capacity, nominations, allocations, and quality - is key for transparency and market confidence (like ENTSOG TP).

A capacity booking platform or other platforms could be considered at other stages.

Q55. What functionalities do you think such an CO₂ platform should have? Multiple answers are possible:

- Increase market transparency and visibility of current and future supply (captured CO₂ volumes) and demand (CO₂ storage capacity and usage).
- Provide information on pipeline infrastructure access conditions.
- Improve coordination along the CO₂ value chain to support final investment decisions (FIDs) and de-risk (infrastructural) investments by facilitating contacts between emitters, transport infrastructure operators and storage operators; matching storage demand of emitters with supply offers from storage operators (in terms of time and location), etc.
- Provide information to facilitate CO₂ infrastructure planning by collecting information on CO₂ pipeline and storage capacity needs and availability.
- Aggregate volumes of captured CO₂ by small(er) CO₂ emitters (e.g. SMEs) in order to help them access the transportation and storage.
- Support the emergence of tradable capacity products that are mutually compatible.
- Support the allocation of CO₂ storage and transportation capacity.
- Support the secondary trading in already contracted storage and transportation capacity.
- Support the synchronisation of the allocation of CO₂ storage and transportation capacity to help streamline FIDs throughout the value chain.
- I don't have an opinion.

Other(s) - Please specify.

500 character(s) maximum

Q56. Please upload any supporting documents you believe may be relevant in the context of the issues covered by this public consultation questionnaire.

Only files of the type pdf,txt,doc,docx,odt,rtf are allowed

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20. Under existing EU legislation (ETS Directive, the CCS Directive and the Net-Zero Industry Act), Member States report information collected from market participants on CO₂ emitters' location and volumes of CO₂ emitted as well as on the potential CO₂ sinks (injection capacity of storage facilities, potentially their location).
21. Commission delegated regulation: Union list of projects of common interest and projects of mutual interest, C/2023/7930 final, 28 November 2023, [EUR-Lex - C\(2023\)7930 - EN - EUR-Lex](#).
22. The CCS Directive requires operators to demonstrate that the CO₂ stream is suitable for safe and permanent storage. The Directive sets out a permitting regime, including requirements for selecting storage sites that ensure no significant risk of leakage or harm to the environment or human health.
23. E.g. Adrien Nicolle, Diego Cebreros, Olivier Massol, Emma Jagu Schippers: [Modelling CO2 Pipeline Systems: An Analytical Lens for CCS Regulation](#); Banet, Catherine, *Market design options for CCS in Europe: CO₂ transport and storage regulation*, March 2025, CERRE, [CERRE Market-Design-Options-for-CCS-in-Europe_final.pdf](#)
24. An 'open season' is a process, usually run by an infrastructure operator, generally consisting of two steps: an open assessment of market demand for infrastructure capacity and a subsequent allocation and sale of capacity.
25. Banet, Catherine, *Market design options for CCS in Europe: CO₂ transport and storage regulation*, March 2025, [CERRE Market-Design-Options-for-CCS-in-Europe_final.pdf](#); ENTEC: *EU regulation for the development of the market for CO₂ transport and storage*, May 2023, [eu regulation for the development of the market for-MJ0523015ENN \(3\).pdf](#); *CO₂ Storage Resources and their Development. An IEA CCUS Handbook*, December 2022, [CO₂ storage resources and their development – Analysis - IEA](#)
26. Directive (EU) 2023/2413 on the promotion of energy from renewable sources of 18 October 2023; [Directive - EU - 2023/2413 - EN - Renewable Energy Directive - EUR-Lex](#)
27. Regulation (EU) 2024/3012 establishing a Union certification framework for permanent carbon removals, carbon farming and carbon storage in products of 27 November 2024; [Regulation - EU - 2024/3012 - EN - EUR-Lex](#)
28. For details and more background please see: https://climate.ec.europa.eu/document/download/9a6b221d-642e-499e-a5a0-298ce1068b21_en?filename=ccs-implementation_gd4_en.pdf
29. [AggregateEU](#) pools gas demand from companies within the EU and the Energy Community contracting parties, matching this demand with competitive supply offers. After demand is matched with supply, companies have the option to voluntarily enter into purchase contracts with gas suppliers, either individually or jointly. Collaboration is especially advantageous for smaller firms and those in landlocked countries with more restricted access to international markets or less bargaining power. These purchase contracts between companies and gas suppliers are voluntary and are not governed by AggregateEU.
30. [Mechanism to support the market development of hydrogen](#)
31. PRISMA European Capacity Platform GmbH, [Europe's leading gas capacity trading platform](#); [GSA Platform, GSA](#); [Regional Booking Platform, Regional Booking Platform](#).
32. [ENTSOG - Transparency Platform](#)

Useful links

[Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide](https://eur-lex.europa.eu/eli/dir/2009/31/oj/eng) (<https://eur-lex.europa.eu/eli/dir/2009/31/oj/eng>)

[Regulation \(EU\) 2024/1735 of the European Parliament and of the Council of 13 June 2024 on establishing a framework of measures for strengthening Europe's net-zero technology manufacturing ecosystem](https://eur-lex.europa.eu/eli/reg/2024/1735/oj/eng) (<https://eur-lex.europa.eu/eli/reg/2024/1735/oj/eng>)

[COMMUNICATION FROM THE COMMISSION Towards an ambitious Industrial Carbon Management for the EU](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52024DC0062) (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52024DC0062>)

[COMMUNICATION FROM THE COMMISSION Securing our future Europe's 2040 climate target and path to climate neutrality by 2050 building a sustainable, just and prosperous society](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2024%3A63%3AFIN) (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2024%3A63%3AFIN>)

[Commission Staff Working Document: Impact Assessment accompanying the document communication on Securing our future Europe's 2040 climate target and path to climate neutrality by 2050 building a sustainable, just and prosperous society](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52024SC0063) (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52024SC0063>)

[Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment](https://eur-lex.europa.eu/eli/dir/2011/92/oj/eng) (<https://eur-lex.europa.eu/eli/dir/2011/92/oj/eng>)

[Regulation \(EU\) 2022/869 of the European Parliament and of the Council of 30 May 2022 on guidelines for trans-European energy infrastructure](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02022R0869-20250205) (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02022R0869-20250205>)

[COMMISSION DELEGATED REGULATION \(EU\) /... amending Regulation \(EU\) No 2022/869 of the European Parliament and of the Council as regards the Union list of projects of common interest and projects of mutual interest](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=PI_COM%3AC%282023%297930&qid=1704358152782) (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=PI_COM%3AC%282023%297930&qid=1704358152782)

[Directive \(EU\) 2023/2413 of the European Parliament and of the Council of 18 October 2023 as regards the promotion of energy from renewable sources](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023L2413&qid=1699364355105) (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023L2413&qid=1699364355105>)

[Regulation \(EU\) 2024/3012 of the European Parliament and of the Council of 27 November 2024 establishing a Union certification framework for permanent carbon removals, carbon farming and carbon storage in products](https://eur-lex.europa.eu/eli/reg/2024/3012/oj/eng) (<https://eur-lex.europa.eu/eli/reg/2024/3012/oj/eng>)

[Trans-European Networks for Energy](https://energy.ec.europa.eu/topics/infrastructure/trans-european-networks-energy_en) (https://energy.ec.europa.eu/topics/infrastructure/trans-european-networks-energy_en)

[AggregateEU](https://energy.ec.europa.eu/topics/energy-security/eu-energy-platform/aggregateeu_en) (https://energy.ec.europa.eu/topics/energy-security/eu-energy-platform/aggregateeu_en)

[EU Energy and Raw Materials Platform](https://energy-platform.ec.europa.eu/hydrogen) (<https://energy-platform.ec.europa.eu/hydrogen>)

Contact

ENER-CO2-INITIATIVE@ec.europa.eu

